

ULTIMATE ATTAINMENT IN THE PRODUCTION OF NARRATIVES BY
CHINESE-ENGLISH BILINGUALS

by

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(Under the Direction of Liang Chen)

ABSTRACT

Over the past three decades or so, tremendous studies in the field of second language and bilingual acquisition have demonstrated variable rates of success with which children and adults achieve native-like proficiency in a second language (L2). Research has traditionally focused on the effects that age-of-acquisition has on the degree to which the end state of L2 knowledge resembles that of a native speaker (NS). The underlying assumption behind this focus is that the NSs with whom L2 learners are being compared are monolingual. This assumption and the monolingual bias have been challenged in recent years, however, with the recognition that L2 learners are bilingual individuals and that there is a need to pay more attention to the effect of bilingualism on L2 ultimate attainment (Bylund, Hyltenstam, & Abrahamsson, 2013). As a direct response to this paradigm shift, the goal of this dissertation is to investigate the relative contributions of the age-of-acquisition and bilingualism effect in the L2 ultimate attainment of Chinese-English bilinguals. The focus is on syntax-discourse interface in the production of narratives by early and late Chinese-English bilinguals. Oral narratives elicited from 12 Chinese monolinguals, 12 early Chinese-English bilinguals, 12 late

Chinese-English bilinguals, and 12 English NSs were coded and analyzed for coherence and cohesion, preferred argument structure and passive structures and alternatives. There are two important findings. First, both early and late Chinese-English bilinguals showed patterns of narrative production in English that resembled those found in the Chinese narratives of monolingual Chinese speakers. We interpret this as evidence for the effect of bilingualism, and more specifically crosslinguistic influence. Second, there were areas of narrative production in English where the early bilinguals were found to be different from both the late bilinguals and English NSs. We interpret this as evidence for the interaction between age-of-acquisition and bilingualism. It provides support for the contention that ‘an explanation of non-native behavior based on bilingualism effects does not necessarily have to be invoked at the expense of age-of-acquisition effects’ (Bylund, *et al.*, 2013, p. 96). These findings contribute to our understanding of L2 ultimate attainment, especially at the grammar-discourse interface.

INDEX WORDS: ultimate attainment, Chinese-English bilinguals, coherence and cohesion, preferred argument structure, passive structures, syntax-discourse interface, age of acquisition, bilingualism effect, crosslinguistic influence

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TABLE OF CONTENTS

	Page
ACKNOWLEDGEMENTS	iv
LIST OF TABLES	vii
LIST OF FIGURES	x
CHAPTER	
1 Introduction.....	1
Ultimate Attainment.....	1
Purpose of this Research.....	17
Research Questions	18
Significance of this Research.....	19
Structure of this Dissertation	19
2 The Acquisition of Coherence and Cohesion	21
Introduction.....	21
Methods.....	34
Results.....	40
Discussion.....	48
Conclusion	52
3 The Acquisition of Preferred Argument Structure.....	54
Introduction.....	54
Methods.....	60

Comparison between Monolinguals	66
Comparison among Bilinguals and English Monolinguals	78
Discussion	90
Conclusion	95
4 The Acquisition of Passive Voice Construction	96
Introduction	96
Methods	105
Comparison among Bilinguals and English Monolinguals	107
Discussion	115
Conclusion	121
5 Conclusion	123
REFERENCES	126

LIST OF TABLES

	Page
Table 2.1: Major story components in the frog story.....	24
Table 2.2: Number and proportion of subjects mentioning each SG component from each group	41
Table 2.3: Means and standard deviations (SD) of clauses and four types of causal relations from each group	42
Table 2.4: Proportions of events for each type of causal connectedness.....	43
Table 2.5: Median and range for GAO units obtained.....	43
Table 2.6: Statistical test results for GAO units obtained from monolinguals	45
Table 2.7: Statistical test results for GAO units obtained from bilinguals	47
Table 2.8: Statistical test results for GAO units obtained from English monolinguals and bilinguals.....	48
Table 3.1: Preferred argument structure constraints	56
Table 3.2: Frequency of clauses with lexical arguments by monolinguals	67
Table 3.3: Transitivity and numbers of lexical arguments in clauses by monolinguals	68
Table 3.4: Frequency of clauses with new arguments by monolinguals	69
Table 3.5: Transitivity and numbers of new arguments in clauses by monolinguals	70
Table 3.6: Frequency of lexical arguments across grammatical roles by monolinguals ...	71
Table 3.7: Frequency of referential forms within each grammatical role by monolinguals.....	72

Table 3.8: Frequency of new information across grammatical roles by monolinguals	73
Table 3.9: Frequency of human referents across grammatical roles by monolinguals	75
Table 3.10: Frequency of human-ness feature within each grammatical role by monolinguals	76
Table 3.11: Correlation of human-ness with non-lexical arguments by monolinguals	77
Table 3.12: Frequency of clauses with lexical arguments by bilinguals and English monolinguals	79
Table 3.13: Frequency of transitive clauses with lexical arguments by bilinguals and English monolinguals	80
Table 3.14: Frequency of intransitive clauses with lexical arguments by bilinguals and English monolinguals	80
Table 3.15: Frequency of clauses with new arguments by bilinguals and English monolinguals	81
Table 3.16: Transitivity and numbers of new arguments in clauses by bilinguals and English monolinguals	82
Table 3.17: Frequency of lexical arguments across grammatical roles by bilinguals and English monolinguals	82
Table 3.18: Frequency of referential forms within each grammatical role by bilinguals and English monolinguals	83
Table 3.19: Frequency of new information across grammatical roles by bilinguals and English monolinguals	85
Table 3.20: Frequency of human referents across grammatical roles by bilinguals and English monolinguals	87

Table 3.21: Frequency of human feature within each grammatical role by bilinguals and English monolinguals.....	88
Table 3.22: Correlation of human-ness with non-lexical arguments by bilinguals and English monolinguals.....	89
Table 4.1: The coding of passives and alternatives	106
Table 4.2: Passives and alternatives in English by monolinguals and bilinguals.....	107
Table 4.3: Degrees of agency expressed by bilinguals and English monolinguals	109

LIST OF FIGURES

	Page
Figure 2.1: A goal hierarchy with unanticipated failure outcomes and successes from Trabasso, <i>et al.</i> (1989)	31
Figure 2.2: Mean proportion of attempts with and without purposes	42
Figure 2.3: Percentages of Superordinate, and Subordinate GAOs out of the overall number of GAOs per group	44
Figure 3.1: Distribution of clauses with lexical arguments by monolinguals.....	67
Figure 3.2: Distribution of clauses with new arguments by monolinguals.....	69
Figure 3.3: Distribution of lexical arguments across grammatical roles by monolinguals.....	71
Figure 3.4: Distribution of information status within each grammatical role by monolinguals.....	74
Figure 3.5: Distribution of human referents across grammatical roles by monolinguals.....	76
Figure 3.6: Distribution of clauses with lexical arguments by bilinguals and English monolinguals.....	79
Figure 3.7: Distribution of clauses with new arguments by bilinguals and English monolinguals	81
Figure 3.8: Distribution of lexical arguments across grammatical roles by bilinguals and English monolinguals.....	83

Figure 3.9: Distribution of information status within each grammatical role by bilinguals and English monolinguals.....	86
Figure 3.10: Distribution of human referents across grammatical roles by bilinguals and English monolinguals.....	88

Chapter 1: Introduction

Ultimate Attainment

The dissertation consists of three articles that are bound together by a theme. All of these articles deal with ultimate attainment in the production of narratives by Chinese-English bilinguals. These articles are built upon each other in a sense that they share research methods and draw conclusions in light of each other.

In the following, I will present a summary of recent research on ultimate attainment in various areas of second language acquisition or bilingual development. In addition, I will discuss the native/non-native comparison to better understand the best reference group in the studies of ultimate attainment.

Ultimate Attainment in L2 Phonology

Birdsong (2004, p. 82) defines Ultimate attainment in second language acquisition (L2A) as “the outcome or end point of acquisition, and is used interchangeably with the terms final state, end state, and asymptote. ‘Ultimate’ is not to be thought as synonymous with ‘native-like’, although nativelikeness is one of the observed outcomes of L2A”. So far there is no study verifying across-the-board nativelikeness across all possible aspects of linguistic knowledge and linguistic processing. It is generally acknowledged that obtaining native-like accent is the most difficult task in L2A, because it is most vulnerable to critical period effects (Lenneberg, Chomsky, & Marx, 1967; Roberts & Penfield, 1959; Singleton, 2005; Vanhove, 2013). As to when is the appropriate off-set for pronunciation, controversial borderlines were put forward by different researchers:

age six (Flege, Munro, & MacKay, 1995), puberty (Scovel, 2000), around 15 (Patkowski, 1990), and no biological barrier at all (Bongaerts, Van Summeren, Planken, & Schils, 1997).

Flege, *et al.* (1995) studied 240 Italian learners of English who had begun learning English in Canada from two to 23, with mean length of residence (LOR) of 32 years. The subjects were asked to repeat five simple sentences. Their performance was recorded and compared with 24 native speakers (NSs) of English. Italian subjects were regarded to have foreign accents if their foreign accent ratings were 2.0 standard deviations (s.d.s) below the mean rating of NSs. The finding indicated the foreign accents first emerged between the ages of six and seven. 59% of subjects whose age of onset (AO) ranged from two to eight fell within the NS range; 17% of subjects did so when their AOs were from nine to 12; and none whose AOs were over 12 did so. In the subsequent study, Flege, Yeni-Komshian, & Liu (1999) examined 240 adult Korean immigrants with age of acquisition (AoA) ranging from 1-23 years and LOR larger than 8 years. The participants were required to do the sentence repetition task as well. The AoA effect discovered in this study was quite similar to that of their previous study. Even though no subgroup could be indistinguishable from monolinguals, a further analysis Yeni-Komshian, Flege, & Liu (2000) indicated 17 individuals with AoAs of 1-8 years were rated within the range of the monolinguals.

Scovel (1988) claimed pronunciation was the only area that was subject to the constraints of a critical period and he treated age 12 as the offset. In other words, L2 learners who start their L2A later than 12 could never “learn to pass themselves off as native speakers phonologically” with the end of being identified as nonnative speakers of

that language easily (p. 185). Nonetheless, he admitted there would be some “superexceptional” L2 learners, about one out of 1000 of late learners, who would not be bound by critical period constraints.

In contrast, Bongaerts, *et al.* (1997) cast doubt on the existence of critical period on pronunciation. They argued that if L2 learners could receive sufficient L2 input and they have strong motivations of being nativelike, then they would sound nativelike despite of a late start. In order to prove their statement, Bongaerts, *et al.* recruited three groups of subjects in their empirical investigation, 10 NSs of British English in group 1, 11 highly successful late Dutch learners of English (official acquisition at or around the age of 12) in group 2, 20 late Dutch learners of English from various English levels in group 3. All subjects were required to read out six sentences three times, and their readings were rated by 13 NSs of British English recruited under stringent requirements. Based on scores averaged across six sentences, five highly successful learners met the nativelikeness criterion (their scores were within two s.d.s of native speakers’ scores), while no subject in group 3 did so. Later, Bongaerts (1999) replicated the above study by involving Dutch learners of French, since this pair of first language (L1) and L2 is typologically less related than Dutch and English. Through sentence and phrase production tasks, four out of nine highly proficient late Dutch learners of French received ratings within the range of ratings for native controls. Consequently, Bongaerts *et al.* argued that attainment in the domain of pronunciation was not totally constrained by an absolute biological barrier. However, they claimed that many reasons could contribute to the success such as the amount and quality of input from the target language, certain characteristics of their tasks, and typological closeness between English and Dutch.

Recent investigations not only focus on the sentence (or global) level, but also on the segmental level such as vowel length and voice onset of time (VOT). Birdsong (2007) investigated the relationship between the global and segmental levels by recruiting 22 Anglophones with late AoA (≥ 18 years). All subjects had resided in the Paris area for at least 5 years. In order to generalize the result, subjects in the Anglophone group had not been screened for their French proficiency. Participants were asked to read a list of words for the segmental test and passages from Valéry for the global test. The rate of nativelikeness in the vowel length test was three out of 22 and that for the VOT test was nine out of 22. At the global level, three were indistinguishable from natives. Overall, two out of 22 subjects were rated as nativelike in both tests. Furthermore, the native-like performance at the global level could predict the nativelikeness in the segmental level, but not vice versa.

Schmid, Gilbers, & Nota (2014) tested whether advanced Dutch learners of English could distinguish the pet-pat vowel contrast (belong to the same category in Dutch) in their production and how native-like their production would be. They recruited 20 highly advanced Dutch learners of English (age of exposure to English around 11) and nine English NSs immersed in a Dutch environment. These two groups' performance in a global proficiency test was indistinguishable from each other. The subjects' data were collected from a word-list read-aloud test and a film retelling task, then the obtained VOT and vowel formants features were analyzed. The results indicated even compared with L1 speakers who were impacted by L2 input, the non-nativeness features can still be perceived from highly advanced late L2 learners.

The above results indicate more and more research is inclined to support no maturational constraints on L2 pronunciation especially from the global and general pronunciation aspect. This is true when L2 learners have abundant opportunities to be immersed in the target language and they themselves have strong motivations to be native-like. However, subtle acoustic differences are still perceptible even among highly proficient L2 learners under the help of more and more sophisticated instruments.

Ultimate Attainment in L2 Morphosyntax

A much more methodologically and theoretically mature linguistic domain on the study of ultimate attainment is morphosyntax which ranges from the acquisition of basic word order, Universal Grammar (UG) principles to inflectional morphology. Different from the field of pronunciation, a much later offset and more successful examples have been discovered, even though controversial results also existed in this area. Meanwhile, distinct theories have been put forward to explain L2 learners' performance.

The first comprehensive investigation of competence between native and near-native speakers in morphosyntax was Coppieters' study (1987). Coppieters combined quantitative and qualitative methods (interview) together because "the quantitative results will seriously under-estimate the extent of the gap separating native and non-native underlying grammars... This is true in spite of the fact that these differences do not surface in readily detectable forms in the speakers' use of the language (their performance)" (p.545). Twenty one near-native speakers (NNS) of French from various L1 backgrounds and 20 native French speakers were enrolled in the study. All NNS could be regarded as late L2 learners. Although they received some training in French during their adolescence, they had not been placed in normal communicative circumstances in

French until 18. Furthermore, they were judged as highly proficient learners based on their oral proficiency.

Coppieters designed 107 sentences including the formal areas of grammar traditionally covered under the UG (i.e. constraints on grammatical form, logical form, complex syntax etc.) and ‘functional’ or ‘cognitive’ aspects of grammar (i.e. two past tenses in French). For 66 of them, subjects were requested to provide grammaticality judgments. For the remaining sentences, grammatical contrasts were offered in each sentence, and subjects had to decide whether both forms were acceptable. If subjects thought meaning divergences existed between the grammatical contrasts, they had to explain the differences as well. Three major though controversial results were obtained from the study. To begin with, NS and NNS have developed different underlying grammars for French. Next, the differences between NS and NNS in the formal areas of grammar were smaller than those in functional or cognitive aspects of grammar. Finally, no late L2 participants in this study performed closely to native controls.

Another frequently-cited but also disputable research was conducted by Johnson & Newport (1989). They tested 46 Korean or Chinese speakers’ (AoA ranging from age 3 to 39) knowledge of English syntax and morphology such as past tense, plural and word order, by a grammaticality judgment task. All subjects had to be exposed to English for at least five years and reside in the United States continuously for at least three years. The results indicated subjects with AoA larger than 8 performed significantly below the natives, and a gradual decline of the level of proficiency had presented from arrival ages 6-7 to 16-17. Consequently, their results supported the notion that children are superior to

adults in acquiring L2. Moreover, Johnson & Newport argued that their results should be able to generalize to other L1-L2 contexts.

As a matter of fact, both studies have received much criticism on conceptual and methodological grounds, such as the content of UG; various L1 background; large individual differences, which would “mask” the relation between age of exposure and accuracy (Birdsong, 1992); the length of residence (minimum=5 years) which may not guarantee learners to have reached the ultimate attainment levels (E. Bialystok, & Hakuta, K., 1994). As a consequence, partial or total replications with much more stringent requirements have been conducted, and contradictory or similar results have been obtained.

Birdsong (1992) carried out a partial replication of the Coppieters (1987) study and employed the same recruitment method as that of Johnson & Newport (1989). However, he restricted subjects' mother language to a single language. In other words, he compared near-native English learners of French with NSs of French. The main task was the acceptability judgment test; meanwhile subjects verbalized their thinking process as they made decision. Seven linguistic variables were tested in 76 sentences, namely *ce/il*, *en-Avant*, *Prenominal Past Participle*, *Adjacency*, *de + Modifier*, *that-Trace*, *Middle Voice*. The major finding was that Anglophone subjects as a group performed differently from French NSs, but 15 out of 20 subjects performed in the range of native controls. In the other interpretation of ambiguous sentences task, NNSs did not diverge from NSs. Moreover, contrary to Coppieters' study, the +/- UG distinction could not predict the loci of between-group differences in this study.

In another strict replication of Johnson & Newport (1989) by using exact methods and materials, Birdsong & Molis' study (2001) consisted of 61 NSs of Spanish, and their mean LOR in the United States of all subjects was 10 years. Among 32 late arrivals ($AoA \geq 17$ years), one person's score fell within the range of natives, three scored above 95% accuracy and 13 had scored at or above 92% accuracy compared to only 1 such late arrival in Johnson & Newport study. More importantly, amount of current English use was a strong predictor of performance among Late Arrivals in their study.

The above research has triggered more detailed exploration on the accessibility of UG. White & Genesee (1996) studied 89 NNSs' knowledge (from various L1 backgrounds) of Subadjacency and the Empty Category Principle (ECP) in English (contents covered under UG). Among them, 51 were Canadian born while the rest were immigrants to Canada, and they were further divided into near-native group ($n = 45$) and non-native group ($n = 44$) based on their pronunciation, morphology, syntax, use of vocabulary, fluency and overall impression of nativeness. In order to detect the potential subtle differences, White & Genesee incorporated a reaction time measure along with accuracy measures in the grammaticality judgment task. They found out that NNSs showed no difference in accuracy and speed from NSs but significant differences from non-native controls. Even learners who were first exposed intensively to English after 16 could obtain native-like accuracy scores. Moreover, 16 of 45 NNSs performed like natives across all tasks regardless of their age of L2 acquisition. Therefore, they concluded that ultimate attainment is achievable in the UG domain, which had supported Birdsong's (1992) findings related to principles of UG.

Nevertheless, when Schachter (1990) investigated 79 Korean, Chinese, Indonesian and Dutch late English learners (first exposure to English after 12) on their knowledge about Subjacency, only Dutch speakers, whose native language shows the same Subjacency effects as in English, performed like native controls. Korean speakers whose native language shows no evidence of subjacency performed randomly. Therefore, Schachter concluded that UG was no longer accessible to adult L2 learners and can not be fully acquired by them.

The accessibility of UG has made researchers realize that beyond the acknowledged age effect, on the end state of L2 learner's grammar, L1 effect can not be negligible. Sorace (1993) argued that there are two distinct states of grammatical incompetence, namely incompleteness of L2 grammars and divergence of L2 grammars under the influence of their L1. With regard to the first state, it represents as lack of given properties required by the native grammar. As to the second state, near-native learners' interlanguage grammar contains representations of L2 properties which systematically differ from those of native grammar. In order to demonstrate the above qualitatively different states of ultimate attainment, Sorace recruited 24 English and 20 French NNSs of Italian, and compared with 36 native Italian speakers in the acceptability task on Italian unaccusativity structure. The results showed that English NSs provided random and indeterminate judgments while French NSs were consistently different from those of Italian NSs. As a consequence, Sorace concluded that English subjects' near-native grammar is incomplete while that of French subjects is divergent.

Another well-studied perspective in the morphosyntax domain is the acquisition of inflectional morphology. Montrul & Slabakova (2003) investigated whether Spanish

tense and aspect distributions are achievable by Anglophones. Sixty four Anglophones were recruited and they were further divided into advanced speakers (n = 24), superior speakers (n = 23) and NNS (n = 17) by a proficiency test and an oral interview. Montrul & Slabakova designed a sentence-conjunction judgment task and a truth-value judgment task to test speakers' knowledge of preterit and imperfect tenses. In total, 12 NNS, 5 superior, and 2 advanced subjects performed like NSs with all sentences in both tasks. Their results indicated even though tense and aspectual features were difficult for L2 learners to acquire, near-native competence in those domains was attainable and they were not subject to a critical period. Cranshaw (1997) further demonstrated the L1 influence in the acquisition of inflectional morphology. He conducted another study investigating the acquisition of English tense-aspect features by 20 Francophone and 20 Sinophone. Even though subjects were late learners, three Francophone and one Sinophone performed like the natives.

The recent full-scale investigation on the acquisition of L2 inflectional morphology was conducted by Hopp (2010). Fifty-nine L1 English (n = 20), Dutch (n = 20) and Russian (n = 19) both advanced and near-native learners of German participated in the study, with the aim of testing their knowledge of German subject-verb agreement, tense and gender marking. All subjects began to learn German after age of 11 and had been exposed to German for more than 10 years. Different off-line and on-line experiments were designed such as grammaticality judgments, self-paced reading, speeded grammaticality judgments. Their results first indicated that for case and subject-verb agreement inflection, near-native but not advanced late L2 learners could achieve native-

like performance. Second, L2 inflectional variability is constant which is influenced by L1 transfer.

Beyond L1 effects, Bialystok & Miller (1999) have found out the effect for modality of stimulus presentation (oral versus written). They recruited Chinese ($n = 33$) and Spanish learners of English ($n = 28$), and these participants were divided according to their AoA into early (before the age of 15) and late learners. Unlike the other studies, Bialystok & Miller first tested subjects' L1 proficiency to ensure their L1 was still their dominant language. They also designed 160 sentences for grammaticality judgment task covering plurals, determiners, future tense, present progressive, and collocation restriction. In general, the written condition was easier for both groups than for the NSs, which manifested as higher accuracy scores and shorter reaction time than in the oral condition. Early and late Spanish group performed differently in the grammaticality task, but no such differences were found for the Chinese group. Moreover, the cut-off AoA for being native-like was 8 instead of 7 in Johnson & Newport (1989).

At the same time, more and more various theories have emerged to explain learners' performance such as Fundamental Difference Hypothesis (Bley-Vroman, 1988) and Prosodic Transfer Hypothesis (Goad, White, & Steele, 2003). Dekeyser (2000) proposed that adults could also attain near-native competence in their L2 as long as they have a high level of verbal analytical ability. His argument was established on the Fundamental Difference Hypothesis which claims that adults could no longer depend on the innate mechanisms for implicit language acquisition but resort to alternative, problem-solving mechanisms for explicit language learning. Fifty seven Hungarian learners of English participated in the study and according to their AoA in the United States (age of 16 as

offset), they were further divided into early arrival ($n = 15$) and late arrival ($n = 42$). All participants had resided in the United States for at least 10 years (mean LOR = 34 years). Dekeyser adapted the grammaticality judgment test of Johnson & Newport (1989) and employed the Modern Language Aptitude Test to identify subjects' verbal aptitude. The results revealed that all young learners reached a native or near-native level regardless of their aptitude levels while only the adults whose aptitude were above average became near-native.

Goad & White (2006) supported the Prosodic Transfer Hypothesis which argued that L1 prosodic representations would constrain the ultimate attainment of L2 speakers. They investigated 10 intermediate Mandarin learners' acquisition of English tense and participial morphology since Mandarin lacks overt tense inflection. The results of a combined sentence completion and production task indicated that these Mandarin learners had adapted their L1 prosodic representation to represent the functional morphology in their interlanguage and acquired the functional morphology successfully. On the contrary, Snape & Kupisch (2010) carried out a case study on the acquisition of English articles by a Turkish learner of English who was an advanced learner and residing in Canada. Their results implied that the target prosodic structure for English articles can not be acquired by Turkish speakers since their mother language lacks the corresponding structure.

