Selected Papers from the 2007 Annual Research Forum of the Linguistic Society of Hong Kong

2007年香港語言學學會學術年會論文集

LINGUISTIC SOCIETY OF HONG KONG

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Preface

With the aim of creating more channels for members of the Linguistic Society of Hong Kong (LSHK) to make their research findings known to the linguistic community, the Executive Committee in 2006 decided to publish selected papers from LSHK's Annual Research Forum (ARF), with Colleen Wong being the first editor. For the 2nd collection of selected papers, I am honored to be given the opportunity to edit and assist in its production.

The theme of ARF 2007 was "Language Across Time and Cultures", which has attracted over 30 presentations on morphosyntax and semantics, phonetics and phonology, sociolinguistics and discourse analysis, language contact and language change, translation studies, as well as language acquisition and language processing.

About half of these presentations were written up as papers and sent to several anonymous reviewers, who are all experts in their field of research, for further comments.

This collection comprises eight papers which cover various areas of linguistics. We will first look at two studies on grammaticalization by examining Chen and Matthews' study of the functions of *khɔ5* 'give' and its grammaticalization in Hui'an Southern Min, followed by Shibasaki's research on word formation and its impact on information flow by examining grammatical subjects in old and present day English.

In syntax, Lam will examine adjectival modification in Liannan Yao, while Selvanathan & Lau will discuss the formation strategies of Wh-questions in Colloquial Singapore English.

When it comes to language acquisition, we have Gasper's experiments on non-native acquisition of prosodic boundaries by multilingual children and Morimoto & Horie's typological account for the acquisition of relative clauses by L2 Japanese learners of English.

To complete this collection, we will report Pan's investigation on the lexical item *haeq* 'give' in Qinzhou Zhuang and Ge's findings on her study of humor translation.

The publication of this 2nd Selected Papers from ARF would not be possible without the support of the current Executive Committee and, most importantly, the reviewers who have offered their unconditional support for LSHK by giving up their precious time to comment on the papers diligently. My sincere thanks also go to Peppina Lee and Kwok Bit-chee, who came to my rescue when I needed help. Hope all of you will enjoy reading the papers.

Vicky Man
May 2009

The Grammaticalization of *Khɔ5*[1] 'give' in Hui'an Southern Min

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1. Introduction

The 'give' verb takes on a range of functions including being a ditransitive verb, dative marker, causative marker and passive marker, etc. in different languages (e.g. Sinitic languages, Thai, Akan, etc.). Much work has been done to explore the grammaticalization of the 'give' verb (e.g. Yap and Iwasaki 1998, 2003, Lai 2001, Lord et al. 2002, Matthews et al. 2004, etc.). This paper focuses on examining the different functions of *khɔ5* 'give' and its grammaticalization in Hui' an Southern Min, which is spoken in the Hui'an County of Fujian Province and belongs to the Quan-Zhang subgroup of the Southern Min dialect family. The data used are collected from natural occurring conversations among native speakers.

1.1. Causation in Language

In Hui'an Southern Min, *khɔ5* 'give' can be used not only as a ditransitive verb, a permissive verb, a dative marker, a causative marker, a passive marker and an unaccusative marker, but also in irrealis situations. Before presenting how these functions are examined in this paper, a brief introduction of causation, one of the main functions of the 'give' verb, will be given.

In typological terms, the causative construction generally represents a linguistic expression which denotes a complex macro-situation consisting of two micro-situations or component events: (i) the causing event in which the causer does or initates something in order to bring about a different event (i.e. the caused events), and (ii) the caused event in which the causee carries out an action or undergoes a change of condition or state as a result of the causer's action. (Song, 2001) An example from Song (2001) is given in (1) below.

(1) Elizabeth made the chef eat the leftovers.

As Song points out, having the desire or wish to have the leftovers consumed, the causer (i.e. *Elizabeth*) did (or said) something, and as a result of that action the causee (i.e. *the chef*) in turn carried out the action of eating the leftovers, thereby satisfying

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[1] Hui'an Southern Min has seven citation tones, i.e. high level (*yinping*), low level (*yangping*), high rising (*yinshang*), low rising (*yangshang*), going (*qusheng*), high entering (*yinru*) and low entering (*yangru*), which are labeled by numerals 1 through 7. For example, '5' in '*khɔ5*' indicates going (*qusheng*). In addition, 0 is used to denote neutral tone. It should be noted, however, that sandhi tones are used in the examples when they occur.

the causer's desire or wish. This definition, however, is rather narrow. In this definition, 'the causer...in order to bring about a different event (i.e. the caused events)' implies that the caused event is expected by the causer. The following example, however, indicates that the caused event in a causative construction may also be unexpected by the causer.

(2) He made me sad.

Example (2) is a typical case of direct causation. In this example, the causer (i.e. *he*) did (or said) something, and as a result of that action the causee (i.e. *me*) felt sad. The caused event 'I feel sad' may be expected by the causer (i.e. it is a desire or wish of the causer), but may also be unexpected by the causer (i.e. it is not a desire or wish of the causer).

1.2. The Causative Continuum

According to Song (2001), a distinction between direct causation and indirect causation may be made based on the temporal distance between the causing event and the caused event. Shibatani and Pardeshi (2002), however, arguing that direct and indirect causation are rather vaguely and loosely used, propose a causative continuum with respect to semantic, i.e. indirect causation – sociative causation – direct causation, as shown in (3).

(3) Direct causation: an agent acting on a patient who then performs an action.
    Indirect causation: an agent A_1 acts on an agent A_2 at location L_1 and time T_1.
        Consequently agent A_2 performs an action, possibly on a patient (P), at a different location (L_2) and/or time (T_2).
    Sociative causation: an agent A_1 acts on another agent A_2 who then performs another action, possibly on a patient (P).

What is new in Shibatani and Pardeshi's semantic continuum is the notion of sociative causation as an intermediate category between direct and indirect causation. Thus, an example of sociative causation in Japanese is copied here.

(4) Hahaoya-ga   kodomo-ni   hon-o   yoma-se-te   i-ru
    mother-NOM   child-DAT   book-ACC   read-CAUS-CONJ be-PRES
    'Mother is having the child read.'

The causative suffix in (4) indicates neither giving permission, nor making something happen. The causee (i.e. the child) in (4) is agentive and retains volitional control over the action. This is the 'supervision' type of sociative causation.

2. The Grammaticalization of *Khɔ5* 'give'

Khɔ5 'give' can be used as the only verb in a ditransitive construction, or as the first/second verb in a serial verb construction. These different constructions provide different environments for the grammaticalization of *khɔ5* 'give'. This section will examine the various uses of *khɔ5* 'give' and its grammaticalizaiton in these different constructions in which it occurs. Before doing so, we would like to introduce the terms 'bridging context' and 'switch context' proposed by Heine (2002), which will be used in the following analysis.

Heine (2002) suggests that different stages of evolution tend to be reflected in the form of different context clusters. The 'bridging context' in Heine (2002) refers to a kind of context which 'triggers an inferential mechanism to the effect that, rather than the source meaning, there is another meaning, the target meaning, that offers a more plausible interpretation of the utterance concerned', while 'switch context' refers to a context where the target meaning 'is isolated as a separate meaning from the older, more lexical meaning'.

2.1. *Khɔ5* 'give' in Ditransitive Constructions
2.1.1. *Khɔ5* 'give' as Ditransitive Verb

Khɔ5 'give', as a ditransitive verb, can be followed by an indirect object and a direct object, i.e. '*khɔ5* IO DO'[1], as in (5), *ua3* 'me' is the indirect object, while *ɾi4-tau1-tsĩ2* 'gift money' is the direct object.

(5) i1   kɔ5   <u>khɔ5-4</u>   ua3   ɾi2-4-tau1-tsĩ2
    3sg ought-to give   1sg   gift-money
    'He ought to give me gift money.'

In most cases, however, the direct object is fronted before the verb functioning as the topic, or even omitted. The examples are given in (6) and (7), respectively.

(6) kue1   se5   <u>khɔ5-4</u>   len1-2 pa2   a0
    chicken wing   give   2pl father   Suffix
    'Give your father the chicken wing.'

(7) laŋ2-4   bo5-4 <u>khɔ5-4</u> i1   e0
    person   want   give   3sg Part
    'It is him that the person wants to give (something) to.'

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[1] Only three examples of utterances with the structure of '*khɔ5* IO DO' are found in our spoken data. In addition, these two examples are spoken by the younger. Although such a [V NP NP] configuration is often taken to be the prototypical ditransitive construction, it is not at all characteristic of the Hui'an dialect, where the direct object typically appears before the verb as in (6) or undergoes deletion as in (7).

In (6), *kue1 se5* 'chicken wing', being the direct object, is fronted and put in a preverbal position. In (7), the direct object is omitted and can be found in the preceding context. The structure of these two examples can be represented as '(DO) *khɔ5* IO'.

Example (8) below shows that even the indirect object can be omitted.

(8) khɔ3-liŋ2   en1   huai2   <u>khɔ5</u>   kha?6   tsue4
    possibly   3pl   those   give   comparatively much
    'They may give more (money than other people).'

As in the examples above, *khɔ5* 'give' in (8) is also the only verb in the utterance. Both the direct object and indirect object, however, are omitted and can be found in the preceding context. This indicates that the arguments of the verb are not obligatorily overt in Hui'an Southern Min.

2.1.2. *Khɔ5* 'give' in Assumptive Situations

Here are two examples of *khɔ5* 'give' used in an assumptive situation in which it is the only verb in the clause.

(9) bo5-4   <u>khɔ5-4</u> ua3, ua3 m5-4-ai5   tsia?7
    want   give   1sg, 1sg do-not-want eat
    (a) 'If (he) gives me (something), I would not want to eat (it).'
    (b) 'If it were me, I would not want to eat (it).'

(10) bo5-4   <u>khɔ5-4</u> ua3, ua3 m5-4-ai5   khɯ5
     want   give   1sg, 1sg do-not-want go
     'If it were me, I would not want to go (there).'

Example (9) illustrates a bridging context in which *bo5-4 khɔ5-4 ua3* has two possible interpretations: a 'giving' action in an assumptive situation in (9a) and irrealis in (9b). While example (10) illustrates a switch context since it has only one interpretation: irrealis. In (10), there is no 'giving' event, since the verb *khɯ5* 'go' cannot be connected to a 'giving' event in which an object is passed from the giver to the recipient. The context of this example is that some people like to go to some big cities, and the speaker says that if it were her, she would not want to go to those big cities. *Bo5-4 khɔ5-4 ua3* 'if it were me' has become a fixed phrase to express irrealis.

It can be seen from the analysis above that when the ditransitive construction *khɔ5-4 ua3* 'give me (something)' is used in an assumptive situation following the morpheme *bo5* 'if', it can be developed into a fixed phrase for expressing irrealis situations. This can be represented as follows:

   bo5 'if' + 'ditransitive verb' + NP   >   irrealis

Lord et al. (2002) point out that the 'give' verb can be used as a perspective/stance marker in Akan, as shown in (11).

(11) ɛ-yɛ den <u>ma</u> me
      it-is difficult <u>give</u> me
      'It is difficult for me.'

They suggest that the object of 'give' in (11) is the person from whose perspective or point of view believes that the place is good, and the 'give' morpheme functions as a marker of perspective. They also point out that in this use of 'give', the preceding verb (i.e. *den* 'difficult') refers to a state rather than an activity.

It should be noted that the use of *khɔ5* 'give' exemplified by (10) above is different from the perspective/stance marker shown in example (11). In Hui'an Southern Min, *khɔ5* 'give' cannot be used to express the meaning of *ma* 'give' in (11). In addition, the verb *khui5* 'go' in (10) indicates an activity, but not a state.

2.2. *Khɔ5* 'give' as the First Verb in Serial Constructions

In this section, we examine the grammaticalization of *khɔ5* 'give' when it is used as the first verb in a serial construction.

2.2.1. From Ditransitive Verb to Permissive Verb

Khɔ5 'give' can function as a permissive verb when it is the first verb in a serial construction '*khɔ5* NP VP'. This is illustrated in example (12).

(12) ke5 bo2-4 aŋ1 <u>khɔ5-4</u> ua3 tsue5
      all no can give 1sg do
      '(She) does not allow me to do anything.'

In (12), *khɔ5* 'give' no long expresses 'giving' in its original meaning, since there does not exist an object being passed from the giver to the recipient. *Khɔ5* 'give' here can be glossed as 'permit', 'allow'. This example also shows that the permissive use of *khɔ5* 'give' is a verb, which can be preceded by a negation marker *bo2* 'no'.

This permissive use of *khɔ5* 'give' comes directly from its use as a ditransitive verb, which can be proved by example (13).

(13) m5 <u>khɔ5-4</u> laŋ2-4 tsiaʔ7
      no give person eat
      (a) '(He) does not want to give (it) for others to eat.'
      (b) '(He) does not allow others to eat (it).'

This example provides a bridging context in which *khɔ5* 'give' is vague in status between a ditransitive verb and permissive verb, since it can be interpreted both as 'giving' (i.e. (13a)) and as 'permit, allow' (i.e. (13b)). In its use as a ditransitive verb, *'khɔ5* NP VP' is formed by adding a VP after *'khɔ5* NP', in which, the NP is an indirect object of *khɔ5* 'give' and realized as *laŋ4* 'person'. In its permissive use, however, the NP (i.e. *laŋ4* 'person') is not used as an indirect object anymore. In fact, the first interpretation implies the second interpretation when the event encoded by *'khɔ5* NP VP' happens after being requested by the NP. In other words, the NP (i.e. *laŋ4* 'person') asks for something to *tsiaʔ7* 'eat' (i.e. VP), but the omitted subject *i* 'he' does not want to give something for *laŋ4* 'person' to *tsiaʔ7* 'eat', which implies that the subject *i* 'he' does not allow *laŋ4* 'person' to *tsiaʔ7* 'eat'. Thus, the giver's action of giving can imply his/her permission.

In this context, we can say that *khɔ5* 'give' in (13) undergoes a re-analysis from being a ditransitive verb in *'khɔ5* IO VP' to a permissive verb in a serial construction *'khɔ5* NP VP'. Then, the permissive use is extended to another construction *'khɔ5* NP VP' in which *khɔ5* 'give' cannot express a 'giving' action, as in example (12) above, which is an illustration of a switch context.

Thus, the development from the ditransitive verb to permissive verb can be shown as follows:

'ditransitive verb' + IO + VP > 'permissive verb' + NP + VP

2.2.2. From Ditranstive Verb to Permissive in Irrealis Contexts

In the following example (14), the serial verb construction *'khɔ5* (+NP) + VP' with *khɔ5* 'give' as the first verb is preceded by a clause, which consists of a morpheme *bo5* 'want' and a VP. In addition, the two VPs are the same.

(14) bo5-4   tsiaʔ7 khɔ5-4 tsiaʔ7
    want   eat   give   eat
    (a) '(If he/she) want to eat (it), then give (it for him/her to) eat (it).'
    (b) 'Permit (him/her) eat (something) if he/she wants.'

Example (14) is an instance of bridging context in which *khɔ5* 'give' can be interpreted both as a ditransitive verb (i.e. (14a)) and as permissive in an irealis context (i.e. (14b)), while example (15) below functions as a switch context where *khɔ5* 'give' only indicates permissive in an irrealis context.

(15) tsɔŋ1-siu1   tse5,   phai3-2-khuã5 khɔ5-4 phai3-2-khuã5
    decorate   one-CL,   ugly   give   ugly
    '(It is better) to decorate it, ugly though it may be.'

In (15), *phai3-2-khuã5 khɔ5-4 phai3-2-khuã5* 'ugly though it may be' can also be

interpreted as 'just allow it be ugly if it would be', in which *phai3-2-khuã5* 'ugly' is not a real state, but may happen in the future. It should be noted that, different from example (14) in which the VP is encoded by a verb (i.e. *tsiaʔ7* 'eat'), *khɔ5* 'give' in (15) is put between the same adjective (i.e. *phai3-2-khuã5* 'ugly'). In addition, 'VP *khɔ5* VP' has become a fixed phrase.

In Mandarin, it is the adverb *jiù* that takes on this function of *khɔ5* 'give', as shown in (16).

(16) guì   jiù   guì   bei
     expensive ADV expensive SFP
     'Allow it be expensive if it would be.'

2.2.3. From Ditranstive Verb to Sociative Causation Marker

In Section 2.2.1., we state that the giver's action of giving can imply his/her permission when the event 'giving NP (something) to VP' happens after being requested by the NP. This event, however, can also happen without a request from the NP, which gives rise to an interpretation of sociative causation. This is exemplified by the following example.

(17) huai2   siɔŋ5   khɔ5-4 len1-2 pa2 khuã5
     those   pictures give   2pl father   see
     (a) 'Give those pictures for your father to look at (it).'
     (b) 'Allow your father to take a look at those pictures.'
     (c) 'Have your father see those pictures.'

This example constitutes a bridging context where *khɔ5* 'give' has three possible interpretations: a ditrasitive verb (i.e. (17a)), a permissive verb (i.e. (17b)) and a sociative causation marker (i.e. (17c)). In (17a), *len1-2 pa2* 'your father' is the indirect object of *khɔ5* 'give'. In (17b), *khɔ5* 'give' means 'permit, allow'. The context is that the hearer's father asks to look at them, but the hearer is not willing to let her father look at the pictures, and then, the speaker asks the hearer to give permission to her father. While (17c) exemplifies the sociative causation use of *khɔ5* 'give': the hearer's father may not know that there exist some pictures and may not be asking to look at them, but the speaker asks the hearer to share the pictures with her father. In this case, they will take a look at the pictures together, if the father agrees. Unlike in (17b), the speaker in (17c) does not ask the hearer to give permission to her father. In addition, it should be mentioned that the NP *len1-2 pa2* 'your father' is an agent, but not a patient.

According to the analysis above, we can see that the giver's "giving" action can be re-analyzed both as permission and as sociative causation. This may also show a close relationship between permission and sociative causation.

Now, we would like to look at how the sociative causation is extended to other contexts. Firstly, the caused event in example (17c) above can be analyzed as follows:

(18) a. The causee, being an agent, carries out an action.
    b. The action is encoded by a transitive verb, with its object being preposed as the subject of the clause.
    c. The action is expected by the causer.

Then, we suggest that the sociative causation use is extended to another type of caused event in which the action is encoded by an intransitive verb, i.e. (18b) is changed, but (18a) and (18b) remain the same. In this case, *khɔ5* 'give' cannot express a 'giving' action any more. This is illustrated by (19) below.

(19) <u>khɔ5-4</u>   pa2 a0   tsə5-4 hi5-4-ta?6
    give   father Suffix   sit   there
    'Have father sit there.'

This example illustrates a switch context. It can be seen from this example that *khɔ5* 'give' loses its original meaning of 'giving'. In addition, *tsə5* 'sit' is an intransitive verb.

Thus, we would represent the relationship of the ditransitive verb, permissive verb and sociative causation marker as follows:

'ditransitive verb' + IO + VP > 'permissive verb'/'sociative causation marker' + NP + VP

It should be noted that the relationship we propose above is different from that in Matthews et al. (2004) and Lord (2002), in which they suggest that causative is developed from its permissive use; while the analysis above shows that the causative use of *khɔ5* 'give' can be developed directly from its use as a ditransitive verb.

2.2.4. From Sociative Causation Marker to Direct Causation Marker

As mentioned in the last section, when (18b) is changed, i.e. the action carried out by the causee is encoded by an intransitive verb, but not a transitive verb, the typical sociative causation arises. Besides this, the sociative causative use can also be extended to another type of caused event in which the causee is a patient, but not an agent, and the caused event is always not expected by the causer, i.e. (18a), (18b) and (18c) are all changed. This gives rise to the interpretation of direct causation. The example is given in (20) below.

(20) lɯ3   <u>khɔ5-4</u> ua3 phai3-2-se5 a1
    2sg   give   1sg embarrassed very
    'You make me very embarrassed.'

In (20), the causee *ua3* 'me' is a patient, but not agent. *Phai3-2-se5 a1* 'very embarrassed' indicates a change of state. In addition, the caused event is not expected by the causer *lu3* 'you'.

It can be seen that the causer and the causee refer to different persons in (20) above, while the following example indicates that the causer and the causee can also refer to the same person.

(21) khɔ5-4 kai3-ki5 kan1-khɔ3   a1
     give   self   painstaking very
     'Make oneself have a hard time.'

This kind of causation can be called reflexive direct causation.

According to the analysis above, the extension from the sociative causation use of *khɔ5* 'give' to its direct causation use can be shown as follows:

    'sociative causation marker' + NP + VP   >   'direct causation marker' + NP + VP

2.2.5. From Permissive Verb/Sociative Causation Marker to Passive Marker

As indicated in Section 2.2.4, the direct causation use of *khɔ5* 'give' is extended from its sociative causation use. In fact, the causative use can also be extended to express caused events in which only (18c) is changed, while (18a) and (18b) remain the same, i.e. the causee carries out an action, which is encoded by a transitive verb, but not expected by the causer. This gives rise to an interpretation of the passive use of *khɔ5* 'give', as shown in example (22).

(22) bo2-4 tshiŋ5-4 tsiã5-4-tsɔŋ1, khɔ5-4 liŋ3-2-to4 bã5
     no   wear   suit,   give   boss   scold
     '(She) was scolded by the boss since she did not wear a suit.'

It should be mentioned that example (22) is not a serial construction with *khɔ5* 'give' as a second verb, but two clauses. In (22), the omitted subject *il* 'she' did not wear a suit, which brought out a caused event that her boss scolded her. Thus, as with the sociative use of *khɔ5* 'give' exemplified in (17) above, the causee *liŋ3-2-to4* 'boss', being an agent, carries out an action *bã5*'scold (her)', and this action is encoded by a transitive verb *bã5* 'scold' with its object omitted. The semantic difference between example (22) and the sociative use of *khɔ5* 'give' in (17c) above is that the caused event is not expected by the causer in (22). Thus, we suggest that some passive uses of *khɔ5* 'give' may also be regarded as a type of causative use.

The following two examples also indicate a close relationship between permission, sociative causation and passive construction. We repeat example (17) above here, and

show an example of passive use in (23) for comparison.

(17) huai2 siɔŋ5 <u>khɔ5-4</u> len1-2 pa2 khuã5
     those pictures give   2pl   father see
     (a) 'Give those pictures for your father to look at (it).'
     (b) 'Allow your father to take a look at those pictures.'
     (c) 'Have your father see those pictures.'

(23) huai2 siɔŋ5 <u> khɔ5-4 </u> len1-2 pa2 khuã5 tioʔ7
     those pictures give   2pl   father see   RVC
     'Those pictures have been seen by your father.'

By comparing (17) and (23), permission, sociative causation and passive construction are very similar in terms of both the structure and the semantic roles the NPs take. The difference between (23) and (17) is that the caused event 'your father looks at those pictures' is not expected by the causer in (23), but expected by the causer in both the permissive and sociative causation interpretations in (17). Note that the difference in form is the RVC *tioʔ7* in (23).

Thus, we propose that the passive use of *khɔ5* 'give' is derived from its use as a permissive verb and sociative causative marker. This is represented as follows:

'permissive verb'/'sociative causation marker' + NP + VP > 'passive marker' + NP + VP

2.2.6. From Passive Marker to Unaccusative Marker

The example given in (24) exemplifies another use of *khɔ5* 'give'.

(24) hue1 <u> khɔ5-4 </u> si3 khɯ5
     flower give   die RVC
     'The flower died.'

In (24), *si3* 'die' is an unaccusative verb, a subtype of intransitive verb. This use of the verb 'give' is also found in other Min dialects (e.g. Quanzhou, Chaozhou, Shantou and Chenghai) and Wu dialects (e.g. Suzhou and Ningbo)[1].

Example (24) can be compared with the following example without *khɔ5* 'give'.
(25) hue1   si3 khɯ5
     flower   die RVC
     'The flower died.'

Example (25) just describes a fact. Example (24), however, implies that the speaker

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[1] The unaccusative use of verb meaning 'give' in other Min and Wu dialects is documented in Li and Zhang (1997, 2000), Matthews et al. (2005) and Lin (1996).

does not want the event 'the flower died' to happen. In addition, *khɔ5* 'give' in (24) emphasizes the patient role of the subject *hue1* 'flower'. Following Matthews et al. (2005), we assume that the unaccusative use of the verb 'give' is developed from its passive use, which can be represented as follows:

'passive marker' + (NP) + VP > 'unaccusative marker' + (NP) + VP

2.3. *Khɔ5* 'give' as the Second Verb in Serial Constructions
2.3.1. From Ditransitive verb to Dative Marker

When it is used as the second verb in serial verb constructions of the form 'VP (NP$_1$) *khɔ5* NP$_2$', *khɔ5* 'give' is used to introduce the recipient and can be regarded as a dative marker. NP$_1$, the object of the first verb, can be overt, realized as 'Num + CL' or even omitted, as illustrated in (26) – (28), respectively.

(26) pun1   lŋ3 paʔ6   khɔ1 <u>khɔ5-4</u> i1
      distribute two hundred CL   give   3sg
      'Give him two hundred.'

(27) tsue5-4-tsue5 lai2 tsiu5-4 pau1 tsai4[1] <u>khɔ5-4</u> i0
      together   come then fold one give 3sg
      'Give one (gift money) to him if they come here together.'

(28) lo4-tshia1   sue3 <u>khɔ5-4</u> i0
      descend-car wash give   3sg
      'Wash (it) and give (it to) her after getting off.'

In (26), NP$_1$ is *lŋ3 paʔ6 khɔl* 'two hundred'. In (27), NP$_1$ is realized as *tsai4* 'one', which is used to modify the omitted noun 'gift money'. In (28), NP$_1$ is covert and can be found from the previous context.

The first verb in the serial verb construction 'VP (NP$_1$) *khɔ5* NP$_2$' can be classified into two types: (a) verbs implying a 'giving' action, e.g. *pun1* 'distribute' in (26); and (b) verbs without a 'giving' action, e.g. *pau1* 'fold' and *sue3* 'wash' in (27) and (28), respectively.

As with *bun* 'give' in Hakka (Lai, 2001), the serial verb construction provides an environment for the second verb *khɔ5* 'give' to lose its verbhood and become decategorized as a dative marker. The development from ditransitive verb to dative marker can be expressed as follows:

VP + (NP$_1$) + 'ditransitive verb' + NP$_2$ > VP + (NP$_1$) + 'dative marker' + NP$_2$

---

[1] *Tsai4* 'one' may be a fusion of numeral one and a classifier, though we are not clear about its etymology at this stage.

2.3.2. From Dative Marker to Indirect/Sociative Causative Marker

Indirect causation indicates that the actions of agent A_1 and agent A_2 happen at different locations and/or different times. It is difficult to determine the location and time of the action of agent A_1, when it is expressed by the causative verb without specific lexical content. Thus, indirect causation is typically encoded by a serial verb construction 'VP *khɔ5* NP VP', in which the first VP refers to the action of agent A_1. In addition, whether the two actions happen at different locations or not can be determined by making a comparison of the two actions.

The following example (29) shows an example of the bridging context where *khɔ5* 'give' can be regarded both as a dative marker and an indirect causative marker.

(29) ui5-4-sep4-b̃i5 bue5 tsai4 phio5 _khɔ5-4_ tse2 lau3 laŋ2 le4 khia3
     why   sell CL ticket give this old person ASP   stand
     (a) 'Why sell a ticket to the elderly person for him to stand (on the train).'
     (b) 'Why sell a ticket that causes the elderly person to stand (on the train).'

In (29a), *khɔ5* 'give' is used as the second verb in serial verb construction 'VP *khɔ5* IO VP', which is derived from 'VP *khɔ5* IO' followed by another VP. This is similar to the formation of '*khɔ5* IO VP' discussed in 2.2.1. In (29b), an omitted agent A_1 acts (i.e. *bue5* 'sell') on agent A_2 (i.e. *lau3 laŋ2* 'the elderly person'), then agent A_2 performs an action (i.e. *khia3* 'stand'), in which, *bue5* 'sell' and *khia3* 'stand' happen at different locations and times.

According to the discussion above, we propose that indirect causation based on *khɔ5* 'give', with the structure of 'VP *khɔ5* NP VP', is developed from 'VP *khɔ5* IO VP', in which, *khɔ5* 'give' is used as a dative marker. This can be shown as follows:

    VP + 'dative marker' + IO + VP   >   VP + 'indirect causation marker' + NP + VP

As with the indirect causation marker, the use of *khɔ5* 'give' as a sociative causation marker can also be derived from its use as a dative marker. The development from dative marker to sociative causation marker is also the same as the development from dative marker to indirect causation marker, since the only difference between indirect causation and sociative causation is that the actions of agent A_1 and agent A_2 happen at different locations in indirect causation, but the same location in sociative causation. Thus, we do not analyze the development in details here, but give two examples below, which are examples of a bridging context (30) and a switch context (31), respectively.

(30) phau5-4 pue1 te2 <u>khɔ5-4</u> ua3 lim1
    make   CL   tea give 1sg drink
    (a) 'Make a cup of tea for me to drink.'
    (b) 'Make a cup of tea and have me drink it.'

(31) tshɔŋ5-4 kua1 <u>khɔ5-4</u> bã2   a0   thiã1
    do   music give mother Suffix listen
    'Have mother listen to the music.'

To conclude, the relationship between dative marker and indirect/sociative causation marker can be shown as follows:

VP + 'dative marker' + NP + VP > VP + 'indirect/sociative causation marker' + NP + VP

2.3.3. From Sociative Causation Marker to Direct Causation Marker

In Section 2.2.4., we propose that the use of *khɔ5* 'give' as a direct causation marker is extended from its use as a sociative causation marker when *khɔ5* 'give' is used as the first verb in a serial verb construction '*khɔ5* NP VP'. This extension also happens in *khɔ5* 'give' as the second verb in serial verb construction 'VP *khɔ5* NP VP'.

The examples of direct causative use of *khɔ5* 'give' are given in (32) and (33) below.

(32) phaʔ6 <u>khɔ5-4</u> i1 hau5
    hit   give 3sg cry
    '(She) hit him/her so that he/she cries.'

(33) kɔ5 tsiaʔ7 <u>khɔ5-4</u> pa3
    should eat give   full
    '(You) should get a full stomach.'

Instances of direct causation like (33) can also be found in Taiwanese Southern Min (Cheng et al., 1999).

The development from sociative causation marker to direct causation marker can be represented as follows:

VP + 'sociative causation marker' + NP + VP >
VP + 'direct causation marker' + NP + VP

2.4. Summary

Based on the discussion in the previous sections, we would like to make a summary of

the relationship between different functions of *khɔ5* 'give', which is shown in (34).

(34)
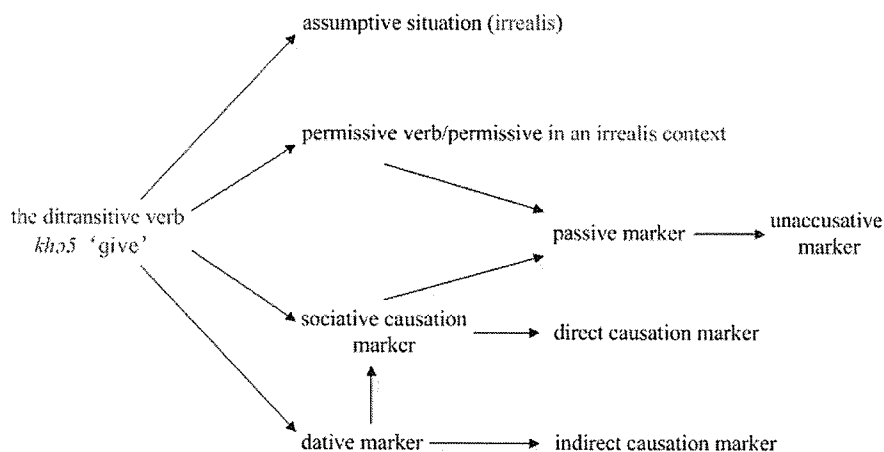
It should be noted that in addition to divergence of functions, there appear to be cases of convergence between sub-paths and the overall pathway.

2.5. Further Issues for Research

Studies of grammaticalization in non-Chinese languages have often observed that phonetic or phonological reduction takes place in the course of grammaticalization: 'phonetic reduction…is often one of the main indicators that a grammaticalization process has occurred" (Fischer et al. 2004: 11). It can be seen from the analysis above that there is no *phonological* change of *khɔ5* 'give' during its grammaticalization, since the segmental phonology and the tone are the same in the lexical and grammatical uses of *khɔ5* 'give'. However, it is possible that there are some *phonetic* differences of the kind as discussed in Ansaldo and Lim (2004). Their study investigated subtle phonetic differences between lexical and grammatical uses of various morphemes including the Hokkien *ho*. It was found that the grammaticalized usage showed shorter vowel duration than the lexical usage meaning 'give'. This suggests that further study might reveal subttle phonetic differences between lexical and grammatical uses of *khɔ5* 'give'.

3. Conclusion

In this paper, we have examined the functions of *khɔ5* 'give' and its grammaticalization in Hui'an Southern Min. We find that (i) *khɔ5* 'give' takes on a range of functions: it can not only be used as a ditransitive verb, a permissive verb, a dative marker, a causative marker, a passive marker and an unaccusative marker, but

also can be used in irrealis situations to express subjunctive and permissive in irrealis. (ii) The causative marker *khɔ5* 'give' can indicate indirect causation, sociative causation and direct causation. (iii) The grammaticalization paths of *khɔ5* 'give' are based on the constructions it occurs and its positions in the constructions. The *khɔ5* 'give' can be used as the only verb in ditranstive constructions, and the first/second verb in serial verb constructions. These different constructions provide different environments for the grammaticalization of *khɔ5* 'give', as shown in (34) above.

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Word Order Fixation and Its Impact on
Information Flow:
Grammatical Subjects in Old through Present Day English

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1. Introduction

Studies on the frequency of use or sequentiality have uncovered many aspects of language change that have been unexplored in the framework of existing linguistic theories (see Bybee 2007). Such research projects appear to have collaborated with grammaticalization works, synchronically or diachronically, that probe into several mechanisms of morphosyntactic and semantic changes, often on the basis of discourse tokens, for a deeper understanding of language change. Any discourse-frequency approach takes us huge amounts of time to reach even one conclusion, provisional or decisive; the number of those works especially from diachronic perspectives is still small. However, since grammaticalizationists have given witness to fairly stable patterns of language change common among a wide range of languages of worldwide distribution, it is not impossible to introduce some plausible speculations about the reconstructing process of a given form, even in languages with no historical materials to draw on diachronic criteria (e.g. Gildea 2000; Heine and Kuteva 2007: 213-215). This study is not aimed to reconstruct any form or expression tracing the history of English, but is designed to unveil the chain of information flow over time, with special focus on the grammatical roles 'A' and 'S', analyzing English historical documents and addressing the significant impact of structural change on informational chain.

