

## **An OT Analysis on Verb Reduplication in Hakka\***

Yu-Ching Tseng

*University at Albany, State University of New York*

This paper investigates the obligatory syntactic process in Hakka called “verb reduplication”, of which a verb is reduplicated when followed by a CP headed by the clitic *do*. By providing an OT-based analysis, this paper argues that the syntactic operation is triggered by two ABUT constraints. When a verb takes a *do*-phrase to further describe its denoted action, if there exists another constituent in-between the verb and its following CP, attaching *do* to either the verb or the intervening constituent violates one of the ABUT. Hence, the verb must be reduplicated to create a structure that fulfills the requirement of both constraints. Contrastively, if the *do*-phrase immediately follows the verb, attaching *do* to its preceding main verb does not violate any of the ABUT. Here, the disallowance of verb reduplication can be captured by the Obligatory Contour Principle (OCP), which functions as a crucial syntactic condition to block reduplication, knowing that its occurrence would cause the adjacency of two identical verbs.

Key words: verb reduplication, Obligatory Contour Principle (OCP), Optimality Theory, Hakka syntax

### **1. Introduction**

This paper discusses the grammatical operation in Hakka involving the morpheme *do*. When a verb is followed by a complement clause<sup>1</sup> (CP) headed by *do*, the verb must be reduplicated immediately before the CP. Examples are given in the following (1) and (2):<sup>2</sup>

(1) Gi **sii** shui-go **sii** [do dong kiak].  
he eat fruit eat COMP really fast  
'He ate fruit really fast.'

(2) Gi **seu** ngai **seu** [do du-sii tung].  
he laugh I laugh COMP belly hurt  
'He laughed at me till his belly hurt.'

---

\* This paper is a revised version of “The OCP Violations on Verb Reduplication in Hakka”, which appears in the electronic proceedings of the 2007 National Conference on Linguistics (NCL 2007) held at National Cheng Kung University, June 2-3.

<sup>1</sup> Linguists usually make distinction between two types of postverbal complement construction: “descriptive complement” and “resultative complement”. The former describes how the action indicated by the verb is, was, or will be done, and the latter tells the result of the action. It is also noted that only the predicate in the second type of complement clause can have its own overt subject, but which in the first type cannot. The sentence in (1) is an example of the first type, and (2) shows an example of the second type. More detailed discussions can be found in Huang (1988), Paris (1988), and Tang (1992).

<sup>2</sup> This paper uses the following glosses: ASP “aspectual marker”, CL “classifier”, COMP “complementizer”, CRS “currently relevant state”, EMPH “emphatic marker”, PART “particle”, POSS “possessive”, and PREP “preposition”.

The syntactic process is obligatory in Hakka, which is termed “verb copying” or “verb reduplication” according to Li and Thompson (1981). As shown in (3) and (4) below, without the reduplication, two sentences turn out to be ill-formed:

- (3) \*Gi **sii** shui-go [do dong kiak].  
 he eat fruit COMP really fast  
 ‘He ate fruit really fast.’
- (4) \*Gi **seu** ngai [do du-sii tung].  
 he laugh I COMP belly hurt  
 ‘He laughed at me till his belly hurt.’

However, the process becomes redundant, as in (5) and (6), if the verb is used intransitively and thus followed immediately by the *do*-phrase:

- (5) Gi **sii** [do dong kiak].  
 he eat COMP really fast  
 ‘He ate really fast.’
- (6) Gi **seu** [do du-sii tung].  
 he laugh COMP belly hurt  
 ‘He laughed till his belly hurt.’

For such cases the process must be blocked, otherwise the sentence would become ungrammatical if reduplication were to cause a verb and its reduplicant to be adjacent to each other. See (7) and (8). As I will argue later, the prohibition is triggered by the so-called Obligatory Contour Principle (OCP) (Leben 1973, Goldsmith 1976, and McCarthy 1986), a linguistic constraint that is used as an identity restriction prohibiting two identical adjacent linguistic elements.

- (7) \*Gi **sii sii** [do dong kiak].  
 (8) \*Gi **seu seu** [do du-sii tung].