The above review implies that the majority of researchers believe the native-like attainment is achievable in morphosyntax and a much later age off-set was found compared with that of phonology.

Ultimate Attainment in L2 Multiple Domains

Hyltenstam & Abrahamsson (2003) and Long (1990) proposed that L2 learners can be native-like in certain domains, but their overall performance across several domains would still differ from natives. For example, in the aforementioned domains, it is quite common to observe successful command of L2 inflectional morphology and syntactic rules but hard to find L2 speakers who can produce speech without any foreign accent. Therefore, it is necessary to test L2 learners' overall proficiency across several domains to distinguish the "real" near-native L2 speakers.

Granena & Long (2013) designed seven tasks together with an aptitude test to discover the timing of maturational constraints in three linguistic domains, namely phonology, lexis and collocations, and morphosyntax. Sixty five Chinese learners of Spanish who were long-term residents of Spain (mean LOR around 10 years) participated in the study and their age of official and continuous Spanish learning (called as age of onset in this study) either caused by migration or formal language learning was recorded. According to these records, participants were separated into three groups, 3—6, 7—15, and 16—29 years. As to the pronunciation test, no learner performed like native controls with an AO larger than 5. For the lexis and collocation test, several participants in the AO 3—6 group, and two with AO as 9 scored within the NS range. With regard to the morphosyntax task, the results were much lower than previous similar studies. Some but not all participants in the AO 3—6 group and only one with AO as 12 performed like natives. In general, the AO 3—6 group did not differ from native controls but were significantly better than the other two groups in all domains. Correspondingly, Granena & Long concluded that there existed multiple sensitive periods for different linguistic

domains. The latest AOs for nativelike attainment in phonology was 5, in lexis and collocation was 9, and 12 in morphosyntax.

A higher rate of nativelikeness in all tasks was found by Marinova-Todd (2003). She designed nine on-line and off-line tasks testing lexical knowledge, language use in narratives, pronunciation in spontaneous speech and read-aloud test, to morphosyntax performance. Thirty late but highly proficient learners of English (LOR \geq 5 years in Boston area) joined the test with three of them performing like natives in all nine tasks. A more famous multiple-domain case study was carried out by Ioup, Boustagui, El Tigi, and Moselle (1994). They investigated the overall performance of two Anglophones highly-proficient late learners of Arabic. In total, six tasks were employed to test their Arabic grammar and pronunciation, namely English-to-Arabic translation, grammaticality judgment, interpretation of anaphora, a free-form description task and dialect differentiation abilities (two tests). Even though one of them had not received any formal Arabic instruction and only began to get touch with Arabic at the age of 21, there were only slight differences between them and native controls.

In sum, not all linguistic domains can be acquired successfully. From the foregoing review, we can conclude that some perceptually very salient features such as word order and subject-verb agreement appeared to be acquirable by most learners regardless of their AoA (DeKeyser, 2000); whereas “the interface between syntax and other domains, such as the lexicon, discourse, or pragmatics, may never be completely acquired by L2 learners” (Sorace, 2005, p. 23). Sorace (2011, p. 17) further identified the syntax-discourse interface as the area of the grammar most likely to remain an insurmountable obstacle for near-native L2 speakers. “One reason why bilingual speakers may be less

efficient at processing structures at the syntax-pragmatics interface is that syntactic processing is less automatic for them. This may be due to less developed knowledge representations or to less efficient access to these representations.”

The overall results imply that more and more research covering various fields and their interaction need to be conducted, especially with the syntax-discourse interface that is comparatively scarce in literature. The primary goal of the three studies included in the dissertation is to bridge such a gap in second language and bilingual acquisition research. Each of them investigates one aspect of the production of narratives by Chinese-English bilinguals in comparison to their monolingual peers to provide insight into L2 learners’ levels of ultimate attainment in the syntax-discourse interface.

Native/Non-native Comparisons

There is no doubt that divergences between EFL learners and native speakers can always be found in certain aspect ranging from acoustic features to language use in specific occasions. Given the existence of maturational constraints on language acquisition, even bilinguals may not achieve nativelike attainment. Ortega stated that (2009, p. 27) “the putative impossibility to attain nativelikeness after a certain age, if reinterpreted under a bilingual lens (...), may turn out to mean that it is impossible for bilinguals to be monolinguals”. Since it seems that for certain L2 learners, they can never perform like monolinguals, it is inappropriate to set the monolingual native as a yardstick of success.

More importantly, a bilingual is not two monolinguals in one person (Grosjean, 1989). Because of the interaction between two language systems—in terms of linguistic processing as well as linguistic representations—it is impossible for either the L1 or L2

of a bilingual to be identical in all respects to the language of a monolingual. Thus, comparing bilinguals with monolinguals is more like comparing apples with oranges (Birdsong, 2005). In other words, it is inherently incommensurable to compare non-natives with natives. From the language processing perspective, two languages are activated synchronically and simultaneously in language use in the bilingual mind (Slabakova, 2013). The confounding factors such as attentional control and L1 suppression would obfuscate the result of comparison. Bialystok (2009, p. 3) puts the effect of attentional control in the following way:

“This situation creates a problem of attentional control that is unique to bilinguals – the need to correctly select a form that meets all the linguistic criteria for form and meaning but is also part of the target language and not the competing system. The need to control attention to the target system in the context of an activated and competing system is the single feature that makes bilingual speech production most different from that of that of monolinguals [...]”.

From the viewpoint of linguistic representation, there are interactions or bi-directional influences of the two languages, and consequently, neither the L1 nor the L2 of bilinguals would be identical to the language of a monolingual. Furthermore, since “the input of monolinguals and bilinguals is too varied for direct comparisons to be justified” (Slabakova, 2013, p. 53), it is hard to control the linguistic experiences of bilinguals versus monolinguals.

In sum, it does not seem appropriate to take NSs as the yardstick of success in L2 learning. Then, who serves as a best reference group while evaluating language learners’ performance. Some researchers proposed near-native speakers or early bilinguals, in that

“if such subjects give the appearance of having attained native-like use of the L2, one can then ask whether they have in fact attained native-like competence” (White & Genesee, 1996, p. 234). Moreover, if competence differences still exist between near-native speakers and NSs, then the differences may be considered as permanent (Sorace, 2005). Sorace (2011) further stated that early bilinguals have experienced massive exposure and used two languages extensively, which guarantees high levels of executive control in both languages. Through comparison with late L2 learners, potential qualitative or quantitative differences and similarities in processing the specified languages would be more legitimate. In contrast, Slabakova (2013) argues that in L2A experiments, late but very proficient (advanced and near native) bilinguals should be treated as controls instead of NSs. Such controls are exposed to an L2 after puberty; thereby inhibitory control mechanisms are comparable.

In the current study, we analyzed the language usage patterns in the oral narratives of native monolinguals, early bilinguals and late advanced L2 learners. We are hoping to demonstrate how the use of L2 in the domain of grammar-discourse interface is affected by age of L2 acquisition and/or by the process of learning two languages per se. We will also clarify the question of whether early bilingual could serve as a reference group for ultimate attainment in the domain of grammar-discourse interface.

Purpose of this Research

The dissertation is a response to two research gaps in the literature on ultimate attainment in L2A. First, previous research mainly focused on ultimate attainment in formal linguistic aspects such as pronunciation, morphology and syntax, and different age effects on those fields have been tested. Little attention has been paid to language

learning at the syntax-discourse interface, which is believed to be the most challenging task for language learners by some researcher (Sorace, 2005, 2011). Thus, the important question of what areas of L2 are or are not ultimately mastered remains to be unsolved (cf. Birdsong, 1999).

Second, previous studies of ultimate attainment tended to focus on comparisons between advanced L2 learners and NS of the target language in order to see if native-like attainment is possible (i.e., to determine the limits of L2A). However, the methodology applied is based on the assumption that the end state in L2A is the same as its counterpart in L1A without realizing that ‘the end state of L2A may be non-deterministic, and thereby differ qualitatively from the L1A end state’ (Birdsong, 2004, p. 85). Through an investigation of the acquisition of grammar-discourse interface by late advanced L2 learners, early Chinese-English bilinguals and English monolinguals, we seek to discover how well Chinese-English bilinguals are able to perform in the domain of grammar-discourse interface and in which cases L1 transfer, age-of-acquisition and bilingual effects are evident.

Research Questions

The research questions in this dissertation spring from an interest in learning more about the grammar-discourse interface and how age of L2 acquisition and the process of learning two languages per se contribute to patterns of language use in three aspects of narrative production: narrative coherence and cohesion, the preferred argument structure (PAS) and passive structures and alternatives. In each aspect of narrative production, we examine (a) how the two bilingual groups may behave in comparison to their monolingual peers and to each other; and (b) what are the relative contributions of L1

transfer, age of L2 acquisition and the process of learning two language per to the patterns of narrative production in Chinese-English bilingual speakers.

Significance of this Research

This research is important to L2A because it explores the acquisition of grammar-discourse interface, a field that has not been fully investigated yet. Due to the fact that acquisition of grammar-discourse interface is considered to be difficult for non native speakers (Sorace, 2011), little is known about the ultimate representations of this knowledge by advanced L2 learners or near native speakers. On the other hand, the interface investigation at times has been limited to the area of coherence and cohesion in argumentations (Granger & Tyson, 1996; Liu & Braine, 2005). In contrast, this dissertation deals with three aspects of grammar-discourse interface, coherence and cohesion, preferred argument structure and passive structures and alternatives, and none of them has been completely compared between Chinese-English bilinguals and English natives in the literature. In addition, this dissertation examines language use at the grammar-discourse interface by two groups of Chinese-English bilinguals, the early group who were born and raised in an English speaking country with Chinese as their L1, and the late group who were born and raised in China but have years of studying abroad experience in an English speaking country.

Structure of this Dissertation

In Chapter 2, coherence and cohesion in the oral narratives of Chinese-English bilingual speakers and their monolingual peers is examined. In Chapter 3, the preferred argument structure in the oral narratives of Chinese-English bilingual speakers and their monolingual peers is examined. And then in Chapter 4, passive structures and their

alternatives in the oral narratives of Chinese-English bilingual speakers and their monolingual peers are examined. Chapter 5 summarizes the main findings and discusses factors that contribute to the patterns of narrative performance in bilingual speakers. These studies, as a whole, suggest that age of L2 acquisition and the process of learning two languages per se may both influence the way bilingual speakers may diverge from their monolingual peers in aspects of narrative production and ultimately influence the degree to which bilingual speakers approach native-like proficiency.

Chapter 2: The Acquisition of Coherence and Cohesion

Introduction

Over the past two decades, there has been a growing interest in the study of narrative abilities of children and adults from different perspectives (Berman & Slobin, 1994; Sah, 2013; Trabasso, Stein, Rodkin, Munger, & Baughn, 1992). Some researchers examine the macrostructure of narratives based on story grammar analysis (Soodla & Kikas, 2010; Stein & Glenn, 1979). Some investigate the role of working memory and theory of mind in organizing and integrating information flow on the basis of cognitive and psychological processing (Trabasso, *et al.*, 1992). Some researchers focus on the narrative development to figure out the progress of relating events and maintaining coherence in narratives by children (Sah, 2013).

So far, much attention has been paid to monolingual narrative strategies while the field of bilingual narrative strategies especially by Chinese-English bilinguals has received scant focus in the literature. Considering the fact that bilinguals may have the additional task of differentiating the two coherent and cohesive systems related to their language-specific usages, examining their production of oral narratives can provide insight for the study of bilingual development. As a matter of fact, narratives of Chinese-English bilinguals have revealed significant bilingual versus monolingual difference in the development and use of referential expressions such as noun phrases *the man*, pronouns *he*, and elliptical forms (Chen & Pan, 2009; Chen & Lei, 2013), and evaluative

expressions such as references to story character's mental and emotional states and behaviors *The boy was kind of upset* (Chen & Yan, 2011).

Given the essential role of causality in narratives (Cevasco & Van Den Broek, 2008; Noordman & Vonk, 1998), from the perspective of story grammar, causal relations, and hierarchical goal structure, the present chapter aims to examine how Chinese-English bilingual speakers and their monolingual peers employ causality to maintain coherence and cohesion in their narratives. And by doing so, we try to address questions such as whether crosslinguistic differences exist in the arrangement of coherence and cohesion in narratives of Chinese and English monolinguals, whether early and late Chinese-English bilinguals will differ in the use of coherence and cohesion in English, and most importantly whether the Chinese-English bilinguals have achieved ultimate attainment in narrative coherence and cohesion.

Story Grammar (SG) in Narratives

The SG analysis is one of most commonly used approaches to analyze narrative organization, which “examines the overall thematic organization in terms of causal and temporal relationships for fictional stories” (Hughes, McGillivray, & Schmidek, 1997, p. 111). The underlying principle is that there exist certain patterns of information in story, informational sequences have to match these patterns, and incoming information will be organized into similar patterns (Stein & Glenn, 1979). These patterns could be further divided into a setting category and an episode system.

The setting part provides information about the main characters of the story and related social, physical or temporal contexts, while an episode system includes six sequential phases: (a) an influential initiating event (IE); (b) the character's internal

response triggered by the event; (c) the internal plan of the character to solve the problem; (d) the character's attempts carried out while solving the problem; (e) consequences caused by the attempts; and (f) the character's reaction to the consequences (Soodla & Kikas, 2010). Not all of the above components are mentioned while narrating stories. Merritt & Liles (1987) found out children with language impairment produced fewer settings, IE, internal responses, attempts and consequences compared with age-matched typically developed children. Additionally, some components are structurally more important and then more frequently mentioned in story. For example, Stein & Glenn (1979) showed the first and fifth graders were inclined to use settings, IEs and consequences than other elements in their retold narratives.

The SG model could reflect cultural and linguistic differences. In Michaels' study (1991), he illustrated the communicative mismatch between an African American child and her European North American teacher. The child used a narrative style that some African American applied; and the teacher was unfamiliar with it. Therefore, the teacher regarded her narration as "rambling" and the child was depressed since the teacher could not understand her well. To be more specific, structures of traditional stories in Western (i.e., European-based) represent the SG model put forward by Stein & Glenn (1979). By age of 5, children from English-speaking countries (i.e., European-based) could tell stories organized regarding to goals and plans; and by age of 7 to 8, they could accomplish complete episodes. In contrast, Japanese and African American children tried to combine similar events occurred at different times and places into the same story. With regard to the inclusion of SG components, Spanish children tend to include an IE and an

attempt to solve the problem while English children were more likely to mention the consequence of the attempt (Fiestas & Peña, 2004).

A coherent story is defined to explicitly exhibit the goal-directed action of a protagonist in episodes which should contain the following three components: (a) an IE or an internal response, (b) an attempt, and (c) direct consequence (Liles, Duffy, Merritt, & Purcell, 1995). The character's internal response, plan, reaction and direct consequence would be further analyzed in the causal relation and hierarchical goal structure parts, thus we focused on the analysis of IE and attempts in the SG model.

In the story "Frog, where are you", six possible initiating events are involved at the beginning of the story: the boy and dog *go to sleep*, so the frog takes the chance to *leave*. Then the next morning, the boy and dog *wake up*, and *find the empty jar*, which makes them realize *the frog is gone*. Consequently, the boy becomes *upset or sad*. Throughout the 24 pictures, the boy makes seven attempts to find the frog. Undoubtedly, in the first six times, the boy fails to find the frog with a renewed attempt following each failure. The IEs, and attempts analyzed in the present study are listed in Table 2.1.

Table 2.1 Major story components in the frog story

Initiating Events	<p>Statements which describe actions or events that may change or elicit the character's current goals.</p> <p>There are six possible initiating events in the frog story:</p> <ol style="list-style-type: none"> 1. the boy and the dog fall asleep; 2. the frog leaves; 3. the boy and dog wake up; 4. the boy finds the empty jar; 5. the frog is gone; 6. the boy is sad;
Attempts	Statements which describe the character's actions to achieve the

& Outcomes	goals and the consequences of the attempts			
	Attempt	Picture	Location of Boy	Outcome
	A1	4	Room	Implied failure
	A2	5	Window	Dog falls out
	A3	8	Outside field	Implied failure
	A4	9	Hole in the ground	Finds gopher
	A5	11	Hole in a tree	Finds owl
	A6	14	On large rock	Finds deer
	A7	21	Other side of log	Finds frog

Adapted from Trabasso (1989) and Trabasso, Stein, Rodkin, Munger, & Baughn (1992)

Beyond the SG analysis, each protagonist's action in the story can be denoted as an attempt to find the frog or not, and each attempt can be further classified as an attempt with a purpose or not. Trabasso, *et al.* (1992) defined attempts as the statements contain verbs from which one can infer the searching action, such as “search”, “look”, “call”, “yell”, and they could be followed with or without purposes such as “*He looked in the hole for the frog.* vs. *He looked in the hole*”. There is no doubt that when relevant actions and purposes are conjoined, the attempts are more clearly related to the plan. This bond on the one hand could make the story more coherent and on the other hand, it could reduce the cognitive processing burden for a reader or a listener, thus it is included in the present study.

The SG analysis may not be a sensitive measure of adults' narratives, since the majority adults tend to include all components in the SG model. As a consequence, causal relations, hierarchical goal structure analysis were comprised in our study to provide more credence and reliability for the measurement of coherence and cohesion.

Causal Relations

The ability to express the various types of causal relations among story events is an important aspect of narrative development. This is especially the case, if we consider the definition of narrative by some as “the representation of a causally related series of events” (Richardson, 1997, p. 106). In other words, we do not experience a series of events in a text as distinct, individual happenings but consider them as a coherent sequence (Trabasso, 1989).

Several studies (Keenan, Baillet, & Brown, 1984; Trabasso, Secco, & Van den Broek, 1984; Trabasso & Sperry, 1985) pointed to the role of causal relations as a driving force of narrative coherence that leads readers to interpret a text as a process of searching for causal connections. Previous research also suggests that narratives in which events are interconnected by causal relations are remembered better than those in which events are only related by temporal relations since they are combined and stored as higher-level information chunks in memory (Mandler & Johnson, 1977). Understanding the causal relations within an episode may benefit readers or listeners from the comprehension of the overall structure of the text (Kemper, 1983). When two sentences are causal related, the first sentence would be an effective memory cue for the second, and they two are tended to be recalled as a unit (Black & Bern, 1981). When no causal relations are applied between events, sequences of sentences will be hard to read (Haberlandt & Bingham, 1978) and readers tend to infer the missing causal connections (Kemper, 1982). In sum, a coherent story could be defined as containing explicit causal relations and requiring few causal inferences (Kemper, 1983).

Each language provides its speakers with a variety of lexical and grammatical forms for the expressions of causal relations, and the use and appropriateness of these forms are determined by various contextual factors (Altenberg, 1984). In addition, languages may differ in the semantics of causal expressions and these differences may trigger changes in the way L2 learners understand and express causal relations in language appropriate manner in their L1. Wolff & Ventura (2009) demonstrated that Russian-English and English-Russian bilinguals' causal interpretations differed from those of monolinguals of their L1, but were similar to their L2 even when they performed the task in the L1.

In language development, children must not only learn the various forms of language-specific causal expressions, but also the pragmatic discourse conditions under which these forms can be used. Children who are acquiring two languages may have the additional task of differentiating the two systems in terms of their language-specific usages, as each language may present a different puzzle to the child in how causal relations are managed in narrative discourse. The bilingual children must attend to both universal cognitive and discourse pragmatic principles governing the construction and expression of causal relations in narrative, and language-specific form–function mappings in each of their two languages.

In order to demonstrate how the explicit and implicit propositions link the causes and consequences of events, Kemper (1988) classified three types of narrative propositions, namely actions, physical states, and mental states. Actions refer to the actions of the characters, and the natural or social processes in the story as well (e.g., “The boy jumped into the water”), in which the verbs can be expressed in the progressive tense. They can answer questions like “What’s happening?” and can be used in

imperative sentences. Physical states are sustained, “observable” characteristics of objects, places, and events (e.g., “It was dark outside”). Mental states refer to emotions, cognitions, intentions, and dispositions of human or animate kinds (e.g., “He was worried about the frog”). The combination of three kinds of propositions lead to four types of causal relations: resultant, initiation, enablement, and motivation causation. Example sentences referring to each type of causation are shown in (1)

(1) A. Resultant causation

Actions in the story result in changes in physical state.

“Mary knocked over the bricks. The bricks were on the ground.”

B. Initiation causation

Actions or physical states lead to changes in mental state.

“Suddenly, Bill jumped out from behind a bush. Alice saw him.”

“The street light was out. Alice was scared.”

C. Enablement causation

New physical states enable or disenable actions to occur.

“The alley was dark. Mary bumped into the bricks.”

D. Motivation causation

The agent’s actions are caused by mental states.

“Peter was hungry. He entered the restaurant.” (Kemper, 1988, p. 147)

When an action follows another action or a physical state follows another physical state, unless it is the dead end of an event, the listener/reader has to infer the hidden proposition(s) as in the following examples in (2) (the implicit inference is indicated in bracket). As a matter a fact, violations of the above taxonomy could be detected by readers or listeners. While restoring missing propositions, actions are more likely to be

restored than physical or mental states (Kemper, 1982). The examples in (2) illustrate the inferring process.

(2) A. Action—Action sequences with inferred Physical states
John dropped the hammer. (It was lying on the ground) Alice picked it up.

B. Action—Action sequences with inferred Mental states
The train bumped into the cow. (The cow was hurt) It bellowed.

C. Physical state—Physical state sequences with inferred Actions
The sun was hot. (The sun warmed the butter) The butter melted.

D. Mental state—Mental state sequences with inferred Actions
Jimmy heard the train's whistle. (He looked for the train) Then he saw it.

E. Mental state—Physical state sequences with inferred Actions
The dog was scared. (It whined) Its whine was mournful. (Kemper, 1988, p. 148)

As children grow older, they are inclined to use more explicit physical and mental states but fewer actions. Consequently, they use more motivations and initiations and fewer enablements in their narratives. To be more specific, the use of enablement causal links drops dramatically between ages 2 and 5. Initiations which link physical states or actions with mental states emerge around 5 years of age, while motivations that link mental states with actions also occur in the stories of 5-year-olds. Both the incidence and densities of all four types of causal links become relatively stable in children's narratives around 8 to 10. Meanwhile, as the increase of stated causes and consequences, especially the increase of motivation and initiation causal links, fewer inferences need to make and the stories become easier to understand. In sum, the progression with regard to the use of

causal links is from enablements, initiations, motivations and finally to resultants (Kemper, 1984).

The causal relation analysis works well when two linguistic propositions are adjacent. It is beyond doubt that two distant propositions could also be causally related. For example, one initiating event “*the frog escaped*” is causally linked to the end event “*the boy takes the frog back home*”. Since if the frog had not escaped, it is not necessary for the boy to bring it back home, even though these two events are not adjacent in the story. Therefore, in order to compensate for the weakness of the causal relation analysis, causal connection (Trabasso & Sperry, 1985; Trabasso & Van Den Broek, 1985) was also considered in the current study. Through the analysis of causal connection, the relative importance of an event in a narrative could be quantified and the causal dependency will be apparent as well (Diehl, Bennetto, & Young, 2006). Meanwhile, the pattern of causal connectedness could facilitate us to discern more coherent and cohesive stories.

To our knowledge, no study has investigated the expressions of causal relations and the pattern of causal connection in the narratives of Chinese-English bilinguals. In the present study, we investigate the puzzles faced by Chinese-English bilinguals learning two typologically distinct languages. It will be the first study to compare their performance of expressing causal relations and patterns of causal connection in the oral narratives with that of monolingual peers in each of the two languages.

Hierarchical Goal Structure Analysis

The hierarchical goal structure analysis is established on the causal network model, developed by Trabasso, Van den Broek, & Suh (1989). This model aims to demonstrate

the relationships among goals or episodes. A coherent story could also be regarded as a sequential goal-oriented plan.