This study is organized as follows. Section 2 concerns data used for this study. Section 3 introduces coding properties whereby we can specify types of forms and information, and Section 4 illustrates examples with the coding properties precisely applied. Section 5 is allotted for both grammatical and pragmatic analyses of 'A' and 'S', while Section 6 is a discussion section especially concerning structural factors on informational change. Section 7 is a concluding section.

2. Data

In this study, I will use two types of texts: one concerns verse texts in Old and Middle English, which are considered to reflect colloquial expressions of those times; the other consists of texts of dramas from the fifteenth through twentieth centuries. Table 1 summarizes those texts divided by the stages and dates used only for this case study.

Table 1: Stages and Texts

Stages	Dates	Texts
Old English (OE)	450-1150	*The Battle of Maldon* (c. 991)
Middle English 1 (ME1)	1301-1400	*The Canterbury Tales* (c. 1388-1400)
Middle English 2 (ME2)	1401-1500	*Mankind* (c. 1464-1471)
Early Modern English (EME)	1501-1770	*A Mid-Summer Night's Dream* (c. 1594-1596)
		The Tempest (c. 1612)
Modern English 1 (MDE1)	1771-1800	*The Rivals* (c. 1775)
Modern English 2 (MDE2)	1801-1900	*Lady Windermere's Fan* (c. 1892)
Present Day English (PDE)	1901-	*Pygmalion* (c. 1913)

The Battle of Maldon, which is the last text of the series of epics from *Beowulf*, is regarded as including spoken English of those times (Robinson 1976: 25-28); the feasibility of historical pragmatics of *The Battle of Maldon* is proposed by Hiltunen (1997). *The Canterbury Tales* also reflect the colloquial language of the time. A piece of linguistic evidence for this claim is the subject cliticization of the second person singular form *thow* (=þou) into the preceding verbs, especially short and familiar verbs, as in *artow* 'you are', *canstow* 'you can', *darstow* 'you dare', *dostow* 'you do', *maystow* 'you may', *mostow* 'you must', *oughtestow* 'you ought (PST)', *profrestow* 'you proffer', *se(e)stow* 'you see', *seystow* 'you say', *shaltow* 'you shall', *wiltow* 'you will' and others (see Brinton 2004 for more details). In addition, Burrow and Turville-Petre (1996: 5-6) clearly state that "authors in the twelfth, thirteenth and fourteenth centuries generally wrote the English that they spoke – whether in London, Hereford, Peterborough, or York – and the scribes who copied their work either preserved that language or else more or less consistently substituted their own, equally local, forms" (see Shibasaki 2005b: Ch.7 for related discussions). Since such phonological contractions are also reported from conversational discourse (Bybee and Scheibman 1999), *The Canterbury Tales* can be considered to have taken on colloquial aspects of the language of the time. I chose *The Pardoner's Tale* for this study, because it contains a good amount of conversational practice. From ME2 to PDE, I scrutinized texts of dramas in order to see a genre-specific aspect of information flow. By their very nature, drama texts entail a large amount of interaction by characters, which could be closer to naturally occurring discourse; they exhibit signs of conversational practice in their respective periods.

Since genres and styles of texts change over time, it is not an easy task to choose texts from an appropriately same genre. However, this study focuses on those texts that represent certain conversational practice of earlier times; therefore, this work comes as close as possible to a diachronic study on the transition of information flow.

3. Coding Property

As already clarified in Section 1, this study puts focus on the information flow of the grammatical roles 'A' and 'S'. According to Dixon's (1979) three-way distinction, grammatical roles are defined as follows: 'A' refers to the more agent-like argument of a transitive verb; 'S' refers to the single argument of an intransitive verb; 'O' refers to the more patient-like argument of a transitive verb. Preceding works tell us that 'A' and 'O' can be considered to have reached a cross-linguistic consensus over their discourse functions: 'A' has a strong tendency to encode pronominal mentions and carry non-new information; 'O' shows a preference of lexical mentions for introducing new referents (Du Bois et al. 2003). However, 'S' exhibits certain elastic properties across languages. For example, while 'S' and 'O' are found to introduce new information in much the same way in some languages like Sacapultec (or Sakapultek) Maya (Du Bois 1987), it is also reported that 'S' does not necessarily serve to carry new information in other languages like Acehnese (Durie 1988) and Tamil (Herring 1989). Therefore, the purpose of this study is to reveal the information status of grammatical subjects 'A' and 'S' at each synchronic stage and to see whether they exhibit any consistent chain of information over history.

Table 2: Coding Properties

Type of Code	Instances
Number of Clauses	The first 200 clauses from each text
Recency of Mention	Old, Active, New
Forms of Reference	Pronoun and Lexical Noun

In what follows, I will account for the three coding properties to accomplish this research objective. They are summarized in Table 2. First, the first 200 clauses are selected from each text in order to avoid any bias. Note in passing that as shown in Table 1 (Section 2), *A Mid-Summer Night's Dream* and *The Tempest* are categorized as texts in EME and the survey results are used as those in the seventeenth century (see Section 5); 100 clauses from each text are analyzed.

Second, the recency of mention is defined in the following way: 'Old' stands for a type of information that had appeared in text previously but not in the immediately previous clause; 'Active' stands for a type of information that appeared in the immediately previous clause; 'New' stands for a type of information that is the first mention in each text, identifiable or not. Whether a newly introduced NP is actually new to characters in the drama goes beyond imagination. However, even if such unidentifiable first mentions are excluded from token frequency, the whole proportional frequency is still stable and reliable, as shown in Section 5.

Third, forms of reference analyzed in this study are pronouns and lexical nouns; I will refer to both forms as overt NPs. In OE and ME, it is not quite difficult to recover unexpressed NPs due to verbal agreement in person and number with nominative subjects. However, such morphological clues are far from unambiguous even in late OE (e.g. Allen 1995: 29-20, 234-236); in later stages, the lack of agreement marking on verbs becomes so pervasive that it is next to impossible to decide whether a verb is intransitive or transitive, when NPs are unexpressed (e.g. Blake 2002: 219-220). Since it is difficult to establish a set of premises applicable to all stages, I investigated only overt NPs in this study. In a nutshell, this study pays special attention to the correlation between lexicality and information status of 'A' and 'S' from a diachronic perspective.

4. Examples

In this section, I will illustrate the application of the coding properties into historical discourse data. First, I will show a series of verse lines from *The Tempest*, as in (1).[1] Note that each grammatical role is underlined for clarity.

(1) Miranda: *If by   your art,   my dearest father, you have*
                       OBL/New/Lex   A/Act/Pron

              Put   the wild waters   in   this roar,   allay   them.
                    O/New/Lex   OBL/New/Lex   O/Act/Pron

              The sky,   it seems, would pour down   stinking pitch,
              A/New/Lex   O/New/Lex

              But that   the sea,   morning to th' welkin's cheek,
                  A/Old/Lex   OBL/New/Lex

              Dashes the fire out.   O,   I   have suffered
                  O/New/Lex   S/Act/Pron

              With those   that   I saw.   A brave vessel, ...
                  OBL/New/Pron O/Act/Pron A/Act/Pron   S/New/Lex

              Who   had no doubt some noble creature in her,
                  A/Act/Pron   O/New/Lex   OBL/Act/Pron

[1] The glossing conventions are as follows. A=subjects of transitive verbs; ACC=accusative; Act=active information; DAT=dative; INF=infinitive; Lex=lexical noun; New=new information; NOM=nominative; O=objects of transitive verbs; OBL=oblique; Old=old information; PL=plural; Pron=pronoun; PST=past tense; S=subjects of intransitive verbs; SG=singular; SUBJ=subjunctive.

> Dash'd _all_ to pieces!　　O,　_the cry_　　did knock
> 　　　　O/Old/Pron　　　　　　S/New/Lex
>
> Against　_my very heart_!　Poor souls, _they_　　perish'd.
> 　　　　OBL/New/Lex　　　　　　S/Act/Pron

<div align="right">(17C The Tempest I ii:, 1-9)</div>

In addition to the coding properties demonstrated above, I will utilize the following sub-coding properties with respect to grammatical subjects and make them consistent across texts in this study.

Predicate nominal, i.e. the complement of a copula as in (2), is not counted in this study, because predicate nominal is not an argument but functions predicatively (Du Bois 2003: 36). Elements in focus are underlined.

(2)　The mother:　_Well, it aint_ _my fault_, _missus._　(20C _Pygmalion_, Act I)

In the same vein, nominal expressions in existential constructions as in (3) are not counted.

(3)　Mercy:　_For sickerly, there should be a straight examination._
　　　　　　(15C _Mankind_ 42)

Those expressions that are considered to have grammaticalized as epistemic parentheticals like _I dare say_, _I think_, and _you know_ as in (4) are excluded; they indicate the speaker's attitude towards propositions rather than serve as arguments (e.g. Thompson 2002).

(4)　Myscheff.　_I say, ser, I am cumme hedyr to make yow game._
　　　　　　(15C _Mankind_, 69)

Idiomatic chunks as in (5) and phrasal verbs as in (6) are regarded as single units. In (5), for example, the underlined _got foot_ is regarded as a single predicate and the NP _the fashion_ is interpreted as 'S'; in (6), the underlined phrasal verb _look on_ (meaning 'consider') is regarded as a single predicate and the subject pronoun _you_ is interpreted as 'A' (cf. 'P' words in O'Dowd 1998).

(5)　Coachman:　_When the fashion had got foot on the bar_ ... (18C _The Rivals_ I.i)

(6)　Darlington:　_You look on me as behind the age._
　　　　　　(19C _Lady Windermere's Fan_ I, 84-85)

Relative pronouns are counted because they play argument roles in predicates, as in (7).[2] Yet in ME and occasionally in later stages, some writers favored the combination of relative pronouns such as *which þat* or *þe which* (e.g. Burrow and Turville-Petre 1996: 44), and our text *The Pardoner's Tale* includes such examples as in (8). In that case, they are regarded as one unit of relative pronouns; in this example, the underlined unit is interpreted as 'S'.

(7) Ege.:   *Turn'd her obedience (which is due to me)*
              To stubborn harshness.   (16C *A Mid-Summer Night Dream* I i)

(8) *Thanne I have in latoun a sholder-boon,*
     Which that was of an hooly Jewes sheep.
     'Then I have a shoulder-bone in latten, which was of a holy Jews' sheep.'
                                        (14C *The Canterbury Tales, Pard.* 350-51)

The subjects of passive constructions are treated as 'S', as in (9).

(9) *this sely mayde is slayn, allas!*
     'This innocent maid is slain, alas!'   (14C *The Canterbury Tales, Pard.* 292)

As to juxtaposed NPs, when one determiner governs NPs such as *his beast and stock*, I regarded it as one NP; however, when determiners govern their respective NPs, I treated them as separate NPs. Thus in (10), two underlined NPs are counted as 'S', respectively.

(10) *His beestes and his stoor shal multiplie.*
     'His beasts and his stock shall increase (or be multiplied).'
                                        (14C *The Canterbury Tales, Pard.* 365)

Neither NPs of vocative functions nor ambient pronouns are included; complementizers are not counted either.

As pointed out above, any unexpressed NP is neither analyzed nor counted; therefore, the pronominal *me*, which is considered to be elided and marked Ø in (11), is excluded from our survey.

---

[2] In my past work on the relevant topic (Shibasaki 2006), I did not count relative pronouns for token frequency; however, this study shows no drastic difference from that work with respect to frequency.

(11) *Me*   *sendon*   *to*   *þe*   *sæmen*   *snelle,*
me   sent   to   you   seafarer.NOM.SG   brave
O/Act/Pron   Obl/Act/Pron   A/New/Lex

heton   Ø   *ðe*   *secgan*   *þæt*   *þu*   *most*   *sendon*   *raðe*
commanded   you   tell.INF   that   you   must   send   quickly
           O/Act/Pron   A/Act/Pron

beagas   *wið*   *gebeorge;*
rings.ACC.PL   for   protection.DAT.SG

'Bold seafarers have sent me to you, commanded [Ø (me)] to tell you that you must quickly send rings in return for protection.'

(10C *The Battle of Maldon*, 29-31)

Applying all these coding properties, I will show the survey results in the next section.

5. Survey Results

Precisely applied with these coding properties, our texts show several interesting results on the relation between 'lexicality' and 'information status' of 'A' and 'S'. Hereafter, I will give accounts for the two dimensions under the categories of grammatical and pragmatic dimensions, respectively.

5.1. Grammatical Dimensions

Table 3 shows both token and proportional frequencies of 'A' from OE through PDE; N means the number of tokens. The historical transition is summarized in Chart 1. It is quite clear that 'A' exhibits a strong preference for pronominal mentions – i.e. 86% in average – over lexical mentions consistently across time, which gives support for findings from other languages, ergative or accusative, as summarized in Du Bois et al. (2003). More interestingly, such disfavors have progressed so far as to reach a very low rate 7.1% in PDE. Is this specific to the English language?

In comparison to many useful synchronic surveys, there are far fewer diachronic surveys. However, Ashby and Bentivoglio (2003) provide important fodder for considering the diachronic decline of lexical 'A' in French and Spanish. Their findings show that the relative frequency of lexical 'A' has decreased from 13% (Old French) to 5% (Modern French) and from 12% (Old Spanish) to 8% (Modern Spanish), respectively. The figure in this study corresponds with those in Ashby and Bentivoglio (2003). Furthermore, once we compare the proportional frequency of lexical mentions in 'A' in Table 3 side-by-side with those from other languages in the

latter half of the twentieth century, our survey result turns out not to be uncommon even among genetically unrelated languages: the occurrence probabilities of lexical 'A' are 2.9% in Sacapultec (Du Bois 1987), 7% in Japanese (Mastumoto 2000), 8% in Hebrew (Smith 1996), 10% in Papago (Payne 1997), and 7.1% in this study.

Table 3. Grammatical Dimension of A

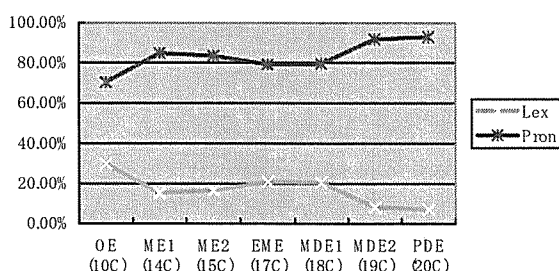| Stages	Lexical		Pronoun		Total	
	N	%/A	N	%/A	N	%/A
10C	22	29.7%	52	70.3%	74	100%
14C	14	15.2%	78	84.8%	92	100%
15C	13	16.5%	66	83.5%	79	100%
17C	15	20.8%	57	79.2%	72	100%
18C	15	20.5%	58	79.5%	73	100%
19C	8	8.2%	90	91.8%	98	100%
20C	6	7.1%	78	92.9%	84	100%
Total	**57**	**14.0%**	**349**	**86.0%**	**406**	**100%**

Chart 1: **Proportional Frequency of Lexical vs. Pronominal Mentions in A**

Considering these explorative reports, I am led to conclude that the low frequencies of lexical 'A' observed in the literature thus far exhibits the property characteristic of 'A' common among languages of world-wide distribution, and that the gradual and almost growing decline of encoding lexical mentions in 'A' as in English, French and Spanish is a diachronic pathway that languages are inclined to follow.

Table 4 summarizes referential forms of 'S' with their proportional frequency, and Chart 2 shows the gradual transition of lexical and pronominal mentions over time. It is quite obvious that 'S' has developed in a consistent and stable way, which shows a more drastic change than 'A' shown above. In OE and ME1, lexical and pronominal mentions had been competing in terms of frequency; after ME2, pronominal mentions began to surpass lexical mentions consistently to the present. Can we take it cross-

linguistically granted that 'S' has a growing tendency to avoid lexical mentions in much the same way as 'A'?

In the analysis of her American English conversational data, Kärkkäinen (1996: 680) found that 'S' tends to disfavor lexical mentions (8.4%); in this study likewise, the relative frequency of encoding lexical mentions in 'S' in PDE (7.4%) is almost as low as that in Kärkkäinen (1996). However, another synchronic survey of PDE by Kumagai (2000) observes a higher frequency (35%) of lexical mentions in 'S'. From a diachronic perspective, we come up against a more interesting but irksome situation. Ashby and Bentivoglio (2003: 66-67) report that the percentage of lexical mentions in 'S' has diachronically increased in French and Spanish: from 28% (Old French) to 44% (Modern French) and from 30% (Old Spanish) to 36% (Modern Spanish). That is, French and Spanish witness the reverse historical transition against English. It is true that Ashby and Bentivoglio (2003: 72-73) concede that a simple comparison of two synchronic stages is not sufficient for a precise understanding of language change. However, 'S' may be considered to have an elastic but elusive property of encoding forms of reference, diachronically and cross-linguistically. Furthermore, considering that grammatical roles 'A' and 'O' show much more skewed distributions across languages (Du Bois 2003) in that 'A' strongly favors pronominal mentions and 'O' strongly favors lexical mentions, the ambivalent property of 'S' needs further investigation beyond the realms of case study.[3]

Table 4. Grammatical Dimension of S

Stages	Lexical		Pronoun		Total	
	N	%/S	N	%/S	N	%/S
10C	34	51.5%	32	48.5%	66	100%
14C	46	48.9%	48	51.1%	94	100%
15C	34	32.7%	70	67.3%	104	100%
17C	27	34.6%	51	65.4%	78	100%
18C	21	23.6%	68	76.4%	89	100%
19C	16	14.3%	96	85.7%	112	100%
20C	4	7.4%	50	92.6%	54	100%
Total	102	23.3%	335	76.7%	437	100%

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[3] The 'S' role is sensitive to genre differences and discourse conditions (Du Bois 1987: 836). For example, Kärkkäinen (1996) provides a very low occurrence rate of lexical 'S' i.e. 8.4% in her American English conversational data, whereas Kumagai (2000) reports a higher rate of occurrence i.e. 35% in his narrative database. Furthermore, Kumpf (2003) investigates one specific context of classroom science teaching discourse; her survey result shows a much higher frequency of lexical 'S' i.e. 52%. In comparison to these preceding works, the occurrence probability of lexical 'S' in drama texts 7.4 % is similar to that in conversational texts 8.4%. Also see O'Dowd (1990) for her medical discourse analysis which involves many body-part expressions.
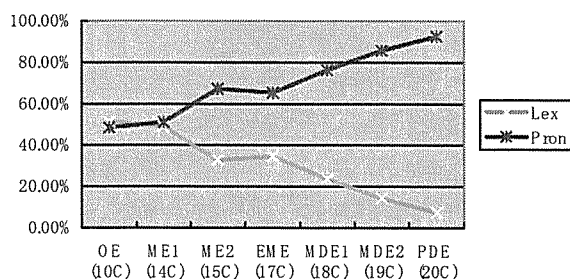
Chart 2: Proportional Frequency of Lexical vs. Pronominal Mentions in S

What was found from this analysis can be summarized as follows. Overall, from ME2 onwards, both 'A' and 'S' prefer pronominal reference forms over lexical ones at each synchronic stage, and the degree of encoding pronominal forms in both grammatical roles has been strengthened over time. Even compared with other languages, such grammatical properties of 'A' are not heterogeneous, but rather turn out to be a specific nature of 'A' cross-linguistically. In the history of English, 'S' has also increased the degree of coding pronominal forms. Although I cannot present the survey results of grammatical roles 'O' and oblique due to limitations of space, they both exhibit a gradual and steady increment of encoding pronominal forms as 'S' shown above. Therefore, such historical tendencies toward a rise in pronominal forms across grammatical roles may give an insight into the nature of language change. Nevertheless, 'S' behaves differently from language to language, as I emphasized above, cross-linguistically and diachronically. Put together, it is safe to say here that 'S' has strengthened the degree of preference to pronominal forms in English, while the reverse may be the case in some other languages. This deserves further research.

5.2. Pragmatic Dimensions

As specified earlier in Section 3, we analyzed three types of information for 'A' and 'S': Old, Active and New. In this section, I will account for the pragmatic dimensions of 'A' and 'S' with respect to these information types.

Table 5 and Chart 3 summarize the historical transition of the information types of 'A'. First, 'A' shows a dispreference for carrying New information; we see a decline from OE to PDE. Second, Old information is also found to be relatively infrequent, except for ME2. I will provide a brief account for what appears to be a reverse trend for the ME period in the next section together with a discussion of a similar phenomenon for 'S' in ME2). Third, except the sharp decline in ME2, the Active

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information has been preferred over the other two in the other stages. Furthermore, 'A' has strengthened the degree of carrying Active information from ME2 onwards.

Table 5. Pragmatic Dimension of A

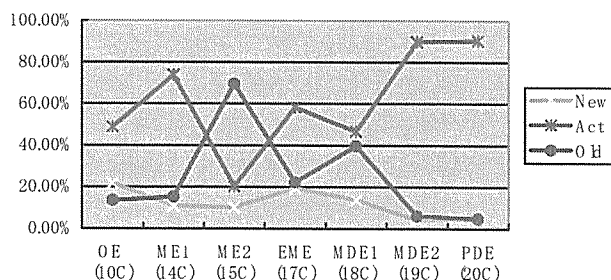| Stages	New		Active		Old		Total	
	N	%/A	N	%/A	N	%/A	N	%/A
10C	16	21.6%	48	64.9%	10	13.5%	74	100%
14C	10	10.9%	68	73.9%	14	15.2%	92	100%
15C	8	10.1%	16	20.2%	55	69.6%	104	100%
17C	14	19.4%	42	58.3%	16	22.2%	78	100%
18C	10	13.7%	34	46.6%	29	39.7%	89	100%
19C	4	4.1%	88	89.8%	6	6.1%	112	100%
20C	4	4.8%	76	90.4%	4	4.8%	84	100%
Total	40	9.9%	256	63.1%	110	27.0%	406	100%

Chart 3: Transition of Referential Distance in A

So, what can these historical transitions reveal about the pragmatic dimension of 'A'? I will focus on the following two points. One concerns a kind of discourse universal: 'A' is deficient in carrying New information (see Du Bois et al. 2003). The fact that 'A' does not serve as a medium of New information across time helps to consolidate this constraint on A. The second fact is related to the other side of the coin. That is, 'A' increasingly shows a strong preference for non-new information, more specifically Active information over Old information, especially after ME2. According to our definition of Active information in Section 3, i.e. a type of information that appeared in the immediately previous clause, it can be interpreted that the previous clause has increasingly become a preferred place for what is last mentioned. Based on his intensive survey of Sacapultec Maya, Du Bois (1987), the exponent for the theory of Preferred Argument Structure, states that New information is disposed to appear in 'S' or 'O' but not in 'A'. Subsequent studies have also provided similar observations from other languages, for example, as in Du Bois et al.

(2003). Likewise, this study could take these previous findings one step further; namely, it succeeds in specifying a type of information that 'A' has taken on over long periods of time i.e. the Active information.[4]

Approximately, 'S' follows the same directional pathway, as in Table 6 and Chart 4. While the three types of information show no consistent distributions in OE and ME1, they seem to have been competing from ME2 through MDE1. After MDE1, the Active information has totally surpassed the other two information types. Take a closer look at Chart 4. While the Active information had declined from OE to ME2, it brought about an incipient recovery of frequency in EME and has continued to be dominant over the others; the New information type showed a decline curve from ME1, while the Old information type showed a rise in frequency in the same period. That is, the three types of information had become evenly-distributed in ME2, and after ME2, only Active information has increased. This historical change is to be discussed in tandem with forms of reference in Section 6.

Table 6. Pragmatic Dimension of S

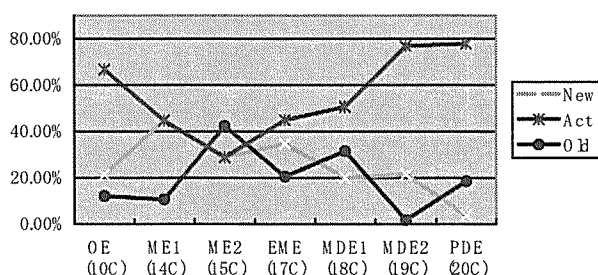| Stages	New		Active		Old		Total	
	N	%/S	N	%/S	N	%/S	N	%/S
10C	14	21.1%	44	66.7%	8	12.1%	66	100%
14C	42	44.7%	42	44.7%	10	10.6%	94	100%
15C	30	28.8%	30	28.8%	44	42.3%	104	100%
17C	27	34.6%	35	44.9%	16	20.5%	78	100%
18C	16	20.0%	45	50.6%	28	31.5%	89	100%
19C	24	21.4%	86	76.8%	2	1.8%	112	100%
20C	2	3.7%	42	77.8%	10	18.5%	54	100%
Total	99	22.6%	238	54.5%	100	22.9%	437	100%

Chart 4: Transition of Referential Distance in S

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[4] Ashby and Bentivoglio (2003: 70-71) also witness a similar diachronic decline of putting New information in 'A': 11% (Old French) to 0% (Modern French) and 10% (Old Spanish) to 6% (Modern Spanish).

In spite of such consistent survey results, I still have reservations about regarding this historical transition as being characteristic of 'S'. It is known that unlike 'A' (as well as 'O' and oblique), 'S' is characterized by a mixture of opposite properties, i.e. a choice of new information or non-new information. Contra the finding from this study, for example, Ashby and Bentivoglio (2003: 70-71) made an interesting diachronic observation about 'S' in French and Spanish: the degree of carrying New information in 'S' has decreased in French from 37% (Old French) to 32% (Modern French), while it has increased in Spanish from 18% (Old Spanish) to 29% (Modern Spanish).[5] Any cross-linguistic survey on this diachronic aspect goes beyond this study. However, the point is that in the history of English, the Active information has stably increased after ME2 in both 'A' and 'S', despite their unstable distributional patterns before that period. Importantly, such a similar change could be attested in the distributional pattern of lexical and pronominal forms in the previous section, especially with respect to 'S'. I will discuss this point in Section 6.

5.3. Interim Summary

In this subsection, I will homologize the findings from our grammatical and pragmatic observations of 'A' and 'S', as in Charts 5 and 6, in order to inquire deeper into the interface of form and information. Note that these charts match the most preferable types of form and information for 'A' and 'S', i.e. pronominal forms and Active information.
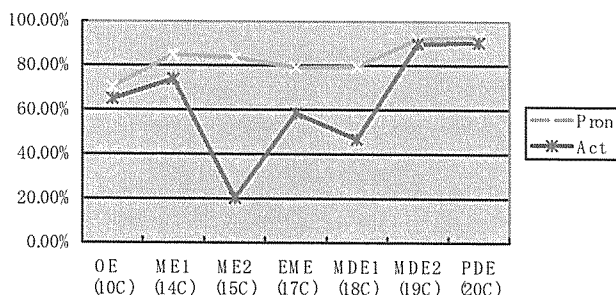

Chart 5: The Interface of Form and Information in A

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[5] Like this study, Ashby and Bentivoglio (2003) exclude subjects of copular verbs from those of intransitive verbs.
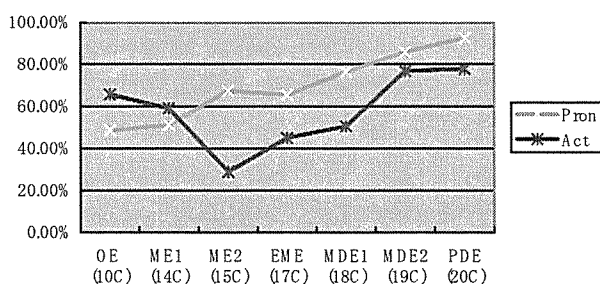
Chart 6: The Interface of Form and Information in S

Our findings are as follows. Grammatically, 'A' has retained its strong preference for pronominal forms throughout history, whereas 'S' has oriented towards taking pronominal forms. Pragmatically, 'A' exhibited unstable distributional patterns of three information types from OE to ME2 (in Chart 3 in Section 5.2); however, it has gradually inclined to carry the Active information from ME2 to PDE; as to 'S', the three types of information had competed against each other in terms of frequency, but from ME2, the Active information has steadily been dominant over the other two; both 'A' and 'S' favor grammatically pronominal forms and pragmatically Active information status. What can this survey result reveal about the form-information interface and its diachronic transition? In OE and ME1, the form-information interface appears to be corresponding to each other; however, there is significant disparity in ME2, the widest attested in the history of English; this widest disparity is found for both 'A' and 'S'. From ME2 to PDE, this disparity has been corrected almost in a steady way. Finally in MDE2 and PDE, the close interface of form and information has reverted to the condition first observed in OE.

This observational consequence poses two fundamental questions concerning the form-information interface. One is concerned with the cause of the biggest gap between form and information in ME2, and the other relates to the reason why the recovery of form-information interface takes four hundred years to return to the initial state. These are the research questions that we will deliberate in the next section.

6. Discussion

In the previous section, we have found that pronominal forms are best attuned to Active information. Although the proportionate interface wildly fluctuated in ME2, the initial correspondence was fully regained in MDE2 or better in PDE. In this section, I will provide an account for the cause of the biggest gap in ME2 and the reason for the prolonged period of recovery.

6.1. Word Order Fixation and Informational Change

The relevant question is what kind of phenomenon happened in the fifteenth century. The historic linguistic accident in the period is word order change, or rather word order fixation, roughly from SOV to SVO. In OE and ME1, i.e. periods in which word order was flexible or unstable, the form-information interface had been stable despite such word order fluidity. In ME2, however, the pragmatic dimension of grammatical subjects 'A' and 'S' became off balance with the fixation of word order, which is clearly reflected as the overt gap between form and information, as in Charts 5 and 6. After the great disparity, the pragmatic dimension took about four hundred years to return to the initial well-balanced interface, whereas the grammatical dimension has been much more stable as if word order change would have been fundamentally irrelevant in terms of frequency. Building on these survey results, I will argue that word order fixation brought about a fundamental change in the pragmatic dimension of the form-information interface in ME2.

Fischer (2006: 123) refers to the possibility that there are changes that proceed formally rather than semantically.[6] For example, she alludes to the possible relation of word order fixation to frequency, especially in that the juxtaposition of auxiliary and main verbs had become conventional in the late ME periods (*ibid.*: 174 and Chapter 4). That is, word order fixation may have facilitated the development of auxiliary verbs. Of course, the change from verb to auxiliary, supposedly triggered or facilitated by word order fixation, did not happen either suddenly or within a short time, because a few verbs continued to keep their verbal characteristics longer than others. In other words, a protracted period of time was necessary for completion of the paradigmatic change.

What about the form-information interface in this study? Taking a theoretically neutral stand, it is clear from Charts 5 and 6 in Section 5.3 that the pragmatic dimension (Act in the charts), i.e. the information-chaining function which seems to be externally influenced by discourse factors, appears to be off-balance in ME2. To put it differently, the structural fixation of word order disarranges the pragmatic dimension of the consistent form-information interface, which gives support for Fischer's argument. Furthermore, the fact that the inconsistent pragmatic dimension takes four hundred years or more to regain its fully interfaced function, as shown in Charts 5 and 6, qualifies as another evidence for what Fischer argues on the theme.

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[6] Of course, there are other approaches to grammaticalization (e.g. Roberts 1985; Roberts and Roussou 2003; Gelderen 2004), which seek to give a syntactic account for grammaticalization processes. Seoane (2006) probes into the pragmatic factor for word order change in English, while Shibasaki (2007a) scrutinizes the relation between left-dislocation and information chaining in narrative texts in Abou Dida, an Eastern Kru language. Note that Roberts (1985) mentions the rise in frequency as a causing factor for the development of modals, while Lightfoot (1979) does not.

This argument might be still somewhat inferential, but is fully data-driven as presented above and further discussed in the next section.[7]

6.2. Conceptual Change and Informational Change

In this section, I will first have a look at several influential and relevant works in the field of grammaticalization, and then confirm our observational result and adequacy with respect to grammaticalization theory.

In the field of historical linguistics, grammaticalizationists seem to have reached a consensus that semantic change comes first and is only later followed by structural changes (e.g. Bybee et al. 1994: 298; Hopper and Traugott 2003: 39, 76). Another commonly accepted belief is the notion of 'conceptual change or manipulation' (Heine et al. 1991), which has been examined in a variety of grammaticalization works (e.g. Heine and Kuteva 2002). One of their research interests centers on a conceptual continuum, for example, a metaphorical/metonymic extension from PERSON > OBJECT > ACTIVITY > SPACE > TIME > QUALITY (Heine et al. 1991: 41). This cline means, for example, that a nominal indicating person comes to change the frame of reference to a nominal indicating space, but not the reverse; they clearly state: "... grammaticalization is the result of conceptual manipulation, in which conceptual chaining precedes morphosyntactic chaining" (*ibid.*: 174). Obviously, grammaticalizationists regard semantic change as a factor initiating morphosyntactic change.[8] The following proposal specifies the directional pathway of semantic change, but is discreet about the relation between form and meaning.

> By "applying the hypothesis that semantic change is predictable", we may "postulate earlier versus later uses of a single gram ... as stages on a grammaticalization path" (Bybee et al 1994: 17-18), but there is a "non-arbitrary relation between the meaning of a gram [grammatical morpheme] and its mode of expression" (*ibid.*: 40).

Bybee et al. (1994) assume that form and meaning have coevolved or language change is semantically driven but not formally facilitated.

I have no objection to these ideas that have been attested in a variety of languages and in my related works (e.g. Shibasaki 2005a, 2007b). Yet all of these works concern either semantic or morphosyntactic changes, but not informational change as discussed in this study (and also in Shibasaki 2003, 2006). According to this survey

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[7] In Schwenter (2007: 355-356), Elizabeth Closs Traugott clearly shows an interest in the relation of word order change to information structure in a broader sense.
[8] Bisang (2008) points out that this cline of cognition and semantics does not work in the languages of East and mainland Southeast Asia. In fact, Heine et al.'s proposal is mainly based on the languages of Africa. Therefore, it may be useful to take certain areal factors into account, as suggested in Bisang (1996, 2008).

result, the crucial difference between semantic and informational change is whether the change is recoverable or not. As pointed out in Bybee et al. (1994: 17-18), the directionality of semantic change is predictable, and thus it is possible to see which one of several attested meanings is older and which is newer; this prediction is cross-linguistically reasonable and proper, which gives full support for the principle of unidirectionality i.e. unrecoverability. On the other hand, the interface of form and information can be considered to be recoverable. As summarized in Section 5.3 and discussed in Section 6.1, the proportionate interface of the most preferable correspondence between grammatical and pragmatic dimensions, i.e. pronominal forms and Active information, had been well-balanced in OE and ME1, but became unbalanced in ME2 because of a radical structural change, i.e. word order fixation. Nevertheless, this off-balanced interface has been restored step by step to its former balanced condition in MDE2 and their strong correspondence has further improved in PDE. Simply put, informational change is recoverable.