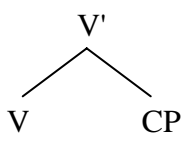
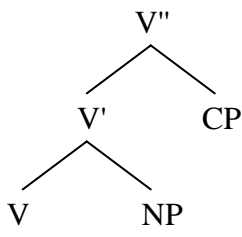
The remainder of paper is organized as follows: Section 2 provides the major arguments that have been proposed by Huang (1982) to account for the construction of verb reduplication. Section 3 addresses problems and issues against Huang’s proposal. In Section 4, my own proposal is presented, in which an OCP-based hypothesis within the framework of Optimality Theory (OT) (Prince and Smolensky 1993) is put forth. Section 5 provides a few examples to validate the status of OCP in Hakka grammar. Section 6 states the summary.

## 2. Huang's proposal

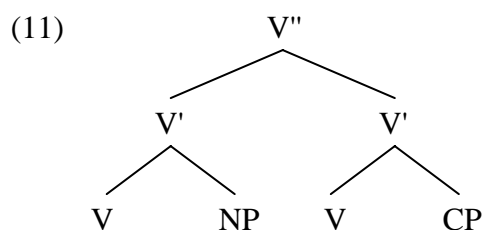
In Huang's (1982) descriptive analysis of the parallel construction in Mandarin, he argues that the reason verb reduplication takes place is to satisfy the X' requirement. The condition is stated in the following (9). Accordingly, Mandarin allows head-initial constructions only at the lowest level of phrase expansion regarding the internal structure of any major category (p.27).

- (9)  $X^n \longrightarrow X^{n-1} YP$  (iff  $n=1$ )  
 $X^n \longrightarrow YP X^{n-1}$  (otherwise)

From (1) to (8), each sentence contains a complement clause following the verb to further describe the manner or result of the action denoted by the verb. If the postverbal complement is directly dominated by V' and in sister position to the head V, without violating the condition (9), the construction is well-formed, which is presented in (10a). However, if the verb is used transitively, with the appearance of two postverbal constituents, the complement clause would have to be directly dominated by V'' under the right branch. Thus the condition (9) is violated, which results in the ill-formedness of (3) and (4). The structure should be (10b).

- (10) a. 
- b. 

According to Huang, the ill-formed (10b) forces the process of verb reduplication to take place, which functions to create a structure meeting the requirement stated in (9). Clearly in (1) and (2), when the verb is reduplicated immediately before the complement clause, this allows the structure (10b) to turn into (11), where the reduplicated verb forms a constituent with its following CP under the dominance of another V', and based on Huang's assumption, the new V' branching on the right is the head of V''.



### 3. Problems

#### 3.1. X'-condition

When a verb is followed by a complement clause like in examples (1) through (8), each of the sentences contains two predicates. There are competing arguments among linguists concerning which predicate is primary and which is secondary (Dragunov 1952, Chao 1968, Mei 1972, Tai 1973, Tang 1977, Paris 1979, Li and Thompson 1981, Huang 1982, 1988, Ross 1984, and Tang 1992a, b).

In Huang's (1982) dissertation, he considers the second verb to be the main predicate for this type of construction. The hypothesis is based on the distribution of the perfective aspectual marker *le*, which may only appear to mark the reduplicated verb, but not the base verb. Thus in his claim, the first V' functions like an adverbial phrase and it is the V' on the right that carries the center of predication.

However, later on in his (1988) paper, Huang changes his claim. He reconsiders all the arguments which have been claimed as problems against the hypothesis of which the first verb is treated to be the main verb; according to him, all the previous problems now turn to be positive and support the hypothesis. For example, the first verb cannot take the perfective *le* because when a verb is followed by a descriptive expression, it does not by itself signal a bounded event, which is a crucial condition for the appearance of *le*. Besides, he also claims it is not true that only verbs in main clause can take the perfective marker. When these verbs occur in embedded clause, they may also be marked by *le*.

If it cannot prove to be correct that the second V' in structure (11) is the head of V'', or if the first V' is actually the main predicate and the second V' is an adverbial expression, structure (11) cannot be justified to satisfy the X' condition stated in (9).

#### 3.2. Compound verbs

Chinese languages contain a large portion in their lexicon words that consist of more than one morpheme, and "compounding" constitutes one category of this type. Unfortunately, there is no unambiguous way to distinguish between compound words

and phrases. In Zhang's (1988) comprehensive research on the Hakka morphology, the first three volumes of Tang's (1988, 1989, 1992a) series in discussing the morphological and syntactic structures of Mandarin Chinese, and Duanmu's (1998) review of different findings for testing wordhood in Chinese, they contribute very detailed analysis to issues related to the concept of Chinese words. In this paper, I will not come up with an answer about how to make this distinction. I will simply address the point that basically a compound word is placed under one terminal node in a syntactic tree diagram and its constitutional morphemes as a whole bears the same syntactic feature. The definition of words will come later in Section 4.3.

