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A Study on the NP Attachment Preference of Tagalog-Dominant and Chinese-Dominant Bilinguals

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Abstract: This study aims to investigate the Noun Phrase (NP) attachment preference of English L2 learners in the Philippines when they process ambiguous relative clauses. To this end, 29 bilinguals at a private university in Manila were recruited, and a language background survey was conducted. Based on the survey results, they were divided into Filipino-dominant and Chinese-dominant groups. Then, they were asked to undergo a grammaticality judgment test to determine their English proficiency. Finally, a questionnaire was administered composed of 40 relative clauses containing of or with conditions. Results revealed that contrary to predictions, both the Filipino-dominant and the Chinese-dominant bilinguals favor NP1 over NP2 in both conditions. It is argued that even advanced learners tend to transfer parsing heuristics from their first language or use processing mechanisms similar to the language they are immersed in.

Keywords: disambiguation, locality principle, syntax transfer, principle of recency, predicate proximity, lexical-semantic information

Introduction

One area of sentence processing that has been extensively studied with monolingual adults in the past is the way relative clause (RC) attachment ambiguities are resolved. The RC attachment ambiguity is exemplified in (1) below, in which the RC who was on the balcony is preceded by a complex NP, the servant of the actress, and can potentially be attached to either of the two preceding NPs (i.e., the servant or the actress).

(1) Someone shot [the servant]NP1 of [the actress]NP2 who was on the balcony.

Monolinguals’ NP attachment preference has been extensively investigated in a variety of languages, and it has been found that there is cross-linguistic variation in the way constructions such as (1) are parsed. There are mainly three accounts for such syntactic ambiguity resolution: principle of recency, principle of predicate proximity, and construal theory (Fernández, 2003).

Most studies focusing on English monolinguals have pointed to an NP2 preference (Papadopoulou, 2003; Taylan, 2021); that is, the modifier RC in (1) is preferably attached to the host of the lower noun phrase, NP2, the actress. This preference was attributed to a universal parsing strategy termed recency or late
The locality principle of recency is assumed to be a universal principle that forces new material to be attached to the most recently processed phrase, that is, to the second NP in sentences such as (1). For languages like English, Swedish, Norwegian, and Arabic, the native speakers prefer to attach the RC to the second NP (i.e., the actress). However, findings from studies examining languages other than English have demonstrated that the principle of recency does not govern all languages. A reverse pattern has been observed in languages like Spanish, French, German, Dutch, and Greek (Hemforth et al., 2000a, 2000b; Pozniak et al., 2018).

Gibson et al. (1996) proposed that the cross-linguistic variation observed in RC attachment preferences can be captured by the competition of two structural parsing strategies, recency and predicate proximity. Predicate proximity requires new material to be attached as close as possible to the IP node, that is, to the first potential antecedent NP in (1). Predicate proximity is assumed to be “strong” in languages that have a relatively flexible word order and which do not require adjacency between the verb and its complements (such as Spanish, German, Greek, French, etc.), resulting in an NP1 attachment preference. In languages like English, on the other hand, which is highly configurational in that it demands adjacency between the verb and its complements, predicate proximity is comparatively weak and thus is outranked by recency, which yields an NP2 attachment preference.

According to construal theory, native speakers’ RC attachment preferences are also guided by lexical-semantic information that requires new material to be attached within the currently processed thematic domain. Associating modifying phrases with constituents outside the current thematic domain is computationally costly and hence not preferred. The preposition with can assign a case and create its own thematic domain. Hence, in a sentence such as (2), the presence of the lexical preposition with signals the beginning of a new thematic domain; this makes the first NP a less accessible host for the RC. The thematic domain hypothesis correctly predicts the NP2 attachment preference (Augurtzky, 2009).

(2) Someone shot [the actress]_{NP1} with [the servant]_{NP2} who was on the balcony.