Metaphorically, language may be regarded as a living thing, because language (more precisely English here) has recuperative power. As presented in Charts 5 and 6, the way of comeback resembles a period of convalescence. The following excerpt from *The Washington Post* includes eye-catching expressions:

> "Language is a living thing that evolves. Like species, words gradually may shift their meanings. This is no problem if meanings are clear but can be trouble if the usage confuses or misleads people" (Boyce Rensberger, *The Washington Post*, Feb 14, 1996)

Suppose that the expression 'the usage' stands for discourse-based referential functions i.e. 'form-information interface', our findings on the pragmatic dimensions of 'A' and 'S' become comparable to this excerpt. That is, the information chain of 'A' and 'S' structurally-disturbed by word order fixation is equivalent to 'the trouble' in the passage that confuses or misleads speakers of the English language. However, the speakers did not give up such an unbalanced interface as a junk, probably because the flow of information means not an encyclopedic static meaning but a discourse-based dynamic meaning; therefore, the English speakers have spent a large amount of time in the restoration of a sound form-information interface. In other words, language is a living thing that undergoes and makes changes, as Croft (2003: 289) states that "languages don't change; people change language."

7. Concluding Remarks

Diachronic generalizations may be hard to set forth, because historical materials are not complete at any stage in any language; this kind of objection is often proposed from the side of synchronic-oriented researchers. However, neither synchronic

materials nor field-based database are complete either. As to this theme, Heine and Kuteva (2007: 118-119) provide a reminder, citing Givón (2002): "any linguistic work aimed at studying earlier states of language evolution that does not take diachronic evidence into account is likely to miss certain insights that are crucial for reconstruction." This proposal wins acceptance as to the essence of historical linguistics. Diachronic research is thus to be conducted as a case study using an appropriate amount of data.

As clearly stated in Section 1, while this study has not delved into reconstructing linguistic forms, it highlighted the discourse-pragmatic dimension of the form-information interface, which turns out to be congruent with Fischer (2006) in that structural change may be a causing factor for semantic change, albeit with some methodological differences between our foci: Fischer tries to reveal the possibility of structural impact on the acceleration of semantic change, whereas this study probes into the structural impact on the interface of form and information. However, the role of word order fixation in the history of English brought about a similar change in both semantic and pragmatic dimensions. This deserves further investigations. It is hoped then that a fruitful combination of structural and semantic approaches will be taken for a deeper understanding of language change.

Acknowledgements

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On Adjectival Modification in Liannan Yao

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This article discusses the syntax of adjectival modification in Liannan Yao
(连南瑶话), which is spoken in south China. The relative order of adjective
and noun in this language can be [N A] or [A N]. It is significant in two ways.
First, the prenominal and postnominal positions are not freely available for
any adjectives. Instead, some adjectives can only be pronominal, while others
can only be postnominal, provided that there is no marker between the A and
the N. Second, all adjectives, both prenominal and postnominal, can appear
in [A *nu* N] construction, where *nu* is a linker element. It is suggested that
historically, the postnominal position was prominent for adjectives in Yao in
some ancient era, and that the prenominal position is the result of recent
development, probably influenced by Chinese. However, I argue that
theoretically, the prenominal position is the base-generated position, based on
Cinque's (2005, 2007) crosslinguistic study on the internal word order of the
nominal structure.

1. Brief Introduction to Liannan Yao

Liannan is a county in the northern Guangdong province, which is in south China. In
this section, a brief description about the Liannan Yao language is given, which
includes the family or group to which the language belongs, and geographical and
cultural information such as where the language is spoken and the multilingual
situation of Liannan.

1.1. Locations of Miao-Yao Languages

Miao (or Hmong) is spoken over a large area of southern China, basically in the
province of Guizhou, but also in Yunnan, Hunan, Guangdong and as far north as
Hubei. There are a total of 8,000,000 speakers in China (Katzner 2002). The Yao
people distribute over the mountains of Guangxi (860,000), Hunan (290,000), Yunnan
(147,000), Guangdong (96,000), Guizhou (20,000), and Jiangxi (over 500) (Litzinger
2000).

1.2. Affiliation of Miao-Yao Languages

Miao and Yao languages constitute a separate family called Miao-Yao (or
Hmong-Mien), whose genetic relation to other languages, namely those belonging to
families of Sino-Tibetan, Austro-Asiatic and Austronesian, is uncertain (Katzner
2002). However, the traditional view, which nowadays is still advocated by many

Chinese scholars, is that Miao-Yao is part of Sino-Tibetan (Mao, Meng & Zheng 1982; Chen 1998; Ma 2003; Li 2006; Jiang 2006). The claim that Miao-Yao should be separated from Sino-Tibetan was mostly attributed to Paul Benedict (1972) among others. Benedict (1972) claims that Miao-Yao is part of the Austro-Thai family. Owing to this controversy, many authors (e.g. Gordon 2005) simply treat Miao-Yao as an independent group, without stating any of its relationship to other groups.

1.3. Sociolinguistic Backgrounds of Liannan Yao

Liannan is a region in the northern Guangdong province (see the maps in the Appendix), where Sanjiang is the principal town. In the countryside regions, people are mainly Yao. The Liannan Yao people speak mainly Zaomin (藻敏), a variety of the Yao language. But since some Han people, who speak various Chinese dialects, also live together with or around Yao, a variety of Kejia (or Hakka), which is a Chinese dialect, is also popular there. Therefore, most Liannan Yao people speak at least 2 languages. Those who have been educated in schools can speak Mandarin too, but with a strong accent, such as without any aspirated stops which are important in distinguishing lexical meanings. In recent years, due to the popularity of radio and television, and the fact that many Yao people work outside, some Yao people can understand and speak Cantonese. Therefore, a new generation can speak 3 or 4 languages.

1.4. Typological Backgrounds of Liannan Yao

Liannan Yao is a tone language, which is distinct from other Chinese dialects in that it has no aspirated stops. Liannan Yao is a SVO language, with a classifier system, and the basic order in the nominal structure is Demonstrative > Numeral > Classifier > N, the same as that in Chinese. However, the existence of post-head adjunctions, namely, postnominal adjectives and postadjectival adverbs makes Liannan Yao differ from Chinese, while in Chinese, [A N] greatly dominates or perhaps is the only way syntactically. Liannan Yao has a linker element *nu*, comparable with Mandarin *de* and Cantonese *ge*. The term 'linker element' was used in typology (Croft 1990) and has recently been captured under some formal frameworks (e.g., den Dikken & Singhapreecha 2004; Larson & Yamakido 2007; Tang 2006)

2. The Linear Order of Adjectival Modification

In this section, the relative orders of adjectives and nouns are briefly introduced and discussed, with data provided. These include the following three contrasts: First, the choices between prenominal and postnominal positions; second, the question of whether a linker element exists, and third, the possibility for the adjective to be

modified by an adverb.

2.1. [N A]

In Liannan Yao, some adjectives follow directly the noun they modify, as shown in the following examples:[1]

(1) ting$^{44\text{-}453}$ tin^{22}
pig   fat
'fat pig' (Chao 1990:80)[2]

(2) mai^{453}teng^{44} kia^{44}
eye   black
'black eye(s)'

(3) nai^{24} sei^{44} tso^{24} [piang^{453} sia^{44}]
This be CL   flower red
'This is a red flower.'

(4) tsia^{44} tso^{44}-pat$^{44\text{-}453}$ a^{453} tso^{24} [piang^{453} sia^{44}][3]
I   see   A CL flower red
'I see that red flower.'

(5) diang^{41}-kan^{44} nang^{453} set^{453}-ni^{22} piu^{41} sot^{44} tsa^{44} [kong^{44} viang$^{453\text{-}44}$] toi^{453}
forest   LOC suddenly run out CL deer yellow   come
'Suddenly a yellow deer runs out from the forest.' (Chao 1990:98)

Notice that the noun in question can be monosyllabic or disyllabic, so the [N A] pattern is restricted to the number of syllables in the noun. Notice also that the [N A] pattern also exists in some Chinese dialects and are more productive in southeast dialects than in Mandarin Chinese, as shown in the Cantonese example (6):

(6) gai^1 gung^1 / gai^1 naa^2
chicken male / chicken female
'cock / hen'

However, in these dialects, the use of [N A] pattern is very restricted with respect to the choice of the noun and the adjective, and many of them seem to have been lexicalized, such as the one shown in (7).

(7) san^4 zou^2
morning early
'early morning'

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[1] In this paper, the data without source are drawn from my fieldwork.
[2] Since different villages may have a slightly different pronunciation, to be consistent, the data drawn from Chao (1990) and my fieldwork are transcribed based on the pronunciation of a village called Hengkeng.
[3] The element *a* throughout this article is glossed as 'A'. I argue in my M.Phil. dissertation (to appear) that it is actually a definite article, as shown in the translation throughout this article.

The adjective *zou* in fact cannot modify other nouns in the postnominal position, so *san-zou* may better be treated as a lexicalized compound.[4]

2.2. [A N]

Like various Chinese dialects and English, [A-N] is a productive pattern in both word formation and syntactic modification. The following are some examples in Liannan Yao:

(8) [tam^{453}-bing^{22}] toi^{453} lang^{41}
     big   rain   come ASP
     'The heavy rain goes on.' (Chao 1990:119)

(9) bu$^{44-21}$ [lo^{44}-ba^{44}] nang^{453}
     we   big uncle LOC
     'My eldest uncle's place' (Chao 1990:33)[5]

(10) a^{453} [lo^{44} ng^{44}teng^{44}] man^{44}
     A   big abdomen   pain
     'The big abdomen is paining.'

(11) tsia^{44} siang^{22} bot^{44} tong^{453} [siang^{44} piu^{24}]
     I   want   have CL   new   house
     'I want to have a new house.'

(12) mui^{453} man^{44} tsia^{44} [sia^{44} si^{41}]   a^{453}si^{22} [viang^{453} si^{41}]   du^{41} ai^{41} lei^{44}
     You   give   I   red thread or   yellow   thread also do able
     'It is available for you to give me a piece of red or yellow thread.' (Chao 1990:147)

Although most adjectives in Liannan Yao are restricted to the prenominal position, for instance *lo* (big) and *siang* (new) which can only appear in the prenominal position,

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[4] Some may wonder if *san* and *zou* here really are a noun and an adjective respectively, provided that in Cantonese (or in Mandarin Chinese too), *san* can be used as a adjective (or at least a noun modifier), and *zou* as a noun, as shown in the Cantonese data below:
    (i)   san^4-gwong^1
             morning light
             'the light of the morning sun'
    (ii)   cing^1 zou^2
             clear morning
             'early morning'
However, it should be robust enough to treat *san-zou* as a N-A compound, when noticing the following phrase, which is supposed to derive from *san-zou*:
    (iii)   san^4 gam^3 zou^2
             morning so early
             'literally: so early as in the morning'
The constituent right after *gam^3* has to be an adjective. Further, since *san-zou* is a noun, and the fact shown above suggests that *zou* has to be an adjective, while *san* has to be a noun.
5 In Chao (1990), *bu$^{44-21}$* is recorded as *bu^{44}*, which I think is a typo. The genitive pronoun in Liannan Yao normally has a tone inflection to 21, a fact also mentioned in Chao (1990). Therefore I guess the missing of the tone change in the book is a typo.

the postnominal adjectives examined in my research may appear prenominally with some nouns, without any marker in between. The examples of this sort include *sia* (red) and *viang* (yellow), as shown in (3)-(5), and (12).

2.3. [A *nu* N]

There is a linker element in Liannan Yao, which follows the modifier and precedes the modified. The [A *nu* N] pattern is comparable to [A *de* N] in Mandarin Chinese and [A *ge* N] in Cantonese. The A in all the above three patterns can actually be replaced by noun modifiers, relative clauses (with gap or gapless) and noun appositives as well, which are not the focus of this article, though. Besides, the positions of the noun and the adjective relative to the linker cannot be swapped as in some Austronesian languages (Tang 2006). Let us now go through the data of [A *nu* N] in Liannan Yao:

(13) tin^{22} nu^{453} $ting^{44}$
     fat NU pig
     'fat pig' (Chao 1990:80)

(14) kia^{44} nu^{453} $mai^{453}teng^{44}$
     black NU eye
     'black eye(s)'

(15) $tsia^{44}$ i^{41} [$jong^{44}$ nu^{453} $beng^{44}$]
     I   like high NU   mountain
     'I like high mountains.'

(16) $tsia^{44}$ tso^{44}-pat^{44-453} a^{453} tso^{24} [sia^{44} nu^{453} $piang^{453}$]
     I   see   A CL red NU   flower
     'I see that red flower.'

2.4. [A ADV *nu* N]

In the adjectival modification with the linker element *nu*, the postadjectival degree adverb can modify the adjective, as shown in the following:

(17) tin^{22} $siang^{453}$-ai^{22} nu^{453} $ting^{44-453}$
     fat   very   NU pig
     'very fat pig'

(18) $tsia^{44}$ tso^{44}-pat^{44-453} a^{453} tso^{24} [sia^{44} $siang^{453}$-ai^{22} nu^{453} $piang^{453}$]
     I   see   A CL red very   NU flower
     'I see that very red flower.'

2.5. [ADV A *nu* N]

Many adverbs in Liannan Yao are preadjectival. They can modify the A in the

[A-*nu*-N] construction, as shown in the following examples:

(19) tai^{22} bot^{44}-hing^{41} nu^{453} i^{44}

     quite pretty   NU   clothes

     'quite pretty clothes' (Chao 1990:107)

(20) di$^{24\text{-}21}$-ng^{453}-dou^{24} bot^{44}-hing^{41} nu^{453} i^{44}

     extremely   pretty   NU clothes

     'extremely pretty clothes' (Chao 1990:109)

2.6. [NP AP] prediction

Being a SVO language, Liannan Yao has [NP-AP] predication, just like the [S-V] predication with an intransitive verb. However, different from modification with a postnominal adjective, the predication cannot be simply composed by a nominal and a bare adjective; instead, an aspect marker, an adverb, or another adverbial element has to be added:[6]

NP>A>ASP:

(21) a^{453} tso^{24} piang^{453} sia^{44} ai^{22}

       A   CL   flower red   ASP

       'The flower becomes red.'

NP>A>ADV:

(22) a^{453} tso^{24} piang^{453} sia^{44} siang^{453}-ai^{22}

       A   CL flower   red   very

       'The flower is very red.'

NP>ADV>A:

(23) a^{453} tso^{24} piang^{453} a^{44}-lo^{41} sia^{44}

       A   CL flower   very   red

       'The flower is very red.'

2.7. Summary

Different patterns of the relative orders of noun and adjective in Lianan Yao shown above are summarized in the following table:

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[6] These two ways, however, are not the only ways to form a [NP-AP] predication. Among many others are, for instance, reduplication of an A followed by the particle *mu^{44}*, or preceded by an ADV:

    (i)   a^{453} min^{44} vin$^{453\text{-}44}$ vin^{453} mu^{44}.

        A   face   round round MU

        'The face is round.'

    (ii) na^{21} tong^{453} piu^{24} a^{44}-lo^{41} jong^{41} jong^{41}.

        This Cl   house very   good good

        'This house is so pretty!'

But these are out of the scope of this article.

(24)

	Adjectival modification	Adjectival predication
Postnominal	N > A	NP > A > ASP
		NP > A > ADV
		NP > ADV > A
Prenominal	A > N	
	A > *nu* > N	
	A > ADV > *nu* > N	
	ADV > A > *nu* > N	

In short, some adjectives can only be prenominal, while others can only be postnominal, and some both. Only prenominal, but not postnominal, adjectives are compatible with the linker element *nu*. In both prenominal and postnominal adjectives, adverbs can be added to modify the adjectives, but there are asymmetries: for prenominal adjectives, only when there is the linker element *nu* can an adverb be added, and this adverb can be preadjectival or postadjectival, whereas for postnominal adjectives, no adverbs can be added, except in predications (where no linker element is needed).

3. Affixation, Compounding, and Phrases

This section will look at some adjectives, namely, *lo* 'big', *sia* 'red', *tin* 'fat', *jong* 'good' can combine with the noun. There are two dimensions. The first is relative position to N, i.e. prenominal and postnominal. The second is the grammatical structure, i.e. compound and phrase. The second one is a controversial issue in the study of Chinese (Duanmu 1998). The adjective and the noun may be combined through compounding or syntactic derivations. Before going into this issue, we will first introduce some expressions which involve adjectival attribution on the surface but are claimed to be neither compounds or phrases. The first group are claimed to be 'listemes', which by definition are stored in the lexicon (Di Sciullo & Williams 1987), and the second group are nouns prefixed by the adjective-like element, namely tam, which is in fact a prefix instead of an adjective.

3.1. Listemes

Some of the strings mentioned in Section 2 are stored in the mental lexicon, such as the type coined as 'listemes' in Di Sciullo & Williams (1987). The following examples are interesting, which involve stacking of modifying elements (seemingly adjectives) but they are argued here to be lexicalized for different reasons. The first example is shown below, where the two adjective-like elements separately modify the nouns:

(25) tam^{453} tin^{22} ting^{44}
     big   fat   pig
     'big and fat pig'

If the whole term is not drawn from the lexicon, it is hard to account for the unacceptability of the expressions in the form *tam tin* N, where the noun N is *kiangkiang* 'mouse' (another kind of animal), *min* 'person', and *Sa-jot* (a personal name):

(26) *tam^{453} tin^{22} kiang^{453}kiang^{44} / min^{453} / Sa^{22}-jot^{44}
     big   fat   mouse   / person / Sa-jot
     Intended meaning: 'big and fat person/mouse/Sa-jot (a personal name)'

Another example is also a stacking of two adjectives followed by a noun, but it is different from the above example in that the noun is not modified by both adjectives. Instead, it is the second adjective that modifies the noun, and the first adjective seems to be an adverb intensifying the property denoted by the second adjective:

(27) tam^{453} jong^{44} min^{453}
     big   nice   person
     'extraordinarily nice person'

Again, the fact that the noun *min* 'person' cannot be replaced by other semantically compatible nouns shows that the whole term is actually a lexical item.

(28) *tam^{453} jong^{44} fo^{41}ki^{24}
     big   nice   friend
     Intended meaning: 'extraordinarily nice friend'

In short, I see expressions like the above two are lexicalized items, or listemes in Di Sciullo & Williams' (1987) terminology. It is crucial to pay attention to the adjective *tin* 'fat', which is normally postnominal when directly combined with an N; in other words, in Liannan Yao the expression *tin ting* 'fat pig' can never appear (except in *tam tin ting*).

3.2. Nouns prefixed by *tam*
Some combinations of nouns with adjectives are formed via morphological processes. In the following, examples made via affixation are given. Consider the following set of examples:

(29) [tam^{453} bing^{22}] toi^{453} lang^{41}
     big   rain   come   ASP
     'The heavy rain goes on.' (Chao 1990:119)

(30) *tam^{453} nu^{453} bing^{22}
     big   NU   rain
     Intended meaning: 'big rain'

(31) *a^{453} bing^{22} tam^{453} siang^{453}-ai^{22}
   A rain big   very
   Intended meaning: 'The rain is very heavy.'

I agree with Chao (1990) that the adjective *tam* is actually a prefix. First, (31) shows that the linker *nu* cannot be inserted. In fact, from my investigation with the native speakers, it seems that nothing can be inserted. Second, (32) shows that *tam* cannot be used predicatively. The above two diagnostic tests are also adopted in Chao (1990). However, they are not sufficient. The first test shows the failure to insert *nu*, which can be accounted for by various factors. It has been well observed that in Mandarin Chinese, the possibility to insert *de* in a [A N] string is determined by syntactic, phonological, and even some other constraints. It is not so easy to give some clear-cut criteria for it for the time being (cf. Sio & Tang 2005; Sio 2006; Xu 2006). The second test shows the failure to be used predicatively, which can be understood under the attributive versus predictive distinction (Bolinger 1967). What the test shows can only be the fact that the morpheme *tam* is not a predicative adjective. It does not deny the possibility that it is an adjective which can only be used attributively, so are the English adjectives *main, total,* which are always used only attributively, and *angry,* which has no predicative counterpart in certain modifications, as in Bolinger's (1967) examples:
 (32) the main reason; *The reason is main.
 (33) a total stranger; *The stranger is total.
 (34) an angry storm; *The storm is angry.

Thus, I add the third diagnostic test, which I believe is the most significant. The following examples show that *tam* cannot be used independently, or simply it is a bound morpheme, for it is unable to appear without the root noun, even in answering a question as below:
 (35) mui^{453} i^{41} tam^{453} ju^{44} a^{453}si^{22} hei^{41} ju^{44} ?
   you like big stone or small stone
   'Do you like big stones or small stones?'

 (36) hei^{41}/*tam^{453} (nu^{453})
   small big NU
   'small/big'

Therefore, [$_N$ *tam bing*] should not be merged at the syntactic level, and it is not stored in the mental lexicon because of its productivity: *tam* + N. Rather it is generated by a morphological rule, namely affixation: Af + N^0 → N^0.

 After showing that the adjective-like element *tam* is actually not an adjective but a bound morpheme, or more precisely a prefix, now let us turn to the core issue, namely the distinction between compounds and phrases in [A N] and [N A] combinations.

3.3. Compound versus Phrase

In the literature on the syntax of adjectives in Chinese, the issue of whether the [A N] combinations are all compounds, or partly compounds and partly phrases has long been discussed and is still controversial recently (It is clear that no one will take the stand that all of them are phrases). This difference is crucial as compounding is a morphological process, whereas a phrase is formed by syntactic operations. Those advocating that all [A N] combinations are compounds emphasize that the adjectives in these combinations cannot be modified by an adverb, which is supposed to be a characteristic of phrasal status (e.g. Sproat & Shih 1988, 1991; Duanmu 1998; Cheung 2006; Xu 2006). Those suggesting that some of the [A N] combinations are actually phrasal provide evidence of NP ellipsis (e.g. Sio 2006) as in the following example:

(37) Wo juede [NP huang chenshan] bi   [NP hong-de   ∅] haokan
    1SG think yellow shirt   compared:to   red -SUB   pretty
    'I think that yellow shirts are prettier than red ones.'   (Paul 2005:463)

The possibility of the NP ellipsis in the second NP in the above example entails that the second N can be coindexed with the first N, which in turn means that the first NP is not a compound, according to the lexical integrity hypothesis (Chomsky 1970; Huang 1984; Di Sciullo & Williams 1987), which states that any syntactic operation should not be able to intervene in a word (here the [A N] compound); in other words, *huang chenshan* 'yellow shirt' is a phrase, the same as its English counterpart. This article follows the suggestion that some Chinese [A N] combinations are phrases. This idea seems applicable to the [A N] sequences in Liannan Yao, which will be justified below. Further, the next question is to judge whether in Liannan [N A] sequences can be phrases, or are all compounds.

3.3.1. [A N] as Compound and Phrase

The meaning of 'big' can be expressed by the adjective *lo*, other than the prefix *tam*. Let us first recall (9) from Section 2.2, repeated below as (38):

(38) bu$^{44\text{-}21}$ [lo^{44} ba^{44}] nang^{453}
    we   big uncle LOC
    'My eldest uncle's place' (Chao 1990:33)

The adjective *lo* in question seems to mean something similar to, but not exactly, its original meaning *"big"*. In other words, since *lo ba* is not the same as *lo nu ba* in meaning, and it is normally used as a kinship term, the string *lo ba* is better to be treated as a compound. However, there are similar forms which are not compounds. Let us see the combination of *lo* with another N in (39):

(39) mui^{453} i^{41} - ng^{453}- i^{41} [lo^{44} ju^{44}]?

    you   like NEG like big stone

    'Do you like big stones?'

Though both the adjectives in (38) and (39) cannot be modified by a degree adverb, only in (39) can the linker *nu* be inserted between the A and the N, as in (40):

(40) *a^{453} lo^{44} <u>siang^{453}-ai^{22}</u> ng^{44}teng^{44} man^{44}

    A   big very   abdomen pain

    Intend: 'The very big abdomen is paining.'

(41) a^{453} lo^{44} nu^{453} ng^{44}teng^{44} man^{44}

    A   big NU   abdomen pain

    'The very big abdomen is paining.'

In (40), it is sure that *lo* is not a prefix, but an adjective. Then from (40), in which the degree adverb *siang-ai* cannot be added to modify the adjective *lo*, we may conclude that the adjective is not syntactically related to the noun; rather it is generated by a morphological rule, namely compounding, as argued in Chinese counterparts. However, I would follow the argument given by Sio (2006) in Chinese, which resort to NP ellipsis as a diagnostic test:

(42) tsia^{44} ng^{453} - i^{41} [lo^{44} ju^{44}], tsia^{44} i^{41} [hei^{41} nu^{453} Ø].

    I   NEG   like big stone I   like small NU

    'I don't like big stones. I like small ones.'

Following the lexical integrity hypothesis, the fact that the second N in (42), which is empty, can refer back to the first N *ju* 'stone' within the [A N] combination shows that *lo ju* is not a compound but a phrase.

    Another way of making syntactic adjectival modification is to adopt the marker *nu*. The two examples below show that the adjective *lo*, being in prenominal position with the presence of the marker *nu*, is merged to the N syntactically:

(43) tsia^{44} tso^{44}-pat$^{44-453}$ a^{453} tso^{24} [lo^{44} nu^{453} piang^{453}]

    I   see   A CL big NU   flower

    'I see the big flower.'

(44) tsia^{44} tso^{44}-pat$^{44-453}$ a^{453} tso^{24} [lo^{44} <u>siang^{453}-ai^{22}</u> nu^{453} piang^{453}]

    I   see   A CL big very   NU   flower

    'I see the very big flower.'

    Now it is clear that though both *tam* and *lo* mean 'big', and both can prenominally combine with a noun productively, the former is a prefix, while the

latter is an adjective[7].   Furthermore, *lo* can form a compound or a phrase with an N. In this respect, Liannan Yao is the same as Mandarin. The next question is whether the same is true for [N A] combinations.

3.3.2. [N A] as Compound and Phrase

As a demonstration we are going to discuss the adjective *sia*, which is postnominal when there is no marker of modification.   When *nu*-construction is used, *sia* is prenominal and can be modified by adding a degree adverb:

(45) tsia^{44} tso^{44}-pat$^{44\text{-}453}$ a^{453} tso^{24} [piang^{453} sia^{44}]   (= (4))
    I   see   A CL flower red
    'I see the red flower.'

(46) tsia^{44} tso^{44}-pat$^{44\text{-}453}$ a^{453} tso^{24} [sia^{44} nu^{453} piang^{453}]   (= (16))
    I   see   A CL red NU flower
    'I see the red flower.'

(47) tsia^{44} tso^{44}-pat$^{44\text{-}453}$ a^{453} tso^{24} [sia^{44} siang^{453}-ai^{22} nu^{453} piang^{453}]   (= (18))
    I   see   A CL red very   NU flower
    'I see the very red flower.'

In (45) *sia* is not a suffix but an adjective, as shown in (46) and (47). The problem is whether *piang sia* 'red flower' is a compound or a phrase. First of all, there are lots of compounds having the [N A] combinations, for example:

(48) i^{44} - du^{24}
    clothes long
    'gown'

(49) Sa^{44} - jot^{44}
    (Yao) girl one[8]
    'the eldest daughter (usually used as the personal name of the first daughter)'

A phrase formed by a noun being modified by an adjective is semantically decomposable, as opposed to a compound formed by a noun and an adjective, which is very often not (though not always). In the case of [A N] combinations in Mandarin, the possibility of inserting the linker *de* is a significant diagnostic test for it to be phrasal. In Liannan Yao, the linker *nu* can be used in the same way. However, in

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[7] It seems that Mandarin does not have a counterpart for *tam* in Liannan Yao. A close one is *ju* 'macro-', which is a prefix, but refers to the meaning of 'extremely/extraordinary big'.
[8] The literal translation of *jot* is 'one' in English, but here it means 'first'. In Liannan Yao, like Mandarin and Cantonese, an ordinal number is basically composed of a cardinal number and a prefix. However, in all these languages, the bare cardinal numbers can still mean ordinal when they are combined with other morphemes in many occasions.

Liannan Yao, [N A] combinations do not allow any linker insertion, so this test would not be feasible. It then appeals to its semantic compositionality. It is clear that the *i-du* 'gown' in (48) is semantically non-decomposable, which entails that it must be a compound. The expression *Sa-jot* in (49) is used as a kinship term as well as a personal name, which should be categorized as a compound. There are four supporting reasons. First, even though to a certain extent it is semantically decomposable, this compositionality is not a necessary condition for compounds. Second, kinship terms are normally lexicalized. Third, nothing can be inserted into the expression. Fourth, *sa-*X and X-*jot* are very unproductive, though this is not a very strong reason since different combinations can be different in the status of whether it is compound or a phrase.

After ensuring that some [N A] combinations in Liannan Yao are compounds, it is also evident that others are phrases. As in the discussion on the phrasal status of some [A N] combinations, I apply the argument given by Sio (2006) in Chinese, which resort to NP ellipsis as a diagnostic test, to those [N A] combinations which I regard as phrases:

(50) $mui^{453} i^{41} - ng^{453} - i^{41}$ [piang^{453} sia^{44}]?
      you like NEG like flower red
      'Do you like red flowers?'

(51) $tsia^{44} ng^{453} - i^{41}$ [piang^{453} sia^{44}], tsia^{44} i^{41} [vang^{41} nu^{453} Ø].
      I NEG like flower red I like yellow NU
      'I don't like red flowers. I like yellow ones.'

In the statement in (51), which can be viewed as a possible reply to the question in (50), the empty NP can be coindexed with *piang* 'flower', which entails that the [N A] combination *piang sia* is a phrase.

4. Prenominal or Postnominal Underlyingly?

An interesting question is which position, prenominal or postnominal, is the base-generated one. To date it is still controversial since it involves quite a lot of different phenomena cross-linguistically and even within one particular language (Dimitrova-Vulchanova 2002; Cinque 2007). Liannan Yao is, to a certain extent, very similar to Chinese such as Mandarin and Cantonese with respect to adjectival modification. For instance, different from English, both languages have lots of [A N] compounds and have a marked modification [A Linker N]. The main difference of Liannan Yao from Chinese is its use of postnominal adjectives. Only in extremely rare cases can one find a Chinese [N A] compound, but in Liannan Yao much more [N A] compounds can be found.

4.1. Some Historical Clues

There are also historical clues leading us to support my claim. This article, however, does not focus on historical arguments. As a matter of fact, only very limited historical work can be done on such a minority language without any written form. Yet comparative method can lead to reconstruction, and the general consensus is that in Proto -Yao or even in Proto-Miao-Yao, adjectives are postnominal, and that the prenominal position is the consequence under the influence of Chinese (Chen 1998; Ma 2003; Mao et al 1982; Mao 2004). Therefore, instead of looking into philological studies, I consider this the result of language contact with Chinese, based on synchronic data. First, let us examine the following examples:

(52) Sa^{44} $-jot^{44}$ (= (49))
     (Yao) girl one
     'the eldest daughter (usually used as the personal name of the first daughter)'

(53) $Jot^{44} - moi^{44}$
     One   girl
   'the eldest daughter (usually used as the personal name of the first daughter)'

Sa is the local word for 'girl', while *moi* is clearly a loanword from Kejia (Hakka), which is a language widely used around Liannan and is understood or even spoken by many Yao people. In Kejia, the pronunciation of 'girl' is exactly the same as that of *moi*, with a possibly slightly different tone. Traditionally, the eldest daughter in a family is named *jot moi*, literally 'one girl', meaning 'the first-borne daughter', but at the same time, the parents may call them *sa jot*, literally 'girl one', meaning the same thing. The latter can be seen as [N A] lexicalized item. As the personal names in Liannan Yao nowadays are basically sinicized, the formal form of these names can only be *Jot-moi* (but not *Sa-jot*), whose order is exactly the same as in Chinese; however, the parents may call them *Sa-jot* in daily conversations; thus I suppose this is a historical trace: People who used *Sa-jot* originally and later influenced by Chinese dialects started to use *Jot-moi*. Notice that *Sa-jot* has the order of modifiee-modifier, while *Jot-moi* carries the modifier-modifiee construction. It is a clue to the claim that [N A] is more primitive than [A N] in Liannan Yao.

4.2. The Underlying Word Order

The underlying word order of adjectival modification in Liannan Yao should be distinguished from the historical issue, namely the word orders of adjectival modification of Proto-Yao or Proto-Miao-Yao. The underlying word order here refers to that given by the U(niversal) G(rammar) in the sense of generative grammar. We suppose there is a universal underlying word order in the syntactic structure, and that

the superficial differences among languages are the results of movement. According to Cinque (2005, 2007), adjectives are all prenominal underlyingly and different classes of adjectives are projections above the projection containing N, and <u>only</u> movements containing NP can be moved upwards. Such hypothesis can effectively derive all possible word orders given by D(emonstrative), Num(ber), A(djective) and N(oun) attested in the human languages around the world, and correctly prohibit those unattested orders. The underlying order is supposed to be Dem > Num > A > N, and the movements can only be phrasal movements, with or without pied-piping of 'whose picture' type or 'picture of whom' type:

(54)
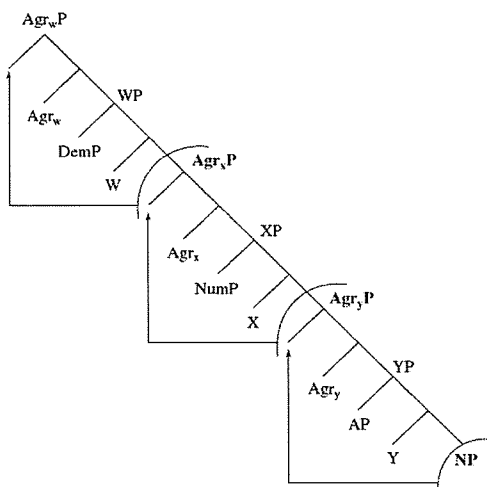
Owing to the limit of this article, I will not go through the details of this theory.[9] Under this theoretical scheme, the order in Liannan Yao (Dem> Num > N > A) is derived by raising the phrase containing NP across the phrase containing A. In other words, the tendency now in Liannan Yao, namely the phenomenon that the prenominal position is getting more and more prominent, is due to the non-movement of the phrase containing NP, instead of moving the postnominal A across N.