The following (12) and (13) present a problem for Huang's proposal. There are some "compound verbs" in Hakka (and in Mandarin as well). When they are used intransitively and followed directly by a complement clause, verb reduplication may or may not occur:

- (12) Gi **fun-mi** [do tai-ga dong dam-sim].  
 he in.a.coma COMP everyone really worried  
 'He's in a coma, which makes everyone worry about him.'
- (13) Gi **fun-mi fun** [do tai-ga dong dam-sim].  
 he in.a.coma faint COMP everyone really worried  
 'He's in a coma, which makes everyone worry about him.'

Based on Huang's proposal, (13) should be unnecessary since (12) is well-formed and does not violate the condition (9). Verb reduplication in this case should not be initiated providing that the process is argued to be triggered by violation of the X' filter.

There are other suggestions that have been proposed by other linguists aiming at providing a plausible schematic structure to describe this postverbal resultative construction, including Li (1998), Lin (2003), Chen (2007), and others, but with the contrast exhibited between the grammatical (5) and (6) and the ungrammatical (7) and (8), none of these proposals can explain why is the well-formedness of both (12) and (13).

## 4. My proposal

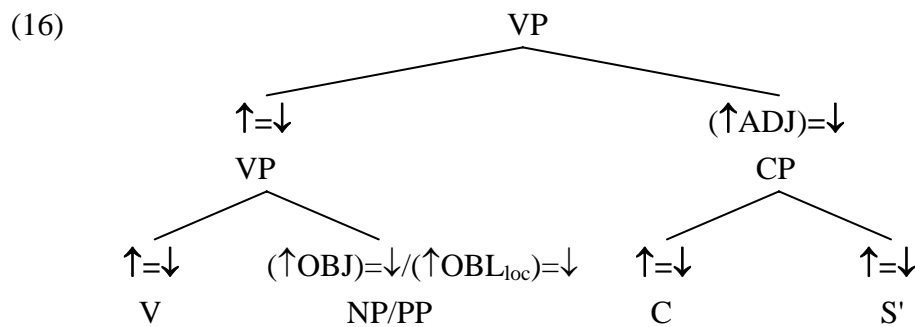
### 4.1. Why reduplicate the verb

As mentioned previously, when a verb is followed by a postverbal complement clause (*do*-phrase), if there appears another intervening constituent between the verb

and its following CP, the verb must be reduplicated after the interfering element and before the complementizer *do*, as shown in (14) and (15):

- (14) Gi **kon** [tien-sii] \*(**kon**) [ do muk-zu dong tiam].  
 he watch television watch COMP eyes really tired  
 ‘He watched television till his eyes were tired.’
- (15) Gi **zeu** [ngip vuk] \*(**zeu**) [ do dong gip].  
 he run PREP house run COMP really hurried  
 ‘He ran into house hurriedly.’

In (14) the verb is transitive and it takes a postverbal object; in (15) an indication of location is inserted between the verb and its following CP to provide the directional information for the action carried out by the verb. As it reveals, in above cases the main verb has to be reduplicated right after its following constituent, which occurs to be an NP in (14), and a PP in (15). The following diagram (16) depicts the structure of VP in question. As it shows, the verb takes an object NP or a locative PP as its complement, and the CP in this case functions as an adjunct that adjoins to the VP. Notice that the operation of verb reduplication is not specified in the constituent structure; instead, as I will demonstrate later, the syntactic process takes place as a linguistic choice modeled by OT.



This paper attempts to establish an OT approach that explains why reduplication obligatorily takes place in this specific type of construction, if the structural filter proposed by Huang does not provide a satisfying explanation. Before we go to the analysis, the first thing to do now is to discuss the status of this morpheme *do*.

This paper adopts Lai’s (1988, 2002) claim and treats *do* in Hakka as an enclitic, which parallels the status of *de* in Mandarin Chinese (Tang 1992b). Lai discusses the grammaticalization path of *do* and according to her, *do* has grammaticalized from a preposition which marks the location or time for an action carried out by the verb, to a

complementizer<sup>3</sup> which connects a resultative or descriptive clause to its preceding verb or verbal phrase. Compare (17) and (18) provided by Lai (2002:239):

(17) Gi tao do zok-dang.

he jump PREP table-top

‘He jumped onto the table.’