According to this model, the content of each clause in the narration can be classified roughly as: S (setting), IE (initiating event), IR (internal response), G (goal), A (attempt), and O (outcome). Goal is a motive or specific intention of a protagonist and it is psychologically caused by the protagonist's internal response such as cognitions, emotions, and beliefs. Attempt is an action aiming to achieve this goal and an outcome is a positive or negative result (Arfé & Boscolo, 2006). In stories that have well-organized structures, goals are internal motivating states, which causes goal-directed actions, followed by successful or unsuccessful consequences (Lynch & van den Broek, 2007; Mandler & Johnson, 1977).

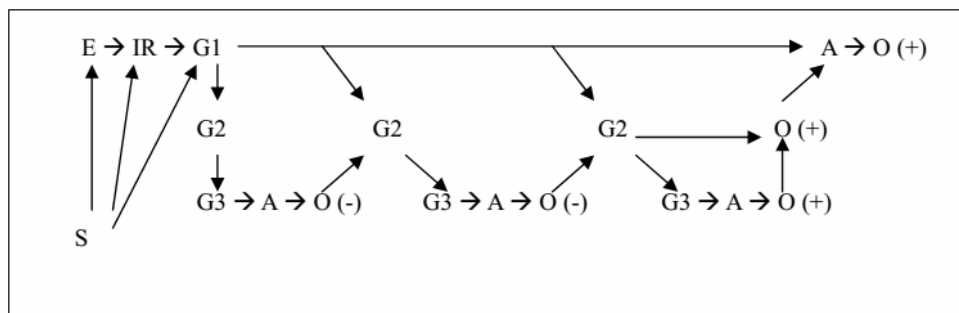


Figure 2.1 A goal hierarchy with unanticipated failure outcomes and successes from Trabasso, *et al.* (1989). A minus after an outcome indicates a failed outcome; a plus stands for a positive outcome which implies the successful achievement of the goal.

Figure 2.1 illustrates a representation of a goal plan hierarchy which contains three sequential and hierarchical goals, ensuing attempts followed by failed outcomes, goal reinstatements and the final successful outcome. This goal plan starts with a setting that provides the condition for the occurrence of IEs happened to a protagonist. The setting and event psychologically trigger an internal reaction of the protagonist. The reaction

results in a superordinate goal (G1) which activates a subordinate goal (G2) to achieve it. The G2 in turn motivates a subgoal (G3) to obtain it. G3 initiates the first attempt (A) that is followed by a failed outcome (O-). This failure causes the reinstatement of the next G2 that is also under the control of G1. The above circle repeats twice till a successful outcome occurs. This successful outcome not only enables the accomplishment of G2 but also the execution of an attempt to fulfill a successful outcome for the first-order goal (G1). A plan comprises all these three goals and is carried out by the attempts at the level of G3.

The hierarchical structure of the goal-plan in the frog story also contains three levels. In the first superordinate level, GAOs are organized separately in the story and the function of them is to provide global coherence. For example, the top-order goal G1 is “to want the frog back” and it motivates the attempt “to take the frog back” at the end of the story with the result of “to have the frog back”.

At the second level, GAOs are connected with adjacent GAOs with the result of producing local coherence between episodes. At this level, G2 is “to want to find the frog”, A is “to go on with the search” with successful or unsuccessful outcome. For instance, the outcome of the first episode “he looked everywhere in the room (A) but he did not find his frog (O)” leads to the generation of the second episode “he decided to go outside to look for his frog (A) but he still did not find it (O)”.

At the third level, events are organized within episodes. For example, while in the forest, the boy finds a hole on the ground, then he wants to see if the frog is in there (G3), so he looks in the hole (A). But a gopher comes out (O). Later on, he finds a hole again in the tree, he wants to know if the frog is in the hole (G3), so he climbs the tree and looks

inside (A). But an owl flies out (O). If a narrator produces all of the three components, then this GAO unit will be classified as a complete unit. In contrast, if one or more of the three components are missing, then this GAO unit would be considered incomplete.

Trabasso & Nickels (1992, p. 251) summarized the hierarchical goal plan in the frog story as “The top-order goal is to get the frog back, but a subordinate goal, to find the frog, dominates the story. Searching for the frog in particular locations leads to a series of unanticipated goal failures of not finding the frog and to a series of goal reinstatements to continue trying to search for the frog. Eventually, these reinstatements lead to success in finding the frog. The understanding of goals, attempts, goal failures, goal reinstatements, and ultimate success lead to the child’s ability to create a coherent story”. The goal plan analysis provides psychological explanation, and extends the propositional analysis (Trabasso, *et al.*, 1992).

Most research on hierarchical goal structure analysis has focused on the narrative development of monolinguals. Research has shown that even 3- to- 4 year old children could identify goals and ask about them directly (Trabasso, *et al.*, 1992). Trabasso & Nickels (1992) found the first-order goal did not occur until 5 and the second-order goal at 4. The 3-year-olds described the pictures unrelated to the central theme and the 9-year-olds did not differ much from the adult narrators. Children of 5-year-old could include characters’ goals spontaneously in their recall of narratives (Trabasso & Nickels, 1992; Trabasso & Stein, 1997). Superordinate goals and episodes are remembered better than subordinate ones (Black & Bower, 1980). As far as we know, little research has been conducted on hierarchical goal structure in narratives by Chinese-English bilinguals, which is another focus in the current study.

Methods

The Frog Story

The frog story has developed from a children's book containing 24 pictures to a valid instrument for narration studies (Berman & Slobin, 1994). The book tells a story about a boy, his dog and his frog. One day, the frog disappears, thus the boy and his dog carry out a sustained series of search. They start from finding the frog in their apartment, then into the woods, and end up sitting in a pond and discover a frog either from them or a new one. On their way to find the frog, they encounter various animals and insects. Finally, the boy takes the frog back home.

As a valid and effective elicitation task, the frog story has been applied not only in monolingual but also in bilingual studies. For example, Aarssen (2001) tested Turkish-Dutch bilinguals' command of linguistic and narrative structures and their relations with connectivity. Akinci, Jisa, & Kern (2001), Kupersmitt (2004), and Minami (2008) conducted similar studies with Turkish-French, Spanish-Hebrew, and Japanese-English bilinguals respectively. The usage of evaluative expression has been investigated by Pearson (2001) with Spanish-English bilinguals. Referential expressions have also been explored in Chinese-English bilinguals by Chen & Pan (2009).

Participants

The late bilingual group included 12 learners, aged 28-35, who started to learn English in mainland China when they entered middle school at approximately the age of twelve. They majored in English in college in China, and were enrolled in a doctoral program in an American university at the time of data collection. They had been in the U.S. for an average of 30.2 months, with a range from 2 years and 5 months to 5 years

and 1 month. For the sake of referring convenience, the late bilingual group is also referred as the EFL group.

In terms of the early bilingual participants in the current study, all of them had been exposed to Mandarin Chinese from birth. Their parents were professionals and have obtained graduate degrees. They highly valued the maintenance of the Chinese language and culture, and actively promoted the learning process. The bilingual participants were the first generation born in the USA, and they were exposed to English primarily through television programs and library story times from three-year old to five-year old when they entered kindergarten. After that, their English input and output increased in school and neighborhood environment. Qi (2010) defined the input conditions of the early bilingual participants as a situation-bound language exposure, in that they were exposed to Chinese mainly at home and English mainly in school and community. Through parental and self ratings of oral proficiency in Chinese and English by a Likert scale (0 = no proficiency, 4 = native-like proficiency), all participants were reported to be native-like in Chinese and in English. Again, we also call the early bilingual group as the ESL group. Twelve native speakers of English and 12 Chinese native speakers were used as comparison groups.

Language Elicitation and Transcription

Each participant was shown the picture book *Frog, where are you?* (Meyer, 1969) page by page from the beginning to the end. Once all the pictures were shown, the researcher returned to the first page and asked each participant to tell a story based on the entire book. The bilingual participants told the story in both English and Chinese with an approximately two-week interval. In an attempt to minimize interviewer control over

participant narrations, only minimal instructions, such as “this is a story about a boy and a dog,” or verbal prompting, such as “what’s next” or “what about the boy?” were given (Berman & Slobin, 1994, pp. 22-25). Each oral narrative was audiorecorded, then transcribed and coded according to the conventions of the Child Language Data Exchange System (CHILDES) (MacWhinney, 2000). The recorded narrative texts were transcribed verbatim in clauses following the guidelines given by Berman & Slobin (1994, pp. 655-664). A NS of English or Chinese first transcribed the recording, and for inter-rater agreement, then a Chinese-English bilingual speaker reviewed all the audiotaped samples for correspondence to the transcript. Word-by-word agreement was determined to be 100%.

Coding Scheme

To compare the macro-narrative or SG structures present in the English and Chinese texts produced by the monolinguals and bilinguals, their narratives were coded for either the presence or absence of the given components as in the Table 2.1.

Purposeful attempts are attempts followed by prepositional phrases or infinitive clauses such as “for the frog”, “to find the frog”, or “in order to find his frog”. Therefore, the clause “The boy is looking into the boots for the frog” would be classified as an attempt with purpose, whereas the clause “The boy is looking into the boots” would be categorized as an attempt without a purpose.

To capture the expression of causal relations in the narratives, each narrative is parsed into clauses with one verb predicate in each clause. Hesitations, sentence repetitions, self-corrections, false starts, asides, and additions were omitted from the analysis since they did not contain any textual information. Causal relations in each

immediately adjacent pair of verb clauses would be identified and coded into the following four mutually exclusive categories (Gutierrez-Clellen & Iglesias, 1992): enablement, initiation, motivation and resultant causation.

Enable relation is one in which physical states enable or disable the agent's action (e.g. "it was the home of an owl and the owl came out of the hole.") . Initiation relation is one when actions or physical states initiate mental states (e.g. "the frog is gone and they're really shocked"). Motivational relation exists in a pair of clauses in which the agent's mental states or goals motivate his/her actions (e.g. verbs such as "want" or infinitival complements such as "to catch"; "the dog is happy. He licks the boy). Resultant relation is one in which actions lead to physical states (e.g. "the doggie looked in the jar. The doggie had his head stuck in the jar."). In general, clauses connected followed a linear sequence, and the direction was reversed when the conjunction "because" was applied. For instance, in "The boy got angry/because the little dog broke the jar," the action of breaking the little jar initiated the mental state of the boy being angry. As a consequence, this sequence was classified as an initiation causation even though expressed in a reversed order.

Two kinds of verbs require special attention, one is *experiencer* verb, and another is periphrastic causative verb. In terms of an *experiencer* verb, their external argument acts as an experiencer rather than an agent, such as *to see* or *to hear*. Out of question, a mental disposition or internal process has been involved. Thus, the sentences containing these kinds of *experiencer* verbs generally are classified as mental states instead of actions.

Periphrastic causative is combined by a verb such as *to cause*, *to make*, or *to get* and an infinitive, adjectival, participial, or locative complement. Even though this kind of

periphrastic causative consists of two clauses, namely a main clause and a subordinate clause, “the first refers to an unstated action that results in the action or state described by the complement” (Kemper, 1988, p. 145). Under this circumstance, the periphrastic causative is regarded as a single-clause sentence, and its property is decided by the complement as shown in examples (3).

- (3) John caused Mary to be unhappy. (MS)
The mother made the baby smile. (A)

Truncated passive sentences such as *the dog was run over*, though derive from active sentences; they are describing states instead of actions. Therefore, truncated passives were regarded as adjectives endowing properties to the arguments as in (4).

- (4) The dog was run over. (PS)
The rumor was believed. (MS)

Finally, all the inferred propositions were restored before conducting the analysis in causal relations.

When two events are not adjacent, as long as the necessary condition is satisfied between them, a causal connection is established between them. The necessity is defined as if event A had not happened in the story, then event B would not have occurred. For instance, event A is “the boy climbed the tree”; the connected event B is “the boy fell off the tree”. If the boy had not climbed the tree, he would not fall off the tree. Meanwhile, the event B could also be causally linked with the event C “the boy is scared by the owl

coming out of his hole”. Accordingly, the event B could be related with more than one event.

Four types of causal connectedness are recognized to illustrate the pattern of causal connectedness within each narrative, namely, C_0 , C_1 , C_2 and C_{3+} . C_0 refers to the event which has no causal connection with other events in the story; C_1 event only has one connection with one other event; C_2 event has connections with two other events. Like the event B described above, if events A and C both occur in the narration, then the event B is regarded as C_2 event. Finally, due to the infrequent occurrence of events with more than three connections, they are generally classified as event C_{3+} . Which has connections with three or more other events.

In the frog story, ten different points of view can be exploited to describe the story: boy, dog, boy and dog together, frog, mouse, bees, owl, deer, other frogs, and the narrator. Among them, the main protagonist—the boy obtains the longest network which lasts from the beginning to the end of the story, and he interacts with some other characters to some extent. Therefore, while coding for the hierarchical structure, only GAOs related to the main protagonist of the story (the boy) were coded (Trabasso & Nickels, 1992).

In order to figure out the hierarchical goal structures in the narratives, goals are coded if they were expressed by (a) an infinitive (i.e., “the boy looked in the shoe to see”); (b) states of will (i.e., “he wants”, “he decides”). Meanwhile, both complete and incomplete GAOs were counted. Complete GAOs were those containing three explicit causal elements (G, A, O) for a certain event. For example, the sequence “he wanted to find the frog. He looked everywhere in the room, but he did not find it” contains explicit G2, A2 and negative O2. This sequence was regarded as one complete GAO. A GAO

was coded as 1, 2 or 3 corresponding to the hierarchical levels described previously. Any missing element in the GAO structure would make it incomplete.

As in Arfe and Boscolo' study (2006), global coherence were measured by the total number of GAOs included in the narrative (GAO1 + GAOs2 + GAOs3) as an overall measurement of the causal articulation and the total number of superordinate GAOs (GAO1 + GAOs 2) which measured the hierarchical organization of the narrative. GAOs 3 were considered to contribute the local coherence.

A Chinese-English bilingual speaker first coded all narrative samples with all required features independently. Then another Chinese-English bilingual speaker double checked the completed coding. Disagreements were resolved by consensus after the investigators jointly reviewed and discussed the coding in question. Initial intercoder agreement ranged from 95.6% to 100% with an average of 97.8%; final intercoder agreement was 100%.

Results

General Results

To illustrate the patterns of SG from four groups, we calculated the proportion of subjects in each group mentioning the structural components, as presented in Table 2.2. The mean number of initiating events mentioned by each group, from Chinese, English, EFL to ESL group, was, respectively 4.4, 4.4, 4.3, and 4. In terms of the mean number of attempts mentioned by each group, was, 5.9, 6.5, 6.3, and 6.8. In general, all groups mentioned more frequently that the boy and dog had gone to sleep, that the frog had left, that they waked up and that the frog was gone than that the boy found jar empty and became upset. To be more specific, the narrations of Chinese and EFL groups encoded

the presence of empty jar more frequently. The English group referred to the internal states of the boy—being upset more than the other groups. Regarding to Attempts & Outcomes, four groups performed very similar to each other. Nonetheless, the attempt of looking over the other side of the log has been mentioned the least by Chinese compared with other groups.

Table 2.2 Number and proportion of subjects mentioning each SG component from each

Group	group			
	Chinese	English	EFL	ESL
Story components				
IE 1	11/12 (92%)	12/12 (100%)	11/12 (92%)	12/12 (100%)
IE 2	12/12 (100%)	12/12 (100%)	12/12 (100%)	12/12 (100%)
IE 3	11/12 (92%)	10/12 (83%)	11/12 (92%)	9/12 (75%)
IE 4	4/12 (33%)	2/12 (17%)	6/12 (50%)	3/12 (25%)
IE 5	10/12 (83%)	10/12 (83%)	8/12 (67%)	10/12 (83%)
IE 6	5/12 (42%)	7/12 (58%)	4/12 (33%)	2/12 (17%)
A 1	12/12 (100%)	10/12 (83%)	12/12 (100%)	11/12 (92%)
A 2	10/12 (83%)	12/12 (100%)	11/12 (92%)	12/12 (100%)
A 3	12/12 (100%)	12/12 (100%)	12/12 (100%)	12/12 (100%)
A 4	11/12 (92%)	12/12 (100%)	11/12 (92%)	12/12 (100%)
A 5	11/12 (92%)	11/12 (92%)	10/12 (83%)	11/12 (92%)
A 6	9/12 (75%)	10/12 (83%)	9/12 (75%)	12/12 (100%)
A 7	6/12 (50%)	11/12 (92%)	11/12 (92%)	12/12 (100%)

Figure 2.2 presents proportions of attempts encoded with and without purposes in the narratives by each group. The figure indicates that the English group mentioned more attempts with and without purposes than other groups, and they tended to conjoin attempts with purposes.

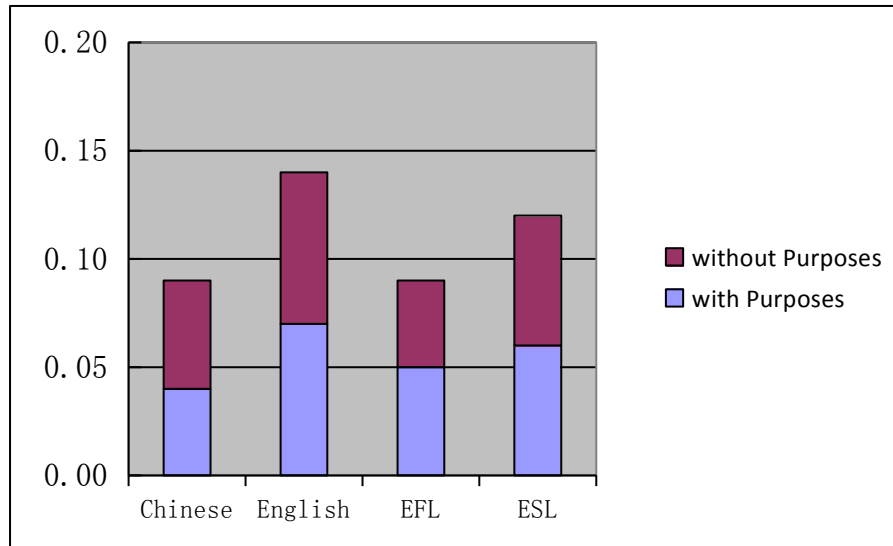


Figure 2.2 Mean proportion of attempts with and without purposes

The ESL group generated the fewest number of clauses among four groups as shown in Table 2.3. Generally speaking, the resultant relation was not applied as much as the other causal relations. In contrast, motivation relation occurred most frequently which implies the nature of narratives as goal-oriented plans.

Table 2.3 Means and standard deviations (SD) of clauses and four types of causal relations from each group (SD is in the bracket)

	Chinese	English	EFL	ESL
t-units	73.33 (21.77)	75.83 (22.72)	70.33 (25.47)	66.17 (20.78)
Enablement	5.58 (2.02)	5.50 (2.61)	6.08 (2.11)	4.67 (1.72)
Initiation	5.58 (2.58)	6.42 (3.94)	4.67 (2.43)	5.17 (2.76)
Motivation	7.58 (4.12)	6.83 (3.22)	6.58 (4.21)	7.50 (3.90)
Resultant	3.17 (1.59)	2.83 (1.90)	2.17 (1.85)	2.33 (1.72)

Causal connections between events have also been summarized and shown in Table 2.4. From the table, we can see C₂ was the most popular causal connection type compared

with the other three. Apparently, Chinese subjects were more sensitive to the relative causal importance of narrative events by using C_{3+} most frequently.

Table 2.4 Proportions of events for each type of causal connectedness

	Chinese	English	EFL	ESL
C_0	8.95	11.12	7.89	10.38
C_1	25.35	30.78	31.71	27.45
C_2	36.82	34.86	35.40	36.56
C_{3+}	28.88	23.24	25.00	25.61

Finally, in terms of the hierarchical goal structure analysis, Table 2.5 provides descriptive statistics for the data obtained, and Figure 2.3 represents the percentages of superordinate, and subordinate GAOs out of the overall number of GAOs per group. Both of them suggest there might not be differences related to the hierarchical goal structure among the four groups.

Table 2.5 Median and range for GAO units obtained

Measures	Chinese	English	EFL	ESL
Total GAO Units	8 (6~10)	8 (6~10)	8 (5~10)	9 (8~12)
Total Complete GAO Units	1.5 (0~4)	2 (0~5)	2 (0~5)	1 (0~4)
Total Incomplete GAO Units	7 (5~7)	6 (3~10)	5 (4~8)	8 (5~9)
Superordinate GAO Units	4 (3~4)	4 (3~4)	4 (2~5)	4 (3~6)
Complete Superordinate GAO Units	0 (0~2)	0 (0~2)	0 (0~2)	0 (0~1)
Incomplete Superordinate GAO Units	3 (2~4)	3 (2~4)	3 (2~4)	4 (3~5)
Subordinate GAO Units	5 (3~6)	5 (3~6)	4.5 (2~5)	5 (4~6)
Complete Subordinate GAO Units	1 (0~3)	2 (0~3)	2 (0~3)	1 (0~3)
Incomplete Subordinate GAO Units	3.5 (2~4)	3 (1~6)	2.5 (0~4)	4 (2~5)

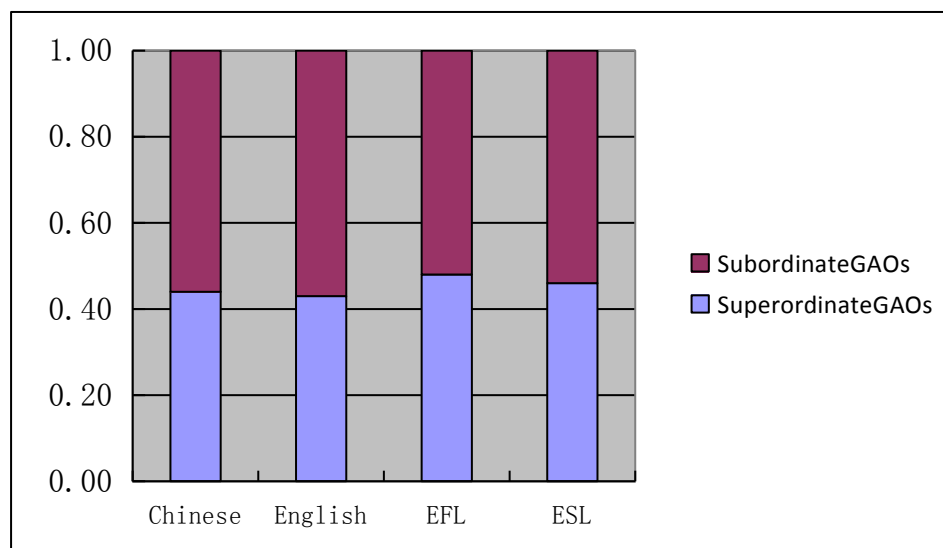


Figure 2.3 Percentages of Superordinate, and Subordinate GAOs out of the overall number of GAOs per group

Comparison between Monolinguals

Start with the story grammar analysis, since a certain component either was present or absent in one's narrative, which fits the condition of logistic regression, logistic regression was applied here. Two monolingual groups only differed from each other in the attempt of "looking over the other side of the log", $p < .05$, as indicated in Table 2.2. When we consider one subject's IE and Attempt as a whole by adding up the present components for that subject, due to the fact that all related data were not normally distributed, non-parametric method—Kruskal-Wallis exact test was applied here. No significant differences were noted for either the number of IEs or Attempts mentioned between two monolingual groups ($W = 66.5$, ns; $W = 50.5$, ns respectively). The results implied two monolingual groups applied similar story grammar in their narratives. However, as mentioned before, English monolinguals produced more attempts ($t(22) = -2.35$, $p < .05$) and conjoined purposes with attempts more explicitly than Chinese monolinguals did ($t(22) = -2.49$, $p < .05$).