Theoretical Framework

The picture becomes much more complex when it comes to how second language learners process ambiguous sentences. Previous studies on how bilinguals parse sentences produced mixed and sometimes even contradictory results. Some results pointed to the possibility that L2 learners used the heuristics best suited for processing target language input. Some research found that L2 learners were able to acquire target-like strategies and applied processing mechanisms similar to those of target language monolinguals. On the other hand, other findings showed that L2 learners neither transferred the processing strategies from their L1 nor were they able to acquire heuristics used by native speakers of the target language. A number of variables have been shown to influence syntactic ambiguity resolution in L2 learners. Dussias and Pinar (2009) classified these variables into two categories: linguistic variables, which refer to properties that are particular to the input, and participant variables, which denote qualities of the learners themselves (p. 296). The linguistic variables include such linguistic input-related properties as sense-semantic information (e.g., thematic roles, plausibility), syntactic category and subcategorization information, and structure-driven parsing principles. The participant variables include learners’ qualities such as proficiency, immersion experience, and working memory.

L1 Transfer

According to Hartsuiker et al. (2004), the shared-syntax account predicts that rules that are the same in the two languages are represented once. Given that adult L2 learners already have a fully developed processing system for their L1, it is highly possible that L2 learners transfer their processing strategies used in their L1s to parse L2 sentences. Frenck-Mestre and Pynte (1997) examined 16 non-proficient English-French late bilinguals for the ambiguous structure NP1-P-NP2-RC by recording respondents’ eye-movements. The participants rated themselves at a level of 5 on a 10-point scale of proficiency. French monolinguals were used as the control group. The two groups showed a different pattern of ambiguity resolution in that the native speakers of French showed a definite preference for NP1 attachment, whereas the English-French bilinguals showed a trend toward NP2
attachment. Frenck-Mestre and Pynte (1997) attributed the performance of the English-French bilinguals to the influence of their first language, which favors NP2 attachment.

Fernandez (1999) investigated processing strategies in English in monolingual English speakers and two groups of Spanish bilinguals using an offline questionnaire. The two Spanish bilinguals comprised one group of early learners who learned English before the age of 10 and one group of late learners who learned English after the age of 10. The questionnaire included 24 experimental sentences in two conditions, that is, complex NP linked by of and complex NP linked by with. The result showed a clear low-attachment preference (NP2) in the English monolinguals in both conditions but not in the L2 learners. Instead, both early and late learners produced more high-attachment answers than the native speakers did. Fernandez interpreted this as a result of L1 transfer, reflecting the fact that Spanish prefers high attachment in cases in which English prefers low attachment.

**Learning target-like strategies**

Some experiments confirmed that L2 learners could acquire target-like processing strategies when they differ from their first language. Frenck-Mestre (2002) examined the processing mechanisms of proficient English-French late bilinguals for the ambiguous structure NP1-P-NP2-RC using an eye-movement experiment. The participants who rated themselves at a level of 7 or better on a 10-point scale of proficiency had been learning French in a classroom setting for about three years before they went to France. They had been living in France for a mean of five years with at least two years of study in a French university with a mainstream curriculum. These proficient bilinguals showed a clear preference for NP1, highly similar to the control group of French monolinguals. Frenck-Mestre (2002) interpreted this to mean that the proficient L2 learners were able to acquire native-like processing strategies of ambiguity resolution.

**Immersion Experience**

Dussias (2003) tested 31 proficient L1 Spanish-L2 English speakers and 32 L1 English-L2 Spanish speakers in both their first language and a second language to see if they used the same parsing strategies as the monolinguals. The two monolingual control groups, 14 monolingual Spanish speakers and 19 monolingual English speakers, showed the conventional bias as reported in the literature (i.e., Spanish monolinguals preferred NP1 attachment and English monolinguals favored NP2). In the findings, L1 Spanish-L2 English bilinguals showed a clear preference for NP2 when tested with an English questionnaire. However, contrary to the prediction that the L1 Spanish-L2 English bilinguals should attach the RC to the NP1 in the Spanish questionnaire, they also showed a definite preference for NP2. One explanation for this result offered by Dussias (2003) was that the L1 Spanish-L2 English participants were living in a predominantly English-speaking environment. Dussias concluded that “it may be that exposure to a preponderance of N1-of-N2-RC English constructions resolved in favor of low attachment may have rendered this interpretation more available, ultimately resulting in the preference for low attachment observed in these results” (p. 553).