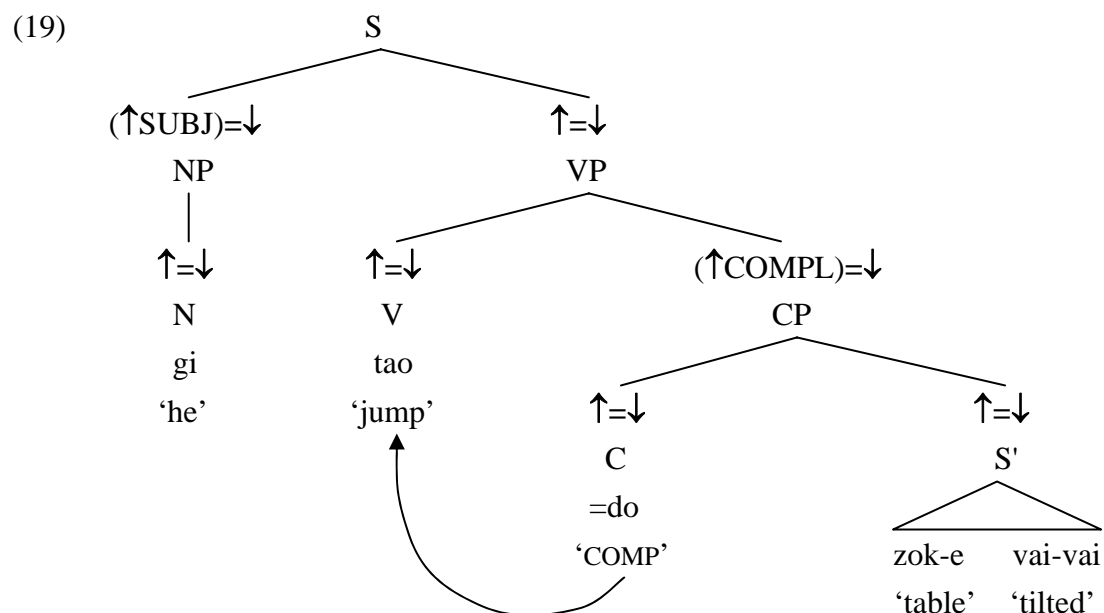
(18) Gi tao do zok-e vai-vai.

he jump COMP table tilted

‘He jumped (on the table) such that the table tilted.’

In (17) *do* functions as a preposition indicating the location onto which the subject jumped, while in (18) *do* is a complementizer serving the function to bring out another clause to further describe the verb. According to Lai, developing from a preposition to a complementizer, *do* has undergone the process of cliticization to acquire more abstract grammatical function.