In terms of the number of clauses, monolingual groups did not differ from each other, $t(22) = -.275$, ns. Even though no differences in the number of clauses were discovered, narrative length was still controlled across stories per tradition. Thus the proportional occurrences of causal relations were computed for each subject. The percentage data were further processed with arc sine transformations to be normalized; then four t-tests was performed for each type of causal relations. All results indicated two monolingual groups did not differ from each other in the use of causal relations.

In view of the causal relationship between two nonadjacent events, the pattern of causal connectedness was also tested and compared. Proportions of events for each type of causal connectedness were computed and then arc sine transformed. English monolinguals encoded more C_1 events, $t(22) = -2.62$, $p < .05$, while Chinese monolinguals encoded more C_{3+} events, $t(22) = 2.34$, $p < .05$.

No significant differences were found in all measures about hierarchical goal structure such as total number of GAO units, total number of complete GAO units, total number of incomplete GAO units, number of superordinate GAO units, number of complete superordinate GAO units, number of incomplete superordinate GAO units, number of subordinate GAO units, number of complete subordinate GAO units, and number of incomplete subordinate GAO units. The details of the statistical test results can be found in Table 2.6.

Table 2.6 Statistical test results for GAO units obtained from monolinguals

Measures	Chi-sq	Sig.
Total GAO Units	64	0.68
Total Complete GAO Units	56.5	0.37
Total Incomplete GAO Units	84.5	0.46

Superordinate GAO Units	72	1
Complete Superordinate GAO Units	77.5	0.91
Incomplete Superordinate GAO Units	67	0.87
Subordinate GAO Units	63.5	0.68
Complete Subordinate GAO Units	48	0.18
Incomplete Subordinate GAO Units	89	0.31

Comparison between Bilinguals

The same logistic regression was employed to highlight the differences in SG from two bilingual groups. As indicated in Table 2.2, no significant difference was found in the comparison of any component listed in Table 2.1. Meanwhile, the number of IEs and Attempts mentioned as a whole was also indistinguishable between two bilingual groups ($W = 87$, ns; $W = 52$, ns respectively). The EFL group produced approximately fewer attempts than the ESL did, $t(22) = -2.07$, $p = .05$. However, they did not differ in the way of encoding attempts with purposes, $t(22) = -1.35$, ns.

Bilingual groups also used similar number of t-units, $t(22) = .439$, ns., as well as four types of causal relations. However, EFL group encoded more C_1 events than ESL did, $t(22) = 2.23$, $p < .05$.

While comparing the hierarchical structure of two bilingual groups, significant differences were revealed in two GAO unit measurements: (1) total number of incomplete GAO units; and (2) number of incomplete subordinate GAO units (Total Number of Incomplete GAO Units: $W = 29$, $p < .05$; Number of Incomplete Subordinate GAO Units: $W = 30$, $p < .05$). The statistical test results between two bilingual groups can be found in Table 2.7. In sum, the above results implied that the ESL group produced more incomplete total, and incomplete subordinate GAO units than the EFL group did.

Table 2.7 Statistical test results for GAO units obtained from bilinguals

Measures	Chi-sq	Sig.
Total GAO Units	46.5	0.14
Total Complete GAO Units	90.5	0.31
Total Incomplete GAO Units	31	0.01*
Superordinate GAO Units	55.5	0.23
Complete Superordinate GAO Units	71	1
Incomplete Superordinate GAO Units	47.5	0.16
Subordinate GAO Units	46.5	0.12
Complete Subordinate GAO Units	94.5	0.23
Incomplete Subordinate GAO Units	34.5	0.02*

* indicates significant at alpha .05 level.

Comparison among English Monolinguals and Bilinguals

In this part, we compare English monolinguals, EFL and ESL participants together. The results from logistic regression indicated the ESL group mentioned the last IE ‘the boy is sad’ significantly fewer than English monolinguals did. However, the EFL group did not differ from the other two groups. When the performance of IEs or Attempts was considered as a whole, the results from Kruskal-Wallis tests implied three groups were indistinguishable in their pattern of story grammar ($\chi^2(2) = 2.13$, ns; $\chi^2(2) = 2.13$, ns respectively). Attempts with purposes also did not differ from each other, with $F(2, 35) = .53$, ns.

Three groups did not differ from each other in the use of four types of causal relations, and they also did not differ regarding to the pattern of causal connection.

In view of the hierarchical goal structure used in three groups, the statistical result is listed in Table 2.8. The result from Kruskal-Wallis test indicated they only differed from

each other in terms of total incomplete GAO units. Wilcoxon sign rank test (with ties) revealed significant pair-wise differences between ESL and EFL participants ($W = 31$, $p < .05$); the differences between ESL participants and English monolinguals, and between EFL participants and English monolinguals however, failed to reach significance.

Table 2.8 Statistical test results for GAO units obtained from English monolinguals and bilinguals

Measures	Chi-sq	Sig.
Total GAO Units	2.97	0.23
Total Complete GAO Units	1.49	0.47
Total Incomplete GAO Units	6.22	0.04*
Superordinate GAO Units	3.99	0.14
Complete Superordinate GAO Units	0.46	0.80
Incomplete Superordinate GAO Units	3.24	0.20
Subordinate GAO Units	3.10	0.21
Complete Subordinate GAO Units	2.62	0.27
Incomplete Subordinate GAO Units	5.26	0.07

* indicates significant at alpha .05 level.

Discussion

This study explored coherence and cohesion in the narratives of Chinese, EFL, ESL, and English participants in terms of the story grammar, causal relations, and hierarchical goal structures. Analyses were carried out for three comparisons: First, we compared the stories of the two monolingual groups to detect potential language-based differences; second, two bilingual groups' narratives were analyzed for age-of-acquisition-based differences; and, third, comparisons were carried out between the English monolinguals and two bilingual groups to examine whether bilingual groups have achieved native-like ability in English causal coherence and cohesion.

In terms of the crosslinguistic differences, two monolingual groups did not differ from each other in the story grammar analysis, types of causal relations, and hierarchical goal structure analysis. The results indicated they were encoding the same narrative components while telling the story and they applied the same discourse-organization skills to construct their narratives. Nonetheless, the between-group differences are still worth our attention.

First of all, Chinese mentioned the attempt of looking over the log significantly fewer than English monolingual peers. In English narratives, most narrators mentioned the frog's sound came from the log, which triggered the boy's action of looking over the log as we could expect. In contrast, Chinese narrators described the event as the boy heard the sound without specifying the location; while he was swimming towards the source of the sound, the log was in his way, so he climbed over it and suddenly found the frog.

To encode consecutive events according to the protagonist's goal plan, the narrator should try to encode the protagonist's actions as attempts to attain the goal as much as possible. Moreover, they could also conjoin the attempts with purposes to make the attempts more related to the plan. Compared with English monolinguals and the ESL group, Chinese speakers not only encoded fewer attempts than monolinguals did, they also omitted purposes that motivated attempts. The EFL group resembled the monolingual Chinese speakers and encoded relatively lower attempts with purposes over the seven goal-reinstatement scenes. The above two Chinese patterns may reflect the indirectness property characteristic of the speech of Chinese and Japanese. Hinds (1987, p. 44) summarized indirectness as that "it is the responsibility of the listener (reader) to

understand what it is that the speaker or the author had intended to say.” Chinese monolinguals and the EFL subjects would not like to mention attempts repeatedly, and they were expecting the listeners to figure out the purposes of attempts, since the purpose was easily accessible based on the context—to find the frog. Instead, they employed more clauses of actions to describe what the boy was doing in each picture rather than focusing on attempts of finding the frog. This suggests that Chinese speakers prefer to narrate the story according to temporal and spatial sequence rather than relating attempts to goals closely.

The general connectedness pattern shown in our study across four groups is compatible with findings in the development of coherence in Chinese narratives (Sah, 2013). For nine-year-olds and adults, C₂ event is the dominant causal connection type. In light of the developmental result, Sah claimed that the more causal connections applied, the more globally coherent a narrative would be. In our study, English monolinguals preferred C₁ events, while Chinese were more likely to encode events with more causal connections by C₃₊ events. It seems that Chinese speakers are more concerned with establishing global coherence due to their preferred types of events. Nonetheless, the two monolingual groups did not differ in the hierarchical goal structure, another criterion to measure global coherence, which indicates causal connectedness analysis alone is not appropriate while evaluating global coherence of a discourse. This apparent conflict is best summarized by Diehl *et al.* (2006, pp. 89-90) as that “It is possible for events to be structurally important (i.e., having high number of causal connections) in an episode of the story, but not to the gist (causal chain) of the overall story”. Chinese applied more C₃₊

events because they tried to provide complete descriptions for individual episodes rather than relating them to the gist of the story—looking for the frog.

With regard to age of acquisition effect, we compared the performance of two bilingual groups. The EFL group was more influenced by the Chinese narrative convention, and at the same time had more difficulty in maintaining local coherence than the ESL group. On the one hand, the EFL group produced fewer attempts related to goals like the Chinese monolingual group than the ESL group. This seems to reflect the influence from Chinese on English as an L2. On the other hand, the EFL group encoded more C_1 events with clauses of actions like the English monolingual group than the ESL group. The fact that the EFL group didn't relate as many C_{3+} events in English that was typical of the Chinese language may be attributed to their level of English proficiency. The cognitively complex task of narrating a story made it a challenge for the EFL group to maintain a good balance between using target language grammatical representations and keeping local coherence at the same time.

The command of superordinate goals provides the “big picture” of the story (Luo & Timler, 2008, p. 40) and is a later developed skill involved in complex narratives (Trabasso & Nickels, 1992). The employment of subordinate goals could also contribute to coherent narratives. Renz *et al* (2003) observed that children with attention deficit hyperactivity disorder (ADHD) had fewer attempts associated with subordinate goals than typically developing peers. While using hierarchical goal structures to organize narratives, the EFL had no difficulty in higher-level goal structures but they had problems with the subordinate level (i.e., indexed by fewer total incomplete GAO units, specifically, fewer incomplete subordinate GAO units). In a sense, the two bilingual

groups indexed the overall organization of narratives similarly, but the EFL group performed worse in the production of third-level episodes, which is closely connected to the description of the scenes and the ability to linguistically describe picture stimuli (Arfé & Boscolo, 2006, p. 288).

Finally, of the issue ultimate attainment in coherence and cohesion was addressed when comparing the ESL and EFL bilingual groups with the English monolingual group, the EFL group performed comparatively worse by producing slightly less organized narratives (i.e., indexed by fewer total incomplete GAO units) than the ESL group and the monolingual English speakers. However, it should be noted that the ESL is not completely representative of English monolinguals. Trabasso *et al.* (1992) noticed in their study that children were less likely to refer to the boy's waking up, finding the empty jar and experiencing an emotion. Thus they concluded that children were reluctant to mention the internal states of the boy such as perceptions, cognitions, and emotions. The ESL group in the present study has demonstrated a similar tendency as Trabasso *et al.*'s (1992) English-speaking children by mentioning less about the boy's sorrow. Thus, the ESL group was also divergent from the monolingual English group in terms of expressing emotions.

Conclusion

This study provides a comprehensive picture of causal coherence and cohesion skills of Chinese-English bilinguals and their monolingual peers in a picture-elicited narrative task. Results show that the two monolingual groups produced narratives with a macrostructure comparable to each other and employed similar types of causal relations.

However, Chinese speakers tended to focus on the description of episodes, while English speakers mentioned actions in a manner of relating more to the goals.

Results also show differences in coherence and cohesion between the two groups of Chinese-English bilinguals with different age of L2A and accordingly language competences (the EFL vs. the ESL). Specifically, the EFL group has represented some properties of Chinese narratives and they produced less locally coherent narratives. When English monolinguals were compared with Chinese-English bilinguals, the results indicated the ESL group served better as a reference of ultimate attainment in coherence and cohesion, only if they mentioned more about the protagonist's cognition and emotion.

Some limitations of the study also need mentioning. First limitation was the relatively small sample size of each group that enabled the study to show crosslinguistic differences as opposed to valid generalizations. Second, even though we were very cautious about coding, subjectiveness could not be avoided. In future research, we can apply the same data into Coh-Metrix (Graesser, McNamara, Louwerse, & Cai, 2004), which could evaluate a narrative's coherence and cohesion automatically, and compare the results to verify our findings.

The present study focused on coherence and cohesion skills of Chinese-English bilinguals. In the future, stories told by bilinguals of different language combinations should also be examined for us to better understand the role of L1. Furthermore, the correlation between microstructure and macrostructure in the context of coherence and cohesion should also be analyzed.

Chapter 3: The Acquisition of Preferred Argument Structure

Introduction

The chapter examines the preferred argument structure (PAS) in the narratives of Chinese-English bilingual speakers and their monolingual peers. PAS refers to the observed tendency for speakers to avoid expressing more than one lexical argument or more than one piece of new information in a clause, and the tendency to avoid having lexical or new referents in the transitive subject (A) position (Du Bois, 1987). The main goal of this chapter is to examine whether narratives produced by bilingual speakers will differ from those by monolingual peers in their PAS, and if so how the differences may be related to crosslinguistic influence and/or age of acquisition.

Preferred Argument Structure

A primary function of language is to convey information, and argument structure carries important information about the entities that participate in the events we talk about. It has been observed that the linguistic forms that we choose to use are highly motivated by the discourse functions of managing information flow. While each language provides its speakers with a variety of structural options to express the same situation or discourse function, some choices are more probable than others (Tao & McCarthy, 2001). In other words, the structure of information flow tends to have a corresponding grammatical patterning. According to Du Bois, Kumpf, & Ashby (2003, p. 34), “in spontaneous discourse, certain configurations of arguments are systematically preferred

over other grammatically possible alternatives”, and they called this hypothesis as the “Preferred Argument Structure”.

The PAS theory was originally put forward and developed by Du Bois (1985, 1987). It is intended to reflect some universal constraints on the interaction between grammar and pragmatics. Three types of nominal arguments are distinguished, namely, the agent argument of an intransitive clause (S), the most agent-like nominal of a transitive clause (A), and the object of a transitive clause (O), though it is not necessary for the A role to be agentive and the O role to be patientive. The PAS can be described as four constraints, two at the grammatical dimension and two at the pragmatic dimension, and these four constraints, as shown in Table 3.1, define limits on lexical quantity, lexical role, information quantity, and information role (Du Bois, 1987; Du Bois, *et al.*, 2003).

Let us first look at the pair of constraints at the grammatical dimension. The first grammatical constraint, that is, the ‘One Lexical Argument Constraint’, limits the quantity of full lexical noun phrases (NPs) that may appear among a predicator's core arguments to not more than one. The second grammatical constraint, that is, ‘Avoid Lexical A Constraint’, limits which grammatical roles the single lexical argument may appear in, specifically excluding it from the A role.

The grammatical constraints are paralleled at the pragmatic dimension. According to the ‘One New Argument Constraint’, each clause carries no more than one piece of new information. The role constraint at the pragmatic dimension limits where the one new argument may appear, again excluding it from the A role. In other words, there is a tendency to introduce new information into discourse through the non-A role (the ‘Given A Constraint’).

The above constraints reflect the reciprocal relations between grammar and pragmatics. Kumpf (1992, p. 370) has stated it this way, “the syntactic distribution of NPs is congruent with a pragmatic view of the same facts: arguments take the form that they do because the discourse typically realizes new and given information in preferred patterns”. Some later researchers have collapsed the four constraints into a simple Given/Non-lexical A Generalization (Everett, 2009), since Du Bois (1987, pp. 829-830) has noted that new information is most frequently coded by lexical NPs.

The PAS pattern was first attested in narratives in Sacapultec Maya (Du Bois, 1985, 1987), and then the syntactic and pragmatic generalizations have been verified by many typologically different languages such as Spanish and French (Ashby & Bentivoglio, 1993), Japanese (Iwasaki, 1985), Mandarin (Tao, 1991), Hebrew (Smith, 1987), Korean (P. Clancy, 1993; P. M. Clancy, 2003), Inuktitut (Allen & Schröder, 2003) and others. Genre such as written exposition (J. Li, 1986), specialized spoken discourse (O'Dowd, 1990) and procedural discourse (Tao, 2007) has also shown as an influential factor in studies. For example, Tao found out that in Mandarin procedural discourse, OV word order was predominant and the A role was suppressed. However, Du Bois argued that for oral narrative and conversation, PAS should be universal across a wide range of languages (Du Bois, 1987).

Table 3.1 Preferred argument structure constraints (Adapted from Du Bois, *et al.*, 2003, p. 34)

	Grammar	Pragmatics
Quantity	One Lexical Argument Constraint: Avoid more than one lexical core argument	One New Argument Constraint: Avoid more than one new core argument
Role	Non-lexical A Constraint: Avoid lexical A's	Given A Constraint: Avoid new A's

Even though the four constraints of the PAS theory have seemed to capture how particular pragmatic functions are regularly associated with certain syntactic roles, to the exclusion of others, Everett (2009) points out that the discussion so far has neglected some confounding factors while introducing lexical or new mentions in the S and O roles, consequently leaving certain questions unsolved, such as why new/lexical Ss are comparatively less frequent than new/lexical Os. According to Everett, most human mentions are likely to be given and are more topically continuous. As a consequence, there is a universal and remarkable tendency for human referents in conversations and narratives to be realized as anaphoric or null. This observation has led Everett to introduce the semantic feature of human-ness into the PAS theory and extended the form-function association to the correlation between human arguments and topical, non-lexical, non-new arguments.

Everett explained the Non-lexical/Given A constraints by the correlation between Pragmatics and Semantics as follows:

“As should tend to be given and represented anaphorically since they typically represent humans (generally topical), while Os should tend to be new and represented more frequently by lexical arguments since they typically refer to nonhumans (generally transient) (p. 13)’.

“The S role, however, represents a heterogeneous category, since it most frequently hosts arguments denoting human referents, but may also host arguments denoting non-human referents...it is plausible that the mixed status of Ss, which are often agentive and human, but are also frequently non-agentive and non-human, is in and of itself a potential explanation for the fact that Ss tend to introduce new referents at a greater rate than As (p. 12)...Ss should present relatively more lexical arguments and new referents than As, but less than Os (p. 13)”

In short, Everett suggested that it is the human-ness of an argument that acts as a better predictor of realization of that argument rather than the grammatical role that argument takes.

PAS in English and Mandarin Chinese

Several studies have examined PAS in English. O'Dowd (1990) examined orally-delivered paramedical training sessions, and found that the S role shares the weight of given information with A, while new mentions occur in the O role. Thompson (1997) dealt with conversational American English data and showed that A role largely accommodates given information, while S and O occur much less often, and thus providing support for the PAS theory. O'Dowd (1990) did for American English conversational discourse. It was found that while PAS largely held for English, the discourse structure that emerged in American English conversational data showed a stronger alignment of S with A than with O. More recently Du Bois (2003), citing data from Kumagai (2000), pointed out that PAS held for English.

Chinese has no inflection or case markers, and the word order is relatively free. Thus, it seems that the irregular word order would pose a challenge to the universality of PAS. However, research has shown Chinese also conformed to PAS; some discrepancies existed as well (Chui, 1992; C.-c. Huang, 2012; S. Huang & Chui, 1997; Lin, 2009; Tao & Thompson, 1994).

Tao & Thompson (1994) questioned traditional methods of analyzing discourse data, which were based on grammatical theories, and promoted the investigation into the interface of Chinese discourse and grammar. In their early studies, ordinary conversations from seven native speakers of Mandarin (between 25 and 35 years olds) were analyzed comprehensively. A unified realization of argument structure for the majority of transitive and intransitive clauses was found, that is $X V^1$, which supported the findings

¹ Tao & Thompson (1994, p. 28) defined their "X" as a pronoun on A in low transitives, a full noun on the O role in high transitives, and the only argument in non-transitives.

from Du Bois (1985, 1987) in Sacapultec Maya language, Lambrecht (Lambrecht, 1987) in French discourse, and Ochs (1988) in Samoan language. However, there were more overt arguments realized at the A role than at the O role, which violated the non-lexical A constraint.

Chui (1992) studied eight oral narratives from eight Mandarin native speakers of 20-25 years old. The results indicated Mandarin oral narratives confirmed the One Lexical Argument Constraint and the One New Argument Constraint. Nonetheless, Chui found the O or Oblique role rather than A and S roles were more likely to host a lexical referent. Thus, Chui argued that in order to characterize the particular A/S alignment in Chinese narrative discourse, the two Role constraints should be proposed as The Lexical O Constraint. Huang & Chui (1997) also agreed with that, and they further stated S and A arguments introduced given information while new information was introduced in the O or Oblique role.

Lin (2009) investigated the genre effect in the configuration of argument structure in Chinese conversations, narratives and written texts. Overall, Chinese spoken discourse and written texts have exhibited similar patterns in that new information favored the role O while given information preferred the A and S roles. Comparatively speaking, relatively less given information was provided in conversations than in narratives and written texts. Last but not the least, even in early child Mandarin (2;2-3;1), the association between discourse and grammar could also be detected and reflected the constraints of PAS (C.-c. Huang, 2012).

The review of the current studies on PAS in English and Mandarin Chinese seems to suggest that while PAS largely holds for the two languages, there are subtle differences

between the two languages as well as derivations from the general tendencies of PAS for each of the two languages. These potential differences raise an interesting question in the bilingual development of these two languages. Will the bilingual speakers differ from their monolingual peers in the acquisition of PAS due to the influence of one language over the other? Will age of acquisition modulate such influences if any? Very little study has addressed PAS in L2A with the exception of Kumpf (1992) who found out that while non-native speakers of English abided with the PAS constraints, they produced more full NPs than native speakers did. The chapter is designed to bridge the research gap and to address these questions.

Methods

Data

The same data described in Chapter 2 will be coded and analyzed for PAS in the present chapter.

General Coding Scheme

The basic analysis unit for PAS is clause. Thus the frog story was first separated into clauses, with each clause containing one overt verb. The core arguments of the verb was further coded for grammatical roles (A, O, and S), referential forms (lexical forms, and non-lexical form including null and pronominal forms), information status (given, accessible and new information) and human-ness (a mention refers to a human referent or not). The specific guideline for grammatical roles and information status is listed below.

Grammatical Roles. The single arguments of intransitive verbs are coded as the S role, including the NPs in the preverbal position in existentials. The most agentlike arguments of transitive verbs are denoted as A, and objects as O. The NPs after the

linking verbs in the *there* constructions are classified as members of the O category (cf. Kumpf, 1992), “because there itself is not a discourse referent: it cannot be considered as an identifiable character or object” (Kumagai, 2006, p. 680).

Oblique NPs are introduced by prepositions, and they typically are Non-Tracking NPs, and will tend to be Non-Identifiable and non-Given (Thompson, 1997, p. 70). According to different grammatical and semantic properties, oblique arguments could be classified into two kinds, with one kind referring to locational and directional relations while the others specifying non-spatial relations, such as instrumental, benefactive, and comitative etc. (Thompson, 1997). In the present study, we only recorded two pieces of information about obliques: lexical form and information status.

Information status. A new referent refers to the one that has never been brought up in the prior context, thus it does not presuppose mutual knowledge and can be expressed as English indefinite nominal (a dog). A given referent is the entity previously mentioned, which can be expressed as English definite nominals (the dog), pronominals (it), and null elements (e.g. He climbed over the log and ϕ took a look).

Accessible information is intermediate between new and given information and it comes from the expectations associated with a schema or results from deactivation from an earlier state. A piece of information is classified as accessible (a) “if it was part of a previously evoked, entity-based frame although previously unmentioned; or (b) if it had been mentioned previously, but more than 20 intonation units previously” (Du Bois, 1987, p. 816). Take principle (a) for example, even though the head or leg of the little dog has not been mentioned before, they are still accessible because they are the body parts of the

owner and the previous introduction of the owner has evoked a frame which includes the body parts as easily associable elements (Kumagai, 2006).