Dussias and Sagarra (2007) examined how the amount of exposure to a second language influences sentence parsing in the first language using an eye-tracking method. They compared the syntactic ambiguity resolution of 44 monolingual Spanish speakers with that of 24 proficient Spanish-English bilinguals with a limited immersion experience in the L2 environment and 20 proficient Spanish-English bilinguals with an extensive L2 immersion experience. Participants were instructed to resolve temporarily ambiguous constructions in Spanish. The results showed that the Spanish monolingual speakers and the Spanish-English bilinguals with limited exposure preferred the NP1 attachment. Interestingly, the Spanish-English bilingual with extensive exposure attached the relative clause to NP2, suggesting an influence of processing mechanisms from English, which is their second language. Because the two bilingual groups were matched in terms of English language proficiency (i.e., they were both proficient L2 learners), the difference was not due to proficiency in the L2 but rather to immersion experience.

**Research Questions**

Previous research yields confounding data with regards to L2 sentence processing by bilinguals. It is not conclusive, for instance, if indeed a case of syntax transfer from L1 to L2 is at work when bilinguals
process ambiguous sentences. It is also interesting to find out if the preference for a particular NP is dictated by the constructions—genitive and thematic prepositions—that link the two NPs. The current study aims to extend the research in the sentence processing of ambiguous clauses by subjecting two sets of participants to an experiment involving disambiguation. In the Philippines, the Filipino-Chinese community is a growing community that has made a mark for its contribution to the disciplines of business, science, math, and even language. It is interesting to find out which NP the Filipino-dominant and the Chinese-dominant bilinguals in the Philippines attach to during sentence processing involving disambiguation, given that existing research (Hsieh, 2010; Yao, 2018) already identifies the Chinese language to show a clear preference for NP2 based on their subject-verb-object (SVO) syntax. With the Tagalog language, syntax follows the verb-subject-object (VSO) order (Manueli, 2011), leading one to assume that the Filipino-dominant will most likely favor NP1 over NP2 during the sentence processing of ambiguous sentences. In the study, it is hypothesized that the Filipino-dominant bilinguals will favor NP1 due to their VSO syntax in sentence processing involving disambiguation of relative clauses. With the Chinese-dominant, it is assumed that they will attach to NP2 because of their SVO syntax. These hypotheses are hinged upon the shared syntax theory (Hatsuiker & Bernolet, 2015; Hatsuiker et al., 2004).

The questions that the present study aims to answer are threefold:
1. What is the NP preference of the Filipino and the Chinese-dominant bilinguals?
2. Do L2 learners transfer processing strategies from their L1?
3. To what extent are language learners capable of using lexical-semantic information during processing?

Method

Participants

Before the data collection, participants were contacted, and they all agreed to participate in the experiment. First, a language history survey was conducted among 29 students who claimed to speak Mandarin Chinese. In the survey, the students were asked about some details of their linguistic background, such as the language at home and the language of education in school. Based on the results, 14 students were finally selected as Chinese-dominant participants for the study, and the other 15 students were assigned as Filipino-dominant respondents. The subjects were all from a private university in the Philippines with ages from 17 to 22. The Filipino-dominant group comprised 10 male and five female respondents, and the Chinese-dominant group comprised seven male and seven female participants. They were all intermediate to advanced learners of English. All participants had previous formal instruction in English in the Philippines for 10 years. All the participants underwent a grammaticality judgment test, the main purpose of which was to test their offline knowledge of relative clauses. The materials for the grammaticality judgment test were adopted from Felser et al. (2003), which comprised a total of 44 sentences (12 grammatical, 12 ungrammatical, and 20 fillers). The critical test sentences all contained a complex object NP followed by a relative clause, as in the following examples.

(3) a. The headmaster smiled at the pupils of the teachers who were standing in the hall.
b. *The reporter watched the lawyers of the criminals who was speaking to the judge.

The participants were instructed to carefully read the sentences that were presented to them on a questionnaire sheet and to identify which of the sentences contained a grammatical error, and to mark the error in all sentences they considered ungrammatical. All participants judged 67% or above (range = 67-96%) of the critical items correctly in this task, which means that they were intermediate to advanced learners of the English language.

Questionnaire Materials

In the present study, we used the offline questionnaire in Felser et al. (2003), which included 40 sentences in total, consisting of 20 ambiguous sentences in two conditions (of condition, as in 4a; and with condition, as in 4b) and 20 fillers (see 4c). All ambiguous experimental sentences followed the syntactic pattern of NP–V–[NP1–P–NP2]–RC, where NP–V is the matrix clause, NP1-P-NP2 is the complex NP functioning as the object of the matrix clause, and RC is the relative clause. The ambiguity is caused by
the temporary uncertainty that NP (NP1 or NP2) RC modifies. NP1 and NP2 and the auxiliary in the relative clause appeared in the singular form.