5. Conclusion

This article has introduced the syntax of adjectival modification in Liannan Yao and justified the phrasal status of some [A N] and [N A] combinations. I have argued that the postnominal position for the adjective is derived by the phrasal movement given the prenominal underlying position, though historically the postnominal position is more prominent.

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[9] Readers can read Cinque (2005, 2007) directly, or my M.Phil. dissertation (forthcoming) to see my applying this framework to Miao-Yao, and the problem arising from the Case-checking framework which assumes the postnominal position as underlying, as advocated by Larson and Yamakido (2007) and Cheung (2006).

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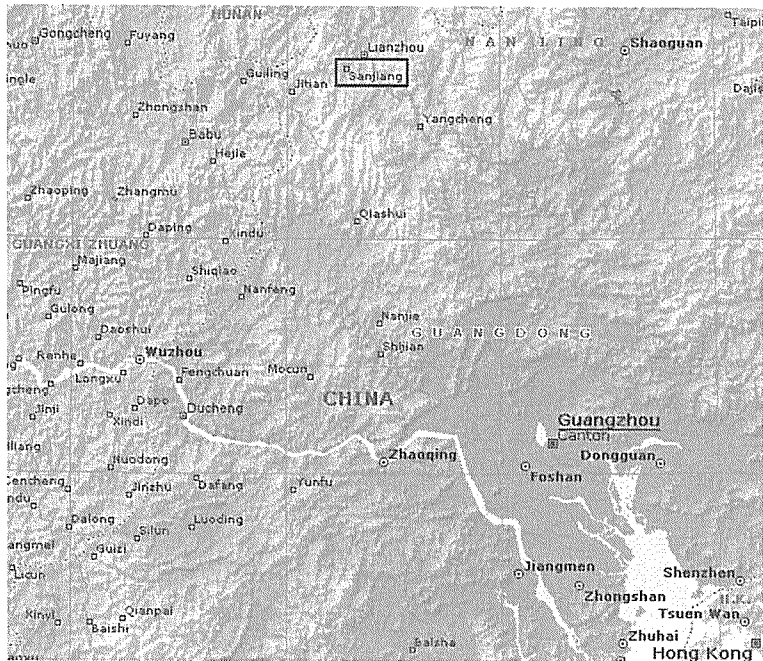
Appendix

Map 1: Guangdong Province in the Southeast Asian area

(Source: http://encarta.msn.com/map_701512798/guangdong.html)
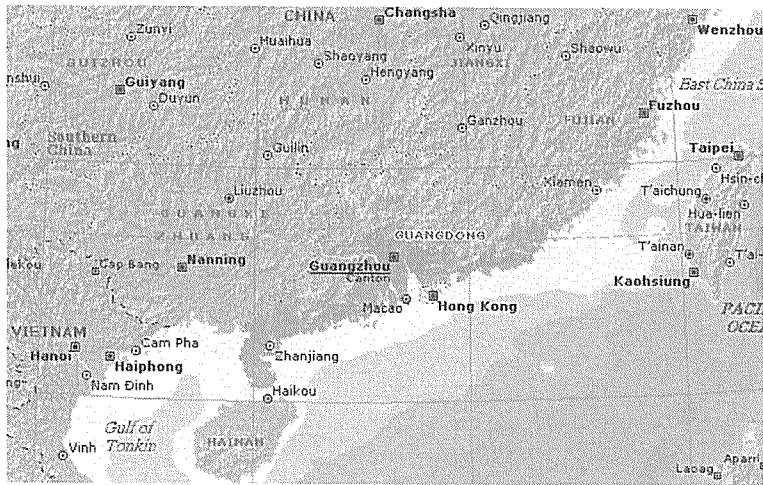
Map 2: Sanjiang (the principal town in Liannan County) in northern Guangdong Province

(Source: http://encarta.msn.com/map_701512798/guangdong.html)

Where is the Wh- in Colloquial Singapore English (CSE)?[1]

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1. Introduction

Colloquial Singapore English (henceforth CSE) is a variety of Standard English (StdE) that has resulted from the constant influence of various Chinese dialects (Bao 2001). Such contact has not only given rise to lexical borrowings (most prominently, particles like *hor*, *leh* and *mah* from Chinese dialects), but has also influenced the structure of CSE constructions. For example, let us consider simple CSE wh-questions:

(1)   CSE wh-questions
        a. What John eat?
        b. John eat what?
        'What did John eat?'

(1) illustrates how a simple CSE wh-question can be formed. In (1a), the construction is somewhat alike on the surface to its StdE equivalent; on the other hand, (1b) shows that the same question can be expressed by an alternative construction which is unavailable in StdE.

On the surface, then, it appears that the set of wh-question formation strategies in CSE is derived from those available in StdE and Mandarin Chinese, languages which played a part in giving birth to CSE as a language. However, such a descriptive account does not provide any further insight toward a better understanding of the structure of CSE wh-questions, nor will it suffice to provide an explanation as to why it is possible for CSE to have two different strategies to produce what is essentially one single underlying logical representation (2) for the sentences in (1).

(2)   Logical Representation
        For what x, John ate x?

Our paper aims to address these issues. One, we aim to fill a research gap about the nature of wh-questions in CSE and two, show that the different wh-question formation strategies of CSE can be attributed to either Mandarin Chinese, StdE, or both. Specifically, we claim that CSE has wh-in-situ because of Mandarin influence,

wh-movement to matrix scope due to StdE, and wh-movement to intermediate position due to a combination of properties inherited from StdE and Mandarin (T-to-C movement from StdE and Q marker from Mandarin).

Next, we will provide the basic data set of wh-questions in CSE. In Section 3, we will show that wh-fronting in CSE is exactly the same as wh-movement to matrix scope in StdE. In Section 4, we will show that wh-in-situ in CSE is adopted from Mandarin. We will also provide an explanation for why only wh-arguments in CSE can remain in-situ when Mandarin wh-arguments and wh-adjuncts can remain in-situ. In Section 5, we will explain why CSE has partial wh-movement when this phenomenon is absent in both StdE and Mandarin. We will explore a few possibilities and conclude that the most plausible explanation lies in the mixing of properties existent in both StdE and Mandarin. Finally, we will summarize our findings.

2. The basics of wh-questions in CSE

In this section, we will present data on question formation in CSE. We will be presenting single wh-elements in simple and embedded clauses to show all the possible positions where such an element can occur.

2.1. Simple Clauses

In simple clauses, CSE is able to front its wh-arguments as well as allow it to remain in-situ. (3) and (4) below show CSE wh-arguments *what* and *who* in simple clauses. In the (a) examples, the wh-elements have moved from their base-generated positions to the scope (i.e. sentence-initial) position, while the wh-elements in the (b) examples remain in-situ.

(3)   CSE *What*
        a. What$_i$ Mary eat t_i?
        b. Mary eat what?

(4)   CSE *Who*
        a. Who$_i$ Mary like t_i?
        b. Mary like who?

The same, however, cannot be said for CSE wh-adjuncts, whereas CSE wh-adjuncts like *why* and *how* exhibit movement to the scope position (5a and 6a), they cannot remain in-situ (5b and 6b). As for CSE *when* and *how*, the preferred reading is for them to be fronted (7a and 8a), even though they are partially acceptable when they are in-situ (7b and 8b).

(5) CSE *Why*
    a. Why$_i$ Mary like Tom t_i?
    b. *Mary like Tom why?
(6) CSE *How*
    a. How$_i$ Mary do her work t_i?
    b.*Mary do her work how?
(7) CSE *When*
    a. When$_i$ Mary come home t_i?
    b. ?Mary come home when?
(8) CSE *Where*
    a. Where$_i$ Mary meet Tom t_i?
    b. ?Mary meet Tom where?

From the above, the generalization is that, for CSE simple clauses, it is obligatory for adjunct wh-questions to be fronted, whereas wh-arguments can either be fronted or remain in-situ.

2.2. Embedded Clauses

In embedded clauses, CSE wh-adjuncts cannot remain in-situ but have the option of appearing in either the scope position or the intermediate position.

(9) CSE *Why*
    a. Why$_i$ John say Mary like Tom t_i?
    b. John say why$_i$ Mary like Tom t_i?
    c. *John say Mary like Tom why?

On the other hand, besides appearing in either the scope or intermediate positions, CSE wh-arguments in embedded clauses can remain in-situ.

(10) CSE *What*
    a. What$_i$ John say Mary like t_i?
    b.John say what$_i$ Mary like t_i?
    c. John say Mary like what?

2.3. Summary of Basic wh-question Formation in CSE

In simple and embedded clauses, CSE wh-adjuncts have to be fronted. In the case of embedded clauses, they can appear in either the embedded or matrix scope positions. CSE wh-arguments, on the other hand, seem to have more freedom with respect to where they can occur. They can appear in the intermediate, matrix scope positions or remain in-situ.

In order to present a more formal explanation for the phenomena in CSE wh-questions, we turn to the Clausal Typing Hypothesis (CTH) by Cheng (1991). According to Cheng, languages have to clause-type their sentences as questions by either moving a wh-element to Spec, CP or by having a head (wh-particle according to Cheng) which will type the clause as a question. Following this line of thought, StdE will be classified as a language which types its question via the former approach, while Mandarin, a language where typing of questions is satisfied by a head; Cheng (1991) proposes that such a head in Mandarin can either be a phonologically null element or a question-particle. CSE, under such an analysis, appears to possess both strategies for typing a clause as a question.

Having multiple strategies for question formation in CSE is not surprising considering that it is a contact language which arose due to contact of StdE with other languages. Given this consideration, coupled with the behavior of CSE wh-words in the data above, we make a preliminary hypothesis – CSE is able to additionally type a clause as a question using a head as a scope marker because of the influence of Mandarin Chinese. The similarities and differences in wh-question formation in CSE, StdE and Mandarin are displayed in the table below.

	StdE	CSE	Mandarin
Wh-Adjunct Fronting	Yes	Yes	No
Wh-Adjunct In Situ	No	No	Yes
Wh-Adjunct Partial Mvmt	No	Yes	No
Wh-Argument Fronting	Yes	Yes	No
Wh-Argument In Situ	No	Yes	Yes
Wh-Argument Partial Mvmt	No	Yes	No

Table 1: Wh-Question Formation Strategies in StdE, CSE and Mandarin

If we assume that CSE adopted various wh-question formation strategies from StdE and Mandarin, we can explain why CSE seems to allow wh-arguments to be in-situ. However looking at the table, a few questions immediately arise.

(I)   Why is it that only CSE wh-arguments follow Mandarin but wh-adjuncts do not?

(II)   Why do CSE wh-elements allow partial movement as an option for question formation when such a possibility does not exist in either StdE or Mandarin?

Before attempting to answer these questions, we will show that it is indeed the case that StdE and Mandarin are the main influences in CSE question formation.

3. Movement of wh

In this section, we describe some facts about question formation in StdE and CSE to verify our preliminary explanation that CSE wh-fronting is the same as wh-movement in StdE. Specifically, we will be illustrating successive cyclicity, the Complex NP Constraint as well as the Doubly Filled COMP Filter.

3.1. Wh-movement in StdE

The wh-movement landing site in StdE is Spec, CP and is successively cyclical[2]. In (11a), *who*, which originates from the embedded clause, moves first to the intermediate Spec, CP position, and then carries on to the matrix Spec, CP. In (11b), this successive cyclicity is prohibited because the intermediate Spec, CP position is already occupied by *why*, and thus the sentence is ungrammatical[3].

(11)   a. [$_{CP}$ Who$_i$ did [$_{IP}$ John tell Tim [$_{CP}$ t_i that [$_{IP}$ Mary likes t_i]]]]?
          b. *[$_{CP}$ Who$_i$ did [$_{IP}$ John tell Tim [$_{CP}$ why [$_{IP}$ Mary likes t_i]]]]?

Secondly, wh-movement in StdE obeys island effects like the Complex NP Constraint (Ross 1967) in (12). Extracting *which band* from within the most embedded IP to sentence initial position is not licit as this violates the Complex NP Constraint.

(12)   Complex NP Constraint (CNPC)
          *Which band$_i$ did [$_{IP}$ you write [$_{DP}$ a song [$_{CP}$ which [$_{IP}$ was about t_i]]]]?

Wh-movement in StdE is also subjected to the Doubly-Filled COMP Filter (Chomsky and Lasnik 1977). The Doubly-Filled COMP Filter is a restriction on StdE wh-movement which states that, when an overt wh-phrase occupies the Spec of some CP, this wh-phrase cannot dominate an overt complementizer. This is why only (13a) is grammatical in StdE.

(13)   a. John thinks [$_{CP}$ who [$_C$ ___ likes Mary]]?
          b. *John thinks [$_{CP}$ who [$_C$ that likes Mary]]?

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[2] For example, McCloskey's works on complementizer agreement in Irish (2000a, 2002) and floating quantifiers in English dialects (2000a,b), certain types of reconstruction effects (Barss 2001, Fox 2000), as well as the use of 'medial' wh- in long-distance questions such as *who do you think who's in the box?* (De Villiers et al. 1990, McDaniel et.al. 1995, Thornton 1990), have all lent support to the claim that wh-movement is indeed successive-cyclic.

[3] (11b) is, of course, an instance of the wh-island effect. The next point deals with other island effects so here we use the wh-island to illustrate the successive cyclical movement of wh-elements in StdE which we feel should be treated as a different movement characteristic.

3.2. Movement of wh- in CSE

Looking at Table 1 again, it appears that CSE wh-arguments and wh-adjuncts behave the same when it comes to wh-fronting to the scope position. We assume that these wh-arguments and adjuncts front similarly and apply the tests mentioned above to only instances of CSE wh-adjuncts.

3.2.1. CSE wh-fronting

Wh-fronting in CSE has to also take place successive cyclically. In (14a), *why* moves first from inside the most embedded IP to the intermediate Spec, CP position, and then carries on to land in the matrix Spec, CP. In (14b), this successive cyclicity is prohibited because the intermediate Spec, CP position is already occupied by *where*, and thus the sentence is ungrammatical with the reading of *why* modifying the embedded verb.

(14)   a. $[_{CP}$ Why$_i$ $[_{IP}$ John tell Tim $[_{CP}$ t_i that $[_{IP}$ Mary like him $t_i]]]]$?
       b. *$[_{CP}$ Why$_j$ $[_{IP}$ John tell Tim $[_{CP}$ where$_i$ $[_{IP}$ Mary kiss Bill t_i $t_j]]]]$?

The same phenomenon is observed when the CSE wh-word is a wh-argument.

(15)   a. $[_{CP}$ Who$_i$ $[_{IP}$ John tell Tim $[_{CP}$ t_i that $[_{IP}$ Mary like $t_i]]]]$?
       b. *$[_{CP}$ Who$_i$ $[_{IP}$ John tell Tim $[_{CP}$ where$_j$ $[_{IP}$ Mary kiss t_i $t_j]]]]$?

Wh-fronting in CSE also obeys the Complex NP constraint like StdE. In (16), the extractions of *where* in (a) and *what* in (b) are not allowed out of the most embedded IPs.

(16)   Complex NP Constraint (CNPC)
       a. *Where$_i$ the boy see $[_{DP}$ the dead cat that $[_{IP}$ was $t_i]]$?
       b. *What the boy see $[_{DP}$ the dead cat that $[_{IP}$ eat $t_i]]$?

Wh-fronting in CSE is also subjected to the Doubly-Filled COMP Filter. In CSE, a wh-element is not allowed to immediately dominate an overt complementizer as dictated by the Doubly-Filled COMP Filter.

(17)   a. John think $[_{CP}$ why$_i$ $[_C$ ___ Tom like Mary $t_i]]$?
       b. *John think $[_{CP}$ why$_i$ $[_C$ that Tom like Mary $t_i]]$?

(18)   a. John think $[_{CP}$ what$_i$ $[_C$ ___ Tom eat $t_i]]$?
       b. * John think $[_{CP}$ what$_i$ $[_C$ that Tom eat $t_i]]$?

Wh-fronting in CSE behaves exactly like StdE wh-movement with respect to successive cyclicity, the Complex NP Constraint as well as the Doubly Filled COMP Filter. While we have only shown CSE wh-adjunct data, wh-arguments in CSE behave exactly the same with regards to wh-fronting. With this, we can conclude that wh-fronting in CSE is the same as wh-movement in StdE.

4. Wh-in-situ

In this section, we examine wh-in-situ in CSE to determine if it behaves the same as Mandarin in-situ. This is pertinent to this paper for two reasons; firstly, previous data in (5)-(8) have demonstrated that CSE wh-adjuncts cannot remain in-situ, and secondly, we would need to prove that CSE wh-in-situ and Mandarin wh-in-situ are one and the same, especially since Pesetsky (2000) has shown that there are generally three types of wh-in-situ phenomenon present in natural languages. We will first present data from intervention effects and the Complex NP constraint in Mandarin and then CSE wh-in-situ.

4.1. Wh-in-situ in Mandarin

While we have merely asserted that CSE has the option to leave wh-arguments in-situ and that it got this property from Mandarin, we have not really shown any evidence that wh-in-situ in CSE behaves the same as Mandarin. Towards this aim, we provide properties exhibited by Mandarin with respect to intervention effects and the CNPC in this section.

Since Beck (1996), intervention effects have been shown as evidence to support LF movement in wh-in-situ languages; the presence of an intervener such as a negation element can prevent the LF movement of an in-situ wh-word to the scope position. Conversely speaking, the lack of observable intervention effects when the wh-word is in-situ will imply that there is no LF movement of the wh-word. As can be seen in (19), Mandarin is impervious to such effects like negation. Although the NEG *mei* intervenes between the wh-element and the scope position, which is presumed to be sentence initial, the sentence can still be interpreted as a question.

(19)   Intervention effects (Negation)
        Ta   mei   chi   shenme?
        3SG   NEG   eat   WHAT
        'What didn't s/he eat?'

Furthermore, Mandarin wh-in-situ is impervious to the Complex NP Constraint. In (20), a direct question, the wh-element *shenme* can move at logical form to matrix scope without problem.

(20) CNPC

     Mama   *da-le* [[*chi*   *shenme*   *de*]   *nanhai*]*?*

     Mother   hit-LE eat   WHAT   COMP boy

     'What did mother beat the boy who ate?'

Hence, the lack of both intervention effects in (19) and island effects in (20) provide proof that there is no LF movement in Mandarin wh-in-situ.

4.2. Wh-in-situ in CSE

In CSE, only wh-arguments can remain in-situ. In this section, we will show that CSE wh-arguments in-situ behave exactly the same as Mandarin wh-in-situ. Following that, we will show that CSE has a weak scope marker which has been introduced by Mandarin, which itself has a strong scope marker. After that, we will explain why CSE wh-adjuncts cannot remain in-situ using Pesetsky's (1987) idea of 'D-linking'.

With respect to negation and the CNPC, CSE wh-arguments behave exactly the same as Mandarin wh-elements. First of all, they are impervious to intervention effects. In (21), the CSE wh-argument *who* can occur after negation and still be interpretable as a question just like the Mandarin example in (17).

(21) John doesn't like who?

Furthermore, as shown in (20), CSE wh-in-situ does not violate the CNPC, in contrast to instances where CSE wh-elements are fronted, as shown earlier in (16), reproduced below. Since CNPC is not violated, it can be argued that CSE wh-in-situ does not involve LF movement of the wh-word.

(22) CNPC

     The boy see [$_{DP}$ the dead cat that [$_{IP}$ was where]]?

(16) *Where$_i$ the boy see [$_{DP}$ the dead cat that [$_{IP}$ was t_i]]?

With these examples which show that CSE wh-in-situ does indeed behave like Mandarin wh-in-situ, we can thus confirm the initial assumption that Mandarin contributed this property to CSE. Specifically, we claim that the actual property which CSE has adopted from Mandarin, following Baker (1970), is a Q marker which unselectively binds any wh-element occurring in the sentence, thus enabling the element to stay in-situ. This claim is not without basis. Although Mandarin does not have the same Q marker, CSE can optionally have *ah* as an interrogative in a sentence. The observation is such that, with the occurrence of *ah*, even *why,* which needs to be fronted otherwise, can be left in-situ. In (23a), the wh-adjunct cannot be left in-situ.

However when *ah* is used as in (23b), *why* can be left in-situ without problems[4].

(23)   a. *John like her why?
        b. John like her why ah?

From the above discussion, we have established that CSE wh-in-situ has its origins from Mandarin wh-in-situ. The next step then, is to provide an account for the argument-adjunct asymmetry that exists within the CSE wh-in-situ paradigm that had been observed earlier. In the next section, we offer an explanation by showing that such an asymmetry is in no way an isolated phenomenon in CSE, and is actually prevalent across natural languages.

4.2.1. CSE wh-in-situ Argument-Adjunct Asymmetry

We provide more data for the argument-adjunct asymmetry within the in-situ phenomenon:

(24)   CSE wh-argument *what*
        a. John eat what?
        b. What$_i$ John eat t_i?
        c. You think John eat what?
        d. You think what$_i$ John eat t_i?
        e. What$_i$ you think John eat t_i?

(25)   CSE wh-adjunct *why*
        a. *John eat chocolate why?
        b. Why$_i$ John eat chocolate t_i?
        c. *You think John eat chocolate why?
        d. You think why$_i$ John eat chocolate t_i?
        e. Why$_i$ you think John eat chocolate t_i?

The above sentences illustrate that, be it basic clauses or embedded clauses, the CSE wh-adjunct *why* cannot remain in-situ. In the simple clause in (25a) as well as the embedded clause in (25c), *why* is unable to remain in-situ. Instead, in a simple clause, *why* has to be fronted as shown in (25b), whereas in an embedded clause, it can either move to an intermediate position as shown in (25d), or be completely fronted as (25e)

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[4] Under our proposal, we claim that CSE has two Q markers, the overt *ah*, and a covert Q marker. Although there are differences with regard to the effects of the two CSE Q markers, we do not have an adequate explanation of the differences at this point in time. However, we believe that this does not affect the analyses put forth in this paper. We thank our anonymous reviewer for bringing this point to our attention.

illustrates. This is not unique to *why*; other wh-adjuncts like *how* and *when* also show the same behavior.

(26)   CSE wh-adjunct *how*
        a. *John eat chocolate how?
        b. How John eat chocolate?
        c. ??You think John eat chocolate how?
        d. You think how John eat chocolate?
        e. How you think John eat chocolate?

(27)   CSE wh-adjunct *when*
        a. *John eat chocolate when?
        b. When John eat chocolate?
        c. *You think John eat chocolate when?
        d. You think when John eat chocolate?
        e. When you think John eat chocolate?

If we assume that CSE wh-elements inherited the in-situ property from Mandarin, then why do CSE wh-adjuncts have to necessarily move out from their base positions, which is not how
Mandarin wh-adjuncts behave, as illustrated by the examples below?

(28)   Mandarin wh-adjuncts
        a. *John   ji-shi   qu   mei-guo?*
         John   WHEN   go   USA
        'When will John go to USA?'

        b.*Mary   wei-shen-me da-le   Tom?*
         Mary   WHY   hit-LE Tom
        'Why did Mary hit Tom?'

As it turns out, such an asymmetry is not unique to CSE. First, we turn to some French data. French, which is widely reported in literature to have both wh-movement and wh-in-situ phenomena, nonetheless exhibits a similar restriction against *pourquoi* ('why') in-situ:

(29)   French *pourquoi* (Bayer 2005)
        a. tu   as   vu   qui?
         you have   seen whom
        b. (*) tu   es   venu   pourquoi?
           you   have   come   why

Similarly, in the Japanese wh-question below, *naze* ('why') cannot remain in-situ, despite the presence of the question particle *ka* in the sentence-final position:

(30)   Japanese *naze* (Bayer 2005)
    *Kimi-wa [[kare-ga   naze kai-ta] hon]-o   yomi masi-ta ka?
    you-TOP   he-NOM   why write book-ACC read   -Q
    'You read book that he wrote why?'

One possibility in explaining this cross-linguistic argument-adjunct asymmetry lies in the theory of 'D-linking', as first put forth by Pesetsky (1987) and further elaborated by Bayer (2005). Pesetsky states that the "difference [between wh-arguments and wh-adjuncts] is conceptual in the sense that we think about a (finite) countable set of individuals (persons, moments of time and places) in connection with *who*, *when* and *where*, but perhaps not in connection with *how* and *why*."

Bayer further exemplified this by highlighting Obenauer's (1994) work on wh-elements in French; in his work, Obenauer asserted that "overt wh-movement to Spec, CP is obligatory in French, only when the speaker fails to have a set of elements in mind which could function as appropriate values for the variable left behind" (Bayer 2005). He illustrated this with the following examples (the wh-words are underlined):

(31)   French *comment*
    a. *Bonjour! Comment tu vas?*   [Wh-word in SpecCP]
    b. **Bonjour! Tu vas comment?*   [Wh-word in-situ]
    'Hello! How are you?'
(32)   French *comment*
    a. *Alors, comment tu vas aujourd'hui?*   [wh-word in SpecCP]
    b. *Alors, tu vas comment aujourd'hui?*   [wh-word in-situ]
    'Well, how is it going today?'

According to Obenauer, even though the wh-word in (31) and (32) correspond to the StdE wh-word *how*, *comment* in (32) is allowed to remain in-situ, as opposed to *comment* in (31). He attributes this difference to the different functions of French *comment*. In (31), *comment* functions as a comment-seeking wh-word, while in (32), *comment* seeks information from the hearer of the question. A speaker, in uttering an information-seeking question like (32), clearly has a set of options in mind as the possible answers to the question; this is usually not the case in a comment-seeking question like (31), where the speaker cannot expect to have a finite set of possible answers. In this case, hence, the information-seeking *comment* is D-linked and thus is able to remain in-situ. In contrast, the comment-seeking *comment* does not have any available referential elements in the immediate discourse, and hence not D-linked and has to obligatorily move overtly to Spec, CP. Crucially, the ability for French

comment to remain in-situ depends on it being D-linked to a discourse referent that is available to the speaker of the utterance; failure of a wh-adjunct to be D-linked necessitates movement to Spec, CP.

Returning to CSE, we can apply an explanation to account for the argument-adjunct asymmetry in CSE in terms of the notion of D-linking. First, we claim that D-linking in CSE, just like D-linking in French and Standard English, enables a wh-word to remain in-situ in a wh-question, while a non-D-linked wh-word must obligatorily move overtly to Spec,CP. This follows from what has been shown in Obenauer's data above, as well as the work of Pesetsky (1987). Secondly, we claim that the mechanism behind D-linking, while having its basis grounded in the availability of discourse information, differs across languages. The nature of D-linking in French appears to be dependent on the situational context in which a particular French wh-word is used. French *comment*, as we have seen earlier, can be D-linked if it is used in an information-seeking context. However, it fails to be D-linked when it is used in a comment-seeking context. On the other hand, D-linking in StdE is dependent on the lexical properties of the wh-words and wh-phrases used. Pesetsky (1987) showed that, in StdE, *which*-phrases but not wh-pronouns like *who* are D-linked because *which*-phrases introduce the presupposition of a set of possible answers denoted by the noun in the *which*-phrase. Thus it is possible for a *which*-phrase to be D-linked and remain in-situ in StdE, but not a wh-word such as *where*:

(33)   a. ?Who did John see at where?
        b. Who did John see at which location?

The nature of D-linking in CSE, in contrast to StdE and French, is related to the semantics of CSE wh-words. Specifically, we postulate that CSE wh-arguments are semantically marked for D-linking, while CSE wh-adjuncts are not.[5] Hence, what is implicit in our claim is that CSE wh-arguments, by the nature of being marked for D-linking in their semantics, will always have a set of possible entities as answers in the context of the discourse that they are used by speakers. This, in turn, enables them to have the option of remaining in-situ, though this does not prevent them from being moved to a Spec, CP.[6] Non-D-linked CSE wh-adjuncts, on the other hand, are not

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[5] It is uncertain at this stage what exactly causes this semantic marking for D-linking in CSE wh-arguments, and we admit that such an investigation is a possible topic for research that is out of the scope of this paper. For this paper, we assume that there is indeed the possibility that CSE wh-arguments can be marked for D-linking in the lexicon.

[6] This condition follows from the French data in (32); *comment* in (32b) is shown to be D-linked and thus is able to remain in-situ, yet this does not rule out that it cannot undergo movement to Spec, CP in (32a). We assume that this characteristic holds for CSE wh-elements that are D-linked as well.

marked for D-linking. Consequently, they cannot remain in-situ; the only alternative available to them is the obligatory movement to some Spec,CP in the sentence[7].

There is still one set of wh-phenomenon left to explain in CSE – that of partial movement. From Table 1, we can see that neither StdE nor Mandarin has partial movement of wh-elements. This, then, becomes the focus of our next section.

5. Partial Movement in CSE

As alluded to earlier, neither StdE nor Mandarin has the partial movement phenomenon. Given this, we cannot directly attribute this phenomenon to either language. We consider three possibilities that seem to be the most plausible; (i) influence from Malay, (ii) resetting of Parameters back to possibilities allowed by UG, and (iii) the weakening of T in CSE with a Mandarin-like Q marker. We show that the most plausible explanation for CSE partial movement is the last option.

5.1. Influence from Malay

According to Cole & Hermon (2000), Malay has partial movement of wh-elements. CSE was borne out of a language environment which includes StdE, Mandarin, Malay and Tamil among many others. While no one suspects that Tamil has contributed to the grammaticalization of CSE due to it being a significantly small language in Singapore, Malay has been sometimes alluded to as a possible substrate language of CSE. It is thus reasonable for one to suspect that Malay influence might be the reason why CSE exhibits partial movement.

In (34) below, taken from Cole and Hermon (2000), *apa* can occur in the intermediate position preceding the COMP *yang*. While this shows that Malay has partial movement to Spec, CP just like CSE, there is a crucial difference which makes us doubt if Malay could have contributed this option of question formation to CSE, considering that Malay does not seem to obey the Doubly Filled COMP filter. In (34) the wh-question can occur before an optional COMP. If Malay was the reason why

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[7] Mandarin, with its ability to leave wh-arguments and adjuncts in-situ, suggests that it does not need to D-link its adjuncts which leads back to the question of why CSE did not adopt this ability. However, note that Mandarin wh-argument in-situ seems to be a different phenomenon from wh-adjunct in-situ. Intervention effects are only visible with wh-adjuncts shown in (b).

a)   *Meili meiyou yiwei Lisi chi shenme?*
         Lit: Meili did not think Lisi ate what?
b)   **Meili meiyou yiwei Lisi weishenme chi pingguo.*
         Lit: Meili did not think Lisi ate apples why.

These facts suggest that different mechanisms are responsible for in-situ wh-arguments and wh-adjuncts in Mandarin and that only the mechanism responsible for wh-arguments was borrowed into CSE due to some independent principle. Exploration into such a principle is beyond the scope of this article and even if we were to uncover such a principle, we would still need an explanation as to why CSE wh-adjuncts could not simply just use the same in-situ mechanism as wh-arguments. We believe that the theory of D-linking we have outlined here suffices to explain this argument-adjunct asymmetry.

CSE has partial movement, why is it that CSE still has to obey the filter as can be seen in (35)? With this piece of evidence, we discount this option as a possible lender of partial movement to CSE.

(34) *Ali memberitahu kamu tadi   [CP apai   (yang)[Fatimah baca   ti]]?*
      Ali told   2SG   just now   WHAT that   Fatimah   read
      'What did Ali tell you just now that Fatimah was reading?'

(35) Doubly-Filled COMP Filter – CSE
      a. John think [CP whoi [C ___ ti like Mary]]?
      b. *John think [CP whoi [C that ti like Mary]]?

5.2. Resetting of Parameters Back to Possibilities Allowed by UG

McDaniel *et. al.* (1995) had shown that children who had just started acquiring StdE show a variety of wh-movement possibilities before they stabilize into the adult grammar. These possibilities (taken from McDaniel *et. al.* 1995) include copying structures (36a) or partial movement structures (36b).

(36) Child English wh-question (McDaniel *et. al.* 1995)
      a. Who do you think who's in the box?
      b. What do you think who's in that can?

Given this, one might argue that the reason why CSE has partial movement of wh-questions is due to the fact that contact of StdE with other languages has led to a sort of destabilizing in StdE which allows, apart from the standard wh-movement to scope position, other wh-question formation strategies.

While this is an interesting proposition that should be pursued in future research, there is at least some empirical evidence to suggest that partial movement in CSE may not be entirely due to such a destabilization. This is because McDaniel *et. al.* (1995) make the claim that children who allow such partial copying structures also tend to allow *that*-trace violations. (37) is taken from the aforementioned paper. However our CSE informants did exhibit *that*-trace effects, as shown in (38).

(37) Child English – absence of *that*-trace effects
      Who do you think that __ is gonna do a somersault?
(38) CSE – presence of *that*-trace effects
      *Who John think that __ like Mary?

Based on the above, while we cannot categorically deny that destabilization of StdE might have led to the partial movement phenomenon in CSE, the evidence suggests

that, if this is indeed the case, it will be of a different nature than that found by McDaniel *et. al.* At this point, this is purely speculative and while it may prove a fruitful research path in the future, for now we turn to other reasons that might explain partial movement in CSE more adequately.

5.3. Weakening of T in CSE and the Q Marker

In this section, we will show that the reason why partial movement in CSE exists is due to the weakening of the T(ense) feature in StdE in combination with a weak Q marker adopted from Mandarin. We first introduce the T-to-C movement mechanism in StdE.

In StdE wh-questions involving simple clauses, question formation consists of two parts. First, there must be a T-to-C movement which then triggers the second process of wh-movement. In (39a), T-to-C movement of the auxiliary *will* to C occurs. This triggers *what* to move to Spec, CP. Note that wh-movement without T-to-C movement (39b) or T-to-C movement without wh-movement (39c) is ungrammatical in StdE.

(39)   StdE question formation involving T-C movement
        a. $[_{CP}$What$_2$ $[_C$ will$_1$ $[_{IP}$Mary t_1 eat t_2]]?
        b. *What Mary will eat?
        c. *Will Mary eat what?

We now turn to StdE embedded wh-questions. T-to-C movement is shown to be vital for the formation of StdE embedded wh-questions as well. In the grammatical (40a), there is no T-to-C movement in either the embedded or matrix clause when the sentence is an indirect question in which no answer is required from the hearer. This is the case even though *what* in (40a) has undergone overt *wh*-movement from its base-generated position in the embedded clause to the intermediate position.

(40)   a.$[_{IP}$ John told us $[_{CP}$ what$_i$ $[_{IP}$ Mary ate t_i]].
        b. *$[_{IP}$ John told us $[_{CP}$ what$_i$ $[_C$ did$_j$ $[_{IP}$ Mary t_j eat t_i]]?
        c. $[_{CP}$ What$_i$ did$_j$ John t_j tell us $[_{CP}$ t_i $[_C$ $[_{IP}$ Mary ate t_i]]?
        d. *$[_{IP}$ John did$_j$ tell us $[_{CP}$ what$_i$ $[_C$ $[_{IP}$ Mary t_j eat t_i]]?