Given the correlation between lexical forms and information status, non-identifiable expressions are excluded according to criteria provided by Du Bois (1980). Below are some types of expressions that have been excluded from our analysis. First, nominal expressions that are used to depict certain properties of the characters or objects, contained in equational clauses, are excluded from the discourse analysis, such as ‘a young woman’ in the sentence ‘it’s a young woman’. Time expressions (e.g. in the morning) are also excluded from analysis since they are not referring to objects or characters. Nominal expressions produced in the scope of negation as in (1) and indefinite pronouns as in (2) are also excluded since they are non-identifiable and non-specific. In complex noun phrases that contain relative clauses, only the head noun is counted because it is the one that informs the valency role of the whole noun phrase in the sentence as in (3) (Kumagai, 2006). NPs depicts “artifacts of the experimental situation” as in (4) are excluded since they are not referring to any characters (Du Bois, 1980, p. 206). Comparatives with *like* as in (5) are not referential and excluded in the analysis. Finally, nouns that are not related to salient characters and objects in the story are also excluded as in (6).

- (1) but there is no response.
- (2) Somebody will tell him where the frog is.
- (3) The little boy is looking at the frog he has.
- (4) Now the little boy understands the whole story.
- (5) It looked like a deer.

- (6) He waved goodbye to their family.

Proper names and clausal complements are coded separately. First of all, when proper names occur by themselves as in (7), they are not taken into analysis. Because as in (7) the proper name *Tom* could either be replaced by an NP ‘the boy’ or a pronoun ‘he’, therefore its category is hard to be determined. Moreover, no evidence has been provided in literature about their referent ability, either closer to NPs or pronouns. When the proper name occurs with other characters together, the whole phrase is regarded as an NP as in (8).

- (7) Tom was looking into his boots.

- (8) Tom and the dog went to find it.

For clauses containing clausal complements, only clausal objects with overt complementizers are analyzed in the present study (e.g. he thought that the frog was in the hole). Therefore, direct quotes are left out of the analysis in this study. In this case, the main clause is coded first, then the content of the clause is coded as a separate and individual clause (cf. Kumpf, 1992). Moreover, indirect objects or question words are also excluded from analysis.

Finally, there is controversy about the coding of Predicating NPs such as ‘put on his shoes’. Some regard them as a special class of NPs taking the O role (Chafe, 1994; Du Bois & Thompson, 1991), while some consider the NP as a part of predicate and then process the predicate as an intransitive verb (Thompson, 1997). In our study, we treated predicating NPs as objects because these NPs were still referential.

Coding Scheme for Chinese Unique Sentence Structures

The coding schemes for some peculiar Chinese structures such as Resultative Verb, Serial Verb and Co-verb Construction are illustrated in this section with examples in our data according to Li & Thompson (1989). Generally speaking, one clause only contains one overt verb, however, in some special cases, multi-verb clauses are allowed if two or more than two verbs together complete one event. When a main verb is followed by one or two resultative verbs, this kind of verbal construction is named as Resultative Verb Compound (RVC) and is treated as a single verb, as in (9).

- (9) zhe-ge xiaonanhai diao xia lai le.
This-CL little boy fall descend come PRT
‘The little boy fell down.’

In the above example, the first verb of the compound, *diao* ‘fall’ implied a displacement, and the follow compound *xia-lai* ‘descend come’ signaled the direction in which the subject moved due to the displacement. They together described an integrated event and then were treated as a single intransitive verb.

Serial verbs and co-verbs are sometimes related especially in locative and directional phrases. In some cases, the counterpart of Chinese co-verbs is English obliques. There are many serial verb and co-verb involved in the frog story; therefore, it is necessary to clarify their respective structures and corresponding coding principles.

Co-verb in Chinese refers to one category of morphemes that are partly like verbs and partly like prepositions, including words such as *gen* ‘follow, with’, *zai* ‘be at, at’, *yong* ‘use, with’, *dao* ‘arrive, to’. At earlier stages of Chinese, co-verbs were used as verbs and they have changed to prepositions in modern Chinese. However, they still keep characteristics of verbs and could act as verbs when no other verbs exist in the sentence

(C. N. Li & Thompson, 1974, 1989). The function of Chinese co-verb is the same as that of English preposition—introducing a NP. Generally speaking, the co-verb phrase is located between the subject or topic of the sentence and the main verb as shown in (10).

- (10) Subject/ topic coverb + noun phrase verb (noun phrase)

The followings are examples produced by Chinese participants:

- (11) Ta zai zhe-ge fangjian dao chu zhao.
He at this-CL room everywhere search
‘He searched everywhere in the room.’
- (12) Xiaogou yan-zhe zhe-xiaoshu pa shang qu.
Little dog along-ASP this little tree climb up go
‘The little dog climbed up this little tree.’

Certain coverbs could also occur after the main verbs such as *zai* ‘at’ in locative phrases and *dao* ‘to’ in directional phrases as in following examples.

- (13) Xiao nanhai shuai zai di-shang.
Little boy fall on ground-above
‘The little boy fell on the ground.’
- (14) Xiaohai pa dao yi-ge shu-shang.
Little kid climb to one-CL tree-above
‘The little kid climbed up a tree.’

In existential sentences where a locative phrase is in sentence-initial position, *zai* ‘at’ is generally optional, as shown in (15). The noun phrase within the co-verb phrase could also be omitted, which has to be understood from context as in (16).

- (15) (zai) zhe shu-shangmian you yi-ge fengwo.
(at) This tree-above exist one-CL beehive
‘There is a beehive on the tree.’
- (16) (zai) (zhe shu) shangmian you yi-ge fengwo.
Above exist one-CL beehive
‘There is a beehive above.’

In the above cases, the co-verbs have been used as prepositions. Nonetheless, they could act as verbs as well in the following example.

- (17) Xiaohai diao dao-le chitang-li.
 Little kid fall arrive-PFV pond-in
 ‘The little kid fell into the pond.’

In (17), *dao* serves as a verb meaning ‘arrive’ and forms a serial verb construction with the preceding verb *diao*. The reason for such judgment is that in directional phrases, *dao* cannot be followed by any kind of aspect marker. In (17), *dao* occurs with the perfective aspect marker –le, indicating *dao* ‘arrive’ is in the perfective aspect. Thus, *chitang-li* would be the object of the serial verb.

Comparison between Monolinguals

In order to acknowledge the L1 and age effect in the acquisition of preferred argument in L2 discourse, we first compared the performance of two monolingual groups, with the purpose of finding out the potential sources of language transfer effect. Then, we compared the ESL, EFL and English groups together to attest the existence of age, linguistic or bilingual effects. We presented our results according to the four constraints of PAS put forward by Du Bois (1987) and the human-ness account of Everett (2009).

The One Lexical Argument Constraint

On the basis of the one lexical argument constraint, we would expect that each clause contains no more than one lexical argument. The distribution of clauses with zero, one and two lexical arguments by two monolingual groups is shown in Table 3.2 and Figure 3.1. As seen in the table and figure, clauses with zero or one lexical argument were the most common structures in both groups. In contrast, clauses with two lexical arguments displayed as a distinct minority.

Table 3.2 Frequency of clauses with lexical arguments by monolinguals

Lexical Argument	Chinese		English	
	n	%	n	%
0	273	33.66	311	40.08
1	444	54.75	402	51.80
2	94	11.59	63	8.12
Total	811	100	776	100

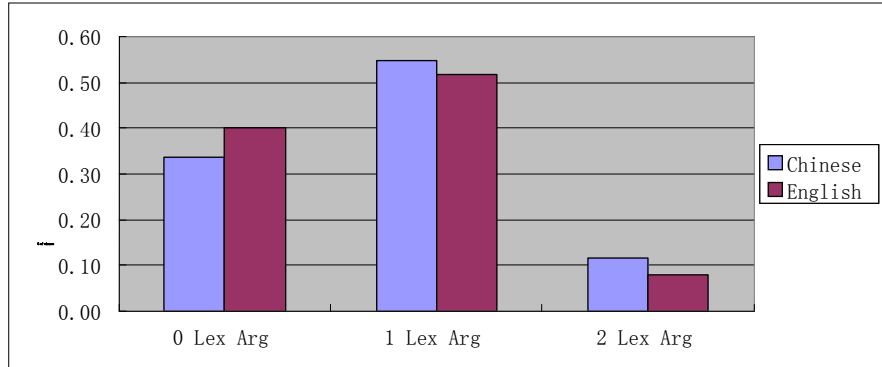


Figure 3.1 Distribution of clauses with lexical arguments by monolinguals

A chi-square test has been conducted to determine whether there was a correlation between group of subjects and the lexical argument configuration. The obtained chi-square was 9.91, with $df = 2$, $p < .05$, which indicates the correlation existed. As the figure indicates, Chinese speakers dispreferred clauses with zero lexical argument (negative residual of -1.47), whereas they preferred clauses containing two lexical argument (positive residual of 1.54) and one lexical argument (positive residual of .56).

Even though the results appeared to confirm the One Lexical Argument Constraint, we have to verify whether the low frequency of two arguments was caused by the rarity of transitive clauses, since only transitive clauses can contain two lexical arguments at the same time. Consequently, we separated transitive clauses from intransitive ones and dug into more details on the distribution of lexical arguments across transitivity. Table 3.3

lists the cross-distribution of transitivity and frequency of lexical arguments by two monolingual groups.

Table 3.3 Transitivity and numbers of lexical arguments in clauses by monolinguals

Lexical Argument	Chinese				English			
	Transitive		Intransitive		Transitive		Intransitive	
	n	%	n	%	n	%	n	%
0	104	26.26	169	40.72	61	24.30	250	47.62
1	198	50.0	246	59.28	127	50.60	275	52.38
2	94	23.74	0	0	63	25.10	0	0
Total	396	100	415	100	251	100	525	100

As seen in Table 3.3, comparatively speaking, Chinese speakers produced a much higher rate of transitive clauses (around 49%). As a result, they showed a stronger preference for clauses with two arguments than the English speakers did. The table also indicates when only transitive clauses were considered, clauses with two lexical arguments no longer constituted a salient minority (23.74% and 25.10% respectively). Nonetheless, the overall pattern still conformed to the constraint. As to the intransitive clauses, the ratio between clauses with zero and one lexical argument for Chinese speakers was much lower than 1 (40.72% to 59.28%) compared with that of our English speakers (47.62% to 52.38%) and Du Bois' data (51.9% to 48.1%),

In sum, the One Lexical Argument Constraint holds for both English and Chinese.

The One New Argument Constraint

The One New Argument constraint proposes that there is no more than one argument presenting new information in each clause. Table 3.4 shows the frequency of clauses with zero, one, and two new arguments by two monolingual groups. No chi-square test has been conducted here, because less than 80% of the expected frequencies

were larger than 5. However, certain differences could still be discovered based on Figure 3.2.

Firstly, there is no doubt that the majority of clauses contained zero and one new argument regardless of group, with the former type predominating. Secondly, we can see the distribution of new argument assignment was identical to that of lexical argument. For instance, compared with English speakers, Chinese speakers produced less clauses with zero new argument but more clauses with one new argument.

Table 3.4 Frequency of clauses with new arguments by monolinguals

New Argument	Chinese		English	
	n	%	n	%
0	647	79.78	688	88.66
1	162	19.98	85	10.95
2	2	.25	3	.39
Total	811	100	776	100

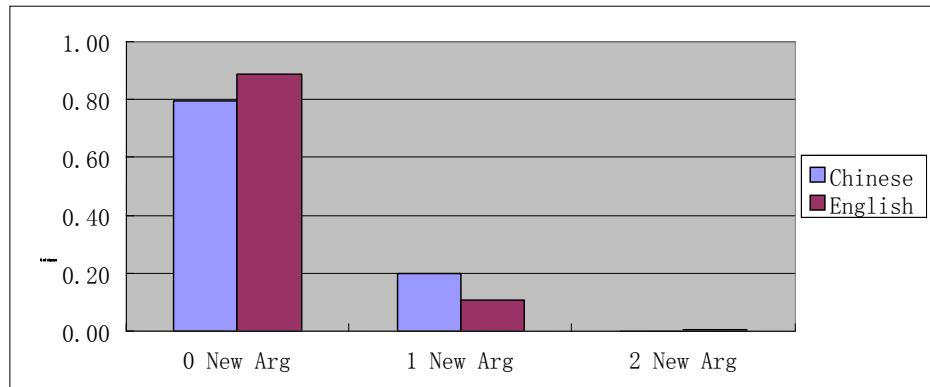


Figure 3.2 Distribution of clauses with new arguments by monolinguals

Similarly, the distribution of new arguments across the grammatical roles was given according to transitivity shown in Table 3.5. As we can see from the table, the two groups' performance in transitive clauses was comparable. In contrast, in intransitive clauses, Chinese produced three times of one-new-argument as English monolinguals did,

which is predictable since Chinese produced higher proportions of clauses with one lexical argument.

Table 3.5 Transitivity and numbers of new arguments in clauses by monolinguals

	Chinese				English			
	Vt		Vi		Vt		Vi	
	n	%	n	%	n	%	n	%
0 N	319	77.6	328	81.6	195	77.7	493	93.9
1 N	88	21.4	74	18.4	53	21.1	32	6.1
2 N	4	1	0	0	3	1.2	0	0
Total	411	100	402	100	251	100	525	100

The distribution of new arguments across transitive and intransitive clauses from two monolingual groups was in line with what Du Bois found in Sacapultec. That is, no matter in transitive or intransitive clauses, clauses with zero new arguments were predominant. Nonetheless, our finding for Chinese transitive clauses contradicted with that of Lin (2009), in which there were higher portion of clauses with one new argument. In sum, unlike the One Lexical Argument Constraint, our data confirmed the One New Argument Constraint regardless of transitivity.

Overall, the two quantity constraints, namely the One Lexical Argument Constraint and the One New Argument Constraint, were supported by the data from both English and Chinese. However, subtle between-group differences were also observed. Moreover, the similar patterns shown in the two constraints by speakers of the two languages indicate the correlation between lexical and new mentions.

The Non-lexical A Constraint

The Non-lexical A Constraint claims that lexical arguments avoid to occur at the A position. Table 3.6 shows the frequency of lexical referents across the grammatical roles.

Table 3.6 Frequency of lexical arguments across grammatical roles by monolinguals

Grammatical Role	Chinese		English	
	n	%	n	%
A	134	21.20	86	16.29
S	193	30.54	259	49.05
O	305	48.26	183	34.66
Total	632	100	528	100

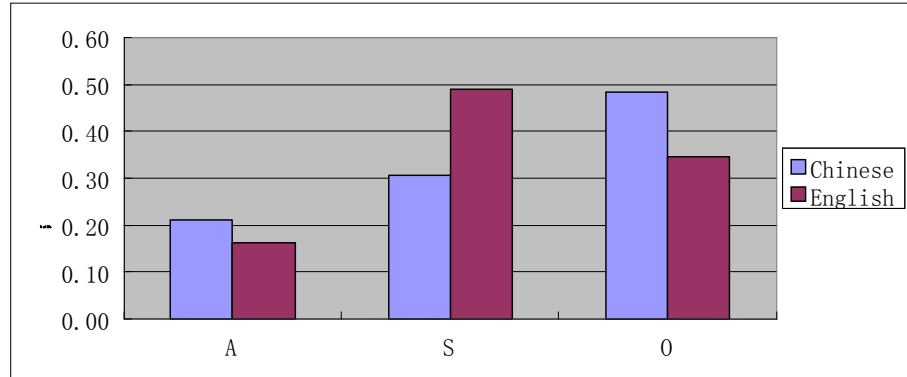


Figure 3.3 Distribution of lexical arguments across grammatical roles by monolinguals

As seen in the figure, across the two monolingual groups, lexical referents occurred most frequently in the S and O roles, with small proportion of them appearing in the A role, which has supported the ‘Non-lexical A Constraint’. However, the two groups performed fairly differently from each other. Thus, a chi-square test was conducted to examine the correlation between the referential forms in the A, S, and O roles and two monolingual groups. The obtained chi-square was 41.62, with $df = 2$, $p < .01$, which indicates two groups applied diverse methods to organize lexical arguments across core grammatical roles. To be more specific, Chinese have shown stronger preference for lexical arguments to occur at the A (positive residual of 1.29) and O (positive residual of 2.40) roles but not for the S role (negative residual of -3.39).

Three types of referential forms, namely zero argument, pronominal, and lexical argument, were further analyzed to demonstrate their distribution within each grammatical role as in Table 3.7.

Table 3.7 Frequency of referential forms within each grammatical role by monolinguals

	Zero Argument				Pronominal				Lexical Argument			
	Chinese		English		Chinese		English		Chinese		English	
	n	%	n	%	n	%	n	%	n	%	n	%
A	173	43.7	79	31.4	89	22.5	86	34.3	134	33.8	86	34.3
S	103	28.8	117	23.0	62	17.3	133	26.1	193	53.9	259	50.9
O	14	4.1	1	.5	25	7.3	33	15.2	305	88.6	183	84.3
Total	290	26.4	197	18.3	176	16.0	252	25.2	632	57.6	528	56.5

The above table indicates that across the three grammatical roles, compared to English monolinguals, Chinese peers used comparatively more zero argument but fewer pronouns. That is to say, Chinese subjects subconsciously avoided using pronouns regardless of grammatical roles.

In addition, two groups' behavior in the Oblique role was also compared because Chinese unique sentence structure has changed what should be the Oblique in English into Object in Chinese. Our data has verified the above tendency that Chinese monolinguals produced far fewer lexical mentions at the Oblique role (chi-square = 42.29, $df = 1$, $p < .001$). When all lexical referents including those in the Oblique role were taken into analysis, in terms of frequency of NPs, Chinese monolinguals exhibited $O > OBL > S > A$ hierarchy. Whereas, English monolingual represented a disparate hierarchy: $OBL > S > O > A$.

To sum up, the Non-lexical A Constraint is held by our monolingual data. The more interesting findings in this part were that first, Chinese tended to use far fewer pronouns; second, Chinese distributed lexical referents differently from English monolinguals did, especially with the O and Oblique roles. In other words, the O position plays an important role in introducing new information in Chinese, while the counterpart for English is the Oblique, which can be verified in the following section.

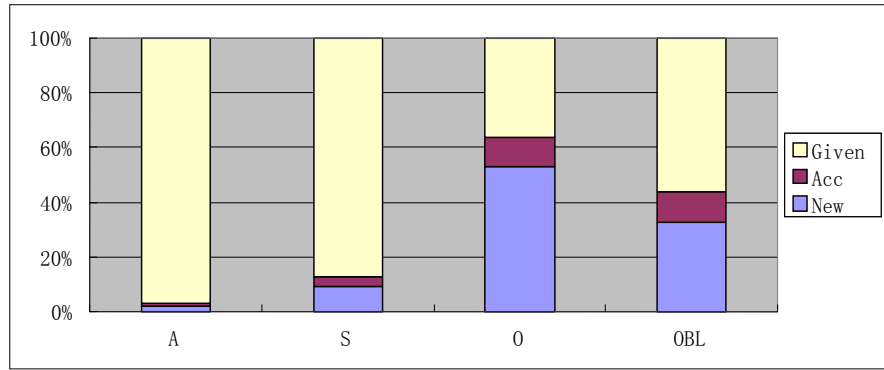
The Given A Constraint

The Given A Constraint states that new information avoids to occur at the A position. Table 3.8 displays the distribution of new information across the grammatical roles by two monolingual groups. Apparently, much higher proportion of new information occurred at the O position; a much smaller proportion of new information took up the S position; and only a few new mentions could be found at the A role. Moreover, no correlation was found.

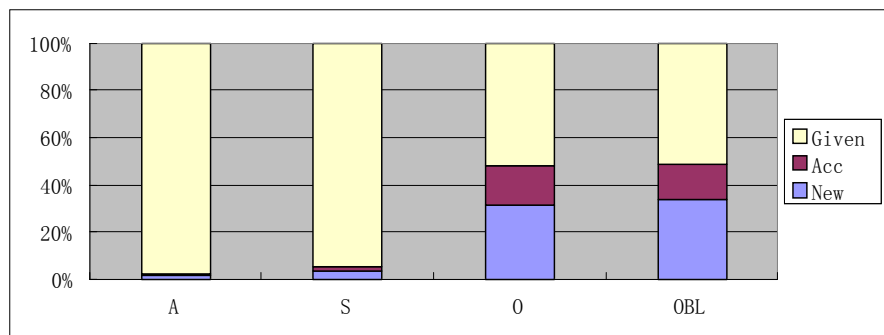
Table 3.8 Frequency of new information across grammatical roles by monolinguals

Grammatical Role	Chinese		English	
	n	%	n	%
A	8	4.82	4	4.40
S	33	19.88	18	19.78
O	125	75.30	69	75.82
Total	166	100	91	100

As aforementioned, the information status contains three categories: new, given and accessible. Therefore, further analysis was given to demonstrate the distribution of three information status within each grammatical role. A series of figures in Figure 3.4 were used to show the proportions of different information status in each grammatical role by two groups. The corresponding distribution for the Oblique role was also included.



3.4 a Cross-distribution for the Chinese group



3.4 b Cross-distribution for the English group

Figure 3.4 Distribution of information status within each grammatical role by monolinguals

The distributional similarity between A and S roles suggests the A/S alignment under this constraint. More importantly, new arguments favored the O role in Chinese more saliently.

We also examined the distribution of new information appeared at the Oblique role between two monolingual groups. The result was significant (chi-square = 17.63, $df = 1$, $p < .01$), and it further implied the Chinese group strongly disfavored new mentions to occur at this position (negative residual of -2.97). When all new information across roles was taken into consideration, the frequency hierarchy for the Chinese group was $O >$

Oblique > S > A and that was Oblique > O > S > A for the English group. Both of them were fairly similar to the previous hierarchy.

In short, the two role constraints work well for our monolingual data as well. The noteworthy points were that, first, Chinese placed more lexical referents at the A and O roles, and put more new information on the O role. In contrast, English monolinguals tended to accommodate lexical referents on the S and Oblique roles, and let the Oblique host more new information; second, the approximately identical hierarchies for the frequency of lexical and new arguments further indicated the strong correlation between them.

The Human-ness Account

This section does not aim to evaluate the different motivations proposed by Du Bois (1987) and Everett (2009), but to illustrate how human referents would be distributed unproportionally among grammatical roles by our data. Specifically, whether the A and S roles are more likely to hold human referents, while the O role tends to accommodate non-human referents. Moreover, our focus is to attest the existence of language effect. Table 3.9 and Figure 3.5 demonstrate the distribution of human referents across the grammatical roles among three groups.

Table 3.9 Frequency of human referents across grammatical roles by monolinguals

Grammatical Role	Chinese		English	
	n	%	n	%
A	213	49.19	136	29.37
S	162	37.42	291	62.85
O	58	13.39	36	7.78
Total	441	100	463	100

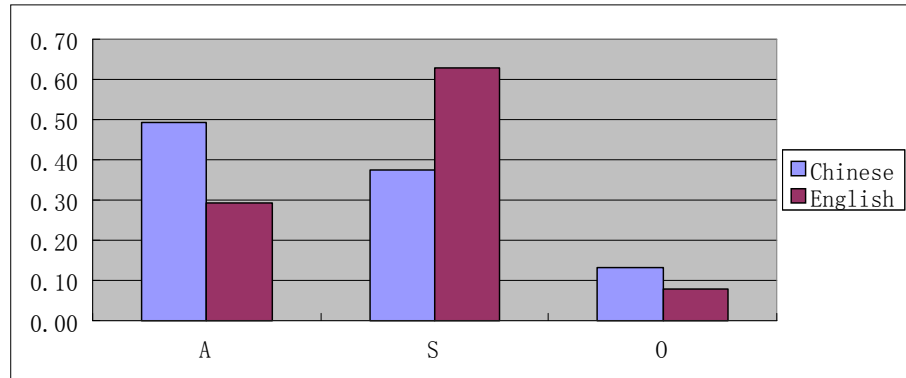


Figure 3.5 Distribution of human referents across grammatical roles by monolinguals

As indicated by the table and figure, human referents occurred most frequently at the A and S roles regardless of group. Nevertheless, the distributions for human referents at the A and S roles have presented obvious between-group differences (chi-square = 57.93, $df = 2$, $p < .01$). That is, human referents were more likely to occur at the A role for Chinese but at the S role for English, which is actually the result of different sentence structures. Chinese applied more transitive clauses, therefore, most human referents occupied the A role; while intransitive clause was predominant for English, thus most human referents occurred at the S role.