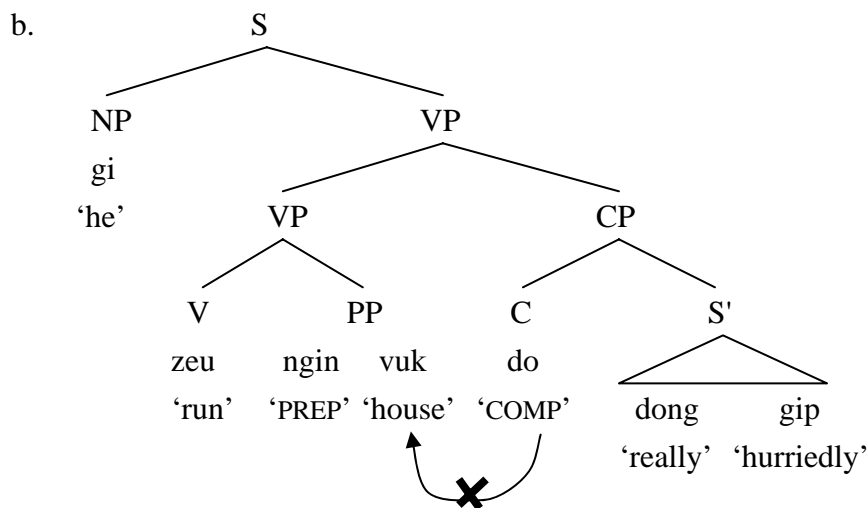
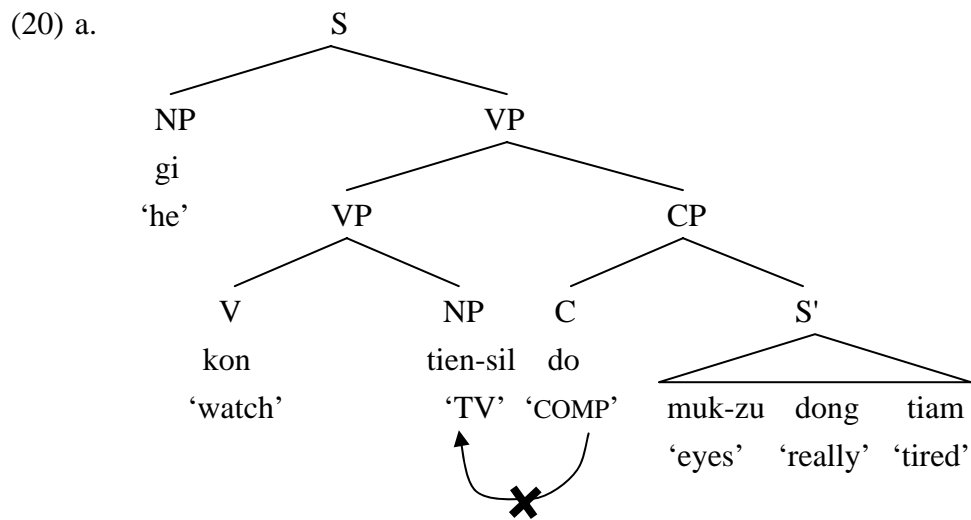
An enclitic has syntactic characteristics of a word, but it is phonologically bound to its preceding host. Therefore, as an enclitic, the Hakka *do* must attach to its preceding word. The following (19) represents the structure for the example provided in (18), in which the verb *tao* ‘jump’ lexically selects a CP that bears complement function to the verb:



However, it is not good enough to merely attach *do* to its preceding word, since it would result in wrong prediction for sentences containing an intervening constituent,

<sup>3</sup> It is called a “verbal subordinator” in Lai’s (2002:231) term.

as illustrated by the following diagrams in (20), which correspond to the two examples in (14) and (15) respectively:



What follows is an optimality theoretic (Prince and Smolensky 1993) based approach. It shows how syntactic reduplication is required by the OT evaluation, provided with the analysis that the grammatical operation applies as a result of constraint interaction. The following (21) formalizes the placement of *do* by proposing two ABUT constraints. The mechanism of “abutment” comes from Morimoto (2001), and it is modeled on the basis of Generalized Alignment (McCarthy and Prince 1993a, b). ABUT differs from the strict sense of ALIGN in that ABUT is used as an alignment of opposite edges:

(21) ABUT (*do* L, WORD R): attaching the left edge of *do* to the right edge of its preceding word.


ABUT (*do* L, PRED R): attaching the left edge of *do* to the right edge of main predicate.



The two ABUT constraints must outrank the faithfulness UNIFORMITY, which is defined in the following (22), to make it possible for a phonologically dependent clitic to attach to its host.

(22) UNIFORMITY: disallowing the many-to-one correspondence between syntactic nodes and phonological word (i.e. against fusion).

**Tableau 1.**<sup>4</sup>

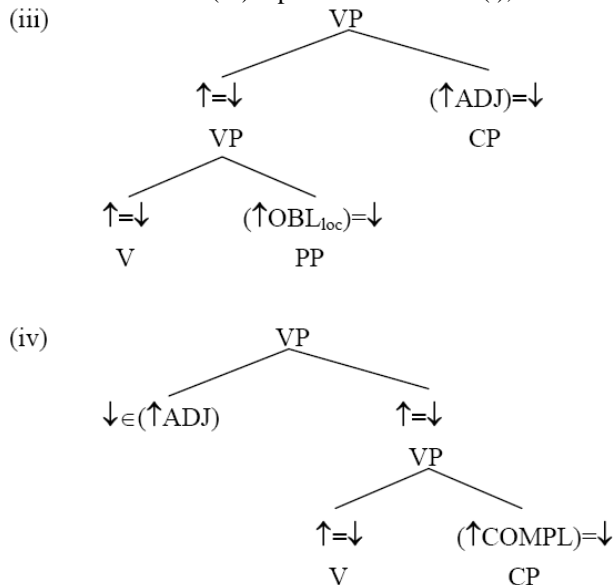
(20b) gi zeu [ngip vuk] [do dong gip]. he run PREP house COMP really hurried 'He ran into house hurriedly.'	ABUT (WORD)	ABUT (PRED)	UNIFORM
a. Gi zeu [ngip vuk]= <b>do</b> dong gip		*!	*
b. Gi zeu= <b>do</b> [ngip vuk] dong gip	*!		*
c.  Gi zeu [ngip vuk] zeu= <b>do</b> dong gip			*