With the necessity of T-to-C movement in StdE wh-questions established, we need to determine the locus of the T-to-C movement. T-to-C movement in the embedded CP (as in 40b), as well as across clause boundaries (as in 40d, where the embedded T moves to the matrix clause) render the sentences ungrammatical; the only legitimate T-to-C movement in StdE embedded wh-questions is one which takes place within the matrix clause, as shown in (40c). Note that this matrix clause T-to-C movement

triggers the movement of the wh-element to the scope position; leaving the wh-element behind in the intermediate (41a) or base-generated position (41b) is not allowed.

(41)　T-to-C movement in StdE embedded wh-questions
　　　a. * [$_{CP}$ Did$_j$ John t_j tell us [$_{CP}$ what$_i$ [$_C$ [$_{IP}$ Mary ate t_i]]?
　　　b. * [$_{CP}$ Did$_j$ John t_j tell us [$_{CP}$ [$_C$ [$_{IP}$ Mary ate what]]?

Thus, in StdE wh-questions, T-to-C movement can only occur in the matrix clause, and this T-to-C movement triggers the movement of the wh-element to scope position.

Similar to StdE, in CSE, T-to-C movement occurs when wh-elements are moved either to matrix scope or to the intermediate position. However, in CSE, auxiliary and tenses do not have to be overt. Consider the following sentences. In CSE, tense need not be overt as a simple sentence can be ambiguous between past and present tense as shown in (42). This suggests that T in CSE has been weakened.

(42)　John eat rice.
　　　Lit: John ate rice. / John is eating rice.

If T is weak in CSE as we have assumed, we would expect to see some manifestation of this in CSE wh-question formation. This is indeed the case – whereas there has to be an insertion of *do* because of the strong T-to-C movement during wh-question formation in StdE, a wh-question of the form in (43) without the dummy-*do* is perfectly legitimate in CSE. This ties in perfectly with our claim that T in CSE is weak.

(43)　What John like?

So how does this weak form of T lead to partial movement in CSE? Recall that, in StdE, there are indirect questions which can have a wh-element at intermediate position (see 40a). However, since T-to-C movement in embedded clauses in StdE is forbidden, these StdE constructions cannot be interpreted as wh-questions. On the other hand, we claim that CSE, unlike StdE, does not have the restriction on T-to-C movement in embedded clauses in wh-questions[8], and this in turn allows for a wh-element that has undergone partial movement, such as *what* in (44c), to be interpreted as a valid wh-question, just like instances when a wh-element is either fronted to scope position (44a) or remains in-situ (44b).

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[8] This might have to do with such a restriction on embedded clause T-to-C movement only being in place for a strong T like that in StdE. CSE, which has a weak T, should then not be subject to such a restriction.

(44)   a. What Mary say John like?
        Answer (1) [Direct Question]: Apples
        Answer (2) [Indirect Question]: #*No Response*

        b. Mary say John like what?
        Answer (1): Apples   Answer (2): #*No Response*

        c. Mary say what John like?
        Answer (1): Apples   Answer (2): *No Response*

Interestingly, (44c) allows for the possible interpretation whereby the construction is construed not only as a valid wh-question, but as an indirect question, just like what happens in StdE when the wh-element is in the intermediate position. We suggest that this ambiguity arises because of T which is covert. To show that embedded T-to-C movement does take place in CSE, consider (45), where the auxiliary *will* is overt in the CSE embedded construction. When embedded clause T-to-C movement takes place (45a), the construction is interpreted as a wh-question, whereas in (45b), there is no T-to-C movement in the embedded clause, and the preferred reading is for an indirect question. This suggests that in CSE, even in embedded clauses, T-to-C movement has to take place for legitimate question formation. This means that CSE embedded wh-elements can reach intermediate scope position due to movement triggered by T-to-C movement. This then confirms our explanation for the ambiguity in sentences like (44c).

(45)   a. John say what will Mary eat?
        b. John say what Mary will eat.

Even embedded T-to-C movement by itself is an inadequate explanation as we still have no explanation for why the wh-element in intermediate position can reach scope position. Groat and O'Neill (1996) argue that the reason why some languages have partial movement is because of a weak Q scope marker which will only require covert movement of features at LF. As it turns out, this fits in with what we have already said about CSE which we claim has a weak Q marker which only allows wh-arguments to be in-situ. So, when there is embedded clause T-to-C movement which triggers wh-movement to the intermediate position, the wh-features further move covertly to scope position attracted by this weak Q marker. If overt movement to intermediate position is not triggered by T-to-C movement, the wh-features do not further move to scope position and the sentence will remain an indirect question.

With this, we can conclude that the reason why there is partial movement in CSE is because of the presence of a weak T in CSE and the weak Q marker adopted from Mandarin.

6. Conclusion

In this paper, we hope to have shed some light into wh-question formation strategies in CSE and stimulated future research in this Singaporean variety of StdE. We have also shown the various question formation strategies in CSE and concluded that at least one of them comes from Mandarin, i.e. wh-in-situ, one from StdE, i.e. wh-movement to matrix scope and one from a mix of the properties belonging to StdE and Mandarin, i.e. partial movement. We have provided an explanation for why only wh-arguments in CSE behave like Mandarin arguments. We claim that the reason for this is due to 'D-linking,' and demonstrate with some cross-linguistic comparison that arguments and not adjuncts tend to be 'D-linked'. Since adjuncts are not 'D-linked,' they are not allowed to remain in-situ.

Finally, we have shown why there is partial movement in CSE when such a question formation strategy exists in neither Mandarin nor StdE. We have shown that a weakened T feature from StdE and adoption of a weakened Q marker from Mandarin has given rise to partial movement in CSE. While our research on CSE question formation is not exhaustive, we hope to have provided a theoretical and empirical account of how CSE manages various wh-question formation strategies it has inherited from different languages.

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Prosodic Boundaries in Non-Native Acquisition of English: Production and Comprehension in Two Trilingual Children

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Most studies on children's acquisition of prosodic features investigate the early years of language development, that is, the first two years of monolinguals. Although it is widely recognized that intonation and other prosodic features are the key to the 'nativeness' of the multilingual speech, the literature on bilingualism has focused predominantly on the development of vocabulary and syntactic structures. The acquisition of native-like prosodic patterns has been taken for granted. This paper investigates the acquisition of prosodic phrasing in multilingual children learning English as their first language in a family of non-native speakers. It investigates whether multilingual children are able to mark prosodic boundaries in their speech and whether listeners are able to interpret them. It also compares the children's production to their comprehension of the same features.

1. Introduction

Phrase-boundary placement is a very important aspect of spoken language and is associated with both grammatical and discourse factors such as separating clauses, listing items or signalling the end of a turn. Speech with prosodic boundaries at appropriate points is easier to understand and interpret. Research into adult production and perception of prosodic phrasing suggests that most speakers and listeners rely on prosodic information to appropriately accentuate utterances and process information.

1.1. Prosodic Organization

In order to investigate prosodic boundaries and other related features, linguists and phoneticians have needed a model of prosodic structure that can provide an independent hierarchy of prosodic domains and at the same time reflects the interface between grammar and phonology. Most investigators in the area of prosody agree that speech is usually produced in prosodic units of different lengths and these units are organized hierarchically into prosodic domains. The domain that is most widely accepted is the intonation group or intonational phrase (IP).

An example of prosodic hierarchies is Nespor and Vogel's (1986) prosodic organization based predominantly on syntactic structures. Their theory is a formal

representation of the phonological material on the basis of morpho-syntactic and semantic analysis. Their model of prosodic system differs from the traditional generative model of phonology in the structure of representations and the nature of the phonological rules. Their model is 'a theory of phonological domains, that is, a theory that organizes a given string of language into a series of hierarchically arranged constituents that in turn form the contexts within which phonological rules apply' (Nespor and Vogel, 1986:6). Nespor and Vogel propose that the prosodic hierarchy consists of seven units or domains: the syllable (σ), the foot (Σ), the phonological word (ω), the clitic group (C), the phonological phrase (φ), the intonational phrase (IP) and the phonological utterance (U) with the syllable being the terminal category of the prosodic hierarchy. They also claim that each level of the phonological hierarchy is defined in terms of mapping rules representing the interface between phonology and the other components of the grammar (1986:11). The phonological rules as defined by Nespor and Vogel 'can carry out a specific set of operations that modify sequences of sounds' and 'apply in domains defined in terms of phonological hierarchy' (1986:15). The three types of prosodic rules: domain span, domain juncture and domain limit rules distinguished by Selkirk (1984) are maintained. The phenomena considered in Nespor and Vogel (1986) are strictly phonological in nature as they relate to sound patterns that can be applied between words in larger domains and thus fall into the category of rules often referred to as external sandhi rules.

Another example is the theory of Beckman and Pierrehumbert's (1986) which defines prosodic structures on the basis of intonation. In their theory and in the theory of the ToBI system for analysing intonation, an additional domain was used for English, the 'intermediate phrase' (ip), to label constituents of the intonation group. Here are some examples from Gussenhoven (2004:126) where the square brackets enclose ips and the curly brackets the IPs:

{[A round-windowed] [sun-illuminated] [room]}
{[It's eleven and nine and one] [and eighty]}

Here each IP is divided into intermediate phrases (ips), each with its own accent.

In the linguistic framework of Crutenden (1997) which follows the British tradition of nuclear tones and intonation contours, intonation has been discussed in terms of fewer prosodic domains, e.g., the syllable, the foot, the word (meaning lexical words), the rhythm group which he defines as 'the stretch of utterance from one stressed syllable to the next' (1997:20), the intonation group and the utterance. In his analysis, the internal ip-boundaries would be a rhythm-groups boundary, an IP-boundary or no prosodic boundary at all.

In this paper, prosodic boundaries are discussed in terms of two main factors. First, prosodic constituents are generally aligned with the corresponding morpho-syntactic constituents. Second, size constraints on prosodic phrasing impose one accent per intermediate phrase.

1.2. Phonetic Criteria in Marking Prosodic Boundaries

Speakers will typically indicate the boundary of a prosodic domain with a pause, a change of pitch of unaccented syllables and/or syllable lengthening. Cruttenden (1997) calls these criteria external. Pause is the most widely mentioned feature, although there has been no agreement on the minimum duration of a pause in order to be considered a signal of prosodic boundary as opposed to pause for breath (Cruttenden 1997) or an articulatory phenomenon such as stop closure (Dankovicova et al. 2004). Pauses that occur at major constituent boundaries (//) tend to be longer and are generally taken as indicating an IP boundary, e.g., *She dressed // and fed the baby.* Another level of prosodic phrasing occurs within the intonation group where the pauses indicate an ip boundary (/), e.g., *chocolate, / biscuits / and milk.* Although there is evidence of two levels of prosodic boundaries, this paper will not distinguish between the two due to lack of quantitative data.

The presence of anacrusis (i.e. acceleration of tempo on initial unstressed syllables) generally indicates the beginning of an intonational phrase while the end is normally signalled by final syllable lengthening. Final syllable lengthening as pointed by Cruttenden (1997) may be an intonational universal although in different languages it might be dictated by different reasons. In her review of children's phonological development, Vihman suggests that the phenomenon of final lengthening is 'well rooted in an early, presumably neuro-psychological tendency' (1996: 212). It is a natural tendency, biologically available to children from birth. However, the lengthening in child vocalization is not very stable and fully integrated with other prosodic, segmental and syntactic aspects of speech. As children learn to plan and produce more complex utterances, they gradually learn to control the different prosodic parameters. Acquisition of final syllable lengthening appears to 'interact with syntactic learning and may not be fully in place until the early school years' (Vihman 1996: 206).

The last external criterion discussed in Cruttenden (1997) is the pitch of unaccented syllables—'low unaccented syllables at the beginning of an intonation group are generally at a higher level than low unaccented syllables at the end of an intonation group' (1997:34). If all of these external phenomena fail to provide ambiguous prosodic boundary marking, a decision is usually made on the basis of 'internal' criteria that involve the whole intonation pattern produced with specific pitch

changes. It is still not known how these features relate to one another and combine, and how speakers use them.

1.3. Prosodic Boundaries in Monolingual Children

Research into monolingual development has shown a rather complicated picture of prosodic development as investigators have focused on different features in a variety of ages and have used different methods. Prosodic phrasing is investigated by Cruttenden (1985) as part of a study including nine intonational contrasts, and as predicted, the overall performance on the tasks is very much lower among the 10-year-old children than among adults. The study shows that children's ability to make metalinguistic decisions about language use and functions is still very limited.

In another study conducted by Wells et al. (2004), groups of children aged 5, 8, 10 and 13 were tested on a number of tasks including prosodic phrasing in the context of a grammatical contrast between a compound noun (*milk tea*) and a string of two nouns (*milk and tea*). The results show that although the majority of the children were successful at the tasks, there were some who did not perform well. An interesting conclusion was made on the fact that the oldest group seem to make more errors by saying three items like two items – the thirteen-year-olds seem to neglect accuracy in favour of fluency of speech while the five-year-old children still have difficulty with some functional prosodic features such as 'the ability to incorporate two words with potential lexical stress into a single intonational phrase' (Wells et al. 2004:772). Based on material used in thieir study, Dankovicova et al. (2004) conducts another investigation into the children's ability to mark prosodic boundaries. They use only ten subjects from the eight-year-old group and limit their study to two features: pause and phrase-final lengthening.

Following on the research on early prosodic boundary features, Dankovicova et al. maintain there is no sufficient evidence to make the claim that children can manipulate these features in all appropriate contexts. Their initial analysis shows that even if the overall use of temporal boundaries was in the expected direction, there seemed to be a considerable degree of variation in the data. Only three of the children were very efficient in their prosodic ability as their output was considered acoustically and perceptually to be both accurate and unambiguous. Although their study combines objective acoustic analysis of the children's output with perceptual data, it does not consider the role of other prosodic cues such as pitch and stress patterns.

1.4. Prosodic Boundaries in Bilingual Children

Research into prosodic phrasing of monolingual children suggests that the ability to manipulate acoustic parameters is in general established by the age of five, though

some aspects of interpretation are not fully developed until the age of 13. As for the prosodic development of bilinguals or children acquiring the language in a diverse environment, relatively little is known. Research in this area has been limited to early phonological skills such as interpreting linguistic sounds and phonemic distinctions in the languages being learned. It has also focused on the establishing a critical period for the acquisition of phonology (Bialystok 2001). In the literature on multilingual language acquisition, there is a gap concerning intonation and other prosodic features.

Bilingual children acquire their languages through almost the same stages as monolingual children, but they have to deal with more codes and make more linguistic choices than monolinguals. The language environment and the linguistic input they receive are very important factors in the acquisition process and influence the children's competence and performance in the languages they acquire.

One of the few comprehensive studies of three pre-school children speaking German and English is presented by Gut (2000). She begins to observe systematic use of pauses at IP boundaries to separate both syntactic and semantic units from the age of 3;5 onwards. At 4;9 she discovers the first examples of IP boundaries used for structuring longer passages of speech. She does not attribute any linguistic functions to the intonational phrasing, but suggests that the pauses reflect processing load directly. The presence of pauses before the nucleus or after certain head-plus-nucleus patterns leads Gut to the assumption that 'it is possible that physical reasons prevent children up to 5;6 years to use intonational phrases in a phonological way' (Gut 2000:165).

1.5. The Present Study

The goal of the present study is to find out if multilingual children mark and interpret prosodic boundaries to make the distinction between different lexical and syntactical structures. I have limited this study to two children of a similar age (10;8 and 9;5) from the same family bearing in mind that 1) around this age the majority of monolingual children begin to show competence in producing and understanding these prosodic features and 2) multilinguals from different families and backgrounds are exposed to a variety of inputs which is difficult to monitor and compare.

Here are the research questions that this study is trying to address:
1 *Are the children able to mark prosodic boundaries to signal different lexical and grammatical contrasts in their speech?*
2 *How do listeners interpret the children's production of prosodic boundaries?*
3 *Are the children able to interpret lexical and grammatical contrasts based on the presence or absence of prosodic boundaries?*

4 *How does their production compare to their comprehension of the same prosodic features?*

1.6. Language Development of the Main Subjects

Two siblings—Roy aged 10;8 and Geena aged 9;5—took part in the experiments. They are trilingual and English is one of the languages they speak at home. They have been brought up in Hong Kong and have been acquiring English since birth in a family of non-native English speakers. The mother is a native speaker of an Indo-European Language (Bulgarian) and speaks British English. She has been a teacher of English for eight years and possesses a near-native speaker's proficiency and fluency of the language. The children's exposure to Bulgarian was very short and passive— half a year for the boy, and just a couple of months for the girl during the first year of their life when the family was briefly visiting the country. When they were born, both were first exposed to English as the parents spoke to them only in English. The father is a native speaker of Putonghua and fluent in Cantonese, and speaks good English. Their paternal grandparents, who have been sharing the flat with the family since the boy started primary school, are native speakers of Putonghua. From the time they started living with their grandparents, Roy and Geena's knowledge of Putonghua vocabulary and language structures has increased dramatically and they felt confident in conversing in the language. The effect of their active exposure to Putonghua has been dramatic and the results were quite impressive as they have both acquired the native-speaker phonology of Putonghua as certified by other native speakers of the language.

Since the time the children were exposed to their second and third language actively (4;0 for Roy and 3;0 for Geena) and were expected to actively take part in conversations in these languages, Roy and Geena have been able to keep the three codes separate and select the appropriate language for a given interlocutor and situation. When speaking to monolinguals, they would never mix the languages or switch from one to another, which is indicative of their linguistic awareness. When speaking to bilinguals or multilinguals, they would normally keep to one language and would rarely mix or switch codes. Their occasional codemixing and codeswitching appear to be related to lack of lexical resources in one language, which has often been observed in other young bilinguals or multilinguals (Maneva 2004). For example, when speaking to their father and missing a word in English, Roy or Geena would say the word in Putonghua. Depending on the situation, then they would either continue the conversation in English or switch to Putonghua. This indicates that English is being used as the base language for communication with trilinguals, whereas Putonghua, which is a family language, and not the community language, is preferred as a medium for switching.

The 'nativeness' of their speech in Putonghua was easily identified as it was judged against the characteristic style of standard speech based on the Bejing dialect and it was identified as having the same features. As for the 'nativeness' of their speech in Cantonese, it was identified as having a slight accent, and in this case it was also judged against the characteristic style of speech of Hong Kong speakers. The 'nativeness' of their Putonghua could be explained by the fact that the input in that language has always been consistent and uniform as it has always come from the grandparents, whereas the input in Cantonese has been rather diverse and has come from different sources.

At the time this research started, the children's language development can be assessed as relatively balanced since they have continued to receive active input in all three languages with English being the dominant language also used for communication with multilinguals. Both children are able to keep the three codes separate and select the appropriate language for a given interlocutor and situation. Their language development and speech behaviour indicate an early separation of the phonological systems of English and Mandarin/Cantonese.

2. Method
2.1. Materials and Tasks

Each child was tested individually for both production and comprehension in controlled settings using visual and spoken stimuli.

2.1.1. Production: Test Items and Tasks

The production tasks were designed as naming or describing tasks based on visual stimuli. The first task tests the children's ability to mark prosodic boundaries in intermediate phrases (ips). It was drawn from a specially designed battery of prosodic tasks used in a study by Wells et al. (2004). Each child was shown 16 coloured pictures of either two or three food items and asked to name the items. The 16 pictures are chosen in such a way that they would elicit eight minimal pairs of utterances:

(1) *chocolate biscuits and milk* vs. *chocolate, biscuits and milk*
(2) *chocolate cake and coffee* vs. *chocolate, cake and coffee*
(3) *fruit salad and water* vs. *fruit, salad and water*
(4) *cheese sandwiches and honey* vs. *cheese, sandwiches and honey*
(5) *water bottles and spoons* vs. *water, bottles and spoons*
(6) *chocolate ice-cream and bread* vs. *chocolate, ice-cream and bread*
(7) *ice-cream cake and jam* vs. *ice-cream, cake and jam*
(8) *coffee beans and sugar* vs. *coffee, beans and sugar*

The first item in each pair includes a compound noun and simple noun (*chocolate biscuits and milk*), while the second includes only simple nouns (*chocolate, biscuits and milk*). The figures below show the difference in prosodic structure and difference in the number of intermediate phrases and accent groups.

Figure 1. *Chocolate biscuits and milk* (compound noun plus simple noun)	Figure 2. *Chocolate, biscuits and milk* (three simple nouns)
IP: H%- -L% ip: -H%　　　　ip: H%- AG: H*L　　　　AG: H*L F　　F　　F　　F S　w　s　w　　w　s	IP: H%- -L% ip: -H%　ip: H%-H%　ip: H%- AG: H*L　　AG: H*L　　AG: H*L F　　　　F　　　F　　F s　w　　　s　w　　w　s
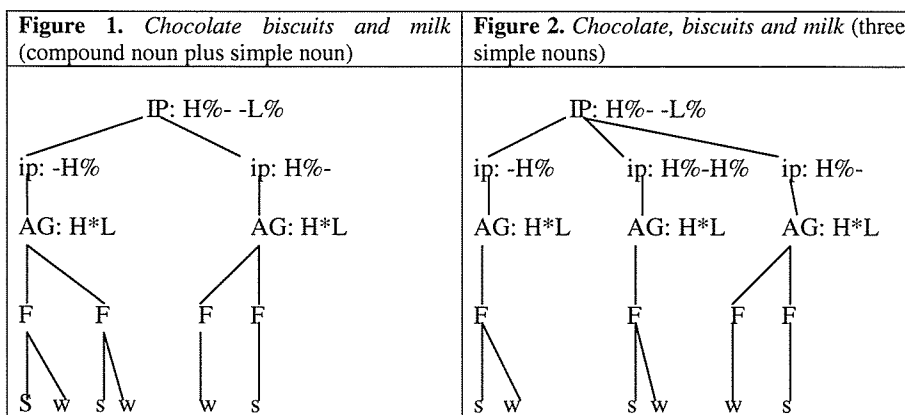
[Adapted from Wells et al. (2004:752)]

In production task 2, there is a different context. It tests the production of prosodic boundaries in coordinated phrases. Each child was asked to describe how three objects are grouped using a minimal pair of the same utterance:

(9) *blue and yellow, / and orange* vs. *blue, / and yellow and orange*
(10) *cats and dogs, / and rabbits* vs. *cats, / and dogs and rabbits*

Four pictures of three different colours and three kinds of animals are grouped in two different ways. For example, for the first utterance in minimal pair (9), blue and yellow blobs are shown close together with an orange blob on its own, while for the second utterance the blue blob is on its own and the other two colours are shown together.

Production task 3 tests the children's production of syntactically ambiguous phrases. For this task, six pictures, eliciting three minimal pairs, were constructed:

(11) *old men / and women* vs. *old / men and women;*
(12) *yellow cars / and bicycles* vs. *yellow/ cars and bicycle*
(13) *green apples / and pears* vs. *green / apples and pears*

Each picture was shown to the child who was asked to describe what he/she saw, e.g., a picture of yellow cars and yellow bicycles, and a picture of yellow cars and multi-

coloured bicycles. Each minimal pair can be disambiguated by the correct phrase ip-boundary placement as indicated by the slash "/".

2.1.2. Comprehension: Test Items and Tasks

The comprehension tasks mirror the four production tasks and test the children's awareness of prosodic phrase boundaries in other people's speech. They are all based on spoken stimuli with the same visual representations and designed as identification tasks. Two pictures were presented to the child each time, for example, a picture showing two food items and a picture showing three food items. The child also heard a recorded utterance, for example, a compound noun and a simple noun (*chocolate biscuits and milk*) or three simple nouns (*chocolate, biscuits and milk*), and had to select one of the pictures.

2.2. Procedure

Each child was tested individually in separate sessions. Before each session involving visual prompts, the child was shown each picture to check if he or she could recognize the details and was familiar with the vocabulary items that the tester wanted to elicit. The picture prompts were presented to each child in random order, and the choices that he or she made were recorded on answer sheets.

Each response in the production tasks was recorded on a digital SONY Hi-MD player. The minimal pairs were randomized, and the recorded responses were played to ten adults—six male listeners and four female listeners (aged 35;5). All listeners came from the UK, had English as their first language and spoke educated British English. They were university-educated but had no linguistic training. None of them spoke with a strong regional dialect and there seems to be no link between their language backgrounds and the test results, so dialect was not controlled for. At the time of the test, all listeners had lived away from the UK for a period of time between 7 and 15 years. Apart from Hong Kong, some of the listeners have also lived in other Asian cities.

The listeners were told that this was a perception test investigating how multilingual children learn different prosodic features. Each of them listened to the utterances individually and ticked one of three columns to indicate his or her judgement, e.g. 'two food items', 'three food items' and 'ambiguous' in the first comprehension task. The recordings of the minimal pairs for the comprehension tests were made by two native speakers of English. To make sure that they were produced accurately and unambiguously, they were first tested on two adults for control purposes.

The recorded utterances from the two children were then transferred from the Hi-MD player into a computer, and each one was segmented into three chunks: the individual utterance, the final syllable of the first noun and the pause between the first and second noun. The duration of each sound chunk was measured using waveform and wideband spectrogram generated on the Praat speech analysis programme. In cases of monosyllabic nouns such as *fruit* or *cheese,* the duration of the whole noun was measured. When measuring pauses with reference to plosives as in *chocolate biscuits,* the pause duration included the stop gap, which is also a silent interval.

3. Results
3.1. Production Tasks

On the first production task, which tests the children's ability to mark prosodic boundaries in small intonation phrases, each child's response was interpreted by the listeners as '2-item', '3-item' or 'ambiguous'. In general, for each child, 56.25% of all their utterances were perceived by all listeners accurately.
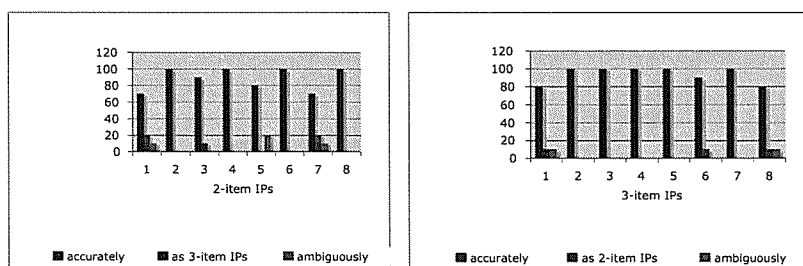
Figures 3 and 4. Perceptual ratings for Geena (girl, 9;5)
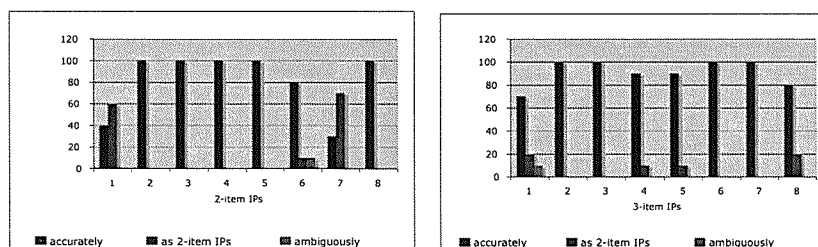
Figures 5 and 6. Perceptual ratings for Roy (boy, 10;8)

The 2-item utterances that all listeners perceived accurately for both children were *chocolate cake and coffee*; *cheese sandwiches and honey,* and *coffee beans and sugar.* As for the 3-item utterances, the accurately-perceived utterances were *chocolate, cake and coffee; fruit, salad and water,* and *ice-cream, cake and jam.*

The results in Figures 7 and 8 show that three listeners perceived all of Geena's utterances accurately, while only one listener perceived all of Roy's utterances accurately.
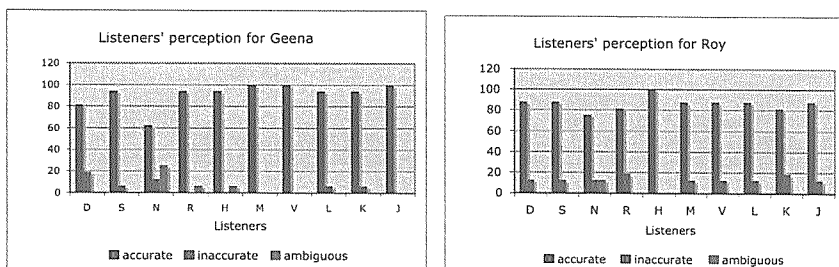
Figures 7 and 8. Listeners' perceptual ratings

In production tasks 2 and 3, the tester elicited all minimal pairs. In general, 50% of Roy's utterances were interpreted by all listeners accurately, while for Geena the figure was slightly lower—42%. Figures 9 and 10 indicate that although the majority of the listeners disambiguated the utterances accurately, there were some listeners who did not seem to perceive the prosodic boundaries as intended by the children.
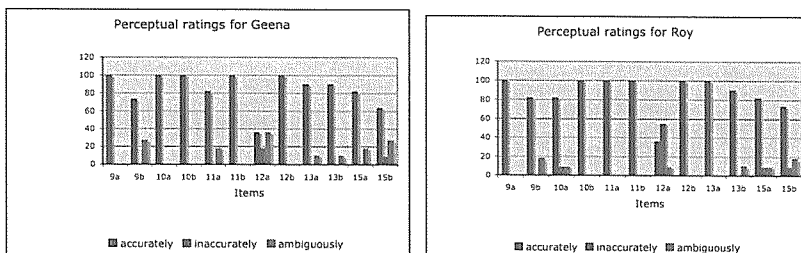

Figures 9 and 10. Perceptual ratings for production tasks 2 and 3

3.2. Comprehension Tasks

In the first comprehension task, both children performed well. Roy perceived all 16 minimal pairs accurately while Geena did not perceive only one of the minimal pairs in each group: *chocolate, cake and coffee* was interpreted as a 2-item IP and *ice-cream cake and jam* as a 3-item IP. In tasks 2 and 3, Geena performed much better than Roy. She perceived all phrases accurately in tasks 2 and 3, while he was not able to make the distinction for all items. However, both children were aware of the difference in grammatical constituent structure and intonation phrase/clause boundary. The distribution of answers between correct and alternative pictures is shown in Table 1.

		Geena		Roy	
Task	Utterances	C	A	C	A
2	9a	✓		✓	
2	9b	✓			✓
2	10a	✓			✓
2	10b	✓		✓	
3	11a	✓			✓
3	11b	✓			✓
3	12a	✓		✓	
3	12b	✓			✓
3	13a	✓		✓	
3	13b	✓		✓	

Table 1. Distribution of answers between correct (C) and alternative (A) pictures

3.3. Duration Measurements

The acoustic measurements are based on the recorded dataset from the first production task and focus on two boundary features: final syllable duration of the first noun (e.g., *chocolate* in minimal pair 1) and pause duration between the first and second noun (e.g., between *chocolate* and *biscuits*). Final syllable and pause durations were expected to be longer in the 3-item intonation phrases. Tables 2 and 3 show the duration measurements for each minimal pair as produced by each child.

	Minimal pairs	Total duration	Final syllable duration	Pause duration
1	chocolate biscuits and milk	1694	143	260
	chocolate, biscuits and milk	1955	182	217
2	chocolate cake and coffee	1864	118	97
	chocolate, cake and coffee	3103	314	553
3	fruit salad and water	1790	189	34
	fruit, salad and water	3685	722	863
4	cheese sandwiches and honey	2590	434	0
	cheese, sandwiches and honey	3861	569	264
5	water bottles and spoons	2663	174	57
	water, bottles and spoons	4503	423	364
6	chocolate ice-cream and bread	2701	117	234
	chocolate, ice-cream and bread	4525	549	733
7	ice-cream cake and jam	2382	336	78
	ice-cream, cake and jam	4533	560	1108
8	coffee beans and sugar	1780	202	35
	coffee, beans and sugar	2604	285	204

Table 2. Roy: duration measurements [ms]

	Minimal pairs	Total duration	Final syllable duration	Pause duration
1	chocolate biscuits and milk	2038	170	131
	chocolate, biscuits and milk	1940	176	230
2	chocolate cake and coffee	2104	167	63
	chocolate, cake and coffee	2820	379	498
3	fruit salad and water	2441	334	40
	fruit, salad and water	3359	685	239
4	cheese sandwiches and honey	2620	651	0
	cheese, sandwiches and honey	3187	820	364
5	water bottles and spoons	2926	178	73
	water, bottles and spoons	3900	468	720
6	chocolate ice-cream and bread	2392	195	39
	chocolate, ice-cream and bread	3614	362	386
7	ice-cream cake and jam	2195	373	57
	ice-cream, cake and jam	2865	467	351
8	coffee beans and sugar	2299	229	65
	coffee, beans and sugar	2267	340	271

Table 3. Geena: duration measurements [ms]

In general, both Roy and Geena seem to produce the two temporal prosodic features in the right direction. The only exception is Roy's minimal pair 1, which has the reverse pattern: the pause duration in the 2-item IP is marginally longer than in the 3-item IP. This is an example of a prosodic feature that is being used in the wrong direction and has caused misinterpretation in the perception test: six out of the 10 listeners perceived his 2-item utterance as a 3-item IP. Since this was the first test item, the pause may well be the result to the child's hesitation and reflects processing load.

Table 4 shows mean final syllable values and standard deviations for the two children. The statistical analysis confirms the trend for longer final syllable duration in 3-item IPs [215 ms vs. 450 ms or Roy and 287 ms vs. 462 ms for Geena]. However, the dataset also shows significant variations from the means with some overlap for both children.

	2 items (Roy)	3 items (Roy)	2 items (Geena)	3 items (Geena)
Mean	214	450	287	462
Std deviation	112	180	166	204

Table 4: Final syllable duration [ms]

Table 5 displays the mean pause durations and standard deviations for the two children. As for final syllable durations, the trend for a longer pause in 3-item IPs was confirmed [99 ms vs. 535 ms for Roy and 58 ms vs. 382 ms for Geena], but again with considerable variation from the mean, especially for Roy.

	2 items (Roy)	3 items (Roy)	2 items (Geena)	3 items (Geena)
Mean	99	538	58	382
Std deviation	96	335	37	162

Table 5: Pause duration [ms]

3.4. Pitch Accent and Stress Pattern

Compound nouns are usually integrated into one accent group signalled with one pitch rise, whereas strings of nouns display an independent pitch rise on each nucleus. There is also a difference between the stress patterns of a compound and a string of nouns in terms of primary and secondary stress. Tables 6 and 7 show the pitch accents types and stress patterns as produced by the two children. The pitch rises were not always clear as not all the nouns on the list were pronounced with its own intonational phrase. Roy managed to use compound stress in most of his utterances while the stress pattern was not always clear in Geena's output.