Further analysis was conducted to inspect the relationship between the human-ness feature with grammatical roles. The result is presented in Table 3.10.

Table 3.10 Frequency of human-ness feature within each grammatical role by monolinguals

	A		S		O		Chi-square
	n	%	n	%	n	%	
Chinese							
Human	213	53.79	162	45.25	58	16.86	112.63***
Non-human	183	46.21	196	54.75	286	83.14	
English							
Human	136	54.18	291	57.17	36	16.67	105.94***
Non-human	115	45.82	218	42.83	180	83.33	

*** indicates significant at alpha .001 level.

As seen in the table, the distributions of human and non-human referents correlated with the grammatical roles regardless of group. Generally speaking, there were more human referents at the A role and non-human referents at the O role in two groups. The only difference was the arrangement of non-humanness at the S role. More non-human referents occurred at the S role by Chinese, which was opposite for English. In sum, our finding was partially consistent with that of Everett: the majority human referents locate at the A and S roles, while non-human referents distribute at the O and S roles. Dryer (1986, p. 41) summarized the phenomenon as “Subjects of transitive clauses tend to be more ‘topical’: they are more often definite, human, or non-3rd person than are objects”.

In the frog story, there is only one human character, thus most referents to this character would be expressed as Non-lexical/Given mentions beyond doubt. As aforementioned, the Non-lexical/Given A constraints could only predict the representation in the A role but not the others. Correspondingly, it is more important to analyze the correlation between lexical forms and human-ness at the S and O roles, with the aim of checking whether the human-ness feature could predict lexical representation forms and information status at the S and O roles. Table 3.11 shows the correlation of human-ness with lexical arguments within S and O roles. Fisher’s exact test was conducted here to make our result comparable to that of Everett.

Table 3.11 Correlation of human-ness with non-lexical arguments by monolinguals

Chinese			
	Human S	Non-Human S	P-value
Lexical	55	138	P < .001***
Non-lexical	107	58	
	Human O	Non-Human O	
Lexical	40	265	P < .001***
Non-lexical	18	21	
English			

	Human S	Non-Human S	
Lexical	114	145	P = .001***
Non-lexical	146	104	
	Human O	Non-Human O	
Lexical	24	161	P < .001***
Non-lexical	14	19	

P-value is obtained from Fisher's exact test. *** indicates significant at alpha .001 level.

The above table on the one hand has demonstrated the heterogeneous property of the S role in that human and non-human characters occurred almost equally frequently at that role. The table on the other hand, has represented the same tendency shown in Everett's (2009) study: the majority of all lexical arguments are non-human. Most importantly, under the help of human-ness feature, we could make the following prediction about the representations instantiated at the S and O roles as Everett stated: non-human referents are more inclined than human mentions to be represented as lexical and new information.

Comparison among Bilinguals and English Monolinguals

In this section, we first examined whether the two bilingual groups conformed to the PAS theory and the human-ness account. Next, through mutual multiple comparisons, we aimed to detect the potential age effect if the ESL and EFL groups performed differently from each other; the potential language effect if there existed differences between bilingual and monolingual groups; or bilingual effect if the ESL group performed uniquely.

The One Lexical Argument Constraint

The distribution of clauses with zero, one and two lexical arguments by three groups is shown in Table 3.12 and Figure 3.6. As seen in the table and figure, clauses with zero or one lexical argument were most frequently in all three groups.

Table 3.12 Frequency of clauses with lexical arguments by bilinguals and English monolinguals

Lexical Argument	ESL		EFL		English	
	n	%	n	%	n	%
0	295	43.77	241	35.76	311	40.08
1	327	48.52	381	56.53	402	51.80
2	52	7.71	52	7.71	63	8.12
Total	674	100	674	100	776	100

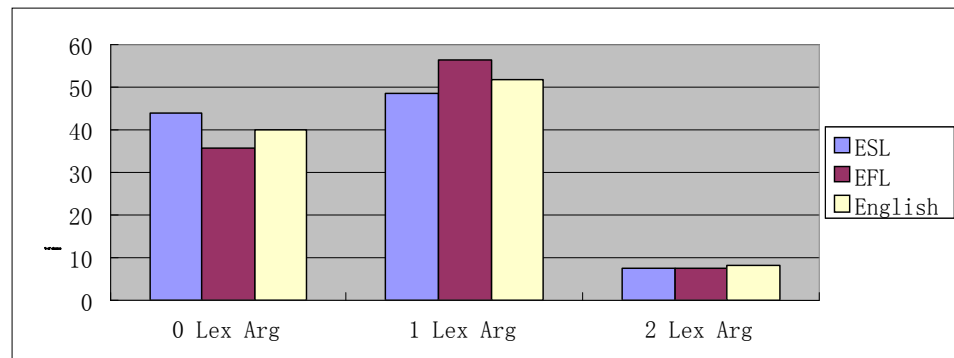


Figure 3.6 Distribution of clauses with lexical arguments by bilinguals and English monolinguals

A chi-square test has been conducted to check the correlation between group of subjects and the lexical argument configuration. The obtained chi-square was 9.73, with $df = 4$, $p < .05$, which indicates the correlation was significant and exhibited in the following way: the EFL group dispreferred the zero lexical argument structure (negative residual of -1.69), whereas they preferred one lexical argument configuration (positive residual of 1.53). ESL and English groups displayed similar pattern, even though there were more clauses with two lexical arguments in English monolinguals' data.

Again transitive clauses were separated from intransitive ones and the distribution of lexical arguments in transitive clauses was first shown in Table 3.13. Like previous finding for Chinese, clauses with two lexical arguments by themselves were no longer minor regardless of group.

Table 3.13 Frequency of transitive clauses with lexical arguments by bilinguals and English monolinguals

Transitive	ESL		EFL		English	
Lexical Argument	n	%	n	%	n	%
0	80	29.30	74	25.17	61	24.30
1	141	51.65	168	57.14	127	50.60
2	52	19.05	52	17.69	63	25.10
Total	273	100	294	100	251	100

In terms of the intransitive clauses, the distribution is shown in Table 3.14. From the table, we can see the EFL group preferred to use more one lexical argument again. In contrast, the ESL favored the zero lexical argument construction, which indicates their narratives were more concise.

Table 3.14 Frequency of intransitive clauses with lexical arguments by bilinguals and English monolinguals

Intransitive	ESL		EFL		English	
Lexical Argument	n	%	n	%	n	%
0	215	53.62	167	43.95	250	47.62
1	186	46.38	213	56.05	275	52.38
Total	401	100	380	100	525	100

Therefore, we can draw a conclusion here that the One Lexical Argument Constraint works out when we analyzed transitive and intransitive clauses together. Above all, the preference pattern displayed by our EFL group was consistent with that of our Chinese monolinguals and that of Lin (2009) for Chinese narratives. That is, first, clauses with one lexical argument remarkably outnumber the other two kinds of clauses. Furthermore, they produced a much higher rate of transitive clauses than the other two groups just like Chinese subjects. But the transitives contained much fewer clauses with two lexical referents. Therefore, we can suggest that the EFL group still remained the similar surface

configuration of lexical arguments as Chinese did. In contrast, the ESL group was over-sensitive and tried to attenuate their speech as much as possible.

The One New Argument Constraint

Table 3.15 shows the distribution of clauses with zero, one, and two new arguments in the data among three groups. No chi-square test has been conducted here, because the prerequisite for the test was not fulfilled. Nonetheless, certain findings could still be detected based on Figure 3.7.

Firstly, undoubtedly, the one new argument constraint is confirmed by data from two bilingual groups. Secondly, we can see ESL and EFL performed more similarly to each other in their organization of new argument: they demonstrated less preference for zero new argument and more predilections for one new argument.

Table 3.15 Frequency of clauses with new arguments by bilinguals and English monolinguals

New Argument	ESL		EFL		English	
	n	%	n	%	n	%
0	570	84.57	559	82.94	688	88.66
1	99	14.69	111	16.47	85	10.95
2	5	.74	4	.59	3	.39
Total	674	100	674	100	776	100

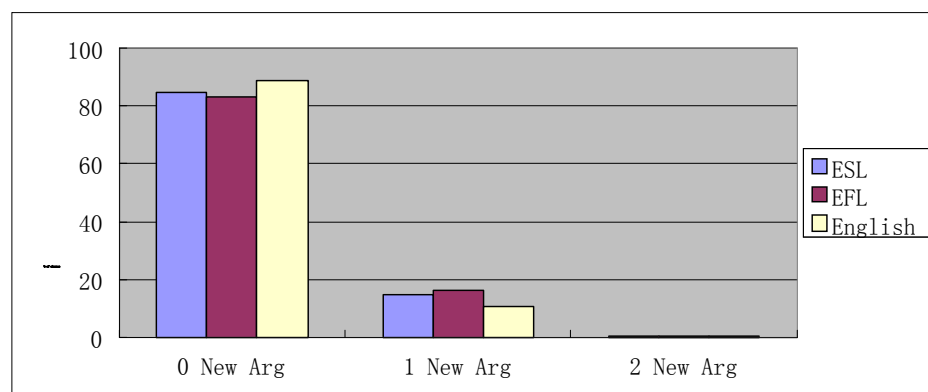


Figure 3.7 Distribution of clauses with new arguments by bilinguals and English monolinguals

Moreover, the distribution of new arguments across grammatical roles and transitivity is also given in Table 3.16.

Table 3.16 Transitivity and numbers of new arguments in clauses by bilinguals and English monolinguals

	ESL				EFL				English			
	Vt		Vi		Vt		Vi		Vt		Vi	
	n	%	n	%	n	%	n	%	n	%	n	%
0 N	193	70.7	377	94.1	222	75.5	337	88.7	195	77.7	493	93.9
1 N	75	27.5	24	5.9	68	23.1	43	11.3	53	21.1	32	6.1
2 N	5	1.8	0	0	4	1.4	0	0	3	1.2	0	0
Total	273	100	401	100	294	100	380	100	251	100	525	100

In transitive clauses, the EFL group performed like an intermediate stage between the ESL and monolingual peers: they produced lower percentage of clauses with zero new argument than English monolinguals but higher than the ESL did; and correspondingly, they narrated higher percentage of clauses with one new argument than English monolinguals but lower than the ESL did.

In short, our data from three groups also supported the one lexical argument constraint and the one new argument constraint, and obvious between-group differences have emerged. In the one lexical argument constraint, the EFL group displayed similar lexical argument arrangement pattern as Chinese did. While in the one new argument constraint, the ESL and EFL groups performed more similarly to each other.

The Non-lexical A Constraint

Table 3.17 shows the frequency of lexical referents across the grammatical roles.

Table 3.17 Frequency of lexical arguments across grammatical roles by bilinguals and English monolinguals

Grammatical Role	ESL		EFL		English	
	n	%	n	%	n	%
A	69	16.05	70	14.43	86	16.29

S	171	39.77	193	39.79	259	49.05
O	190	44.18	222	45.78	183	34.66
Total	430	100	485	100	528	100

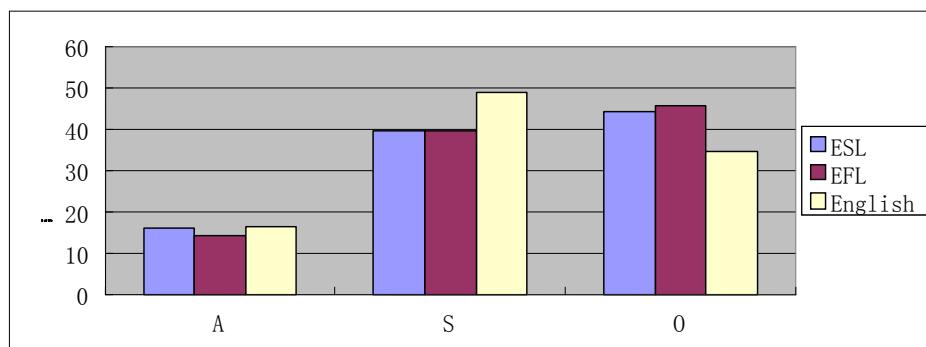


Figure 3.8 Distribution of lexical arguments across grammatical roles by bilinguals and English monolinguals

As seen in the table and figure, across three groups, only small proportions of lexical arguments appearing in the A role, which has supported the Non-lexical A Constraint. A chi-square test was carried out to examine the distribution of lexical referents in the A, S, and O roles across three groups, since the English monolingual group has presented different arrangement from the other two groups. The obtained chi-square was 16.17, with $df = 4$, $p < .05$, which indicates three groups of subjects did exhibit different patterns while arranging NPs across grammatical roles. As indicated in Figure 3.8, lexical arguments were dispreferred to occur at the O position (negative residual of -2.35) but at the S role (positive residual of 2.06) by English monolinguals.

The frequency of three types of referential within each grammatical role from three groups is shown in Table 3.18.

Table 3.18 Frequency of referential forms within each grammatical role by bilinguals and English monolinguals

Zero Argument	Pronominal	Lexical Argument
---------------	------------	------------------

	ESL		EFL		Eng			ESL		EFL		Eng			ESL		EFL		Eng	
	n	%	n	%	n	%		n	%	n	%	n	%		n	%	n	%	n	%
A	83	30.1	80	29.1	79	31.4		124	44.9	125	45.5	86	34.3		69	25.0	70	25.4	86	34.3
S	72	18.6	62	17.2	117	23.0		145	37.4	105	29.2	133	26.1		171	44.0	193	53.6	259	50.9
O	2	.9	1	.4	1	.5		40	17.2	23	9.3	33	15.2		190	81.9	222	90.3	183	84.3
Total	157	16.5	143	15.6	197	18.3		309	33.2	253	28.0	252	25.2		430	50.3	485	56.4	528	56.5

The above table indicates that for each grammatical role, the expression of referents has exhibited different patterns regardless of group. With regard to the A position, all three groups preferred to express the referents as pronominal, followed by zero argument, and then by lexical argument. Start from S, NPs have become the prior selection, ensued by pronominal and zero argument; the pattern was more salient in the O role. One noteworthy point here is that the ESL and EFL did not avoid using pronouns like Chinese did, and they even applied more of them than English monolinguals did. Moreover, we could obtain the same hierarchy as that of Du Bois in terms of the frequency of lexical arguments, that is, $O > S > A$ across the three groups. Finally, our ESL and EFL participants did not produce higher rate of NPs than the English monolinguals, which contradicted with the finding of Kumpf (1992).

We also examined the distribution of lexical referents occurred at the Oblique role. The result from the chi-square test (chi-square = 24.45, $df = 2$, $p < .001$) implied the three groups displayed diverse preference for the usage of lexical argument at the Oblique position. To be more specific, English monolinguals showed significantly stronger preference (positive residual of 4.04) of using lexical argument at that position than the other two groups. When lexical referents at the Oblique role were included, the frequency hierarchy for the ESL and EFL group was $OBL > O > S > A$.

To sum up, the Non-lexical A Constraint holds for our data from all three groups. Some important findings were revealed under this constraint. First of all, both ESL and EFL groups no longer demonstrated the peculiar A/S alignment in Chinese narrative discourse while narrating. In other words, the A position was the least dispreferred role to mention a referent lexically. Second, the arrangement of NPs at the core grammatical roles by the bilingual groups showed the same pattern of Chinese. Furthermore, bilinguals no longer avoided to use pronouns and located more NPs at the Oblique role, which indicated their performance has been influenced by Chinese and English.

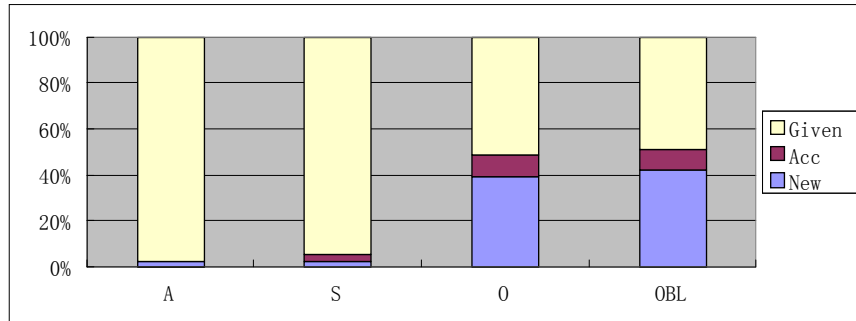
The Given A Constraint

Table 3.19 displays the frequency of new information across the grammatical roles among the three groups. Apparently, only a small proportion new mentions occurred at the A role regardless of group. In addition, no correlation was found between three groups and their arrangement of new information.

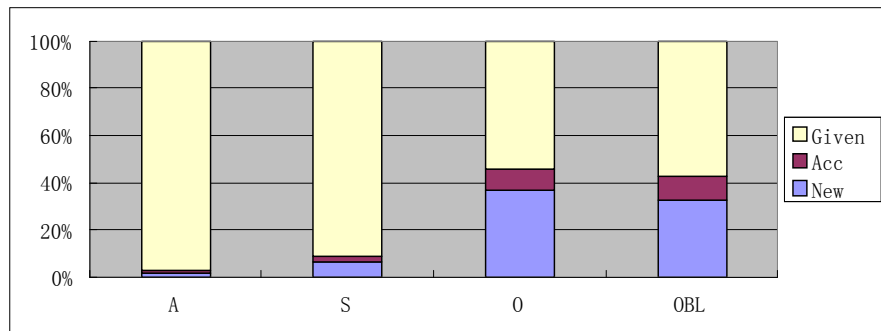
Table 3.19 Frequency of new information across grammatical roles by bilinguals and English monolinguals

Grammatical Role	ESL		EFL		English	
	n	%	n	%	n	%
A	7	6.42	6	5.04	4	4.40
S	10	9.17	24	20.17	18	19.78
O	92	84.41	89	74.79	69	75.82
Total	109	100	119	100	91	100

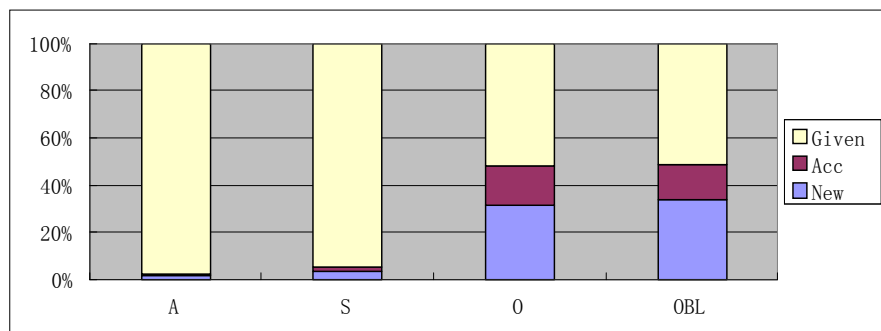
The distribution of information status within each grammatical role was also given in Figure 3.9.



3.9 a Cross-distribution for the ESL group



3.9 b Cross-distribution for the EFL group



3.9 c Cross-distribution for the English group

Figure 3.9 Distribution of information status within each grammatical role by bilinguals and English monolinguals

Figure 3.9 indicates all three groups applied similar pattern while organizing information status within each grammatical role. The above sub-figures also implied the A role patterned with the S role, while the O role with the Oblique role. Finally, the English monolinguals applied comparatively more accessible information than the other groups.

The chi-square test (chi-square = 8.98, df = 2, $p < .05$) about the distribution of new information at the Oblique role suggested three groups presented different preference for the occurrence of new information at the Oblique role. As a matter of fact, the EFL group strongly disfavored the new mentions to occur at this position (negative residual of -2.36). In sum, the performance of the EFL group at the Oblique role was that they disliked lexical and new mentions to occur at this position, which showed their production was still impacted by the mother language.

In short, our data from three groups all supported the two role constraints, the Non-lexical/ Given A constraint. The remarkable features shown in these two constraints were that the ESL and EFL groups put more NPs at the O rather than the S role; the EFL dispreferred to host new/lexical information at the Oblique position; when the distribution of information status within each grammatical role was examined, all three groups showed the A/S alignment.

The Human-ness Account

This section aims to attest whether the performance of the ESL and EFL groups were influenced by Chinese. Table 3.20 and Figure 3.10 demonstrate the distribution of human referents across the grammatical roles among three groups.

Table 3.20 Frequency of human referents across grammatical roles by bilinguals and English monolinguals

Grammatical Role	ESL		EFL		English	
	n	%	n	%	n	%
A	174	39.46	189	45.65	136	29.37
S	222	50.34	193	46.62	291	62.85
O	45	10.20	32	7.73	36	7.78
Total	441	100	414	100	463	100

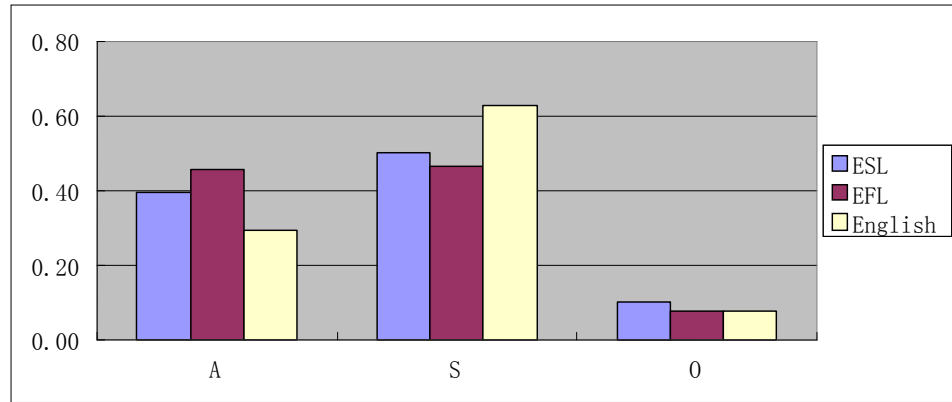


Figure 3.10 Distribution of human referents across grammatical roles by bilinguals and English monolinguals

As indicated by the table and figure, three groups exhibited the same overall pattern: human referents occurred most frequently at the S position followed by the A role, while they were rarely specified at the O position. Small variance has been detected by the chi-square test especially with the English monolinguals. From the Figure 3.10, we can see compared with the other two groups, English monolinguals preferred to have human referents at the S role (positive residual of 2.73) while dispreferred them to occur at the A role (negative residual of -2.97). The ESL and EFL performed similarly to each other. The distribution of humanness feature within each grammatical role among three groups was given in Table 3.21.

Table 3.21 Frequency of human feature within each grammatical role by bilinguals and English monolinguals

	A		S		O		Chi -square
	n	%	n	%	n	%	
ESL							
Human	174	63.97	222	57.51	45	19.31	117.64***
Non-human	98	36.03	164	42.49	188	80.69	
EFL							
Human	189	66.55	193	53.61	32	13.06	163.29***
Non-human	95	33.45	167	46.39	213	86.94	
English							

Human	136	54.18	291	57.17	36	16.67	105.94***
Non-human	115	45.82	218	42.83	180	83.33	

*** indicates significant at alpha .001 level.

As seen in the table, for both A and S roles, all three groups accommodated more human referents than non-human ones, which was contradictory to Chinese data with the S role. Table 3.22 shows the correlation of human-ness with lexical arguments at the S and O roles among three groups. Overall, the data from the bilingual groups have also confirmed the human-ness account.

Table 3.22 Correlation of human-ness with non-lexical arguments by bilinguals and English monolinguals

ESL			
	Human S	Non-Human S	P-value
Lexical	65	104	P < .001***
Non-lexical	158	60	
	Human O	Non-Human O	
Lexical	19	169	P < .001***
Non-lexical	26	18	
EFL			
	Human S	Non-Human S	
Lexical	53	125	P < .001***
Non-lexical	128	42	
	Human O	Non-Human O	
Lexical	20	198	P = .002***
Non-lexical	8	15	
English			
	Human S	Non-Human S	
Lexical	114	145	P = .001***
Non-lexical	146	104	
	Human O	Non-Human O	
Lexical	24	161	P < .001***
Non-lexical	14	19	

P-value is obtained from Fisher's exact test. *** indicates significant at alpha .001 level.