(4) a. The dean liked the secretary of the professor who was reading a letter.  
   Who was reading a letter?  
   i. the secretary  
   ii. The professor  
b. The dean liked the professor with the secretary who was reading a letter.  
   Who was reading a letter?  
   i. the professor  
   ii. the secretary  
c. The neighbor’s dog barked at our cat and bit the mailman.  
   Who bit the mailman?  
   i. the dog  
   ii. the cat

In order to make the experimental sentences sound equally natural in both the of and the with conditions, we reversed the relative ordering of NP1 and NP2 in the with conditions.

**Procedure**

The above-mentioned offline questionnaire was administered to the subjects. The participants completed a questionnaire comprising 20 ambiguous sentences interspersed with fillers. Following standard tradition, the sentences were ambiguous with respect to the host of the RC (NP1 versus NP2). Subjects were asked to read the sentences carefully and then choose the one they considered the more appropriate from two possible interpretations designed to diagnose their attachment site preference.

In half of the choices, the NP1 in the complex appeared first, and in the other half, it appeared second; this is to avoid the subjects developing a strategy for answering the questions. Although the participants were allowed to read the sentences more than once, they were instructed to make their choices as spontaneously as possible.

**Results**

Results reveal that both the Filipino-dominant (N0) as well as the Chinese-dominant (N1) bilinguals, favor NP1 over NP2. This is true for both NPs linked by of and with. Table 1 presents the frequency and means of NP1 responses provided for each of the two antecedent types. The first row in the table shows the results of the grammaticality judgment test. Out of 24 items in the grammaticality test, the mean of the Filipino-dominant bilinguals is high at 20.13333. On the other hand, with a slight 1.1528 difference, the mean of the Chinese-dominant is higher at 21.28571. Data suggest that the two groups are comparable in terms of their grammatical competencies. The second row presents the frequency count and the mean of NP1 for the with condition. The relatively insignificant difference between the standard deviation for the of and the with conditions suggests that there is no statistically significant difference between the two groups, given that both prefer NP1. Results further reveal that there is no correlation between the results of the grammaticality judgment test and the participants’ preference for NP1. It can be deduced, therefore, that the NP attachment preference is not correlated to the proficiency level of the bilinguals (based on the grammaticality judgment). The participants

<table>
<thead>
<tr>
<th>Mean of NP1 Responses in the Experiment</th>
</tr>
</thead>
<tbody>
<tr>
<td>M Grp0</td>
</tr>
<tr>
<td>--------</td>
</tr>
<tr>
<td>20.13333</td>
</tr>
<tr>
<td>16.26667</td>
</tr>
<tr>
<td>16.26667</td>
</tr>
</tbody>
</table>

*Note:* Group 0: Filipino-dominant group  
Group 1: Chinese-dominant group
of intermediate to advanced proficiency all prefer NP1. Based on the findings, it can be deduced that proficiency is not a decisive factor in determining NP preference.

As shown in Table 2, there is no significant difference between Filipino-dominant and Chinese-dominant participants. They both prefer NP1.

**Table 2**

*Summary of Grammaticality Judgment Tests Results for Both Groups*

<table>
<thead>
<tr>
<th>Grammaticality</th>
<th>OF_NP1</th>
<th>WI_NP1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grammaticality</td>
<td>1.0000</td>
<td>.2988</td>
</tr>
<tr>
<td>p = ----</td>
<td>p = .115</td>
<td>p = .636</td>
</tr>
<tr>
<td>OF_NP1</td>
<td>.2988</td>
<td>1.0000</td>
</tr>
<tr>
<td>p = .115</td>
<td>p = ----</td>
<td>p = .000</td>
</tr>
<tr>
<td>WI_NP1</td>
<td>.0919</td>
<td>.6978</td>
</tr>
<tr>
<td>p = .636</td>
<td>p = .000</td>
<td>p = ----</td>
</tr>
</tbody>
</table>