Tokens	Pitch accent (Roy)	Stress pattern (Roy)	Pitch accent (Geena)	Stress pattern (Geena)
1 chocolate biscuits	H*+L !H*	Not consistent	L+H* !H*	Not consistent
2 chocolate cake	L+H* !H*	Consistent	H* L+H*	Not consistent
3 fruit salad	L+H*	Consistent	H*+L	Consistent
4 cheese sandwiches	L*+H	Consistent	H* L*+H	Consistent
5 water bottles	L+H*	Consistent	L+H*	Not consistent
6 chocolate ice-cream	H* L+H*	Not consistent	L+H* H+!H*	Consistent
7 ice-cream cake	L+H*	Consistent	L+H* !H*	Not consistent
8 coffee beans	H+!H*	Consistent	H+!H*	Consistent

Table 6: *Pitch accents and stress patterns in compounds*

Tokens	Pitch accent (Roy)	Pitch accent (Geena)
1 chocolate, biscuits	L+H* L+H*	L+H* H*+L
2 chocolate, cake	L+H* L+H*	L+H* !H*
3 fruit, salad	L+H* L*+H	L+H* H*+L
4 cheese, sandwiches	L+H* L+H*	L+H* L+H*
5 water, bottles	L*+H H+!H*	H+!H* L+H*
6 chocolate, ice-cream	L+H* L+H*	L+H* L+H*
7 ice-cream, cake	L+H* L+H*	L+H* L+H*
8 coffee, beans	L+H* L+H*	H+!H* H*+L

Table 7: *Pitch accents in strings of simple nouns*

4. Discussion

In this section, I will discuss the results with respect to the perception tests, the acoustic measurements for the first production task and the auditory analysis.

4.1. Production Task 1

The first production task tests the children's ability to mark prosodic boundaries in intermediate phrases and focuses on two prosodic features: pause duration and final syllable duration. It also attempts to establish if adult listeners use these features when interpreting the utterances. In addition to the acoustically measured features, other properties such as stress pattern, pitch and co-articulation of final and initial sounds are taken into consideration.

4.1.1. Individual Children: Roy

Only one minimal pair (1 *chocolate biscuits and milk* vs. *chocolate, biscuits and milk)* in Roy's dataset showed a prosodic feature (pause duration) that has been used in the wrong direction and has caused misinterpretation in the perception test: six out of the 10 listeners perceived Roy's 2-item utterance as a 3-item IP while his 3-item utterance was perceived as a 2-item IP by two listeners. Most listeners seem to rely on the pause duration between the first and the second noun in their interpretation. Other possible points leading to the misinterpretation of the utterances are the equal stress on both *chocolate* and *biscuits* which is not consistent with the compound stress pattern of secondary and primary stress and the lack of assimilation of the final consonant in *chocolate*.

Minimal pairs 2 (*chocolate cake and coffee* vs. *chocolate, cake and coffee)* and 5 (*fruit salad and water* vs. *fruit, salad and water)* were perceived by all listeners accurately. Both of the temporal boundary features were used in the right direction and listeners used them to interpret the utterances accurately. In addition, the correct stress patterns seem to indicate the lexical contrasts and the number of accent groups.

The 2-item utterances in minimal pairs 4 (*cheese sandwiches and honey*) and 8 (*coffee beans and sugar*) were perceived accurately by all listeners whose judgement was most likely guided by the significantly shorter pauses between the first and second noun or the absence of a pause in *cheese sandwiches*. The latter is also an example of assimilation of the final sibilant /z/ to the initial /s/ that contributes to a more highly co-articulated production pattern. In addition, the 2-item utterances were all produced with a stress pattern typical of a compound noun with pitch rise on the second noun. As for the 3-item utterances in these minimal pairs, the duration measurements follow the expected pattern of longer duration and the majority of the listeners perceived

them accurately. The three listeners who did not perceive the prosodic boundary were probably affected by the relatively shorter pause and final syllable durations, which were only marginally longer than the contrasting utterances. This confirms the prediction that 'the longer the pause and the final syllable duration, the more likely the listeners would perceive the prosodic boundary' (Dankovicova et al. 2004: 27).

All listeners perceived the 3-item utterance in minimal pair 6 (*chocolate, ice-cream and bread*) accurately and their judgements were in clear relation with the two temporal features. As for the 2-item utterance (*chololate ice-cream and bread*), not all listeners were able to interpret the absence of a boundary. Although the child had used the temporal boundary features in the right direction, the two listeners were probably misled by the relatively longer pause duration between *chocolate* and *ice-cream*. The value of 234 ms was interpreted as a boundary pause rather than an articulatory stop closure.

All listeners perceived the 3-item utterance in minimal pair 7 accurately, but only three of them interpreted the other utterance as a 2-item IP. However, looking at the duration measurements, the two temporal boundaries were used in the expected direction. Also, the pattern of a primary stress on *cake* and a secondary stress on *ice-cream* seem to indicate a compound stress pattern.

4.1.2. Individual Children: Geena

Most listeners interpreted Geena's contrasting utterances in minimal pair 1 (*chocolate biscuits and milk* vs. *chocolate, biscuits and milk*) accurately. However, the approximately equal stress pattern and the high level pitch on the first two words in the first utterance misled three of the listeners who interpreted the 2-item utterance 1 as a 3-item IP. The duration measurements indicate that the child had used the two temporal features in the right directions, but with a very small difference in value (170 vs. 176 for final syllable duration and 131 vs. 230 for pause duration). The value of 230 ms was likely interpreted as an articulatory stop closure by two listeners, who did not seem to perceive the boundary after *chocolate* in the 3-item utterance.

Geena's production of minimal pairs 2 *(chocolate cake and coffee* vs. *chocolate, cake and coffee)* and 4 *(cheese sandwiches and honey* vs. *cheese, sandwiches and honey)* show that both of the temporal prosodic features were used in the expected direction and all the listeners were able to interpret them accurately. When interpreting the compound noun in utterance 2, listeners seem to rely more on the temporal features and the realization of the final 't' in *chocolate* than on the stress pattern, which does not indicate a compound. Utterance 4 is also an example of assimilation of final /z/ with the /s/ of *sandwiches*, that is extensive co-articulation which facilitates accurate perception.

The 3-item utterances in minimal pairs 3 (*fruit salad and water* vs. *fruit, salad and water*), 5 (*water bottles and spoons* vs. *water, bottles and spoons*) and 7 (*ice-cream cake* vs. *jam* vs. *ice-cream, cake and jam*) were interpreted accurately by all listeners whose judgements were in clear relation with the temporal features. As for the 2-item IPs, one listener perceived the first utterance in 3 as a list of three nouns probably drawing upon the relatively longer final syllable duration of the first noun. Two listeners perceived the 2-item IP in 5 as ambiguous despite the fact that the child was able to use the two temporal features in the right direction and the stress pattern was consistent with the compound stress pattern. Two listeners interpreted the 2-item IP in 7 as a list of three nouns and one listener interpreted it as ambiguous. The final syllable duration measurements show a very small difference in value (373 ms vs. 467 ms). This point, together with the equal stress on the first two words, may have led to the inaccurate or ambiguous perception.

The 2-item utterances in minimal pairs 6 and 8 were perceived accurately by all listeners. As for the 3-item utterances, not all listeners were able to interpret them accurately despite the correct use of the two temporal features.

4.2. Production Tasks 2 and 3

The second production task tests the children's ability to mark prosodic boundaries in co-ordinated adjectival and noun phrases, e.g., *blue and yellow, / and orange* vs. *blue, / and yellow and orange*. Although no instrumental measurements were carried out, the auditory analysis indicate that the children could not manipulate the intonation pattern and syllable lengthening in a consistent way, and relied on the pause duration to convey the groupings of the objects.

Production task 3 tests the children's ability to mark prosodic boundaries in syntactically ambiguous phrases such as *old / men and women* and *old men / and women*. Most listeners relied on the presence of a pause to disambiguate the two utterances in each minimal pair. The presence of an accent with a pitch movement helped reinforce the pause. Only one of the utterances (*yellow/ cars and bicycle*) lacked the pause and was specifically difficult to disambiguate for both Roy and Geena. Roy's utterance also showed a pitch movement on the word *cars* similar to the pitch movement in the contrasting utterance in the minimal pair. The result was that seven listeners tended towards interpreting the utterance like *yellow cars / and bicycle*. As for pairs 11 (*old men / and women* vs. *old / men and women*) and 13 (*green apples / and pears* vs. *green / apples and pears*), although the presence or absence of a pause was indicated in the children's production, the pitch movement was ambiguous.

4.3. Comprehension Tasks 1, 2 and 3

The first comprehension task tests the children's ability to perceive the lexico-grammatical distinction between utterances consisting of a compound noun and a single noun (*chocolate biscuits and milk*) and utterances consisting of three successive nouns (*chocolate, biscuits and milk*) in terms of prosodic phrasing and boundaries. The results show that both children performed well and showed mature input in drawing on temporal features to guide their interpretation.

Comprehension tasks 2 and 3 test the children's ability to perceive prosodic cues in order to interpret syntactically ambiguous phrases. The results show some interesting differences between the two children. The younger child, Geena, behaved like an adult in her interpretation, using prosodic boundaries to guide her judgements. The poor performance of the boy might be due to motivational factors or lack of concentration rather than immature perception of the target.

5. Summary

Four research questions were addressed in this study and I will now try to answer each of them after considering the results and the more detailed analysis of the tasks.

1 *Are the children able to mark prosodic boundaries to signal different lexical and grammatical contrasts in their speech?*
In general, the two children were able to mark prosodic boundaries and both of the temporal features under investigation (pause and final syllable durations) were used in the expected direction. Although they both appreciate that there is a distinction to be made and, in general, managed to signal the different contrast in their speech, the contrast was not always obvious in their spoken output to all the listeners. The children were also more accurate in the production of compound nouns and lists of nouns than in the production of coordinated adjectival and noun phrases or syntactically ambiguous structures. This confirms the general view that lexical distinction is easier and usually mastered earlier and more effectively by children than syntactic distinction (Vihman 1996). The auditory analysis also suggests that the two children were not very consistent in marshalling the other prosodic parameters such as pitch and stress patterns.

2 *How do listeners interpret the children's production of prosodic boundaries?*
Overall, accurate interpretation varied between 36% and 100% of all items in the production tasks. The duration measurements and the more detailed analysis suggest that listeners mainly used the two temporal features (pause duration and final syllable duration) to guide their interpretation, and confirm previous findings that 'the longer the pause and final syllable duration, the more unambiguous the perception of the

prosodic boundary' (Dankovicova 2004:32). Also the listeners' judgements were in clear relationship with the two parameters. In addition to pause duration and final syllable lengthening, the listeners may have also considered other prosodic boundary features such as compound stress and pitch movements. The detailed analysis shows that in spite of the temporal features being produced in the right direction, some listeners did not interpret the utterances accurately because the children were not able to produce the compound stress and the appropriate pitch rise.

3 *Are the children able to interpret lexical and grammatical contrasts based on the*
  presence or absence of prosodic boundaries?

The overall performance on the comprehension tasks indicates that the two children are able to interpret lexical contrast based on prosodic cues. As for the grammatical or syntactic contrasts, it appears that their ability is not fully developed. This finding is in line with Cruttenden's (1985) and suggests that although the two children have not reached adult native-like competence, their prosodic judgements about language are similar to those of monolingual children at the same age.

4 *How does their production compare to their comprehension of the same prosodic*
  features?

The overall results suggest that the children's ability to produce and interpret the prosodic features under investigation is basically established, and that both children are making use of these prosodic resources to disambiguate lexical and grammatical distinctions. The more detailed analysis indicates that their ability to use prosodic boundary features in their speech in order to signal lexical contrasts lags behind their ability to interpret these features accurately. This might reflect an immature stage in their phonological development or insufficient exposure to consistently accurate native-speaker input.

As for syntactic or grammatical distinction, the overall performance on the tasks suggests that the children are aware of the prosodic differences, but they are not able to manipulate all the prosodic boundary features to signal these differences. This seems to be in line with their ability to make metalinguistic judgements about syntactic structures. Acquisition of prosodic boundary features seems to interact with first lexical, then syntactical learning, and the more grammatically complex structures require manipulation of a wide range of prosodic parameters, which children gradually learn to control and interpret.

The present research is a case study and offers an insight into two multilingual children's prosodic development. It should be pointed out that these observations should be treated as tentative since they are based on a small dataset and conducted in controlled settings. Multilingual children's production and perception of prosodic phrasing remain to be verified in future research especially in naturally occurring

interactions in real-life situations. Although the assumption is that by the age of 10, the two children have managed to separate the different phonological systems they are manipulating, their multilingualism could be explored further with reference to the prosodic properties of Mandarin and Cantonese, or the prosodic properties of the non-native variety they have been exposed to.

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Japanese Learners' Construal of English Relative Clauses: A Processing Typological Account

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1. Introduction

The present study aims to investigate how the formation of a complex noun phrase is related to matrix VP processing. We address this issue specifically by probing into the acquisition of relative clauses (henceforth, RCs) by Japanese learners of L2 English from the viewpoint of functional typology. English postnominal modification appears to be difficult for Japanese learners to acquire. In a comprehension task of (1), more than half of the junior high school students learning English for at least two years failed to correctly attach *from America* to the preceding noun *student* (Suwabe et al. 1980). In producing English sentences with RCs in a task for the present study, cf. (2), more than half of the Japanese first-year college students erroneously inserted an RC before the head noun. The difficulty is arguably attributable to the transfer effect of Japanese (L1), where an RC invariably precedes its head noun.

(1) A student *from America* is in our class.
(2) * Sho pushed *Tomomi rode* the bike (for 'Sho pushed the bike Tomomi rode')
    ('Sho' and 'Tomomi' are common Japanese names.)

Section 2 will review the related literature on the relation of main clause processing to the location of RCs. Section 3 will present the method of our psycholinguistic experiment conducted with Japanese college students learning English as well as our hypothesis. Sections 4 will present and analyze the findings. Section 5 will survey a supplementary test. Section 6 will be devoted to discussion, while Section 7 will conclude the current study and present a future prospect.

2. Related Literature on Basic Word Order and the Position of RCs
2.1. Adjacency Between Matrix V and O

The 'preposing' error in English is not a phenomenon specific to Japanese learners. Matthews and Yip (2003) reported that two bilingual children exposed to Cantonese and English from birth produced prenominal English RCs in their early bilingual development. They attributed this to transfer from their dominant language, Cantonese. The processing efficiency of syntactic structures can be measured by metrics advanced by Hawkins (1994). In VO languages (e.g. English), a

'prenominal' modifier to the matrix object would separate the matrix verb from its object, leading to the lower processing efficiency of the matrix VP. Let us examine the Japanese learners' 'preposing' error from the viewpoint of functional typology. Table 1 shows the relation between the basic word order of languages and the position of RCs embedded in the matrix object position. The fact that the majority of OV languages have prenominal RCs (Japanese Type) and virtually all of VO languages have postnominal RCs (English type) seems to imply that the adjacency (non-intervention of elements) between the matrix verb and its object is crucial.

Table 1. Basic word order and the position of RCs cross-linguistically

	Position of RCs embedded in matrix object position	
Basic word order	Prenominal	Postnominal
OV	Rel O V (Japanese type)	O Rel V (Hindi type)
VO	V Rel O (Chinese type)	V O Rel (English type)

As Table 1 shows, the combination of basic word order OV with postnominal RCs (Hindi type) and that of VO with prenominal RCs (Chinese type) inevitably result in an RC intervening between the matrix verb and its object. These languages apparently remedy the processing disadvantage by utilizing some morpho-syntactic means which are frequently pragmatically motivated. For instance, Hindi is characterized by the 'S O Rel V' order. In (3), the matrix object *billi* is separated from the matrix verb *pasant karti hai* by the RC *jo meri hai,* but the accusative indicator *usko* is employed to recover the OV adjacency.

    (3)   Hindi (SOV)
        Hanako, *billi* jo meri hai   <u>usko</u>   *pasant karti hai*
        Hanako, cat   which is mine, that one   likes.
        'Hanako likes the cat which I keep.'

On the other hand, Sinitic languages (e.g. Mandarin, Cantonese) are known to have the rare combination of basic VO order with prenominal RCs, which inevitably produces 'SV Rel O' order. As an alternative for the canonical 'SV Rel O' order, these languages utilize a topicalized order of 'Rel OSV', which had been thought to be chosen for discourse-pragmatic reasons. Matthews and Yeung (2001) measured the reading time of RC-containing sentences by native speakers of Cantonese and found that the topicalized order of 'Rel OSV', (5), is processed faster than the canonical 'SV Rel O', (4). They argued that the result implies that the phenomenon of topicalization can be explained not only by discourse-pragmatic factors but also by functional motivations for faster on-line processing of the matrix verb phrase: *sik joek.*

(4) Cantonese: canonical SV Rel O

Lei *sik* saai [NP Zoeng jisaang hoi bei lei go zek *joek*] mei aa ?

you consume up Cheung doctor prescribe for you that   CL medicine not PRT?

'Have you taken all that medicine that Dr. Cheung prescribed for you yet ?'

(5) Cantonese: topicalization Rel O S V

[NP Zoeng jisaang hoi bei lei go zek *joek*] lei *sik* saai mei aa ?

Cheung doctor prescribe for you that CL medicine you consume up not PRT?

'Have you taken all that medicine that Dr.Cheung prescribed for you yet?'

This suggests the following. Some languages have a canonical word order that secures the adjacency between the matrix verb and object (Japanese and English type languages), while others have morpho-syntactic devices that make up for the processing disadvantage caused by the intervention of an RC between the matrix verb and its object (Hindi type and Chinese type languages).

2.2. Reanalysis Caused by an Intervening RC

There arises a question of whether it is only the distance between the matrix verb and its object that determines the processing efficiency of the matrix VP. English never allows for RCs to be located before the head noun, cf. (7), though it permits adjectival phrases to do so, cf. (8). The matrix verb *attended* and its object *meetings* are intervened by a string of five words in (8), but the sentence is grammatical. The difference between RCs and other adjectival phrases lies in the fact that the former include a subordinate subject and verb, cf. (6) while the latter do not, cf. (8). Crucially, when an L2 learner erroneously preposes an RC to the head noun, cf. (7), the temporary matrix VP *pushed Tomomi* arguably results in reanalysis.

(6) Sho pushed the bicycle *Tomomi rode*.
(7)*Sho pushed *Tomomi rode* the bicycle. (for 'Sho pushed the bicycle *Tomomi rode*')
(8) John *attended* elaborately prepared politically significant international *meetings*.

In addition to the 'topicalization' mentioned in 2.1 (a process known as 'fronting'), languages like Mandarin Chinese appear to have another means of compensating for the disadvantages of having a canonical order of 'SV Rel O'. Anderson and Wu (2006) confirmed that the classifier *zhi* contributes to the avoidance of the reanalysis, which could have been necessitated if the matrix object *zuqiu* ('football') had been interpreted as the object of the matrix verb *zhixiang* ('point to').

(9) Zhixiang [nei-zhi [zuqiu dasui e2 de huaping] .
    point to [that-CL [football break DE vase] .
    'Point to the vase that the football broke.'

As a factor that determines the processing efficiency of matrix VP, the temporary

misanalysis of the RC subject as the matrix object may be crucial as well as the distance between the matrix verb and its object. Focusing mainly on this former point, we conducted an experiment with Japanese college students in order to inquire into the effect of the 'S V Rel O' ordering, an error often produced by Japanese learners.

3. Method & Hypothesis

We had two experimental sessions. The first session included the main test for this article. The second session covered a supplementary test that had not been initially scheduled. For the sake of convenience we label the former as 'J(apanese)-E(nglish) RC Positioning Test' and the latter as 'Picture-Production Test'.

3.1. Participants

The participants were 53 Japanese college students majoring in English language and literature at a college located in Sendai, Japan. Of these, 25 were first-year students (aged 18 or 19) while the other 28 were second-year students (aged 19 or 20). The session for 'J-E RC Positioning Test' was set in the first meeting of class in April in the academic year 2007. Before entering college, all the participants had studied English as a foreign language for at least 6 years in junior and senior high school.

3.2. Materials

The J-E RC Positioning Test was a pencil-and-paper task requiring production of English RC-containing sentences. The first- and second-year students sat for the same set of test items. The test consisted of 36 items, 12 of which were critical items and the other 24 were fillers. Within the 12 critical items, 6 were categorized as Type A and the other 6 as Type B. All the RCs in Types A and B were object-extracted RCs in the matrix object position. Type A and Type B examples are illustrated below.

Table 2.   Test items on the J-E RC Positioning Test

Critical items	Type A items	Type B items	Fillers	Total number of items
12	6	6	24	36

The testing procedure was as follows. First, a participant reads a Japanese RC-containing sentence (i). Then she is given a group of randomly ordered English words (ii). Finally, she reorders the given English words so as to make an English RC-containing sentence that is semantically identical to (i).

Type A (6 items in total)
(i) A Japanese sentence given as a counterpart to the target English sentence:
    Sho-wa Tomomi-ga notta jitensha-o oshita.
(ii) Words given in a random order in a question:
    Sho (bike / Tomomi / pushed / rode).
(iii) Correct reordering: Sho pushed the bike Tomomi rode.
(iv) Expected 'preposing' error: *Sho pushed Tomomi rode the bike.

Type B (6 items in total)
(i) A Japanese sentence given as a counterpart to the target English sentence:
    Ryo-wa Saori-ga hitsuyoutosuru kusuri-o hatsumeishita.
(ii) Words given in a random order in a question:
    Ryo (invented / needed / medicine / Saori).
(iii) Correct reordering: Ryo invented the medicine Saori needed.
(iv) Expected 'preposing' error : *Ryo invented Saori needed the medicine.

We will illustrate below the differential effect between Types A and B manifested when a Japanese learner puts an RC before the head noun. Underlined strings are the erroneous prenominal RCs. In both Types A and B, the RCs precedes the head nouns. The difference is covert: it depends on how many of the sentence initial words can form a grammatical and meaningful unit. The units are in the brackets.

Type A: * [Sho pushed Tomomi] rode the bike.
Type B: * [Ryo invented] Saori needed the medicine.

The following account is formulated on the basis of the learner's monitoring of their own productions. In Type A, *Tomomi rode*, an RC that the learner has intended to modify *bike*, is inherently not easy for the monitor (learner) to analyze as a modifier to the head noun *bike*; when the monitor has reached *rode*, *Tomomi* has already been shunted to a sentential unit [*Sho pushed Tomomi*] . (As we will note in 5.2, Japanese learners perform very well in terms of their understanding of the basic SVO order in L2 English.) *Tomomi rode* thus can not be a modifier of *bike*. The learner's output sentence in Type A above consequently represents a very different meaning from that given in Japanese; what *Sho pushed* is not *Tomomi* but the *bike* she rode. The learner may then try to solve the problem by shifting the RC to the postnominal position. In Type B the learner's RC *Saori needed* is placed before the head noun as well. When the monitor has reached *needed*, *Saori* has not yet been shunted to anywhere because *invented* does not take a human object. Consequently *Saori needed* is naturally analyzed as a modifier to *medicine*. Thus, the learner's output in Type B above agrees in meaning to the corresponding Japanese given, thereby leaving the learner's 'preposing' rule no chance to be revised.

The effect of reanalysis has been investigated primarily in light of parsing and

comprehension (Frazier 1985). Unlike these studies, the present study used production tasks for the following reasons. First, comprehension tasks often fail to reveal the factors which induce a participant to make a particular judgment. Second, we may obtain from production information that is as reliable as from comprehension, since a learner usually monitors and tries to repair his/her own output. This idea derives from Clark (1982), who argued that a child's monitoring of his/her own speech is integral to the coordination of children's production with comprehension and plays a direct role in L1 acquisition.

A few words about our experiment are in order. Only transitive verbs were used as matrix verbs. In addition, ditransitive verbs (i.e. verbs taking two or more objects) and verbs taking clausal objects (e.g. 'say' and 'think') were excluded. In those 12 critical items, no word was deployed repeatedly. All the words used in the critical sentences, except for people's names, were taken from English textbooks officially used in the participants' junior high school days. People's names in the critical sentences were ones ranked as being in the top ten of names for babies born in the 1980s according to the data released by a major life insurance company. The utilization of Japanese familiar names was intended to minimize the burden for processing irrelevant to the experimental purpose. For the 12 critical items we prepared 24 fillers. We did not set a time limit on the task. All the participants finished the 36 items within 20 to 40 minutes. We asked the participants to write with a ballpoint pen and cross letters when correcting instead of using an eraser. We also asked them to add determiners, a/an or the, when deemed necessary, which were not included in the list of words provided in the parentheses.

3.3. Hypothesis on J-E RC Positioning Test

Our initial hypothesis was that the participants make less prenominal RCs for Type A than for Type B. This is because, in such a way as presented in 3.2, the participant has a chance of revising her own rule on RC positioning and shifting from erroneous prenominal modification to correct postnominal modification in doing Type A items but not in doing Type B items.

4. Results of J-E RC Positioning Test
4.1. Classification of Errors

The participants' responses in the J-E RC Positioning Test can be classified into three types. The first type of responses (I) consist of sentences that include correct postnominal RCs, which are symbolized as 'Head SV'. The second type of responses (II) are those with an RC erroneously placed before the head noun, symbolized as '*SV Head'. The third type of responses (III) are sentences with a subordinate clause placed reversely after the head noun/matrix object, symbolized

as '* Head VS'. The latter type (III), e.g. *Sho pushed the bike rode Tomomi*, may have possibly been made on the analogy of the reduced RC correctly performed in *Sho pushed the bike ridden by Tomomi*. The '* Head VS'-type errors were observed with 6 first-year students and 8 second-year students.

Table.3 J-E RC Positioning Test: Classification of participants' responses

Types of responses	Examples	
	Type A	Type B
(I) 'Head SV'	Sho pushed the bike Tomomi rode.	Ryo invented the medicine Saori needed.
(II) '*SV Head'	*Sho pushed Tomomi rode the bike.	*Ryo invented Saori needed the medicine.
(III)'* Head VS'	*Sho pushed the bike rode Tomomi.	* Ryo invented the medicine needed Saori.

4.2. Errors on Basic Word Order

In the 12 critical items, very few errors in SVO basic word order were observed. Four first-year students made one error in basic word order. This finding accords with Rutherford (1983), who reports that no Japanese learners made errors in basic word order in writing tasks of L2 English.

4.3. Incidence of the 'Preposing Error'

We will see the results of the J-E RC Positioning Test from three viewpoints. First, the mean scores gained by the first- and second-year students will be compared (Table 4). Next, the difficulty of the test items in Types A and B will be examined (Tables 5 and 6). Then the focus will be cast on the incidence of 'preposing errors' between Types A and B (Tables 7 and 8). Table 8 serves the ultimate purpose of the present study. In scoring the test, one point is given to the correct response to one item.

Table 4 displays the mean scores on the number of correct responses to the 12 critical items. If the participant responds correctly to all 12 critical items (6 Type A and 6 Type B items), she gains 12 points. The mean scores were compared across the two grades by two-sided independent t-test. A statistically significant difference was found ($p=.007 < 0.05$). The second year students did better in completing sentences containing object-extracted RCs in the matrix object position.

Table 4. J-E RC Positioning Test: correct responses for the 12 critical items (Types A and B items).

	Mean	probability (two-tailed)	t-value
1st year students (n=25)	5.84	.007*	−2.801
2nd year students (n=28)	9.61		

Tables 5 and 6 demonstrate the mean scores on correct responses in Types A and B. This comparison is made to exclude the possibility that the test items on one Type are more difficult than the other. Tables 5 and 6 include the first- and second-year students respectively. The two Types were compared using a two-sided dependent t-test. No statistically significant difference was found in Table 5 (P= .491 > 0.05) and Table 6 (p=.449 > 0.05). This implies that none of Types A or B is more difficult than the other.

Table 5. J-E RC Positioning Test: 1st-year students (n=25): Correct responses for Types A and B items

	Mean	sd	probability (two-tailed)	t-value
Type A items (n=6)	2.96	.572	.491	.700
Type B items (n=6)	2.88			

Table 6. J-E RC Positioning Test: 2nd year students (n=28): Correct responses for Types A and B items

	Mean	sd	probability (two-tailed)	t-value
Type A items (n=6)	4.86	.737	.449	.769
Type B itmes (n=6)	4.75			

Tables 7 and 8 include only those participants with one 'preposing' error or more. A statistic comparison across the A and B Types was made only for the first-year students; as many as 15 first-year students out of 25 (60%) made one 'preposing' error or more, which was enough for a statistic comparison. In contrast, no more than 4 second-year students made a 'preposing' error, which made a statistic comparison impossible.

Table 7 shows mean scores on correct responses for Types A and B. The 15 first-year students gained an equal mean score of 1.4 for Types A and B. The low mean score (1.4 out of 6) is due to the selection of individuals with a specific error. Table 7 confirms that Types A and B are identical in difficulty to those with 'preposing' errors. Table 8 directly involves the comparison that crucially relates to our hypothesis. In Table 8, Types A and B are compared to the incidence of 'preposing' errors. A two-sided dependent t-test found no significant difference

between the mean scores for the two Types (p=.510＞0.05). Our initial hypothesis was that the participants would make less prenominal RCs for Type A than for Type B. The hypothesis was thus not supported.

Table 7. J-E RC Positioning Test: 1st year, one 'preposing' error or more (n=15): correct responses

	Mean	sd	probability (two-tailed)	t-value
Type A items (n=6)	1.40			
		.655	1.000	.000
Type B itmes (n=6)	1.40			

Table 8. J-E RC Positioning Test : 1st year, one 'preposing' error or more (n=15): 'preposing' error(s)

	Mean	sd	probability (two-tailed)	t-value
Type A items (n=6)	3.27			
		1.146	.510	.676
Type B itmes (n=6)	3.07			

The overall results given by the 15 first-year students in Tables 7 and 8 are compiled in Appendix 1. Appendix 2 displays the results by the same 15 students for each critical item. There were few traces of corrections by crossing what participants had written. The only participant who made corrections related to the positioning of RCs was participant 1 in Appendix 1. She wrote a prenominal RC, crossed it and wrote a postnominal RC. She did this in the same way for item 4 of Type A, and item 10 of Type B respectively. This piece of information is consistent with the absence of significant difference evidenced in Table 8: the participant shifted her RC from prenominal to postnominal position irrespective of whether or not the initial NVN sequence in her initial '*SV [RC SV] O' ordering can be erroneously analyzed as SVO.

5. Supplementary Test: Picture-Production Test

After conducting the J-E RC Positioning test, it occurred to us that the 'preposing' errors attested might have been induced by the research design. Take a look at (i) and (iv) in Types A and B in 3.2. The initial input of the given Japanese prenominal RC-containing sentence (i) may have induced the participant to place the English RC before the head noun (iv). To tackle this problem, we conducted a supplementary test with the same 25 first-year students nearly four months later. The supplementary test was a Picture-Production Test in which there was no intervention of L1 Japanese in the testing procedure; the participants were asked to look at a picture and re-order given English words so as to describe the picture. Below are the sentences to be produced.

Yohei followed the ball Daisuke threw. (by looking at Picture 1)

Kenta drank the juice Megumi sold. (by looking Picture 2)

Table 9 below shows the results of the Picture-Production Test. Of the 25 first-year students, 6 made one preposing error or two. Interestingly enough, of the 6, 2 had been free from any 'preposing' errors in J-E RC Positioning Test which had been held four months before. Remember that 15 first-year students made at least one 'preposing' error in the J-E RC Positioning Test: of the 15, 11 made no 'preposing' error in the Picture-Production Test. There are a couple of possible accounts for the sharp decline of 'preposing' errors: from 15 in the J-E RC Positioning Test to 6 in the Picture-Production Test. One is the presence and absence of Japanese prenominal RCs in the testing procedure: no Japanese sentence was included in the latter test. The other is the effect of tertiary education in the English language and literature course for four months. Actually, both the testing procedure and education would have interactively contributed to the decline of 'preposing' errors.

Table 9.　Six first-year students with 'preposing' error in Picture-Production Test

	J-E RC Positioning Test (April, 2007)				Picture－Production Test (August, 2007)		
partici-pant	preposing error Type A	Type B	correct response Type A	Type B	preposing error Picture 1	Picture 2	correct response
12	6	6	0	0	+	−	0
6	6	5	0	0	+	−	0
13	4	4	1	0	+	+	0
11	1	1	5	5	+	+	0
16	0	0	6	6	+	−	1
17	0	0	5	4	+	−	1

6. Discussion

Let us repeat our reasoning. There are few languages with the combination of basic SVO order and prenominal RCs; the combination gives rise to the SV[RC SV]O ordering in which the RC subject can be misanalyzed as the object of the matrix verb. An erroneous prenominal RC produced by a Japanese learner of L2 English would provide him/her with a chance to think twice about the position of the RC in Type A but not in Type B; the RC subject can be the object of the matrix verb only in Type A. We thus hypothesized that the participants would make less prenominal RCs for Type A than for Type B.

There are three findings directly pertaining to the hypothesis. First, very few errors on the English SVO order were attested. This is important because the misanalysis of the RC subject as the matrix object in the *SV[RC SV]O ordering is totally dependent on the assumption that the participant interprets the sentence-initial NVN sequence as SVO. Second, some participants made 'preposing' errors in the Picture-Production Test in which there was no intervention of Japanese

RC-containing sentences. This means that the 'preposing' errors made in the J-E RC Positioning Test were not necessarily induced by the given Japanese RC-containing sentences. Third, the absence of a significant difference in the incidence of 'preposing' errors between Types A and B (in Table 8) implies that the misanalysis of the RC subject as the object of the matrix verb in the *SV [RC SV] O ordering is not so detrimental a factor for Japanese learners to avoid. This finding appears to be in line with the two-stage parsing model proposed by Frazier and Fodor (1978) who argued that 'the first stage parser has the capacity to retain six words of the sentence (ibid.: 300).' Owing to this capacity, the two adjacent words pushed Tomomi in '*Sho pushed Tomomi rode the bike' will not immediately be categorized as a transitive verb and its object because the segment critical to the syntactic decision in the SV [RC SV] O sequence: the underlined string, in most cases, falls within the six words for 'the first stage parser'.