The evaluation in Tableau 1 clearly shows how the constraint ranking correctly predicts the occurrence of verb reduplication. All candidates in Tableau 1 violate

<sup>4</sup> One may argue another grammatical way to express the meaning of (20b) is to alternate the word order between the verb and the PP. Compare the following pair of sentences which express the meaning 'he ran into house hurriedly':

- (i) Gi zeu [ngip vuk] zeu=do dong gip.  
he run PREP house run=COMP really hurried
- (ii) Gi [ngip vuk] zeu=do dong gip.  
he PREP house run=COMP really hurried

In (i) the PP follows the main verb, while in (ii) it precedes the verb. None of them violates the two ABUT constraints. Here, I will argue the two sentences actually have slightly different meanings: sentence (ii) seems to be more corresponding to the English translation 'he got into house by running hurriedly'. Since different semantic meanings correspond to different c-structure and f-structure, the two sentences should be considered as two inputs to be evaluated in separate OT tableaux. The structure in below (iii) represents the VP of (i), and the structure in (iv) represents the VP of (ii):



UNIFORMITY due to the attachment of *do* onto its preceding host, by doing so two syntactic nodes are fused into one phonological word. Candidate (a) attaches the enclitic to the right edge of its preceding noun, whereas candidate (b) attaches *do* to the right edge of the main verb but crosses its prior PP. Since each of them violates one of the ABUT constraints, the two candidates are considered ungrammatical. As a result, in order to satisfy both ABUT constraints, the main predicate has to be reduplicated directly after the PP and before the CP for the clitic to attach to. Candidate (c) presents this pattern, and thus it is selected to be the only winning candidate for this tableau.

#### 4.2. OCP violation

While the OT analysis works for some cases of reduplication, a problem arises with the constraint ranking established so far, since it wrongly generates both candidates in Tableau 2 as grammatical:

**Tableau 2.**

Gi zeu [do    dong    gip]. he run    COMP really hurried 'He ran hurriedly.'	ABUT (WORD)	ABUT (PRED)	UNIFORM
a. ☞ Gi zeu= <b>do</b> dong gip			*
b. ☹ ☞ Gi zeu zeu= <b>do</b> dong gip			*

The evaluation of Tableau 2 shows how the candidate with reduplication, candidate (b), is incorrectly selected as the optimal output, knowing the fact that the enclitic *do* should attach to the base verb rather than its reduplicated form when the *do*-phrase is placed immediately after the verb without the interference of any other intermediate constituent. To account for the blockage of reduplication, the markedness constraint Obligatory Contour Principle (OCP) is proposed. The OCP was first originated around the early 1970s to deal with suprasegmental features in autosegmental levels (Leben 1973 and Goldsmith 1976), and subsequently was adopted to account for segmental features in lexical representations and derivations (McCarthy 1979, 1981, 1986). The principle has grown predominately in the field of phonology, but linguists including Mohanan (1994), Golston (1995), Yip (1995, 1998), Shi (1997), Anttila and Fong (2000) and others have implemented the principle in their research to deal with morph-syntactic phenomena. In this paper the OCP is used as a syntactic constraint which penalizes two of the same linguistic elements appearing in juxtaposition, and its definition is provided in (23).

(23) OCP: prohibiting adjacent identical morphemes. (Preliminary)

The following Tableau 3 shows how the OCP functions as a crucial syntactic condition preventing the process of reduplication if it would cause the adjacency of two identical verbs:

**Tableau 3.**

Gi zeu [do dong gip]. he run COMP really hurried 'He ran hurriedly.'	OCP	ABUT (WORD)	ABUT (PRED)	UNIFORM
a. $\text{Gi zeu}=\text{do}$ dong gip				*
b. Gi zeu zeu= $\text{do}$ dong gip	*!			*

As stated above, the evaluation shows how the OCP accounts for the failure of reduplication. In candidate (a), the enclitic *do* attaches to its preceding verb, which is at the same time the main predicate of sentence, whereas in candidate (b), the main verb got reduplicated and the enclitic attaches to the reduplicated form. Both candidates satisfy the two ABUT constraints, but candidate (b) incurs a fatal violation on the OCP by creating a sequence of two identical verbs. Thus, candidate (a) is selected over candidate (b) as the optimal output. The evaluation successfully accounts for the blockage of verb reduplication, which takes place if in a given input, the main verb is followed directly by a *do*-phrase.