Discussion

The results from the experiment show that both the Filipino-dominant and the Chinese-dominant bilinguals at a private University in Manila, who are intermediate to advanced English learners, favor the initial noun phrase (NP1) for both the genitive and the attributive constructions in relative clause disambiguation. In keeping with the hypothesis initially established, the Filipino-dominant bilinguals process ambiguous sentences by tapping their L1 syntax. Because VSO in Filipino syntax forms an attachment to the initial NP (Kroeger, 1991), a case of shared syntax from L1 to L2 may be most likely to have occurred. This accounted for a large percentage of the Filipino-dominant L2 learners favoring NP1 in both the genitive and the attributive conditions. These findings further suggest that the L2 learners do not use lexical semantic information (Stringer, 2019) during processing. On the other hand, contrary to the earlier assumption that the Chinese-dominant bilinguals will favor the second noun phrase over the first because the Chinese language follows an SVO syntax and thus prefer NP2, it was found from the experiment conducted that the Chinese-dominant bilinguals also favor NP1 over NP2.

Several reasons may account for their NP1 preference. One, this can be attributed to their immersion experience, as reported in Dussias’ (2003) and Dussias and Sagarras’s (2007). This set of participants is considered trilinguals, proficient in Chinese, Filipino, and English. Thus, the NP2 preference found in Chinese monolinguals may not necessarily hold true for this set of learners. In Hoffmann and Stavans’s (2007) study on the trilinguals’ choice of language in code-switching and code-mixing, they suggested that sociolinguistics factors like acculturation and socialization may also play their part in language development, thereby influencing the sentence processing of the trilinguals. In the case of the participants in the study, being proficient trilinguals, the Chinese-dominant Filipino bilinguals, who are immersed and acculturated in a Filipino environment, may have triggered their L2 (i.e., Filipino) processing mechanism, which led them to prefer NP1 attachment. Hoffmann and Stavin (2007) posited that trilinguals could, in fact, operate in monolingual, bilingual, and trilingual modes, depending on the degree of language activation or deactivation of their three linguistic systems (p.6). In a similar manner, Pittman’s (2008, as cited in Gonzales, 2016) study on the code-switching (CS) patterns of bilinguals and trilinguals also observed that social and cultural backgrounds presumably accounted for different results in terms of the given study. This empirical research on trilingualism, although focusing on the spoken aspect of the targeted language, also impact on the current study in so far as language activation in the reading comprehension of L2 participants is concerned. Second, these learners learned Filipino at about the same age they learned Chinese. Hence, even if they consider themselves
Chinese-dominant, their Filipino syntax parser is open and activated during processing. Prior (2012) opined that L1 and L2 are constantly active in spoken and written modes, particularly for proficient bilinguals. This case of non-selective activation of L1 and L2 was supported by a similar experiment conducted by Van Hell and Dijkstra (2002). In their study, they were able to attest that the weaker language remains activated when processing cognates facilitation in Dutch (L1) and English (L2), with Dutch being the dominant language and French (L3) being the weaker language among these trilinguals. Similar to the current study that showed NP1 preference even for the Chinese-dominant bilinguals, a case of non-selective activation of the three languages occurs among the participants in the study. This reason may most likely have accounted for their attachment to NP1 instead of NP2. The first and the second reasons that were just mentioned are intertwined because non-selective activation of the three languages is a feature of trilingualism. Finally, the third reason that may have accounted for the NP1 preference of the participants in the study is their years of exposure to the Filipino language. It can be recalled that during the initial phase of the study, a survey was conducted to determine the age that they have acquired the Filipino language for the Chinese-dominant and the Chinese language for the Filipino-dominant bilinguals. Both groups of participants have, in fact, mentioned that they had learned the language at an early age of three to four years. Here, the notion of the critical period hypothesis (CPH; Lenneberg, 1967) works in favor of the Chinese-dominant bilinguals as well because the acquisition of their L2 is within the critical period range of two and 12, which is about the puberty stage. This factor, coupled with the fact they were immersed in the Filipino culture, may have made their NP1 attachment almost automatic since the average of their response time during the offline experiment was between 7 and 12 seconds.