Discussion

Our data from four groups all have supported Du Bois' four constraints and Everett's human-ness account. Nonetheless, four groups did not show identical patterns while organizing the information flow. In other words, distinct configurations have been detected within each constraint by certain group, which further indicated the existence of potential language, age or bilingual influence. In this section, under the help of human-ness account, we will summarize the performance of four groups together within each constraint, analyze similarities and differences, and provide tentative explanations.

We will start with the one lexical argument constraint. Chinese monolinguals have shown the disfavor of clauses with zero lexical argument. Specifically, the ratio between intransitive clauses with one argument and those with zero argument is much higher in Chinese (1.5:1) than in English monolinguals (1:1). Our finding is in line with that of Tao and Thompson (1994) in Chinese. They also found around 60% intransitives were coded with one lexical argument.

Moreover, compared with English monolingual peers, Chinese also showed a stronger preference for clauses with two lexical arguments possibly due to the language specific properties of Chinese sentence structure. In particular, Chinese serial verb construction has changed English Obliques into Chinese Objects, leading to more frequent production of transitive clauses in the Chinese data. Meanwhile, the nominals introduced in Obliques are generally non-human, and thus new and lexical. Correspondingly, Chinese produced more clauses with two lexical arguments.

The above lexical argument distribution pattern displayed by our Chinese monolinguals is not only similar to that of previous study in Chinese narratives (Lin,

2009), but more importantly to that of our EFL group. First of all, our EFL group also produced higher proportion of transitive clauses than the other groups. Next, clauses with one lexical argument remarkably outnumbered the other two types of clauses. The only difference between our Chinese monolinguals and the EFL group is that the EFL yielded lower percentage of two-argument clauses. This divergence is understandable, because they were restricted to English limited sentence structures. Nonetheless, they still tried to produce transitive clauses subconsciously. Overall, for the one lexical argument constraint, we suggest that the performance of EFL group has demonstrated a distinct native language transfer effect.

In contrast, the ESL group performed more similarly to the English monolingual group except that they produced more clauses with zero argument. This phenomenon may be caused by the fact that their clauses were much shorter in length. On the other hand, it may reflect the bilingual effect which has led them to be over-sensitive to English lexical argument configuration, with the result of producing very concise structures. Moreover, the obvious difference between the two bilingual groups has implied the existence of age effect in that after the critical period, the EFL group could no longer obtain the same lexical argument configuration as the ESL group does.

In terms of the arrangement of new argument, clauses with zero new argument are predominant across four groups. Among them, English data contained the largest percent of clauses with zero new argument (88.66%), followed by ESL (84.57%), EFL (82.54%), and finally Chinese (79.78%). The percent of clauses with one new argument has exhibited the opposite direction. From the viewpoint of the percentage, four groups actually did not differ from each other greatly. The greater distributional similarity

between the EFL and Chinese group again indicates the impact of native language and the interaction between new and lexical mentions.

The overall distribution of lexical arguments across grammatical roles among four groups has shown that the two monolingual groups performed like two extremes, with two bilingual groups locating in between and even closer to the Chinese monolingual group. To be more specific, Chinese produced more lexical argument at the A and O role while much less lexical mentions at the S role. The two bilingual groups did not differ from the English monolinguals at the A role, but they showed the same Chinese pattern at the S and O role.

The comparatively more production of lexical forms by Chinese monolinguals at the A role is caused by two facts. First of all, Chinese applied a much higher rate of transitive clauses compared to that of English leading to more human referents being produced at the A rather than S role. Second, to avoid confusion, human referents were more likely to be represented as full NPs rather than pronouns. In contrast, the bilingual groups were not restricted by the above two conditions, thus, at the A role, they avoided to use more lexical referents.

Even though under the non-lexical A constraint, the bilingual groups demonstrated approximately identical pattern at the S role as Chinese did, the underlying reasons for the apparent similarity are different. For the EFL group, they actually were impacted by mother language by arranging more human referents at the A instead of S role, but the human referents were instantiated either as zero anaphor or pronouns. For the ESL group, they were more influenced by English by locating more human referents at the S rather than the A role, however, due to their over-sensitivity, they did not realize human

referents as full NPs. As a consequence, the two bilingual groups performed similarly to each other by applying less lexical arguments at the S role.

At the O and Oblique roles, the performance of bilingual groups is the concurrent effect of Chinese and English. On the one hand, like Chinese, they still gave more priority to the O role rather than the S role while assigning non-human referents. As a consequence, compared with English monolinguals, the other three groups let the O role host more lexical referents among the three core grammatical roles. On the other hand, the bilingual groups have acquired English oblique construction, thus, compared with the O role, more lexical referents were accommodated here.

In sum, the results of this study provide us with ample evidence for the existence of language transfer effect, age of acquisition effect and bilingualism effect. The language transfer effect from Chinese is demonstrated in (a) more frequent use of transitive clauses and more mentioning of human referents at the A role in the narratives of the EFL group, (b) more mentioning of non-human referents at the O role than at the S role in the narratives of the two bilingual groups, and (c) a dispreference for the Oblique to host new/lexical mentions in the narratives of the EFL group. The age of acquisition effect is evidenced by the observation that the use of transitive clauses and the corresponding assignment of human referents between two bilingual groups. Finally, with regard to the bilingual effect, the ESL group was hesitant to apply lexical arguments regardless of grammatical roles, which indicates they might have been more rigidly conforming to the PAS constraints than English monolinguals did.

Without looking into details about bilinguals' performance, both bilingual groups have conformed to the constraints and human-ness account perfectly. Thus, it seems that

either of them can serve as a reference of ultimate attainment in PAS. However, after detailed analysis of language transfer, age of acquisition and bilingualism effect, actually neither of them has completely achieved the ultimate attainment in PAS. The present study thus has important implications for future studies on ultimate attainment in the second language acquisition of form-function mapping. Specifically, the issue is not simply whether L2 learners will be able to obtain ultimate attainment, but rather to consider factors that may potentially prevent them from achieving native like performance.

Last but not least, Du Bois (1987, p. 840) found in his Sacapultec data that “human referents are far more topically continuous (Givón, 1983) than the inanimates, in the sense of being maintained over a series of successive clauses”. It is well known that Chinese is a ‘topic oriented’ language (C.-T. J. Huang, 1984; C. N. Li & Thompson, 1989). Therefore, we would expect that in Chinese data, the percentage of human referents occurring in the A and S roles regardless of lexical forms among all referents would be the highest. However, this expectation was not met. Rather, the results pointed to the opposite direction with Chinese having the lowest percentage (34.15%), EFL (42.97%), English (43.75%) and ESL (44.44%). That seems to suggest that the continuous topicality by Chinese in this study was not fully realized by the use of human referents. Our data seem to suggest that it is the relatively flexible word order, especially the preverbal locative obliques that coordinate topical continuity. To be more specific, in our data, new mentions were introduced at the O role first, and then the referent was immediately being referred at the beginning of the following sentences as a part of the oblique. The sentence-initial locative obliques are still topics in Chinese because “they

set the frame within which the rest of the sentence is presented, they are definite, referring to places and times about which the hearer already knows, and they may be followed by a pause particle” (C. N. Li & Thompson, 1989, p. 95). The beginning of a sentence echoes with the end of the previous sentence, which highlights the Chinese topical continuity feature.

Conclusion

This study has shown that both PAS and human-ness account is characteristic of all four groups of participants involved, namely Chinese monolinguals, English monolinguals, EFL learners and Chinese-English bilinguals. However, distinct language transfer effect, age of acquisition effect, and even bilingualism effect were obvious. Overall, the present study sheds important insight into our understanding of ultimate attainment at the form-function interface level in second language and bilingual acquisition.

Chapter 4: The Acquisition of Passive Voice Constructions

Introduction

Learning a language is not just acquiring the grammar, which most children do by the age of around four. To become a proficient bilingual speaker, one need not only develop a command of the linguistic structures in each of the two languages, but also the ability to use the linguistic structures appropriately in different contexts of language use. This chapter aims to examine the ability of using passive structures appropriately in the discourse-embedded context of relating events in narratives. Our focus is on how Chinese-English bilingual speakers, who have learned English as an L2 around age three or after puberty, encode events through their choice of grammatical voice distinctions in the process of constructing a narrative.

Passive Voice Constructions in Language Acquisition

Research into the acquisition and use of passives in English and other languages has revealed that young children (like adults) learn to use passive constructions as discourse devices for promoting more topical patients or referring to nonprototypical agency. Budwig (1998) presented a detailed study of the use of passive constructions in the longitudinal spontaneous speech of two English-speaking children from ages two to ten. She found that before the age of five, two children use the passive productively and they employ the GET passive and the BE passive in distinct ways to talk about actions from a nonagentive perspective. Specifically, “they switch to the passive to talk about an event in which the agent is unknown, generic, or irrelevant to the discourse, or when they wish

to downplay agency and emphasize the consequences of a particular action for a patient” (p. 244).

The examination of the acquisition of passives and their equivalents in narrative and expository texts has provided insight into the process of first language acquisition (L1A) (M.-A. Akinci, 2001; Jisa & Kern, 1995; Jisa, Reilly, Verhoeven, Baruch, & Rosado, 2002; Slobin, 1994; Van Hell, Verhoeven, Tak, & van Oosterhout, 2005). Passive voice constructions have also attracted considerable interest among bilingual researchers and L2 teachers, presumably because passive voice constructions can be challenging to L2 learners and “many learners even at advanced levels often do not form passive constructions correctly and do not use passive voice in appropriate contexts” (Hinkel, 2002, p. 234).

L2 learners of English, for example, often have difficulty with the constraints on predicates that can appear in passive sentences, thus they frequently produce ungrammatical sentences such as “*I square danced yesterday ...First we were decided partner and corner*” (Watabe, Brown, & Ueta, 1991, p. 126), where the passive form of the verb “decide” is the source of ungrammaticality.

L2 learners also frequently have difficulty in telling when a passive is more appropriate than an active structure, in spite of the fact that they understand the almost universal function of the passive in profiling the patient of a transitive event (Langacker, 1982). Seliger (1989), for example, asked 6 native English speakers (undergraduate students and secretaries) and 6 Hebrew-English bilinguals (all college students enrolled in regular courses as well as advanced composition courses for foreign students and all with a TOEFL score of 500 or above) to respond orally to four topics that were intended

to serve as cues for eliciting English passive sentences. These cues included: “Describe how an omelet is made”, “Describe how a baby is diapered”, “Describe how oranges are picked and sent to market”, and “Describe how mail is sent and delivered”. Results on all four topics showed that English speakers produced far more passives than native Hebrew speakers using English as their L2. In addition, English speakers were found to produce more passives for the last two topics than for the first two, suggesting the possibility of “topic-dependent” patterns in English passives. In contrast, Hebrew-English bilinguals were found to show no preference for any of the topics in their responses.

Seliger (1989) observed that L2 learners often have difficulty in putting their high proficiency concerning the L2 lexicon and grammar into appropriate use in discourse. This was certainly true for Korean learners of English studied by Jung (1996). Jung studied the pragmatic error patterns in English passives in argumentative essays written by Korean learners of English as a foreign language. Subjects were 200 college students divided equally between sophomores and juniors at two universities in Korea. All of them had opted to be English majors or minors and the course they were in was an elective for them. The use of passives was analyzed for discourse functional errors (e.g., violation of role prominence or violation of defocusing) or emotional (affective) function errors. Passives in Korean and English are relatively similar in discourse function. However, they differ significantly in emotional function, i.e., the use of passives to reflect the attitude of the speaker toward the described events. Passives can express emotions or subjective feelings in both English and Korean. Take English for example. The use of “*John got promoted.*” as contrasted to “*John was promoted.*” suggests a sense of *favorable* affectedness, whereas the use of “*John got killed.*” may suggest an adversative

connotation. While in English the emotional function is limited to the get-passive, the emotional function is reflected in all types of passives in Korean. Results showed that Korean learners produce more emotional function errors than discourse function errors. Jung attributed this contrast to the effect of negative pragmatic transfer, i.e., the prevalence of the emotional function of the Korean passive has led Korean speakers to extend the use of English passive to both favorable and adversative contexts. We may interpret this pragmatic transfer as an inappropriate use of Korean construal dynamics in English. In addition, Korean learners still made a substantial number of discourse function errors, despite the similarity of the discourse functions in Korean and English passives.

In their study of L1 interference in the use of passives by Japanese learners of English (ESL) and English learners of Japanese (JSL), Watabe, *et al.* (1991) found that both groups of L2 learners produced passive sentences that are either grammatically ill-formed or contextually inappropriate. Although the Japanese ESL learners in their samples had studied English for an average of 9.8 years and had even spent an average of 31.1 months in the United States, they still had a definite tendency “to transfer the functions of the native passive forms to the target passive forms” (p. 132). The same also held for JSL learners who had been studying Japanese for an average of 4 years and who had lived in Japan for 18 to 22 months.

These studies suggest that passives pose a challenge for late bilingual speakers to achieve native-like attainment even with years of exposure in the target language environment. It remains open, however, whether bilingual speakers who have acquired

their L2 early in their life will have similar difficulty with using passives correctly in appropriate contexts, and the present study will seek to address this question.

Moreover, there is a serious limitation in each of the above mentioned studies in that they commonly assume (explicitly or implicitly) that the passive is derived from the active sentence. The discussion of passive is often limited to the notion of voice and topicalization, and fails to taking into the ability of L2 learners to master and flexibly use the passive structure along with the full range of other perspective-taking devices in the target language. According to cognitive linguistic view, a passive sentence such as, *The dog was being chased by bees*, and an active sentence such as, *The bees were chasing the dog*, are not exactly synonymous. Rather, passive sentences and active sentences “represent alternative construals of the profiled event” (Langacker, 1990, p. 13). It is true that in both sentences, the participant encoded by the noun phrase, *the bees*, plays the agent role, while the participant encoded by the noun phrase, *the dog*, plays the patient role. However, the two sentences differ with respect to which participant is the main focal point (i.e., what the sentence is about). In the active sentence, what is construed as the focal element is the agent (i.e., the bees) and the phrase referring to them occupies the subject position. In the passive sentence, by contrast, the patient (i.e., the dog) is construed as focal element and appears in the subject position. The relative prominence accorded to the participants of the event (i.e., the bees versus the dog) accounts in part for the semantic contrast between the use of an active structure or a passive one.

There are a range of alternative structures available in a language for the meanings and discourse functions expressed by the passive. The use of the passive in narratives may also help to maintain a smooth discourse flow by consistently retaining the main

character as discourse topic (Berman & Slobin, 1994). While the passive is a prototypical structure for describing an event from the perspective of the patient, it is not the only one. In fact, the English passive comprises a family of related constructions including the full passive construction (e.g., *the dog was chased by the bees*), the so-called truncated passive construction (e.g., *the dog was chased away*), and the get-passive (e.g., *the dog got chased by the bees*). Describing an event from the perspective of the patient does not commit the speaker to a passive construal. The speaker may legitimately use an active sentence to describe the event, and still maintain the perspective of the patient. For example, the speaker may choose to say something like (1).

- (1) a. *The dog runs away because the bees are chasing him.*
 b. *The dog runs away while the bees are chasing after him.*
 c. *The dog runs howling by with this swarm of bees chasing him.*

And, of course, many other possibilities exist.

The observation that a passive construction is merely one among many possible dynamic constructions suggests that learning a language, primary or non-primary, involves the mastery of an open-ended and dynamic inventory of possible meaningful linguistic constructions. In constructing discourse it is almost certainly the case that the many possible options exist merely as hypothetically potential possibilities. They do not, and could not, exist as a discrete prefabricated list of alternatives to be pored over as one might go over a menu at a restaurant. Rather, these dynamic possibilities narrow or expand to new possibilities throughout the construction of discourse.

Discovering how alternative constructions are built up within meaningful discourse contexts may help us understand how L2A normally works and how we can make it work

better. In learning to use passive constructions in an L2, figuring out the fact that active and passive sentences often stand in a paraphrastic relation, may be useful but cannot provide the basis for knowing which route to prefer on any given occasion. In learning the passive in an L2, it is important to consider not only whether L2 learners can produce grammatically well-formed passive sentences, but how they use active and passive structures in the dynamic processes of building up conceptual content in a range of discourse contexts. Slobin (1994, p. 341) put it this way: “[A]s soon as one turns from isolated sentences to connected discourse, it is evident that passives serve well-described functions of information packaging and information flow, and that they exist as alternatives among collections of options provided by any particular language”. We agree with the gist of this statement and would only note that, of course, languages that do not have passive structures do not provide that dynamic option and we would also stress, as we have noted before, that the list of options, even the seemingly almost binary distinction between active and passive, does not appear anywhere in consciousness as the discourse is being produced.

The Present Study

The current study examined the range of linguistic devices used by two groups of Chinese-English bilinguals in comparison to a group of age-matched NSs of English while encoding and expressing the specific perspectives they choose to communicate in the process of constructing a coherent story on the basis of a wordless picture story book. The frog story portrays a series of complicated events involving the two main protagonists (*a boy* and *his dog*). They are on their way to search for the boy’s runaway pet frog. There are also four secondary characters (*a ground squirrel, an owl, some bees,*

and *a deer*). The interactions between the two main characters and the four secondary characters provide a rich context for the study of passives and alternative perspective-taking devices (see Table 4.1 below). We focus on five episodes of the story where there is some interaction between one of the main characters and one of the secondary characters. The key episodes are described below in (2).

(2) The five episodes selected for analysis

Episode I: A ground squirrel comes out of a hole and bites the boy's nose.

Episode II: The boy falls out of a tree when an owl comes out of a hole in the tree.

Episode III: The dog is running away from a swarm of bees.

Episode IV: The boy mistakes the antlers of a deer for a bush and gets carried off.

Episode V: The deer pitches the boy off a cliff and down into a pond below.

Each of the episodes invites the narrator to construe it as involving a transitive event in which the main characters (i.e., the boy or the dog) are likely to be taken as affected patients, or to be subject to the actions of the secondary characters (i.e., the ground squirrel, the owl, the bees, and the deer). But the eventual linguistic encoding of each event, according to Slobin (1994, see also Berman & Slobin, 1994), is determined by four communicative decisions involving the choice of (a) topic, (b) locus of control and effect, (c) cognitive perspectives on the event sequence, and (d) the degree of agency involved. The topic is always considered to be the focal point, and the profiled element. The locus of control/effect consists of whatever entity or entities undergo the action of the agent and experience whatever effect may be caused by that action. When a speaker chooses the expression "*The bees are chasing the dog*," the speaker is selecting *the bees* as the topic and *the dog* as the locus of control/effect.

The event perspectives refer to the three dynamic components of a transitive event: CAUSE, BECOME, and STATE (e.g., *The deer threw the boy into a pond* = AGENT [the deer] CAUSE PATIENT [the boy] BECOME STATE [into the pond]). Slobin (1994, p. 345) defines the three event perspectives as follows:

“A Cause-View represents an event as having an actor that, in some way, causes a change of state in an undergoer [*The bees are chasing the dog.*]; a Become-View orients to a change of state without attribution of external causality [*The dog was running.*]; and a State-View orients to a state in itself [*The dog was in the pond.*].”

Finally, with regard to the degree of agency, Slobin (1994) distinguishes into three levels: *high*, *mid*, and *minimal* degrees of agency, with a cline of others in between. This classification is based on the fact that active constructions represent a higher degree of agency than passives. Examples are given in (3).

(3) Degrees of agency:

High: *The bees are chasing the dog.*
Mid: *The dog was being chased by the bees.*
Minimal: *The dog was running away (from the bees).*

Berman & Slobin (1994, pp. 519-520) state “Agency can be highlighted or diminished by lexical choice of verbs and associated verb, and it can be downgraded by placement of the controller in a peripheral phrase, as in these two examples:

- a. *And the dog runs howling by with this swarm of bees chasing him.*
- b. *The dog runs away as bees follow him.*

Information placed in a coordinate or subordinate clause can modify the degree of agency in the main clause [...] High agency can be expressed in an explanatory subordinate clause with a verb in active voice: *The dog raced by because the bees were chasing him*”. Mid degree of agency is “the realm of the passive construction” (p. 521). While agentless

passives “encode a lower level of agency than full passives, in that the agent is not mentioned at all” (p. 521). The *get*-passive differs from other passive constructions in that “it suggest that the patient has a degree of agency or responsibility, as well as the agent” (p. 521). Where there is a decrease in the salience or importance of AGENT and CAUSE, there is a corresponding increase in the salience or importance of PATIENT, BECOME, and STATE (Slobin, 1994). Together, these event construal dimensions determine “the number of participants mentioned, syntactic roles of participants (in one or more clauses), word order and construction type, and lexical choices” (Slobin, 1994, p. 343).

The main objective of the present study is then to compare the descriptions of these episodes by Chinese-English bilinguals and monolingual English speakers along these dimensions, and see if and how crosslinguistic influence and age-of-acquisition effect may manifest in the process of learning two languages. We focus on the range of structural options used to encode the varying degree of agency and causation inherent in the construals of these episodes.

Methods

Data

The same data described in Chapter 2 will be coded and analyzed for passives in the present chapter.

Coding Scheme

Descriptions of the five episodes were coded for both form and meaning. For form, our focus is on the range of linguistic constructions the participants use to encode the construal of the five prototypical transitive events. For meaning, we focus on varying

degree of salience or importance of the two participants (AGENT and PATIENT) these linguistic devices express. The same procedures in transcription were followed in the coding of the data by different raters, and inter-rater agreement was determined to be 98.5%.

As Table 4.1 shows, there is a family of constructions in English to encode the construal of prototypical transitive events with varying degree of salience or importance of the two participants (AGENT and PATIENT), and the three dynamic event perspectives (CAUSE, BECOME, and STATE).

Table 4.1 The coding of passives and alternatives²

	Event Perspective	Topic and Locus of Control-and-Effect	Examples
1	CAUSE-VIEW	The secondary character is AGENT + TOPIC and the main character is PATIENT within a clause containing a transitive verb	<i>The bees were chasing the dog.</i>
2		The main character is PATIENT + TOPIC and the secondary character is AGENT in a full <i>get</i> -passive construction	<i>The boy got bitten by a gopher.</i>
3		The main character is PATIENT + TOPIC and the secondary character is AGENT in a full <i>be</i> -passive construction	<i>The dog was being chased by the bees.</i>
4		The main character is PATIENT + TOPIC in a truncated passive construction, i.e., one in which the agent is not overtly mentioned	<i>The boy was lifted into the air.</i>
5		The main character is ACTOR + TOPIC and the secondary character is	<i>The dog runs away as bees follow him.</i>

² Jisa, Reilly, Verhoeven, Baruch, and Rosado (Jisa, et al., 2002, p. 170) point out that “[T]he number of alternative options provided by the different languages can either increase or decrease the functional load attributed to passive constructions.” We agree. In principle, other constructions such as cleft sentences or left dislocation can assume some of the functions of English passives and alternatives. In fact, most of the structures here can be rephrased as clefts or dislocations. However, no cleft or left dislocation structures are found in the data.

		AGENT in a subordinate clause	
6		The main character is ACTOR + TOPIC and the secondary character is mentioned in a peripheral phrase	<i>The dog is running away from the bees.</i>
7	BECOME-VIEW	The main character is ACTOR and the secondary character is ACTOR in two successive clauses connected with 'because'	<i>The boy tumbles down from the branch because an owl came out from the hole.</i>
8		The main character is ACTOR and the secondary character is ACTOR in two coordinate clauses	<i>This owl comes out and the boy falls.</i>
9		The secondary character is ACTOR	<i>An owl comes out.</i>
10		The main character is ACTOR	<i>The boy fell off the tree.</i>
11	STATE-VIEW	The main character is PATIENT + TOPIC	<i>The boy is stuck on the head of the deer.</i>
12	No mention of the episodes	The episode is simply skipped by the narrator.	