### 4.3. Morphological reduplication

Before we start the examination of verb reduplication on compound verbs, I will pause a moment in this section to discuss a relevant issue that triggers some necessary modification on the OCP manifestation formulated in (23).

It is well-known that Chinese languages include in their lexicon a large number of so-called “reduplicative compound verbs”. Linguists including Tang (1992), Kang (1995), and Li (2003) have conducted detailed discussion about the semantic content and syntactic behavior over different types of the reduplicative compound verb in their research. The most common and basic use of them is to serve the function of expressing temporary or attemptive aspect; sometimes it is called the delimitative aspect, which typically means to do something ‘a little bit’ or ‘for a short period of time’ (Li and Thompson 1981:232 and Xiao and McEnery 2004:149). Consider the following examples (24) and (25):

- (24) tai-ga     **gong-gong**    fa        ciu    dong    cong-kuai    le.  
 everyone talk-talk    speech then really    happy        CRS  
 ‘It makes everyone happy just get together and chat for a while.’
- (25) ngai sien    **mun-mun**    gi    ge    yi-gien.  
 I        first    ask-ask    he POSS opinion  
 ‘Let me first check his opinion.’

Some readers may be puzzling here, how come (24) and (25) are rendered grammatical with two identical morphemes *gong* surfacing in adjacent positions; does the construction not violate the OCP proposed in (23)?

To solve this problem, I will argue this type of reduplication, termed “morphological reduplication” in this paper, differs from another type of “syntactic reduplication” that has been brought to the center of discussion in previous sections. Compare the above two examples with the following (26) and (27):

- (26) Gi    **gong**    fa            **gong**    [do    dong    tiam].  
 he talk    speech    talk        COMP really tired  
 ‘He kept talking till he felt really tired.’
- (27) \*Gi    **gong gong**    [do    dong    tiam]  
 he talk    talk        COMP really tired  
 ‘He kept talking till he felt really tired.’

The reduplication that takes place in (24) and (25) is argued to be a morphological operation which takes place during the process of lexical derivation. While the OCP (23) is a syntactic constraint, it deals with phenomena that occur during the process of syntactic derivation. Since morphological operations take precedence over syntactic operations, any instance of adjacency resulting from morphological reduplication is free from the restraint of the OCP.

Therefore, to make the OCP, as an OT constraint, successfully account for the grammaticality of (24) and (25), we have to modify the constraint, which is shown in (28) below. Its new formulation takes each morphosyntactic word as the basic unit to calculate the OCP violation:

- (28) OCP: prohibiting adjacent identical morphosyntactic words. (Revised)

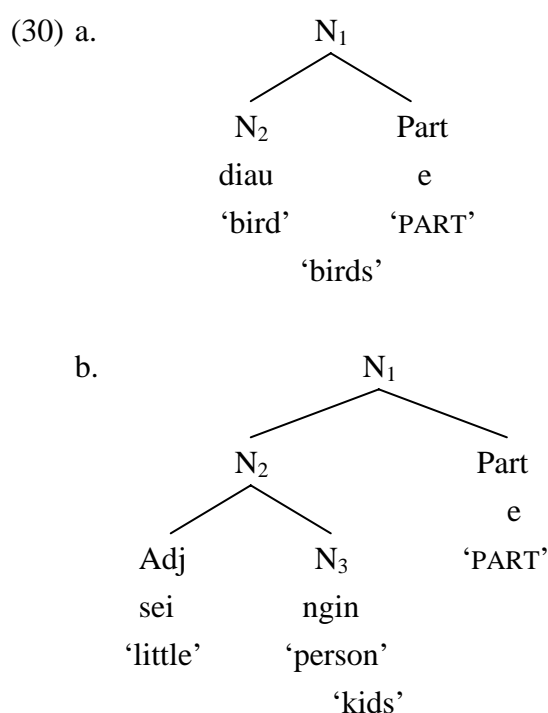
The definition of morphosyntactic word is based on Embick and Noyer’s (2001:574) refinement of the distinction between a morphosyntactic word and a