Let us discuss the results from some pedagogical points of view. In the J-E RC Positioning Test as many as 15 out of 25 (60%) first-year students made at least one 'preposing' error while only 4 out of 28 (14.3%) second-year students did so. The findings suggest that having tertiary education for one year can be viewed as far more effective than receiving secondary education for 6 years for the acquisition of English RCs. Tertiary education may have advantages over secondary education in two ways. First, the average hours spent in English-related classes are 4 hours in Japan's junior and senior high schools while the English language and literature course involved requires students to attend more than 12 English-related classes a week. This means that intensive learning for one year is far more effective than moderate learning for 6 years. Second, age may be a crucial factor. The learning of so complicated an operation as relativization in L2 may require general intelligence that is mature enough to defy the intuition to put an RC before the head noun.

7. Conclusion

The present study probed into how Japanese learners behave in employing their temporary rule of prenominal RCs in L2 English. The prenominal English RCs result in the *SV[RC SV]O ordering. In it, the initial NVN sequence is likely to be misanalyzed as SVO. We assumed the ambiguity native to this ordering to be a crucial factor for which there are few languages with the combination of basic SVO and prenominal RCs. We expected the human parser to prefer word orders that avoid the misanalysis and attempted to use the preference to work on the Japanese learners' interim rule of prenominal English RCs. The absence of difference in the incidence of 'preposing' errors between Types A and B, together with one participant's correction of her prenominal RC in the same way across the two Types, implies that the SV[RC SV]O ordering does not cause severe misanalysis. One plausible explanation for this is that the human parser can afford to make the syntactic decision on the SV[RC SV]O sequence within the range of 'the first stage

parser' (Frazier and Fodor 1978: 300) that covers 6 words. The fact that a classifier in the RC-initial position in the Sinitic languages is not obligatory also casts doubt on the causative power of the SV[RC SV]O sequence for a severe processing difficulty. We shall continue to pursue the possibility that the preferred structures found by cross-linguistic analysis result from and account for the human parser mechanism and seek ways to make use of this for L2 acquisition.

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Appendices:

Appendix 1. Overall results obtained by the 15 first-year students with one 'preposing' error
         or more

	RC positioning test								
partic-ipant	preposing error		correct response		partic-ipant	preposing error		correct response	
	Type A	Type B	Type A	Type B		Type A	Type B	Type A	Type B
1	0	1	6	5	9	6	6	0	0
2	3	1	0	0	10	5	6	0	0
3	6	5	0	1	11	1	1	5	5
4	2	3	1	2	12	6	6	0	0
5	2	4	1	1	13	4	4	1	0
6	6	5	0	0	14	1	0	0	0
7	4	4	1	2	15	2	0	0	0
8	1	0	6	5					

Appendix 2. Results for each item by the 15 first-year students with one 'preposing' error
         or more

      P: number of participants who made Preposing errors

      C: number of participants who made Correct responses

Type A			Type B		
RC-containing sentences to be made	P	C	RC-containing sentences to be made	P	C
1. Sho (pushed the bike Tomomi rode).	10	3	7. Ryo (invented the medicine Saori needed).	9	4
2. Yohei (touched the dolls Asami held).	10	3	8. Kazuya (built the houses Manami ordered).	7	4
3. Takuya (visited the restaurants Narumi liked).	8	3	9. Toru (spent the money Kaori gave).	7	4
4. Megumi (kicked the trees Yusuke planted).	10	3	10. Yuko (climbed the mountain Kenta loved).	8	3
5. Ayaka (followed the balls Daisuke threw).	5	4	11. Hitomi (drank the juice Makoto sold).	8	3
6. Mika (protected the bags Kentaro carried).	5	5	12. Miho (solved the problems Naoki had).	8	2

HAEQ Constructions in Qinzhou Zhuang[1]

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This paper intends to contribute to the understanding of the lexical item *haeq* 'give' in Qinzhou Zhuang, a less-investigated Zhuang variety of Southern Zhuang, which belongs to the Central Tai branch of the Kam-Tai group. After discussing the lexical meanings and grammatical functions of *haeq* in different constructions in which it occurs, we propose a syntactic analysis of *haeq* permissive construction and *haeq* serial verb construction (SVC) respectively within the framework of Lexical-Functional Grammar. Examples from standard Mandarin Chinese are brought in for comparison if necessary. Constraints on the Qinzhou Zhuang serial verb constructions are also dealt with in this paper.

1. Introduction[2]

The Zhuang under investigation is a variety of Southern Zhuang, which belongs to the Central Tai branch of the Kam-Tai group. The basic word order in Qinzhou Zhuang is SVO. Pronouns do not distinguish Subject, Object and Possessive forms. As Qinzhou Zhuang is not rich in inflectional morphology, it marks aspect by using distinct aspectual words/markers in either pre-verbal or postverbal positions. Tense is realized by what is called 'time words'. In general, adjectives follow the nouns they modify.

This paper focuses on the analysis of the lexical item *haeq* in Qinzhou Zhuang. *Haeq* can occur as a ditransitive verb meaning 'give'. *Haeq* can also be used as a permissive verb or a causative verb, meaning 'to let (somebody do something)' and 'to make (somebody do something)' respectively. *Haeq guz*, in which *haeq* is combined with the first person singular *guz*, is a frozen construction which can be used to strengthen the imperative. *Haeq* can be serialized with another verb or other verbs to form benefactive serial verb constructions (henceforth SVCs). Besides the above occurrences, *haeq* in a purposive construction is used as a complementizer.

The paper is organized as follows: Section 2 will look at the lexical meanings and grammatical functions of *haeq* in different constructions. Section 3 provides a syntactic analysis for the *haeq* permissive construction and *haeq* benefactive SVC in

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the framework of Lexical-Functional Grammar (henceforth LFG). The findings will be outlined in section 4.

2. Lexical Meanings and Grammatical Functions of *Haeq*
2.1. *Haeq* as a Ditransitive Verb

Haeq, as a ditransitive verb, can occur alone as a single predicate or co-occur with other verbs to construct various sentence patterns. The literal meaning of *haeq* in Qinzhou Zhuang is 'give'. *Haeq* can occur alone as a ditransitive verb in the construction of [*haeq* NP1 NP2] to indicate the transfer of possession. The three-place predicate *haeq* requires three arguments: agent, theme and beneficiary. The order of the theme and the beneficiary is fixed, that is, the former precedes the later. A reversion of this order will produce an ungrammatical sentence, as in (1):

(1) a.   Guz   haeq   <u>mak</u>   <u>dez</u>.
       ku:^{33} hai:^{11} <u>ma:k^{11}</u>   <u>te:^{33}</u>
       1.SG^3 give   <u>fruit</u>   <u>3.SG</u>
                      Th   Ben
     'I gave him/her fruits.'

    b. *Guz   haeq   <u>dez</u>   <u>mak</u>.
       ku:^{33} hai:^{11} <u>te:^{33}</u>   <u>ma:k^{11}</u>
       1.SG   give   <u>3.SG</u>   <u>fruit</u>
                     Ben   Th

As illustrated in (1a), *mak* 'fruit' is a theme and *dez* 'him/her' a beneficiary. Sentence (1b) violates the fixed order of the theme and beneficiary and is thus an ungrammatical sentence.

The ditransitive verb *haeq* can be followed by a heavy NP, the order of theme and beneficiary remains the same as that in (1). Example is given in (2).

(2) Guz   haeq   <u>ngunzlienz   cuix   dez   mak   dez</u>.
    ku:^{33} hai:^{11} <u>ŋun^{33}li:n^{33} tsʰu:i^{22} te:^{33} ma:k^{11} te:^{33}</u>
    1.SG   give   <u>yesterday   buy   PART   fruit   3.SG</u>
    'I gave him/her the fruits I bought yesterday.'

2.2. *Haeq* as a Permissive Verb

The preverbal *haeq* in the construction [*haeq* NP1 V NP2] means 'to let/allow (somebody do something)' and that is why we call *haeq* a 'permissive verb'. The verb follows *haeq* can be either transitive, as in (3a)(3), or intransitive, as in (3b). The

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^{3} The following abbreviations are used: 1.SG: first person singular; 3.SG: third person singular; Ag: agent; Ben: beneficiary; Cl: classifier; Go: goal; IMPE: imperative marker; PART: particle; Pat: patient; Th: theme

preverbal *haeq* in Qinzhou Zhuang cannot be denoted as a goal marker meaning 'for' or 'to'. Hence, sentence (3a) cannot be interpreted as 'I bought books for him/her'.

(3) a. Guz   haeq   dez   cuix   sui.
       kuː^{33} hai^{11} teː^{33} tsʰuːi^{22} ɬui^{44}
       1.SG   let   3.SG   buy   book
       'I let him/her buy book(s).'
       * 'I bought book(s) for him/her.'

   b. Guz   haeq   dez   bae.
      kuː^{33} hai^{11} teː^{33} pai^{44}
      1.SG   let   3.SG   go
      'I let him/her go.'

For the equivalent data of (3) in standard Mandarin Chinese[4], permissive readings are plausible. In addition to that, *gěi* can be denoted as a goal marker meaning 'for'. As a result, a beneficiary reading is also perfectly natural. This is illustrated in the following examples:

(4) a. Wǒ   gěi   tā   qù.
       1.SG   let   3.SG   go
       'I let him/her go.'

   b. Wǒ   gěi   tā   mǎi   shū.
      1.SG   let/for   3.SG   buy   book
      'I let him/her buy book(s).'/'I bought book(s) for him/her.'

2.3. *Haeq* as a Causative Verb

It is shown in (5) that *haeq* can appear in the place where the causative verb *zingj*, meaning 'make' is allowed, without changing the meaning of the sentence. This is an evidence that *haeq* can occur as a causative verb meaning 'to make (somebody do something)'.

(5) a. Mungz   haeq   guz   hiqgad.
       Muŋ^{33} hai^{11} kuː^{33} hiː^{11}kat^{11}
       2.SG   make   1.SG   angry
       'You made me angry.'

(5) b. Mungz   zingj   guz   hiqgad.
       Muŋ^{33} tsiːŋ^{24} kuː^{33} hiː^{11}kat^{11}
       2.SG   make   1.SG   angry
       'You made me angry.'

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[4] In this paper, the term "Mandarin Chinese" refers to the standard Mandarin Chinese. Thanks to the anonymous reviewer, who points out that the permissive reading of the preverbal *gěi* 'give' also exits in Guiliu, a dialect of Xinan Mandarin Chinese.

The most commonly used construction in which *haeq* is taken as a causative verb meaning 'make' is [*haeq* NP Adj], where the adjective is a word indicating psychological states such as *hiqgad* 'angry', *ngamsim* 'happy', or *nanzjuq* 'sad'.

2.4. *Haeq Guz*

The combination of *haeq* and the first person singular pronoun *guz* 'me' can be used to strengthen the imperative. This frozen construction follows the subject immediately, as in (6):

(6) a. Mungz haeq-guz teuz!
         Muŋ³³ hai¹¹-kuː³³ tʰeːu³³
         2.SG IMPE run
         'Get out!'

     b. Mungz teuz!
         Muŋ³³ tʰeːu³³
         2.SG run
         'Get out!'

If the [*haeq-guz*] construction in (6a) is extracted, the sentence, as in (6b), is still grammatical. What is different is that a sentence with *haeq-guz* shows stronger negative feeling of the speaker towards the listener.

2.5. *Haeq* as a Serialized Verb

In this section, I argue that the postobject *haeq*, which occurs in the construction of [V NP1 *haeq* NP2] should be treated as a verb. This corresponds to the equivalent postobject *gěi* 'give' in Mandarin Chinese, which is considered to be a verb, and an "SVC account" of the postobject *gěi* 'give' has been initially proposed in Chao (1968) and strongly supported by Li (1990), Huang & Ahrens (1999), among others. According to Her (2006), the "SVC account" is simply a fact that hardly requires any argument.

It is also true that a 'preposition account' of the postobject is favored by other linguists, such as Tang (1990) and Zhang (1990). Based on Her's (2006) argument, I will prove that the postobject *haeq* 'give' cannot be a preposition in Qinzhou Zhuang. According to Her (2006), the crucial argument for the postobject *gěi* 'give' functioning like a preposition comes from the argument structure of verbs that alternate between the two constructions [*gěi* NP2 NP1] and [V NP1 *gěi* NP2]. Verbs like *shǎng* 'award', *jiè* 'loan/borrow', *sòng* 'give sb sth as a gift' and *fēn* 'give a share', among others, can have perfect dative alternations. For instance:

(7) a. Lǐsì huì   shǎng tā yī dòng fángzǐ.
    Lee will   award she one CL   house
    'Lee will award her a house.'

  b. Lǐsì huì   shǎng yī dōng fángzǐ gěi   tā.
    Lee will   award one CL   house   GEI   she
  i. 'Lee will award a house to her.'
  ii. 'Lee will award a house$_i$ to give e_i to her.'

Looking into the dative alternations in (7), Her (2006) argues that (7a) is a double object construction and (7bi), in which *gěi* is interpreted as a preposition, is a prepositional account of *gěi* 'give'. While (7bii) is an SVC reading, Her (2006) concludes that the postobject *gěi* 'give' can actually be either a preposition or a verb depending on the conditions as follows:

(i)   when required by a predicate of the argument structure <*ag go th*> to mark the goal role, *gěi* 'give' is a preposition, as in (7bi); and

(ii)   when required by a predicate of the argument structure <*ag th*>, then it is a verb, as in (7bii).

There are, however, no such dative alternations in Qinzhou Zhuang, as is illustrated in the following examples:

(8)   a. *Lixsih siengj dez   id aen   lanz.
       Li:^{22}ɬi:^{11} se:ŋ^{24} te:^{33} it^{11} an^{44} la:n^{22}
       Lee   award   3.SG   one CL   house

  b. *Lixsih siengj id aen   lanz   dez .
     Li:^{22}ɬi:^{11} se:ŋ^{24} it^{11} an^{44} la:n^{22} te:^{33}
     Lee   award   one CL   house   3.SG

  c. Lixsih siengj id aen   lanz   haeq   dez.
     Li:^{22}ɬi:^{11} se:ŋ^{24} it^{11} an^{44} la:n^{22} hai^{11} te:^{33}
     Lee   award   one CL   house   HAEQ 3.SG
  i. ?'Lee will award a house to him/her.'
  ii. 'Lee will award a house$_i$ to give e_i to him/her.'

It is shown in (7) that *shǎng* 'award' in Mandarin Chinese is a ditransitive verb which requires the argument structure <*ag go th*> and allows dative alternations. The verb *siengj* 'award' in Qinzhou Zhuang (cf. (8)) is, however, a transitive verb which requires the argument structure <*ag th*>. It allows the construction of [*siengj* NP1 *haeq* NP2] but does not allow the double object construction [*siengj* NP2 NP1]. This is true to other verbs like *ziq* 'loan/borrow', *sungq* 'give sb sth as a gift', and *faen* 'give a share'. It is evident that the construction of [V NP1 *haeq* NP2] in Qinzhou Zhuang should not be taken as the same as that of [V NP1 *gěi*$_{PREP/V}$ NP2], in which

gĕi can be treated either as a verb or a preposition. Neither should it be similar to that in English [V NP1 *to* NP]. It is thus concluded that dative alternations for the commonly used verbs in Qinzhou Zhuang do not exit in Qinzhou Zhuang, and that the postobject *haeq* 'give' should be a verb rather than a preposition.

The postobject *haeq* 'give' can be serialized with the first verb to form a serial verb construction (SVC). *Haeq* 'give' SVC is generally called benefactive SVC. *Haeq* in a benefactive SVC retains the meaning 'give' and indicates the transfer of the theme to the beneficiary. Another example of Qinzhou Zhuang benefactive SVC is shown in (9).

(9) Dez   cuix   laemx   haeq   guz.
     te:^{33} ts^{h}u:i^{22} lam^{22} hai^{11} ku:^{33}
     3.SG   buy   water   HAEQ   1.SG
     'S/He bought water to give e_i to me.'

In a benefactive SVC, the triadic verb cannot appear before the dyadic verb in a Qinzhou Zhuang benefactive SVC. Take (9) as an example, if *haeq* 'give' and *cuiz* 'buy' exchange their positions, the result will be an ungrammatical sentence, as in (10). If the VP *haeq guz* 'give 1.SG' precedes the other VP *cuix laemx* 'buy water', *haeq* will become a permissive verb meaning 'let', and the resulting string is not a benefactive SVC anymore but a permissive construction.

(10) *Dez   haeq   laemx   cuix   guz.
      te:^{33} hai^{11} lam^{22} ts^{h}u:i^{22} gu:^{33}
      3.SG   give   water   buy   1.SG

2.6. *Haeq* as a Complementizer

Complementizers, according to Radford (1997), are generally known as function words that introduce a clausal complement, like *that* in English. Ting & Chang (2004) propose a complementizer analysis of *gĕi* 'give' in Mandarin Chinese. Examples in (11) are taken from Ting & Chang (2004) with slight modifications.

(11)a. Wŏ   chàng   yī-shŏu   gē   [$_{CP}$ gĕi   [$_{IP}$ tā   tīng]].
       I   sing   one-CL   song   GEI   he   hear
       'I sang a song for him (to listen to).'

(11)b. * Wŏ   chàng   yī-shŏu   gē   [$_P$ gĕi]   tā.
        I   sing   one-CL   song   to   he
       'I sang a song to him.'

It is shown in (13a) that the verb *gĕi* 'GEI' behaves like a complementizer heading the purposive clause, which is indicated by the IP in the bottom left corner, while the prepositional reading of *gĕi* is ruled out, as in (13b). The complementizer analysis of

gěi 'give' is also endorsed in Her (2006).

The situation is similar to that in Qinzhou Zhuang. In the purpose construction [V NP1 *haeq* NP2 VP], *haeq* can be a complimentizer, as illustrated in (11a). (11b) is semantically incompatible. Although the construction of (11a)—[V NP1 *haeq* NP2]—is the same as that of an SVC, it cannot be taken as an SVC because a *haeq* 'give' SVC usually involves a physical or concrete transfer of possession but (12a), however, does not meet the requirement.

(12) a. Guz   gangj   goj   [$_{CP}$ haeq   [$_{IP}$ dez   tingq]].
     ku:^{33} ka:ŋ^{24} kɔ:^{24} hai^{11} te:^{33} tʰi:ŋ^{11}
     1.SG   tell   story   HAEQ   3.SG   listen
     'I told stories for him/her to listen to.'

  b. *Guz   gangj   goj   hei   dez.
     ku:^{33} ka:ŋ^{24} kɔ:^{24} hai^{11} te:^{33}
     1.SG   tell   story   HAEQ 3.SG

As discussed, *haeq* can occur alone as a single predicate in a construction indicating the transfer of possession. *Haeq* can also be used as a permissive verb or a causative verb, meaning 'to let (somebody do something)' or 'to make (somebody do something)' respectively. The combination of *haeq* and the first person singular *guz* can strengthen the imperative in speech. The serialized *haeq* retains the literal meaning 'give'. In addition, *haeq* can be treated as a complementizer.

3. Syntactic Analysis of *Haeq* Constructions in LFG Framework

In this section, I will give a complex predicate analysis (cf. Alsina 1993, 1997) of the *haeq* permissive construction and use the XCOMP approach (Sudmuk 2005) to look at the *haeq* benefactive serial verb construction by adopting the framework of Lexical-Functional Grammar (Bresnan 2001; Dalrymple 2001; Falk 2001). Butt (2003) defines complex predicate as below:

> The term of complex predicate is used to designate a construction that involves two or more predicational elements (such as nouns, verbs and adjectives) which predicate as a single element, i.e., their arguments map onto a monoclausal syntactic structure (Butt 2003: 1-2).

Although the literature on serial verb constructions and their properties is vast (cf. Durie 1997; Aikhenvald and Dixon 2006; Baker 1989; Lefebvre 1991), there lacks a unanimous notion of what characterizes a serial verb construction cross linguistically, as opposed to complex predicates. While I do not intend to do justice to all the definitions and properties of SVCs in the literature, I follow Butt (1995) in that serial verbs typically stack several events in a single clause while complex predicates denote a single (albeit complex) event. In that sense, complex predicates are

distinguished from serial verb constructions in Qinzhou Zhuang.

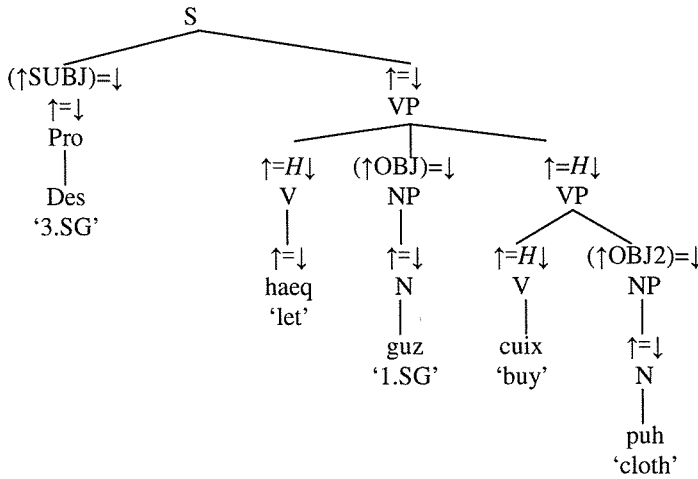## 3.1. Complex Predicate Analysis of *Haeq* Permissive Construction

In LFG, the PRED values are assumed not to allow unification. Alsina (1993, 1997) proposes Predication Composition to handle the multiple PRED values through 'composition', rather than 'unification'. The basic idea of Predication Composition is that if the predicates are in a structural sisterhood relation and if one of them is incomplete, the predicates can compose.

Example (13) below illustrates the syntactic properties of the *haeq* permissive constructions.

(13) a. Dez   haeq   guz   cuix   puh.
       te:^{33} hai^{11} ku:^{33} ts^{h}u:i^{22} p^{h}u:^{53}
       3.SG   let   1.SG   buy   clothes
       'S/He let me buy clothes.'

    b. *Dez   haeq   guz.
       te:^{33} hai^{11} ku:^{33}
       3.SG   let   1.SG

    c. Dez   cuix   puh.
       te:^{33} ts^{h}u:i^{22} p^{h}u:^{53}
       3.SG   buy   clothes
       'S/He bought clothes.'

We can see that *haeq* 'let' in (13b) is incomplete and must co-occur with another verb, *cuix* 'buy' in (13a) for instance. On the other hand, *cuix* 'buy' can stand alone as the major predicate of a sentence, as in (13c). We thus assume that Alsina's (1993, 1997) complex predicates approach to the causative construction in Romance holds good in Qinzhou Zhuang permissive constructions. The c- and f-structures of the example are given in (14) below:

(14) a. C-structure

```
                              S
          ┌───────────────────┴────────────────┐
      (↑SUBJ)=↓                              ↑=↓
        ↑=↓                                   VP
        Pro                  ┌────────────────┼─────────────────┐
         │                 ↑=H↓            (↑OBJ)=↓           ↑=H↓
        Des                  V                NP                VP
       '3.SG'                │                │         ┌────────┴────────┐
                            ↑=↓              ↑=↓      ↑=H↓            (↑OBJ2)=↓
                            haeq              N         V                 NP
                            'let'             │         │                 │
                                             ↑=↓       cuix              ↑=↓
                                             guz       'buy'              N
                                            '1.SG'                        │
                                                                        puh
                                                                       'cloth'
```

b. F-structure

$$
\begin{bmatrix}
\text{PRED} & \text{'haeq-cuix <(↑SUBJ) (↑OBJ) (↑OBJ2)>'} \\[2mm]
\text{SUBJ} & \begin{bmatrix} \text{PRED} & \text{'Pro'} \\ \text{NUM} & \text{SG} \\ \text{PERS} & 3 \end{bmatrix} \\[6mm]
\text{OBJ} & \begin{bmatrix} \text{PRED} & \text{'Pro'} \\ \text{NUM} & \text{SG} \\ \text{PERS} & 1 \end{bmatrix} \\[6mm]
\text{OBJ2} & [\ \text{PRED} \quad \text{'puh'}\ ]
\end{bmatrix}
$$

In (14), the two discontinuous heads *haeq* 'let' and *cuix* 'buy' in the c-structure in (14a) correspond to one f-structure head PRED *haeq-cuix* , which is presented in a single, flat f-structure in (14b).

3.2. *Haeq* **Benefactive Serial Verb Construction**

The benefactive type of SVC is well recognized in various languages, such as in Dagaare (Bodomo 1996, 1997), in Cantonese (Luke and Bodomo 2001; Bodomo, Lam & Yu 2003), in Thai (Sudmuk 2005), and in Zhuang (Bodomo, in preparation).

Although there lacks a unanimous notion of what characterizes a serial verb construction cross linguistically, we do not intend to do justice to all the definitions and properties of SVCs in the literature. Instead, we try to capture a narrow sense of Qinzhou Zhuang SVCs by proposing constraints, which is done by referencing to the

constraints proposed by Bodomo (1996, 1997), Bodomo, Lam, and Yu (2003), Chang (1990), and as follows:
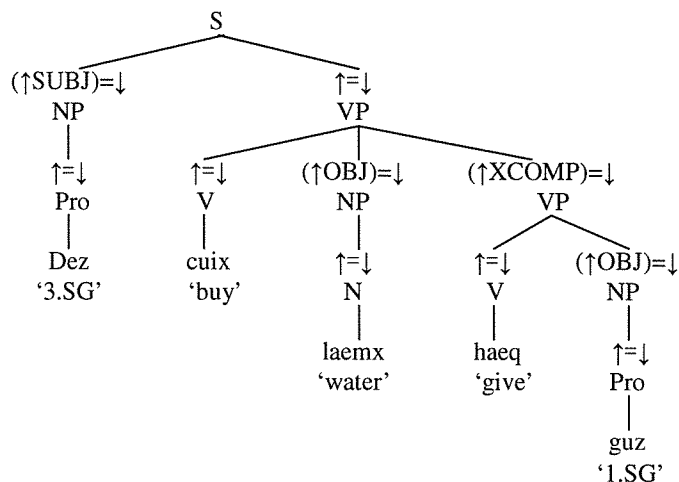
a. **The subject sameness constraint**: All the verbs in an SVC must share the same structural or functional subject.
b. **The polarity constraint**: All of the verbs in an SVC must have the same polarity, e.g, either negative or affirmative.
c. **The connector constraint**: Either an overt or a covert connector must be present in the construction.
d. **The Principle of Temporal Sequence (PTS) Constraint**: The interpretation of an event depends on the event preceding it and is based on our understanding of the real world, in which events unfold along a dimension.
e. **Predicate Completeness Constraint**: All predicates in an SVC must be both semantically and syntactically complete.

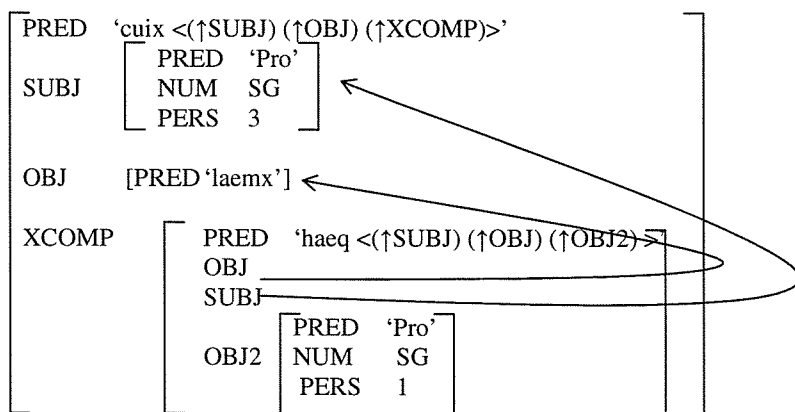We now apply the constraints to the data in (9), repeated here as (15).

(15) Dez   cuix   laemx   haeq   guz.
     te:^{33} ts^{h}u:i^{22} lam^{22} hai^{11} ku:^{33}
     3.SG   buy   water   give   1.SG
     'S/He bought water$_i$ to give e_i to me.'

First, all the verbs in sentence (15) share the same subject *dez* 's/he' (constraint a). Second, all the verbs in sentence (15) are all affirmative (constraint b). Third, following constraint c, sentence (15) consists of two VPs without any conjunction in between. Fourth, as mentioned in section 2.5, *heaq* occurs in a postobject position. It seems that the PTS constraint may not work in this case. But in fact, our real world knowledge tells us that it is necessary to buy (or have/own) something before we can give it to someone else. In that sense, the PTS constraint does help to locate the verb *cuix* 'buy' and *haeq* 'give'. Fifth, although sentence (15) is still grammatical if the order of the two VPs is reversed, it will produce a permissive construction, which has been mentioned in section 2.2. Last, both *cuix* 'buy' and *haeq* 'give' in (15) are full lexical verbs in that their argument-taking abilities need not be completed by another verb, and that each of them can stand alone to form a single clause.

(16) a. C-structure

```
                              S
        ┌─────────────────────┴───────────────────┐
    (↑SUBJ)=↓                                    ↑=↓
      NP                                         VP
      │                        ┌──────────┬───────────┴──────────┐
     ↑=↓                      ↑=↓      (↑OBJ)=↓            (↑XCOMP)=↓
     Pro                       V          NP                    VP
      │                        │          │              ┌──────┴──────┐
     Dez                     cuix        ↑=↓            ↑=↓        (↑OBJ)=↓
    '3.SG'                   'buy'        N              V            NP
                                          │              │            │
                                        laemx          haeq          ↑=↓
                                       'water'         'give'        Pro
                                                                      │
                                                                     guz
                                                                   '1.SG'
```

b. F-structrue

$$
\begin{bmatrix}
\text{PRED} & \text{'cuix } <(\uparrow\text{SUBJ})\ (\uparrow\text{OBJ})\ (\uparrow\text{XCOMP})>\text{'} \\[2mm]
\text{SUBJ} & \begin{bmatrix} \text{PRED} & \text{'Pro'} \\ \text{NUM} & \text{SG} \\ \text{PERS} & 3 \end{bmatrix} \\[6mm]
\text{OBJ} & [\text{PRED 'laemx'}] \\[3mm]
\text{XCOMP} & \begin{bmatrix} \text{PRED} & \text{'haeq } <(\uparrow\text{SUBJ})\ (\uparrow\text{OBJ})\ (\uparrow\text{OBJ2})>\text{'} \\ \text{OBJ} & \\ \text{SUBJ} & \\ \text{OBJ2} & \begin{bmatrix} \text{PRED} & \text{'Pro'} \\ \text{NUM} & \text{SG} \\ \text{PERS} & 1 \end{bmatrix} \end{bmatrix}
\end{bmatrix}
$$

Seen from (16), the PRED *cuix* 'buy' takes an XCOMP as one of its arguments. This XCOMP in turn contains another argument taking PRED *haeq* 'give'. The values of the SUBJ and OBJ in the XCOMP are realized by the SUBJ and the OBJ of the PRED *cuix* respectively.

4. Conclusion

Based on the different types of constructions in which the lexical item *haeq* occurs, this paper has examined various lexical and grammatical functions of *haeq* in Qinzhou Zhuang. Using the framework of LFG, the Qinzhou permissive construction

is analyzed based on Alsina's approach (1993, 1997). I have also come up with the constraints for the Qinzhou Zhuang SVCs based on the previous work by Bodomo (1996, 1997), Bodomo, Lam and Yu (2003), and Chang (1990). Adopting the adjunction approach, the c- and f-structures for the Qinzhou benefactive SVC are proposed. LFG has shown a strong power in analyzing the Qinzhou *haeq* constructions. Further studies on other types of constructions in Qinzhou Zhuang should be taken into consideration.

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Initial Results of a Study on Humor Translation Based on a Chinese-English Bilingual Parallel Database

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The aim of the paper is to report some initial but encouraging results of a study of how Chinese literary humorous texts are translated into English, based on a Chinese-English bilingual parallel database. The bilingual parallel data are extracted from *Wei Cheng (Fortress Besieged)*, a novel by Ch'ien Chung-shu (1947/1991), and its English translation by Jeanne Kelly and Nathan K. Mao (1979). Principles in building corpora are employed to compile the bilingual parallel database. The General Theory of Verbal Humor (Attardo & Raskin 1991, Attardo 1994, 2001) (GTVH) is adopted to assess the data, which contain 565 mini parallel discourses for the analysis of the translation process. Initial analyses have shown that there are certain tendencies, such as the most important role of the Script Opposition parameter in the GTVH and the great influence of indigenous Chinese concepts that underlie the translation process of humor from Chinese into English. The Chinese-English bilingual database is proved to be a valuable aid to understanding this process.

1. Introduction

Today, much research in the field of Translation Studies has taken a more descriptive focus instead of adopting the prescriptive approach used in previous studies. Scholars are becoming more and more interested in describing what translations are like and what translators actually do during the translation process. One of the descriptive tools is bilingual corpora that help make researches more objective. "…Like large databases in the sciences, corpora will become a legacy of the present to the future, enabling future research to build upon that of the present" (Tymoczko 1998:652). Around ten years ago, the corpus-linguistic methodology entered into the scope of Translation Studies, translator training and translation pedagogy. Since then, achievements have been made in corpus-based Translation Studies, with more to be desired in corpus design, compilation and application. A corpus is a collection of texts, selected and compiled according to specific criteria. The texts are held in electronic format, i.e. as computer files, so that different kinds of corpus software tools can be used to make analysis on the data. To make the corpus reliable, it generally contains a very large size of different types of samplings as well as referencing software. In this paper, however, I use the term "database" instead of "corpus" because the samplings in the current research are much smaller in size when compared with what is generally contained in a corpus, e.g. thousands or millions of

samplings. Nevertheless, I employ the same principles and processes that are used to build a corpus in compiling the database for the current studies.

In the rest of this paper, Section 2 outlines the criteria for collecting data, and Section 3 describes briefly how data are extracted from their original sources. Section 4 introduces the General Theory of Verbal Humor (GTVH) (Attardo & Raskin 1991, Attardo 1994, 2001), the theoretical framework for the present study, and Section 5 demonstrates how to assess English translations of Chinese verbal humor expressed in a text, within the framework of the GTVH. Concluding remarks are given in Section 6.

2. Criteria for Data Collection

According to Graeme Kennedy (1998:60), 'issues in corpus design and compilation are fundamentally concerned with the validity and reliability of research based on a particular corpus, including whether that corpus can serve the purposes for which it was intended'. Three issues should be taken into consideration in compilation: representativeness, size and sampling (Graeme Kennedy 1998:60).