This particular finding contrasts with the study of Jiang et al. (2009), testing the acculturation model among the 49 tertiary level Chinese students who have spent their five years in the United States. The particular study revealed that there is little progress in terms of their proficiency in pronunciation, a language skill understandably deemed the most difficult to master according to CPH. Additionally, considering the case where the participants of the study got immersed in the English language after their puberty stage, the immersion factor of five years is relatively shorter when compared with the immersion range of about 12 years for the Chinese-dominant bilinguals in the current study. In Yeganeh and Malekzadeh’s (2015) study that compares monolinguals and early bilinguals, they concluded that the bilinguals’ first language has a significant contribution in their performance, reading ability, and learning another language. This study that supports the notion of CPH did not mention acculturation which is what the Chinese-dominant bilinguals in the study have and which may have made them prefer NP1. It simply demonstrated the impact of L1 in the reading assessments of the participants. What this particular study of Yeganeh and Malekzadeh shows are two things. One, the study supports that learning at the critical period range is optimal for language performance. Two, reading comprehension in the third language draws from language and mental mechanisms in the first language. These mechanisms may likely include sentence processing and adaptation of syntax inherent in L1. Additionally, with the Chinese-dominant bilinguals, a case of acculturation may have explained their NP1 attachment. According to Schumann (1978, as cited in Graham & Brown, 1996), the extent by which the learners acculturate to the target language is proportional to the extent that he acquires the second language. In this context of the Chinese-Filipino bilinguals in the study, they acculturated to the Filipino language at an early age of three in the natural setting, which is the Philippines. Even before they entered formal schooling, they had already been exposed to the Filipino language.

Conclusion

Filipino-dominant and the Chinese-dominant bilinguals preferred NP1 attachment in both the of and the with conditions. As for the Filipino-dominant group, there is a syntax parsing strategy transfer from L1 to L2. In contrast, years of exposure to the Filipino syntax that favored NP1 attachment may have interfered with the Chinese-dominant learners’ processing during disambiguation, which resulted in their NP1 attachment preference. The study makes interesting claims on the interrelationships of trilingualism, the notion of non-selective activation that occurs not only in the reading mode but also during spoken contexts, and the theory of acculturation. For future studies, it will be interesting
to investigate the sentence processing of less proficient bilinguals, considering that current research mainly focuses its investigation on proficient bilinguals. A comparison between the two bilinguals—the proficient and the less proficient—may be done so that mediation may be provided to the less proficient bilinguals.

Acknowledgments

The authors would like to thank the participants who consented to participate in the study. Likewise, the authors acknowledge Dr. Leah Gustilo, Dr. Shirley Dita, as well as the reviewers for seeing the potential of the study in contributing to the field of bilingual education and making it part of this journal’s maiden issue.

Declaration of Possible Conflict of Interest

The Authors declare that there is no conflict of interest.

References


Appendices

Appendix A: Personal Information and Grammaticality Test

I. Instructions: Answer the items as truthfully as possible by checking the space before the word/s that correspond to your choice.

1. Do you speak Chinese? _____ yes _____ no
2. What Chinese language do you speak?
   _____ Mandarin _____ Cantonese _____ Hokkien(Fukkien) _____ others (pls. specify)
3. Which high school did you graduate from? (pls. specify name of school)
4. Is answer # 3 a Chinese school? _____ yes _____ no
5. Are the subjects taught in Chinese? _____ yes _____ no
   not all (pls. specify)
6. At what age did you start learning Chinese? _____ Tagalog(Filipino)? _____ English?
7. Do you watch Chinese programs on tv? _____ yes _____ no
9. What language do you often use when you process your thoughts into written or oral modes?
10. Which language are you more proficient? ________ Chinese ________ Tagalog

II. Decide whether the following sentences are grammatical or ungrammatical by writing G for grammatical and U for ungrammatical beside the item number of each sentence. Then, underline the word that made the sentence ungrammatical.