Comparisons among Bilinguals and English Monolinguals

A Quantitative Analysis

Table 4.2 shows the families of constructions and the number of times a particular construction occurred in the data. The bilingual learners, like the NSs of English in the comparison group, used transitive active constructions, passive constructions (full or agentless), and intransitive active constructions to express various kinds of construals of the events in question.

Table 4.2 Passives and alternatives in English by monolinguals and bilinguals

	Event Perspective	Topic and Locus of control-and-effect	English	EFL	ESL
1	CAUSE-VIEW	The secondary character is AGENT + TOPIC and the main character is PATIENT within a clause containing a transitive verb	19	25	24
2		The main character is PATIENT + TOPIC and the secondary character is AGENT in a full <i>get</i> -passive construction	5	0	1
3		The main character is PATIENT + TOPIC	5	6	4

		and the secondary character is AGENT in a full <i>be</i> -passive construction			
4		The main character is PATIENT + TOPIC with the agent is not overtly mentioned in a truncated passive construction	3	2	1
5		The main character is ACTOR + TOPIC and the secondary character is AGENT in a subordinate clause	3	0	0
6		The main character is ACTOR + TOPIC and the secondary character is mentioned in an oblique phrase	3	1	0
7	BECOME-VIEW	The main character is ACTOR and the secondary character is ACTOR in two successive clauses connected with 'because'	3	0	6
8		The main character is ACTOR and the secondary character is ACTOR in two coordinate clauses	6	5	4
9		The secondary character is ACTOR	6	10	10
10		The main character is ACTOR	1	3	3
11	STATE-VIEW	The main character is PATIENT + TOPIC	2	0	1
12	No mention of the episodes		4	8	6

The three groups of speakers did not differ in their choice of event perspectives. For all three groups of speakers, the STATE-VIEW was rarely used. The dynamic nature of the episodes in the story line seems to exclude the STATE-VIEW. All language groups also tended to take a CAUSE-VIEW more frequently than a BECOME-VIEW (38 versus 16 for NSs of English, and 34 versus 18 for Chinese EFL students, and 30 versus 23 for the ESL group). They did not differ in frequency with respect to the CAUSE-VIEW or the BECOME-VIEW.

The three groups of speakers did not differ in the choice of topic and locus of control/effect, either. Both the main characters and the secondary characters were

selected as topic, and typically the main characters (i.e., the boy and the dog) were seen as locus of control/effect.

The three groups of speakers differed, however, in their flexibility in expressing the varying degrees of agency. We can see this more clearly in Table 4.3. In their descriptions of the sixty (5 episodes x 12 speakers) potential episodes, the two groups of Chinese-English bilingual speakers either used transitive active sentences to express a high degree of agency (with respect to secondary characters), or attributed a non-agentive-perspective towards these episodes via the use of intransitive active sentences or no mention at all. These descriptions expressing either a high or zero degree of agency account for 85% (late bilinguals) and 80% (early bilinguals) of all the possible descriptions of the five episodes. By contrast, NSs made more frequent and diverse use of a range of constructions to express various degrees of agency.

Table 4.3 Degrees of agency expressed by bilinguals and English monolinguals

Degree of Agency	Families of construction	English	EFL	ESL
High	transitive active sentences	19	25	24
Mid & Minimal	Full Passive, Agentless passive, lower agency in adjoining phrases or clause	20	9	12
Zero	Intransitive or no mention at all	19	26	24

A Qualitative Analysis

Because of our small samples, in Table 4.2 and Table 4.3, it may be useful to do some more intensive qualitative analysis. For instance, it is interesting to consider how NSs of English as contrasted with the two groups of Chinese-English bilinguals chose to describe each of the five episodes in terms of degree of agency.

For Episode I involving the boy and the ground squirrel, seven of the twelve native speakers of English mentioned the biting event with three using the active transitive structure and four using a full (*be* or *get*) passive sentence. The latter represents a lower degree of agency than the active form. In addition, the *get* passive suggests some kind of volitional control or responsibility of the affected entity. By contrast, only three of the twelve late Chinese-English bilingual speakers mentioned the biting event, and all of them used the active sentence structure. The rest of the speakers in both groups either only mentioned the appearance of the ground squirrel or chose not to mention the episode at all. The early Chinese-English bilingual speakers behaved very much like the late bilingual speakers. Five of them mentioned the biting event, and all of them used the active sentence structure. The rest of the speakers, as in the other two groups, either only mentioned the appearance of the ground squirrel or the fact that the boy looked into a hole and found a gopher there, or sometimes chose not to mention the episode at all.

For Episode II involving the boy and the owl, half the twelve native speakers of English mentioned the boy's falling from the tree. A variety of structures were used, and they ranged from high degree of agency to minimal degree of agency. At the high end, one speaker said, "There's an owl in there who bumps him [the boy] down to the ground," and another speaker said, "An owl flew out of the hole in the tree and knocked him down out of the tree." The diminished agency of the owl in the boy's falling is marked by mentioning the owl in an adjoined clause introduced by "because". Examples of this type are illustrated in (4).

(4) Lower agency in adjoining phrases or clauses in Episode II:

- a. *The boy tumbles down from the branch because of an owl who's popped up from the hole.*

- b. *The boy falls out of the tree because an owl came out of the hole.*
- c. *The little boy falls off the tree frightened by an owl.*
- d. *And the boy falls off the tree because the owl came out of the hollow part.*

The degree of agency is further diminished when one native speaker used a coordinate structure to describe the boy's falling: "This owl comes out and the boy falls." While the listener may infer that the boy's falling from the tree is due to the (sudden) appearance of the owl, the consequence-cause relation is not made explicit. The early Chinese-English bilinguals behaved very much like the English speakers. (5) below lists some examples of the three major structural strategies that the early bilinguals used for narrating Episode II.

(5) Structural strategies that the early bilinguals used for narrating Episode II

Active transitive structure

- a. An owl came out of the hole and knocked the boy down to the ground.
- b. An owl got mad at me for disturbing him and kicked me out of the tree.

Coordinate structure

- c. And the owl flew out and scared the little boy.
- d. The boy finds a owl which scares him. He falls.

Adjoining phrases or clauses

- e. He fell off the tree startled by an owl. ...
- f. The boy falls out of the tree so as to escape the owl's wrath.
- g. The boy fell off the tree because he disturbed the owl.
- h. The owl was also not happy, because they boy had invaded the owl's space. And so the boy fell off the tree.

By contrast, only four of the twelve late bilinguals mentioned the boy's falling at all.

They used either a transitive active clause, *An owl came out and pushed boy down and the boy fell to the ground*, a full *be*-passive, *The boy was frightened off the tree by the owl*,

or a coordinate structure, *The owl flew out and Sam fell down*. None of the EFL learners used adjoined phrases or clauses to express diminished degree of agency. Again, we see evidence that our Chinese EFL learners, even with years of formal instruction as well as years of exposure in the target language environment, are still struggling with the use of linguistic devices to express varying degrees of agency.

Next, let us consider Episode III involving the dog and the swarm of bees. The NSs of English used a variety of structures to describe the chasing event with varying degrees of agency. Half of the native speakers used active clauses, *The bees start chasing the dog*, and two of them used the full passive form, *The dog gets/is chased by the bees*. Or, sometimes, they embedded the transitive event in a relative clause as when one speaker said, “It looks like he got bit by a couple of bees that were chasing them.” In this way, these speakers are able to keep the dog as the topic and locus of control-and-effect. As in the previous two episodes, a salient feature in the productions by NSs of English is that they frequently mentioned the bees in an oblique phrase which indicates that the bees were contributing some degree of agency to the event, as in (6).

(6) Lower agency in adjoining phrases or clauses in Episode III:

- a. *And the dog runs howling by with this swarm of bees chasing him.*
- b. *The dog runs away as bees follow him.*
- c. *The dog is running away from all the bees.*
- d. *The dog was running away from the bees.*
- e. *So both of them are in kinda chase scenes running away from these other animals.*

However, the two groups of bilinguals showed a different pattern from the English speakers. The late bilingual speakers used either the active structure with the bees as topic and the dog as locus of effect in the form, *The bees began to chase the dog*, or the *by-* passive construction with the dog as the topic and locus of effect in the form of *The*

dog was chased by the bees. The active structure accounts for seven of the late bilingual speakers, while the passive structure accounts for the remaining five late bilinguals. Again, this seems to suggest that the bilinguals are less flexible in using the range of perspective-taking devices than the NSs of English. Of the twelve early Chinese-English bilinguals who mentioned Episode III, four used a full passive sentence. Seven used active transitive sentences and one with a coordinate structure (“*the bees are very angry and started chasing after the puppy*”). And one early bilingual participant produced a very interesting example in (7). Here, he took a Cause-View with the dog as topic and the bees as controllers, relating the dog’s activity in the first clause to the role of the bees in the second. In addition, high agency is expressed here in an explanatory subordinate clause with a verb in active voice. The patient (i.e., the dog) is topicalized while still maintaining active verbs.

(7) While the boy was on the floor, the dog ran past him with a whole bunch of bees, because the bees were chasing the dog since the dog had broken their hive.

The NSs also used a wide variety of structures to represent the event sequence in Episode IV where the boy ended up in the deer’s antlers. These structures included active sentences: *The deer picks him up*, past participle structures, *The deer takes off with the boy strewed across his antlers*, the full *be*-passive, *Now the boy has been picked up by some antlered beast*, a mediopassive, *The boy gets caught/stuck/snagged on a deer*, a stative, *The little boy is stuck on his head*, and one or more inchoative motion verbs, *The boy falls on the stag*. One speaker also used the adverb *unintentionally* evidently to express a diminished degree of agency, *The deer pops out of the rock after being disturbed starts giving him a ride unintentionally*.

Let us consider the descriptions of the Chinese EFL learners. While all the native speakers mentioned the event in one way or another, three Chinese EFL learners didn't mention it at all. The structures used by the 9 EFL learners who did mention the event are again much less variable and less complex than those used by the NSs. Three learners described the event from the perspective of the deer as topic and source of agency, using active sentences such as, *The deer carried Tom on his head*. Three learners saw the event from the perspective of the boy as subject of a verb of motion, suggesting either high agency with respect to the boy, e.g., *The boy climbed unto the head of the deer*, or lessened agency, marking the boy's lack of volition, e.g., *The boy fell on the horns of the deer*. In either case, however, these three learners did not attribute any agency to the deer. The same was true for the use of an agentless passive by one EFL learner, *Suddenly he was lift[ed] up*. Another structure used involved a prepositional phrase indicating the state of the boy, *The deer starts running with the boy in between his horns*. Early Chinese-English bilingual speakers resembled the late bilinguals with seven active structures, one get passive structure, and four motion verb constructions.

Finally, evidence was also found in the descriptions of Episode V in which the deer throws the boy off a bluff into a pool or stream of water below. Five NSs chose to describe this sequence of events with a single active clause, e.g., *The deer threw the boy off the cliff into the pond*. Two NSs used full *get*-passives, and one used full *be*-passive. Another NS used the complex verb *cause to* in a relative clause to attribute external causation to the event: *The deer stops abruptly which causes the boy to lose his balance and fall with the dog down into the stream or a little puddle*. The other three NSs chose to describe the same episode with a coordinate structure and to leave it to the reader to infer

the relationship between the action of the deer versus that of the dog: *The deer runs with the boy on his head and stops at a cliff and the boy and the dog fall into a lake.*

The majority of our EFL learners (11 of 12) described the episode in a transitive active clause, e.g., *The deer threw the boy into the river.* The remaining EFL learner used a coordinate structure: *The deer stops at the cliff and Sam and Bobby fall down into the pond.* ESL learners used 11 active structures, and one coordinate structure to describe Episode V. Exactly the same pattern as EFL learners.

In summary, two bilingual groups in the present study made less flexible use of the range of perspective-taking devices that are theoretically available in the target language than did the NSs of English. In particular, they exhibited difficulty in expressing varying degrees of agency in the descriptions of the potentially transitive causative event sequences that we focused on in the study.

Discussion

It is frequently observed in L2 acquisition that learners may be able to acquire the formal aspects of a language and achieve a high level of proficiency in the phonological and syntactic components of the target system, but still struggle with appropriate use of the full range of structural options in discourse. Knowing a language does not guarantee accurate, appropriate and fluent use of the language (Chen, 2004). Yoshida (1990, p. 20) has made this very clear when he says “although I might have knowledge of what to say with whom in what circumstances, that does not necessarily mean that I am able to perform accordingly. Moreover, even if I could perform in an ‘American’ way if I consciously strived to do so, that does not mean that I feel comfortable doing so” (cited in Kecskes, 2003, p. 183). Seliger (1989, p. 33) observes that “the inability to acquire the

semantically constrained distributional rules concerned with the selection of a particular form from among options may be one of the characteristics of foreignism that remain”. This observation was also supported in the present study of the linguistic encoding of perspective taking through passives and alternatives in a story generation context.

It seems clear that the frog stories actually provided rich opportunities for our Chinese-English bilingual participants and the native comparison group to demonstrate a wide variety of distinct construals of a series of events. Each of the event sequences involved two animate entities. Each sequence, as the native speakers and many of the Chinese-English bilingual subjects as well, demonstrated, was susceptible of coding in a variety of structural devices. Of course, the results we have reported are constrained by our relatively small sample size, and also by the particular story-line as constructed by Meyer (1969). These factors suggest caution in the generalizations to be made, but we believe that our findings give insight into factors that influence bilingual development, as well as the way passives and other structural alternatives are used in encoding sequences of events.

Crosslinguistic Influence

Fillmore (1977, p. 74) asserts that languages “differ in interesting ways in the options they present in taking particular perspectives on complex scenes”. Duranti & Ochs (1990, p. 16) point out that “Samoan speakers frame events in radically different ways from what we are accustomed to in languages such as English”. For example, they note that in Samoan discourse “genitive phrases seem to cover cases that in other languages might be expressed by passives or stative-like clauses where the Patient or underlying Object acquires the syntactic role of Subject” (p. 12). Whereas in Samoan

discourse, a transitive tends to be framed by taking the perspective of the object, adult speakers of other languages tend to describe human participants in manipulative activity scenes as Subject or Agent NP's. The ability to flexibly construe events in narrative requires both the cognitive ability to consider distinct perspectives on an event sequence, and the linguistic flexibility to express those distinct perspectives through appropriate structures from a surprisingly wide range of potential options that may be afforded by any given language. The examination of topic, locus of control-and-effect, and event perspectives (i.e., CAUSE-VIEW, BECOME-VIEW, and STATE-VIEW) show that our Chinese-English bilingual speakers, like our comparison group of NSs of English, all clearly do have the cognitive flexibility to be able to take different perspectives on events. Each group of speakers is capable of attending to agent and change of state as separate components of an event, for instance, and we know that these are fundamental to the selection of event perspective.

While the cognitive capacity for selection of event perspective emerges in children as early as two (Bowerman, 1990), the choice of event perspective in narrative is more demanding (Slobin, 1994). Even nine year old children experience difficulty in arriving at selection of event perspectives, and the flexible use of expressive options to express perspective in connected discourse is part of later language development (Van Hell, *et al.*, 2005). Of course, our Chinese-English bilingual speakers have developed the cognitive capacity and skills in perspective choice as part of their acquisition of their L1. Therefore, the cognitive demand on selection of event perspective in narrative construction should, by itself, pose no greater difficulty for our Chinese-English bilingual participants than the NSs of English. What is more demanding for our bilingual participants, however, is to

represent the different perspectives appropriately via the rich range of linguistic devices that are provided, at least in potential, by L2, in this case by English. The reasons are manifold. First, each native language has trained its speakers how to choose to construe and to attribute differentiated cognitive significance to an event and its parts for expressive purposes. Since this training is carried out in childhood, it is exceptionally resistant to restructuring in adult L2A (Slobin, 1996). The Chinese saying “*shì zài rén wéi*” (thing-exist-man-do meaning “It all depends on human effort”) is sometimes used to characterize the Chinese way of thinking. This cultural way may lead Chinese speakers to emphasize the agent of an action, and the Chinese language to favor active sentences over passive sentences (Lian, 1993). Duranti & Ochs (pp. 16-18) proposed a culture-specific justification for the frequent choice of genitive phrases vis-à-vis ergative or other prepositional phrases. They suspect that “this schema is but a linguistic correlate of a more general cultural disposition which tends to prefer descriptions and assessments that focus on the result or consequences of an event or action rather than on the human actor/initiator”.

Furthermore, sentence patterns are suggested to be structured with each other under completely different sets of conceptual systems in English and Chinese (Tai, 2003). One may wonder whether the difficulty with the flexible use of passives and alternatives experienced by our Chinese-English bilingual speakers is due to a conceptual difference or constructional difference between the native language and the target language. To address this concern, we need to compare the use of passives and alternatives in English and Chinese in the same narrative context. The passive and alternatives in the Chinese frog stories that our bilingual participants produced suggest the effect of conceptual

transfer. Specifically, both bilingual groups produced the following five types of constructions in their descriptions of the five episodes examined in the present study.

(8) Passives and alternatives in the Chinese *frog* narratives

a. Simple active transitive sentence

Yī dà qún mìfēng zhuī-zhē gǒu.
one big group bees chase-ZHE dog
'A swarm of bees were chasing the dog.'

b. BA-Construction

Lù bǎ zhè xiǎo nánhái cóng xuányá shàng rēng-dào
deer BA the little boy from cliff above throw-arrive
hé2 lǐ qù le.
river inside go LE
'The deer threw the little boy down the cliff into the river.'

c. BEI-construction (the so-called passive sentence)

Tūrán tā bèi (lù) jǔ-le-qǐ-lái.
suddenly he BEI (deer) lift-LE-rise-come
'Suddenly he was lifted up (by the deer).'

d. Coordinate Structure with cause-effect relation implied

Māotóuyīng fēi-le-chū-lái.
owl fly-LE-exit-come
Xiǎohái xià-de cóng shù shàng diào-le-xià-lái.
boy scare-DE from tree above fall-LE-descend-come
'The owl flew out. The boy was so scared to fall down the tree.'

e. Simple intransitive sentence

Zhè xiǎo nánhái cóng shù shàng diào-le-xià-lái.
The little boy from tree above fall-LE-ascend-come
'The little boy fell down from the tree.'

Speakers who use structures such as (8a) and (8b) express a high degree of agency, and those who use structures like (8e) or no mention at all express a low degree of agency.

The structures such as (8c) and (8d) sit in the middle. Out of the sixty possible descriptions of the five episodes in the Chinese narratives, twenty five expressed a high degree of agency, and twenty four expressed a low degree of agency leaving the

remaining twelve to express a mid-degree of agency. This pattern is very similar to the one we found for their expression of varying degrees of agency in English.

The effect of conceptual transfer in event construals is intrinsically related to the linguistic packaging of event construals. For NSs the rich variety of linguistic forms required for flexible event construal is available from early on (Berman & Slobin, 1994). NSs develop habitual patterns of event construal and are at least theoretically capable of making “conventionalized choices of grammatical devices” to encode their conceptualizations in discourse (see e.g., Achard, 2004, p. 185). As a consequence, NSs, when acquiring their language, learn to pay attention to “particular aspects of experience and to relate them verbally in ways that are characteristic of that language” (Berman & Slobin, 1994, p. 611). By contrast, L2 learners of any language presumably can be expected to have difficulty in differentiating and using the full potential range of linguistic options for the expression of perspectives on event sequences in narrative. The pressure of online production of narrative discourse is presumably higher for L2 learners in general, and may prevent them from accessing and integrating the linguistic constructions online. The greater pressure is especially evident in our late Chinese-English bilinguals during their online production of narrative discourse in English as can be seen from their slower and more deliberate speech style as compared with the more conversational style of the NSs.

Age of Acquisition Effect

Singleton (2003, p. 3) points out that “few L2 researchers now question the proposition that those learners whose exposure to the L2 begins early in life (and whose

exposure to the language is substantial) for the most part eventually attain higher levels of proficiency than those whose exposure begins in adolescence or adulthood”.

However, the early versus late bilingual speakers in the present study behaved very much alike in the use of passive voice constructions in the narratives. A close look at the way Chinese-English bilingual speakers and their monolingual peers expressed (or did not express) degree of agency revealed that both the early and late bilingual speakers, in spite of their years of both class-based English learning in China and/or more natural exposure to the English language and culture in the United States, still come up short of the full potential of the English language in construal of subtle aspects and relations within event sequences. In their connected discourse we see room for growth in linguistic flexibility. Thus, it seems that there is no age of acquisition effect in the linguistic packaging and the dynamic construal of event sequences at the discourse level. Slobin (2004, p. 257) points out that our habitual patterns of language use are shaped by various factors including easy of accessibility of linguistic forms, the dynamics of cultural and aesthetic values, and the perspective and communicative aims of the speaker. This present study has demonstrated empirically that the linguistic packaging and the dynamic construal of event sequences certainly is challenging even to very advanced and highly experienced L2 learners, regardless of their age of acquisition.

Conclusion

This study has shown that both our early and late Chinese-English bilinguals have difficulty in using the full range of L2 linguistic options to express perspectives on event sequences in narrative. Overall, the present study helps us to understand that the

linguistic packaging and the dynamic construal of event sequences pose challenge to nativelikeness on the grammar-discourse interface.

Chapter 5: Conclusion

The overall results in the present study indicate that comparisons of non-natives with natives give rise to problems of incommensurability (Slabakova, 2013), and that the syntax-discourse interface level represents as the hard nut for language learners (Sorace, 2005, 2011). The most dominant evidence is that even early Chinese-English bilinguals who have experienced extensive and even high-quality English input did not perform identically to their monolingual peers in any subfield we have investigated: coherence and cohesion, preferred argument structure and passive structures. Notwithstanding the existence of language transfer, age and bilingual effect has been verified and demonstrated, they did embody different representations in each branch.

The results of coherence and cohesion analysis showed that while narrating a story in English, the EFL group has demonstrated two salient properties that are rooted in Chinese narratives. First of all, the protagonist's attempts tended to be 'indirect' and listeners had to infer the goals of attempts. Moreover, while narrating, the EFL learners were inclined to combine temporal and spatial events together, without linking the event to the superordinate goal of the protagonist. Correspondingly, they supplied more detailed descriptions for each event than other groups. The age effect manifested itself not as the knowledge about syntax or pragmatics, but as the underlying syntactic processing. Due to the less automatic syntactic processing, the EFL group produced less coherent stories than the ESL group did. Regarding to the bilingual effect, once again, it

is not caused by deficit in linguistic knowledge, but by unwillingness to express feelings and emotions, which is a feature in young English monolinguals' speech.

The analysis of preferred argument structure provides more insight about the impact of Chinese while the EFL group narrating in English. At first, they were still used to producing transitive clauses whereas intransitive clauses were predominating in the production of the ESL and English group. Next, they preferred to assign human referents at the A role but the counterpart for the other groups was the S role. Lastly, new and lexical mentions were disfavored to be instantiated at the oblique role. In the PAS research, the language transfer effects nearly overlapped with the age effect. In other words, the ESL group has acquired the fundamental principles under the PAS theory. Nonetheless, the ESL overly confined themselves by the principles by using less lexical referents than English monolinguals did.

With regard to the use of passives and alternatives, English and Chinese have provided similar event perspective and NSs should have developed the cognitive capacity and skills in perspective choice as part of their L1 acquisition. However, our two bilingual groups had difficulty in representing the different perspectives appropriately via the rich range of linguistic devices by English.

In sum, strictly speaking, neither advanced EFL learners nor the early bilinguals could serve as a reference group to represent the ultimate attainment in the grammar-discourse interface. In a broad sense, the early Chinese-English bilinguals performed more similarly to the English monolingual peers than the EFL group did. Notwithstanding the relatively disappointing results from the advanced learners after detailed investigation, we do believe that their better performance in the domain of

grammar-discourse interface is promising if curricula and teaching techniques have been informed and improved thereby.

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