2.1. Representativeness

When choosing a text type, one should make judgments on "how influential or how typical a text might be" (Olohan 2004:46) based on the purpose of the research. The data are collected from *Wei Cheng* (Fortress Besieged), a novel by Ch'ien Chung-shu (1947/1991), and its English translation by Jeanne Kelly and Nathan K. Mao (1979). *Wei Cheng (Fortress Besieged)*, both comically exuberant and morally sophisticated, is considered to be one of the greatest humorous novels in modern Chinese literature. In the words of the eminent scholar in Chinese Studies, C.T. Hsia, it is "the most delightful and carefully wrought novel in modern Chinese literature". It has been translated into several languages such as English, French, German and Japanese since it was first published in 1947. *Wei Cheng* (Fortress Besieged) "writes about a certain segment of society and a certain kind of people in modern China" as the author claimed in the preface to the book. The novel's hero, Fang Hung-chien, returns from abroad on the eve of the Sino-Japanese War. On the basis of his false degree, he gets a teaching post at the newly established San Lǚ University, and the effete pseudo-intellectuals he encounters in academia become the butt of Ch'ien Chung-shu's merciless satire. The theme of besiegement figures prominently throughout this highly structured and polished work as traditional expectations clash with the values and pressures of modern life. Knowledgeable himself, Ch'ien Chung-shu took all the advantages of verbal devices especially rhetoric devices to make his novel humorous, satiric and urbane. The novel and its English version can fulfill the requirements of this research.

2.2. Size

It is argued that a bigger corpus is not necessarily more useful than a small one, since there is a limit to the amount of data that a research can analyze (Olohan 2004:46). In deciding the corpus size, besides the aim of the research, one should take some other factors into account such as 'the availability of suitable texts' and 'the need for manual annotation' (Olohan 2004:46). Since this research on translating the humorous texts in literary works is conducted crucially at the sentence and discourse level, the whole texts of *Wei Cheng* are chosen as the raw data where mini humorous discourses are extracted in the first step. The novel consists of more than 260,000 words, and it needs more manual annotation.

2.3. Sampling

Criteria should be established in order to help researchers make decisions on materials to include or exclude in the course of sampling. The research purpose and research questions should be taken into account. The aim of making this database is to study how humorous texts in literary works are translated from Chinese to English. The following basic questions should be answered before sampling:

1) How is humor defined?
2) What is the distinction between verbal humor and non-verbal humor?
3) How is humor in literary works such as a novel defined?

Humor is regarded as one of the most difficult subjects to study. The concept of humor is broad, and it lacks precise definition though it has been studied across many different languages and academic disciplines. After a literature review, we sum up the definition of the concept of humor as follows: humor is a complex and multifaceted universal phenomenon; it is a positive, pleasant feeling or mood composed of an element of amusement, an element of exhilaration and an element of sympathy; it is a mental faculty of perceiving, expressing, or appreciating amusing, comical, or absurdly incongruous ideas, situations, actions, or events (Wolman 1973/1989; Baldwin 1901/1905; Gall, 1996; Martin 2000; quoted in Roeckelein 2002:12-23).

Verbal humor has to do with language. It refers to any text which is capable of creating a humorous effect by means of word games, puns or any other forms of language play (Raskin 1985:45). It includes any oral text or written text. The structure of language is the basis of verbal humor. Necessary and sufficient linguistic conditions, for instance, the punch line in a humorous text, are required to make the text humorous. Non-verbal humor is a non-linguistic phenomenon that has a close relationship with gestures or paralinguistic features. It is not created, described and

expressed by a text. It can be realized by an amusing wink, a funny smile or laughable gestures. For instance, when two clowns slap and kick each other, when they fall down or make funny faces, it may be humor (Raskin 1985:46). However, there is verbal humor accompanied by gestures or non-verbal humor with a text in some humorous situations. So, the key point is that what the creator of humor is. It is verbal humor if the text is the stimulus; it is non-verbal humor even if it is accompanied by a text because the text is just a component rather than a creator. Humor to be discussed in the following part refers to verbal humor in written texts. Non-verbal humor is beyond the scope of this research.

This research concentrates on how humor in literary texts is transferred from Chinese to English. At the present stage, it attempts to explore how humorous texts in Chinese novels are constructed at the linguistic level and what English translations are really like. The term "humor" adopted in the research is confined to verbal humor in written texts expressed in a novel. It can be defined as a linguistic phenomenon or a form of art which consists of unusual, unconventional, counter-normative or incongruous depiction of characters, events, actions or settings that is perceived to be funny and/or amusing but does not necessarily elicit laughter or have any significant implications. It may have the following features:

1. The description is so abnormal that it is out of the expectation of the reader
2. Chinese and western indigenous concepts are unexpectedly employed
3. Words or phrases are counter-normatively collocated
4. The variation of sounds or structures appears creatively
5. Rhetorical devices are largely and unconventionally used

Features 3 and 4 can be combined into feature 5 in terms of Chinese rhetoric. The above-mentioned features are overlapping to a considerable degree. In addition to these criteria, the GTVH theoretical framework is also adopted to refine the data used in this research.

3. Process of Data Extraction

A parallel database can be unidirectional, i.e. source texts in language A and target texts in language B, or bi-directional, i.e. source texts in language A and translations in language B, and source texts in language B and their translations in language A, or multilingual, i.e. source text in language A and translations in language B, C, D, etc (Olohan 2004:25). The Chinese-English bilingual parallel database for this research is unidirectional with source texts in Chinese and their translations in English. This section will present the steps for data compilation and the results.

3.1. Making Texts Machine-readable

In order to use software tools to analyze data, it is necessary to make the texts machine-readable. The Chinese text of *Wei Cheng* is available electronically on the Internet, but it has a lot of errors at different levels. Therefore, we did a lot of manual revisions and some additional processing for confirmation. Its English version is not available in electronic format, so the text had to be typed manually.

3.2. Tagging and Annotating the Source Text

Before using a software tool to extract data, we carried out some processing on the texts such as tagging and annotating. Tagging was both performed and checked manually which required a great deal of human effort and interpretation at the tagging stage. Segmentation of the texts was both semantically and pragmatically determined. On the one hand, the texts were segmented into textural sentences (or natural sentences, another phrase also used in this paper), i.e. the texts were split by punctuation marks such as a full stop, a semi-colon, a question mark, an exclamation mark, and an ellipsis mark. On the other hand, the context was taken into consideration in text segmentation. For instance, more than one textural sentence had to be extracted to form one mini humorous discourse because these natural sentences could not be observed as humorous without the context as shown in the following Example 2. Some textural sentences, though not humorous at all, were also taken out as they provided the background knowledge for the understanding of the following natural sentences as shown in Example 3. This kind of textural sentences was put in brackets in annotation. Tagging on the texts was made at both the semantic and pragmatic levels. The first step made at the tagging stage was to add the tag '/H' (indicating humor) to textural sentences 1-3 below. Their English translations are aligned as shown in section 3.4.

1. 法國人的思想是有名的清楚，他的文章也明白乾淨，但是他的做事，無不混亂、骯髒、喧嘩，但看這船上的亂糟糟 /H。

2. 慎明道：〝關於 Bertie 結婚離婚的事，我也和他談過。他引一句英國古話，說結婚仿佛金漆的鳥籠，籠子外面的鳥想住進去，籠內的鳥想飛出來；所以結而離，離而結，沒有了局 /H。〞

3. （鴻漸還在高中讀書，隨家裏作主訂了婚。） 未婚妻並沒見面，只瞻仰過一張半身照相，也漠不關心 /H。

More forms of tags used in the database are discussed in section 4.3.

3.3. Using Concordancing Tools

Oxford Wordsmith Tools, an integrated suite of programs used to look at how words behave in texts, were used in this research. Source texts were changed into plain texts and annotated with the tag '/H' (indicating humor) before textural sentences with the tag '/H' were stripped of by Oxford Wordsmith Tools. The results of a concordance are shown below:

The following is an example of the extracted data, and their translations will be shown in section 3.4.

The Concordance

n1 等一會甲板上零星果皮、紙片、瓶塞之外，香煙頭定又遍處皆是。法國人的思想是有名的清楚，他的文章也明白乾淨，但是他的做事，無不混亂、骯髒、喧嘩，但看這船上 的亂糟糟 /H。這船，倚仗人的機巧，載滿人的擾攘，寄滿人的希望，熱鬧地行著，每分鐘把沾汙了人氣的一小方小面，還給那無情、無盡、無際的大海 /H。照例每年夏天有一批

n2 骯髒、喧嘩，但看這船上的亂糟糟 /H。這船，倚仗人的機巧，載滿人的擾攘，寄滿人的希望，熱鬧地行著，每分鐘把沾汙了人氣的一小方小面，還給那無情、無盡無際的大海 /H。 照例每年夏天有一批中國留學生學成回國。這船上也有十來個人。大多數是職業尚無著落的青年，直在暑假初回中國，可以從容找事。那些不悉沒事的學生要到秋涼才

n3 等一會甲板上零星果皮、紙片、瓶塞之外，香煙頭定又遍處皆是。法國人的思想是有名的清楚，他的文章也明白乾淨，但是他的做事，無不混亂、骯髒、喧嘩，但看這船上的亂糟糟 /H。這船，倚仗人的機巧，載滿人的擾攘，寄滿人的希望，熱鬧地行著，每分鐘把沾汙了人氣的一小方小面，還給那無情、無盡、無際的大海 /H。

Since some sentences or part of the sentences were repeated in the concordance, manual revision was required before other processing could be carried out.

3.4. Aligning a Parallel Database

In order to identify a segment in the English version as the translation of a segment in the Chinese original text, two sets of texts were aligned. For instance,

Chinese	English
法國人的思想是有名的清楚，他的文章也明白乾淨，但是他的做事，無不混亂、骯髒、喧嘩，但看這船上的亂糟糟 /H。	The French are famous for the clarity of their thought and the lucidness of their prose, yet in whatever they do, they never fail to bring chaos, filth, and hubbub, as witness the mess on board the ship.
(鴻漸還在高中讀書，隨家裏作主訂了婚。)未婚妻並沒見面，只瞻仰過一張半身照相，也漠不關心 /H。	(While Fang Hung-chien was still in high school, in compliance with his parents' decision, he became engaged.) He had never met his fiance; merely viewing a bust photograph of her had left him feeling indifferent.
慎明道： "關於 Bertie 結婚離婚的事，我也和他談過。 他引一句英國古話，說結婚仿佛金漆的鳥籠，籠子外面的鳥想住進去，籠內的鳥想飛出來；所以結而離，離而結，沒有了局 /H。"	"As for Bertie's marriages and divorces," said Shen-ming, "I've talked with him about them. He quoted an old English saying that marriage is like a gilded bird cage. The birds outside want to get in, and the birds inside want to fly out. So you have marriage and divorce, divorce and marriage in endless succession."
這船，倚仗人的機巧，載滿人的擾攘，寄滿人的希望，熱鬧地行著，每分鐘把沾汙了人氣的一小方小面，還給那無情、無盡、無際的大海 /H。	Relying on man's ingenuity and entrusted with his hopes, but loaded with his clutter, the ship sailed along amidst the noise and bustle; each minute it returned one small stretch of water, polluted with the smell of man, back to the indifferent, boundless, and never-ending ocean.

3.5. Results of Data from the Original Sources

In sections 3.2 and 3.3 we have discussed how to use "/H" to strip textural sentences of the novel *Wei Cheng*. In this preliminary stage, 565 mini humorous discourses were extracted from the original Chinese data. Proportions in each chapter are shown as below:

Chapter	1	2	3	4	5	6	7	8	9	Total
Mini Humorous Discourses	52	37	99	13	130	80	124	23	9	565

After this step, we carried out some further annotations of the extracted data based on the six Knowledge Resources (Parameters) in the GTVH. They are Script Opposition (SO), Logical Mechanism (LM), Situation (SI), Target (TA), Narrative Strategy (NA) and Language (LA). Section 4 will look at the GTVH and its six Knowledge Resources (Parameters). Data testing using the GTVH framework will also be discussed.

4. The General Theory of Verbal Humor

The General Theory of Verbal Humor (GTVH) (Attardo & Raskin 1991, Attardo 1994, 2001), the only full-fledged linguistic theory of humor today (Antonopoulou 2002), is a theory for analyzing humorous texts from the linguistic perspective. It is applied as the theoretical framework in this research. The GTVH is the revision and expansion of the Semantic Script Theory of Humor (SSTH) (Raskin 1985), and the SSTH acts as the theoretical foundation and the crucial part of the GTVH. Section 4.1 deals with the SSTH, and section 4.2 discusses the GTVH with a focus on the hierarchy of its six Knowledge Resources (Parameters). Section 4.3 examines the process of assessing data in the light of the GTVH and presents the results of refined data for the analysis of the translation process.

4.1. The Semantic Script Theory of Humor (SSTH)

The Semantic Script Theory of Humor provides a clear, systematic, logically expressed account of how jokes work. This systematic account is not only a major contribution to linguistics but has also made possible revolutionary advances in the social sciences of humor. It claims that the necessary and sufficient linguistic conditions for the text to be funny are: 1) the text is (at least in part) compatible with two scripts; 2) the two scripts are opposed. A script is a large chunk of semantic information surrounding the word or being evoked by it. It is a cognitive structure internalized by the native speaker, and it represents the native speaker's knowledge of a small part of the world (Raskin 1985:81). Some of the jokes' script oppositions are usual antonymous (contradictory or contrary) oppositions, for instance, real and unreal, actual and non-actual, normal and abnormal. The SSTH defines humor as a non-bona-fide (NBF) mode of communication which violates the Cooperative Principle and the four maxims set for the *"bona-fide"* communication in Gricean pragmatics (1985:100-104). It also claims that many jokes contain special semantic script-switch triggers that highlight the need for substituting scripts, and the two main

types of such triggers are ambiguity and contradiction.

Let us analyze the following joke, Raskin's favorite example and see how the SSTH works:

> "Is the doctor at home?" the patient asked in his bronchial whisper.
> "No," the doctor's young and pretty wife whispered in reply. "Come right in."

The joke includes scripts of (VISITING THE) DOCTOR and (VISITING THE) LOVER; the scripts are both linked via the component of whispering that is compatible with both. The wife's invitation to come in rudely violates the Maxim of Quantity and acts as a trigger for shifting from the first script to the second. Raskin analyses the joke "from under to up". The format of the background semantic theory he uses for the analysis consists of two components—the lexicon, and the combinatorial rules that derive semantic interpretations of full sentences from meanings of their lexical components (Raskin 1985:76). Following this routine, Raskin takes to input the (sub) meanings of all the words in the joke text (*be, doctor, at, home,* etc.) in Webster's Dictionary, sketches the rules for disambiguating clauses, and summarizes an interpretative paraphrase for the first sentence of the joke: "Somebody who was previously treated for an illness wants to know if the unique proprietor of a family residence [who is a physician] is physically present in the residence" (Raskin 1985:122).

A similar analytic representation is also created for the second sentence, and all possible presuppositions and inferences are drawn from either sentence. So the hearer/reader is led to the crucial question: "Why does the doctor's wife want the patient to come in?" The only answer the combinatorial rules are able to give is: the doctor's wife does not understand that by coming to the doctor's home the patient will not see the doctor and thus will not reach his purpose (Raskin 1985:124). Any human beings can get the same answer as the combinatorial rules. So far the analysis of the text is on the patient's script interpretation. The misunderstanding caused by the first script "patient" is never resolved because no further explanation is given in the text. So the next and the most critical step is a leap from bona-fide communication to the mode of non-bona-fide communication, and then a switch from the failed script to a suitable alternative which remains totally outside the capacities of combinatorial rules. The hearer/reader will be able to achieve it only through intuitive trial and error, using his/her encyclopaedic knowledge, or world information, as Raskin calls it. Knowledge of this kind can be addressed wherever necessary and has been already addressed elsewhere (e.g. to choose between the congruent submeanings of a text's lexical constituents and to derive some inferences). The script (VISITING THE) LOVER comes out in the end. The result of the entire script analysis of the joke is as follows:

Analysis of: Text (1)
Result: Joke
Script 1: MEDICAL (DOCTOR)
Script 2: ADULTERY (LOVER)
Type of opposition: Actual/Non-actual, sex-related.

In summary, according to the SSTH, five factors are necessary for verbal humor:

1)   a switch from the bona fide mode of communication to the non-bona fide mode of joke telling;
2)   the text of an intended joke;
3)   two (partially) overlapping scripts compatible with the text;
4)   an oppositeness relation between the two scripts;
5)   a trigger, obvious or implied, that realizes the oppositeness relation

The limitations of the SSTH were addressed in Attardo and Raskin (1991), which aims to integrate Raskin's script-based theory with the five-level representation model of jokes outlined in the earlier works by Attardo. As a result, the six-level hierarchical representation model of verbal jokes is proposed which pursues to be, at the same time, a device for evaluating the "semantic distance", or degree of similarity between particular joke texts. The revised version of the SSTH is called the "General Theory of Verbal Humor " (GTVH), which is supposed to account for, in principle, any type of humorous text.
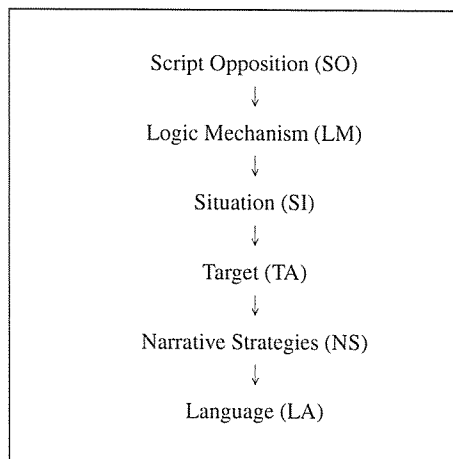
4.2. The General Theory of Verbal Humor

The General Theory of Verbal Humor (GTVH) broadens the scope of the SSTH. It is not limited to handling jokes but also any other types of humorous texts, including narrative texts, dramatic and conversational texts. As a linguistic theory at large, it includes not only semantics but also other areas of linguistics such as textual linguistics and pragmatics.

To achieve these broadenings, the GTVH introduces other Knowledge Resources (KR) or Parameters besides the basic script opposition (symbolized SO) in generating humor. These include, the Language (LA) of the joke (i.e., its surface structure) that is significant for puns and for the placement of the punch line; the Situation (SI), which includes the 'subject matter' of the narrative of the text; the Target (TA), (roughly, the butt of the joke); the Narrative Strategy (NS), which corresponds to the 'genre' of the text (e.g., question and answer and knock-knock jokes); the Logical Mechanism (LM), which is the mechanism to which the SO is introduced and may correspond to the 'resolution' phase of processing in Incongruity-resolution Model in Psychology. Among the six Parameters, Logical Mechanism and Target are optional Knowledge

Resources that are decided by different contexts and various categories of humor. In summary, according to the GTVH, humor contains six Parameters, four obligatory (SO, SI, NS, LA) and two optional (LM and TA). Each Parameter has its own characteristics in generating humor.

In order to determine which Knowledge Resources affect more directly the perception of similarity among jokes, the GTVH puts forward similarity metric between different jokes. The ranking of the six Parameters in their symbolized forms is (from most to least significant) SO, LM, SI, TA, NS, LA. LA thus is the weakest and SO is the strongest differentiator. The hierarchy of the Knowledge Resources is shown below.

Script Opposition (SO)
↓
Logic Mechanism (LM)
↓
Situation (SI)
↓
Target (TA)
↓
Narrative Strategies (NS)
↓
Language (LA)

According to the metric of similarity, the degree of perceived differences between jokes increases linearly with the height of the Knowledge Resource in which the two jokes differ. For example, two jokes that differ in Language are perceived to be very similar, while jokes that differ in Script Opposition are perceived to be very different.

As Attardo claimed in 2002, the General Theory of Verbal Humor (GTVH) could be presented as a theory guiding the studies on humor and translating humor as well. First, the six Knowledge Resources (parameters) can provide researchers with an objective approach to deal with the characteristics of humorous texts; secondly, these hierarchically ordered parameters can help researchers perceive differences or similarities between the source text and the target text and can give translators some heuristics for selecting translation strategies.

In conclusion, the GTVH is, or potentially is, a proper scientific theory (Davies 2004:380), and it presents a universal framework for the semantic and pragmatic analysis of humor studies. It has never been employed systematically in the study

of Chinese verbal humor, nor has it been used in assessing English translations of Chinese verbal humor expressed in a text. The GTVH advocates a new approach to humor translation, and it proves to be a valuable scientific theory and methodology for analyzing Chinese humorous texts and for evaluating how much a translated English humorous text differs from the Chinese humorous text. In other words, the GTVH throws new light on the studies of humor and its translation.

4.3. Assessing Data Using the GTVH Framework

As mentioned in section 3.5, 565 mini humorous discourses were extracted from the original sources. In order to make the extracted data more reliable and objective, the six Knowledge Resources (Parameters) in the GTVH were employed to assess the extracted data. Tags were refined as follows: H [SO< >LM< >SI< >TA< >NS< >LA< >]. They were designed as such: at the first level, Humor includes six Parameters: Script Opposition, Logical Mechanism, Situation, Target, Narrative Strategy and Language, and they are tagged as H [SO LM SI TA NS LA]; at the second level, each Parameter has its specific content, and the relevant data are tagged as SO< >LM< >SI< >TA< >NS< >LA< >. The specific content of the Parameter is placed in < > right after each Parameter.

As many Chinese rhetorical devices are applied as humorous triggers in *Wei Cheng* (*Fortress Besieged*), before further tagging, the extracted data were classified into 14 subcategories on the basis of the Chinese rhetorical devices employed in the mini humorous discourse of the original Chinese text. Some Chinese rhetorical devices do exist in the English language such as simile and metaphor, while others are Chinese specific, for instance, Xici (segmentation of words) and Jiangyong (degradation). 565 mini humorous discourses have been placed into different subcategories.

For example: (Numbers in the brackets indicate the total number of occurrences in this subcategory. In the following table, KR stands for "Knowledge Resources", abbreviation "s" refers to similar and "d" means different.)

Simile (182)

Chinese	English	Comparison of KR
便找到一家門面還像樣的西館。誰知道從冷盤到咖啡，沒有一樣東西可口：上來的湯是涼的，霜淇淋倒是熱的；魚像海軍陸戰隊，已登陸了好幾天;肉像潛水艇	They then found a Western-type restaurant that looked respectable enough from the outside; but as it turned out, there wasn't a single thing edible from the cold dishes to the coffee. The soup was cold, and the ice cream was warm. The fish was like the Marine Corps. It	six s

Chinese	English	Comparison of KR
士兵，會長時期伏在水裏；除醋以外，麵包、牛油、紅酒無一不酸。 H[SO<像樣的 vs.不象樣的、正常的 vs.不正常的>]LM<並置>SI<西館食物的描述>TA<西館>NS<明喻>LA<像海軍陸戰隊，已登陸了好幾天；像潛水艇士兵，會長時期伏在水裏>]	apparently had already been on land for several days; the meat was like submarine sailors, having been submerged in water for a long time. Besides the vinegar, the bread, the butter, and the red wine were all sour. H [SO<respectable vs. unrespectable; normal vs. abnormal>LM<juxtaposition>SI<description of food at a western-type restaurant>TA<western-type restaurant>NS<simile>LA<like the Marine Corps. It apparently had already been on land for several days; like submarine sailors, having been submerged in water for a long time>]	
年齡看上去有二十五六，不過新派女人的年齡好比舊式女人婚帖上的年庚，需要考訂學家所謂外證據來斷定真確性，本身是看不出的。 H[SO<年輕的 vs.年長的>LM<並置>SI<年齡的描述>TA<蘇小姐>NS<明喻>LA<好比舊式女人婚帖上的年庚>]	She could be twenty-five or twenty-six, but then the age of modern women is like the birthdates traditional women used to list on their marriage cards, whose authentication required what the experts call external evidence, since they meant nothing in and by themselves. H [SO<young vs. elder>LM<juxtaposition>SI<description of one's age>TA<Miss Su>NS<simile>LA<like the birthdates traditional women used to list on their marriage cards>] (literal translation)	five (SO, LM, SI, TA, NS) s; one (LA) d

Metaphor (115)

Chinese	English	Comparison of KR
(洋車到半路，他想起那書名，不禁失笑。) 丈夫是女人的職業，沒有丈夫就等於失業，所以該牢牢捧住這飯碗。 H[SO<丈夫 vs.職業、正常的 vs.非正常的>LM<並置>SI<上下文>TA<中國傳統觀念>NS<隱喻>LA<丈夫是女人的職業，沒有丈夫就等於失業；飯碗>]	(Halfway home in the rickshaw, he remembered the title of the book and burst out laughing.) Husbands are women's careers. Not having a husband is like being unemployed, so she has to hold tightly to her "rice bowl." H [SO<na>LM<juxtaposition>SI<context> TA<na>NS<metaphor>LA <Husbands are women's careers. Not having a husband is like being unemployed；"rice bowl.">] ("na" refers to "not applicable")	four (LM, SI, NS, LA) s; two (SO, TA) d
哼！我偏不願意女人讀了那本書當我是飯碗，我寧可他們瞧不起我，罵我飯桶。 H[SO<丈夫 vs.職業、正常的 vs.非正常的>LM<並置>SI<上下文>TA<中國	Well, I don't happen to want any woman to take me as her "rice bowl" after reading that book. I'd rather have them scorn me and call me a "rice bucket." H [SO<na>LM<juxtaposition> SI<context> TA<na>NS<metaphor> LA<"rice bowl"	four (LM, SI, NS, LA) s; two (SO, TA) d

| 傳統觀念>NS<隱喻>LA<飯碗;飯桶>] | "rice bucket">]("na" refers to "not applicable") | |

Parody (25)

Chinese	English	Comparison of KR
辛楣笑道：「這是董斜川想出來的，他說，同跟一個先生念書的叫'同師兄弟'，同在一個學校的叫'同學'，同有一個情人的該叫'同情'。」 H[SO<同學 vs. "同情"、正常的 vs. 非正常的>LM<錯誤推理>SI<自嘲>TA<趙辛楣> NS<對話、仿擬>LA<'同情'>]	Hsin-mei said with a grin, "That's something Tung Hsieh-ch'uan thought up. He says people who study under the same teacher are called classmates, and people who go to the same school are called schoolmates, so people who are in love with the same girl should be called 'lovemates'. H [SO<classmate vs. "lovemate"; normal vs. abnormal>LM<faulty reasoning>SI<self-mockery>TA<ZhaoHsin-mei> NS<conversation,parody>LA<'lovemates'>]	six s
「……他不想想不靠我們周家的栽培，什麼酥小姐、糖小姐會看中他！」 H[SO<人物 vs. 糖果、真實的 vs. 非真實的>LM<失去連接>SI<上下文>TA<方鴻漸>NS<對話、仿擬>LA<酥小姐、糖小姐>]	"…I don't suppose he ever stops to think if it weren't for our support, what Miss Su or Miss T'ang would ever take a fancy to him!" H [SO<na>LM<na>SI<context>TA<FangHung-chien>NS<conversation, na>LA<na>] ("na" refers to "not applicable")	two (SI, TA) s; four (SO, LM, NS, LA) d

Proportions of each subcategory are shown as below: (S stands for simile; M metaphor; Pa parody; I irony; H hyperbole; P personification; DZ daozhi; FB feibai; HZ hunza; JY jiangyong; PY pangyi; QD qidie; XC xici; OD other devices)

Subcategory	S	M	Pa	I	H	P	DZ	FB	HZ	JY	PY	QD	XC	OD	Total
Mini Humorous Discourses	182	115	25	24	20	16	6	10	3	20	4	3	21	116	565

5. Initial Analyses of this Study on Humor Translation

Based on this Chinese-English bilingual parallel database, preliminary analyses were made on how the GTVH works in testing Chinese original humorous discourses and assessing their English translations. We have observed so far from the preliminary analysis of the database that translating humorous texts generally involves three circumstances. First, the English target text shares all the Parameters with the Chinese source text, hence, achieves the same humorous effect as shown in

Example 1; second, the English target text shares three or more Parameters with the Chinese source text but differs only in one or two Parameters including the highest Parameter SO. The current analysis indicates that the humorous effect in the Chinese source text is reduced or completely lost in the English target text as explained in Example 2; third, the English target text shares one or two Parameters excluding the highest Parameter SO with the Chinese source text, while the humorous effect in the Chinese source text is not achieved in the English target text as seen in Example 3. Let us re-examine the examples presented in section 4.3.

Example 1:

便找到一家門面還像樣的西館。誰知道從冷盤到咖啡，沒有一樣東西可口：上來的湯是涼的，霜淇淋倒是熱的；魚像海軍陸戰隊，已登陸了好幾天；肉像潛水艇士兵，會長時期伏在水裏；除醋外，麵包、牛肉、紅酒無一不酸。H[SO<像樣的 vs.不象樣的、正常的 vs.不正常的>]LM<並置>SI<西館食物的描述>TA<西館>NS<明喻>LA<像海軍陸戰隊，已登陸了好幾天；像潛水艇士兵，會長時期伏在水裏>]

They then found a Western-type restaurant that looked respectable enough from the outside; but as it turned out, there wasn't a single thing edible from the cold dishes to the coffee. The soup was cold, and the ice cream was warm. The fish was like Marine Corps. It apparently had already been on land for several days; the meat was like submarine sailors, having been submerged in water for a long time. Besides the vinegar, the bread, the butter, and the red wine were all sour. H [SO<respectable vs. unrespectable; normal vs. abnormal>LM<juxtaposition>SI<description of food at a western-type restaurant>TA<western-type restaurant>NS<simile>LA<like the Marine Corps. It apparently had already been on land for several days; like submarine sailors, having been submerged in water for a long time>]

In this example, two scripts exist obviously in both the Chinese source text and the English target text. One script is the respectable Western-type restaurant. The other is the terrible thing they had in this restaurant. The first script "the Western-type restaurant looked respectable" leads the reader into believing that they went to a restaurant with fine quality and good service, but the second script conveys meanings that are quite contradictory. It infers that everything in that restaurant was far from being respectable. These two scripts are incompatible. In the framework of the six Parameters of the GTVH, the analysis of the above example is shown as follows: Script Opposition<respectable vs. unrespectable; normal vs. abnormal>; Logical Mechanism <juxtaposition>; Situation<description of food at a western-type restaurant>; Target<western-type restaurant>; Narrative Strategy<simile>; Language<like the Marine Corps. It apparently had already been on land for several days; like submarine sailors, having been submerged in water for a long time>. The English version seems to share all the six Parameters with the Chinese source text. On the surface, this example involves an explicit comparison

between different entities such as fish and Marine Corps, meat and submarine sailors. These comparisons are present at the linguistic level with explicit linguistic markers, which act as triggers to create humor in the Chinese original text. These triggers are preserved in the target text. However, when examined more deeply, this example presents two scripts that are opposed to each other, which causes incongruity in the Chinese source text. We believe that these two opposed scripts do exist in the English target text, and that the incongruity in the source text appears to be encoded in the target text as well. Therefore, we can conclude that this example is a humorous text in which the target text and the source text are perceived to be very similar, and thus they achieve the same humorous effect. This example demonstrates how the target text shares all the Parameters with the source text. In our database, there are samplings where three or four Parameters in the target text can be seen as shared by the source text, but the English target text remains quite different from the Chinese source text in terms of the humorous effect because of the difference in one or more higher Parameters, as illustrated in Example 2 below.

Example 2:

哼！我偏不願意女人讀了那本書當我是飯碗，我寧可他們瞧不起我，罵我飯桶 。H[SO<丈夫 vs.職業、正常的 vs.非正常的>LM<並置>SI<上下文>TA<中國傳統觀念>NS<隱喻>LA<飯碗;飯桶>]

Well, I don't happen to want any woman to take me as her "rice bowl" after reading that book. I'd rather have them scorn me and call me a "rice bucket." H [SO<na>LM<juxtaposition>SI<context> TA<na>NS<metaphor> LA<"rice bowl" "rice bucket">]("na" refers to "not applicable")

In Example 2, four Parameters (LM, SI, NS, LA) are sustained, while two Parameters (SO, TA) are not applicable in the English target text. The humorous effect in the Chinese original text is achieved by the incongruity of the two scripts, husband and occupation. A comparison between husband and "rice bowl" is made on the surface. This comparison is acceptable in the Chinese culture, for before 1949, Chinese women were not independent and their husbands were their careers, even their whole lives. However, the script caused by the Chinese indigenous cultural concept "rice bowl" is not activated in the English target text. The humorous effect of the English target text is lost even though the target text shares four Parameters with the original text. Another example is shown below.

Example 3:

"……他不想想不靠我們周家的栽培，什麼酥小姐、糖小姐會看中他！" H[SO<人物 vs. 糖果、 真實的 vs.非真實的>LM<失去連接>SI<上下文>TA<方鴻漸>NS<對話、仿擬>LA<酥小姐、糖小姐>]

"...I don't suppose he ever stops to think if it weren't for our support, what Miss Su or Miss T'ang would ever take a fancy to him!" H [SO<na>LM<na> SI<context>TA<FangHung-chien> NS<conversation, na>LA<na>] ("na" refers to "not applicable")

This example shows that the English target text shares one or two Parameters excluding the highest Parameter SO with the Chinese source text. It is obvious that the humorous effect in the Chinese source text is completely lost in the English target text. The rhetorical device –parody is used as the humorous trigger in this case to create the incongruity between two scripts: character and sugar. The connection between the two scripts is realized through employing one of the same phonological features in the two scripts of the Chinese source text. In the Chinese source text, the family name "Su" and "Tang" are pronounced in the same way as "Su" and "Tang" in a kind of Chinese sugar "Su Tang". However, the above imagination between the two never occurs in the English target text, which leads to the failure of transferring the humorous effect in the English target text.

From the above preliminary analyses, certain tendencies have been found for further research on the translation process of humorous texts from Chinese to English. For one thing, the Parameter SO in the GTVH seems to play the most important part in assessing how the original humorous text is transferred in the target text as shown in all the examples above. For the other, indigenous Chinese cultural concepts have a great influence on the Parameter SO in the English target text as shown in Examples 2 and 3. Of course, the results so far are preliminary and in the subsequent research more results will be obtained based on further comparative analyses of all the humorous texts in the Chinese-English bilingual parallel database.

6. Concluding Remarks

This paper gives a general picture of how a Chinese-English bilingual parallel database is compiled for the purpose of investigating how humor expressed in Chinese literary texts is translated into English. It presents the criteria for data collection and the process of the compilation with a focus on the GTVH, which turns out to be an effective device to test data and to analyze samplings in humorous texts. The initial results, based on the analysis of the Chinese-English bilingual parallel database, are encouraging for a study of how Chinese literary humorous texts are translated into English. However, more work has to be done qualitatively and quantitatively in order to make the bilingual parallel database more objective and more practical to meet the requirements of further systematic research on the translation process of humor from Chinese to English. We believe that applying this new research methodology—the Chinese-English bilingual

parallel database to the research on humor and humor translation—will throw new light on this old academic field.

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