1. The reporter phoned the boss of the secretary who was reading a book.
2. The doctor contacted the lawyers with the nurses who was talking on the phone.
3. The cleaning lady noticed the chief of the player who was working very late.
4. The nurse trusted the doctor of the teacher who was preparing to go home.
5. I watched the fans of the singers who was dancing about throughout the concert.
6. The headmaster smiled at the pupils of the teacher who were standing in the hall.
7. The inspector watched the deputies of the policemen who were watching the report of the crime on TV.
8. The young girl favored the player with the driver who were talking to an old woman.
9. The cameraman adored the actor with the director who were wearing round glasses.
10. The journalist hated the soldiers of the colonels who were sitting down.
11. A reporter interviewed the bodyguard with the prince who was wearing a smart black suit.
12. The woman knew the photographers of the singers who were reading the music.
13. The director congratulated the instructor of the schoolboy who were looking very serious.
14. The man spoke to the secretary with the manager who was about to move to a new office.
15. The little girl envied the princess with the maid who was eating chocolates.
16. The woman blamed the hairdresser with the apprentices who was smiling all the time.
17. The doctor recognized the nurse of the patient who were feeling very tired.
18. The photographer liked the artists with the models who were smiling all the time.
19. The young man noticed the singers with the guitarists who were reading the music.
20. The director congratulated the instructor of the schoolboy who were looking very serious.
21. The coach looked at the football players with the fans who were very happy.
22. A strange woman called to the travelers with the guides who was dreaming about to cross the dangerous river.
Appendix B: Summary of Results from Grammaticality Judgment

<table>
<thead>
<tr>
<th>No.</th>
<th>Group</th>
<th>Out of a total of 24 Grammaticality</th>
<th>Of NP1</th>
<th>NP2</th>
<th>With NP1</th>
<th>NP2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0</td>
<td>19</td>
<td>20</td>
<td>0</td>
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<td>0</td>
</tr>
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<td>2</td>
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<td>1</td>
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0 = Filipino-dominant
1 = Chinese-dominant
Appendix C: Noun Phrase Attachment Questionnaire

Instructions: Read the sentences carefully. Then indicate for each sentence which of the two possible interpretations (i&ii) is the more appropriate one.

1. The dean liked the secretary of the professor who was reading a letter.
   i. the secretary is reading a letter
   ii. the professor is reading a letter
2. The young girl favored the player with the driver who was talking to an old woman.
   i. the player was talking to an old woman
   ii. the driver was talking to an old woman
3. The doctor examined the nurse of the pupil who was feeling very tired.
   i. the nurse was feeling very tired
   ii. the pupil was feeling very tired
4. The director congratulated the schoolboy with the instructor who was writing the reports.
   i. the schoolboy was writing the reports
   ii. the instructor was writing the reports
5. The secretary saw the driver of the manager who was dreaming of holidays.
   i. the driver was dreaming of holidays
   ii. the manager was dreaming of holidays
6. The publisher hated the economist with the executive who was wearing round glasses.
   i. the economist was wearing round glasses
   ii. the executive was wearing round glasses
7. The journalist criticized the pilot of the traveler who was drinking too much.
   i. the pilot was drinking too much
   ii. the traveler was drinking too much
8. The judge recognized the criminal with the solicitor who was suffering from insomnia.
   i. the criminal was suffering from insomnia
   ii. the solicitor suffering from insomnia
9. The cameraman adored the director of the actor who was wearing cowboy boots.
   i. the director was wearing cowboy boots
   ii. the actor was wearing cowboy boots
10. The doctor observed the consultant with the attorney who was reading the newspaper.
    i. the consultant was reading the newspaper
    ii. the attorney was reading the newspaper
11. The journalist interviewed the assistant of the inspector who was looking very serious.
    i. the assistant was looking very serious
    ii. the inspector was looking very serious
12. The economist liked the editor with the journalist who was thinking about the stock report.
    i. the editor was thinking about the stock report
    ii. the journalist was thinking about the stock report
13. The student photographed the fan of the actress who was looking happy.
    i. the fan was looking happy
    ii. the actress was looking happy
14. The woman blamed the hairdresser with the apprentice who was smiling all the time.
   i. the hairdresser was smiling all the time
   ii. the apprentice was smiling all the time
15. The woman knew the photographer of the singer who was reading the book.
   i. the photographer was reading the book
   ii. the singer was reading the book
16. The man questioned the tourist with the guide who was feeling rather exhausted.
   i. the tourist was feeling rather exhausted
   ii. the guide was feeling rather exhausted
17. The nurse trusted the doctor of the teacher who was preparing to go home.
   i. the doctor was preparing to go home
   ii. the teacher was preparing to go home
18. The thief hit the dentist with the technician who was calling the police.
   i. the dentist was calling the police
   ii. the technician was calling the police
19. The journalist hated the soldier of the colonel who was sitting down.
   i. the soldier was sitting down
   ii. the colonel was sitting down
20. The little girl envied the princess with the maid who was eating chocolate.
   i. the princess was eating chocolate
   ii. the maid was eating chocolate