subword, which is presented in (29):<sup>5</sup>

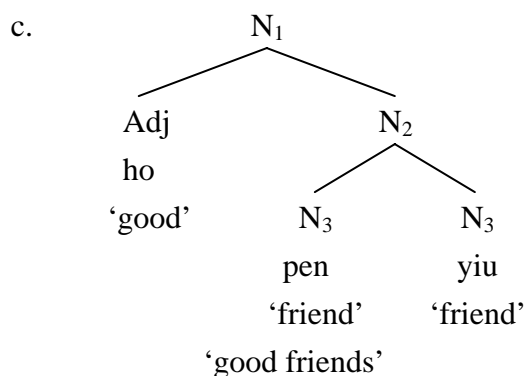
(29) Morphosyntactic word (MWd): At the input to Morphology, a node  $X^0$  is morphosyntactic word iff  $X^0$  is the highest segment of an  $X^0$  not contained in another  $X^0$ .

Subword (SWd): A node  $X^0$  is a subword if  $X^0$  is a terminal node and not an MWd.

A few examples are provided in (30) below to illustrate Embick and Noyer's notion about MWds and SWds:



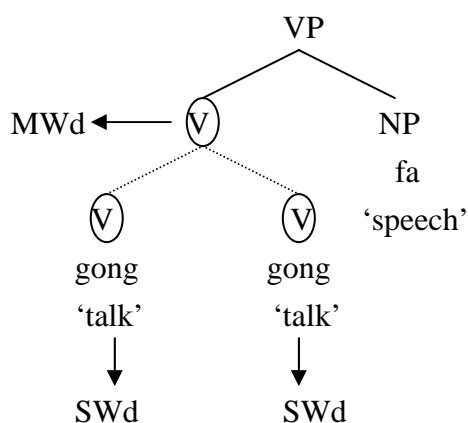
<sup>5</sup> Different morphological approaches diverge in their criteria for the definition of words. The Prosodic approach defines the notion of words by using phonological criteria. For example, in this theory a prosodic word contains at least one foot, and every foot must be bimoraic or bisyllabic (Nespor and Vogel 1982, 1986 and Selkirk 1984); the Lexicalist approach uses  $X^0$  to represent words and suggests that words are the maximal units to which morphological rules may apply; they are also the minimal constituents to which syntactic rules apply (Di Sciullo and Williams 1987 and Dai 1992, 1998). The structure underneath  $X^0$  may be analyzed by extending the use of X-bar theory to morphological levels, and the morphemic system is expressed by nodes such as  $X^{-1}$ ,  $X^{AFF}$ ,  $X^W$ , and a few others (Selkirk 1982 and Packard 2000). Even though the notion of words used in this paper is close to the Lexicalist approach, I will borrow the definition of words from another morphological theoretical tradition, i.e. the Distributed Morphology, since it is very clearly stated and easy to follow.



The diagrams in (30) present the internal structure for three bare nouns. Based on definition (29), the  $N_1$  in each diagram of (30) is an MWd because it is the maximal  $N^0$ ; all terminal nodes are SWds because they are at the lowest level of the tree and not an MWd. Note that the adjectives and the intermediate  $N_2$  in (30b, c) are not MWds because they are contained in another MWd. However, if in (30c) the adjective *ho* is not present, the  $N_2$  *pen-yiu* is then an MWd as it loses the necessity to be dominated by another  $N_1$ .

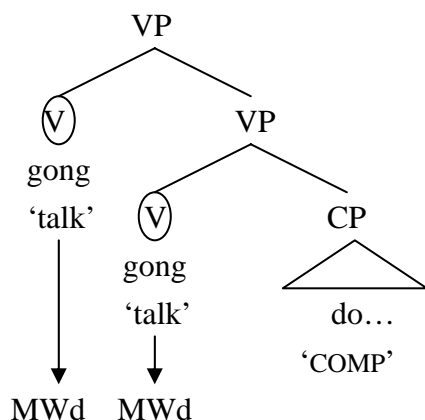
Now refer back to the contrast between (24)-(25) and (26)-(27). The following diagrams (31a) and (31b) represent part of the structure for the two types of reduplication. The reduplication process observed in (31a) is a lexical derivational rule taking place in morphology, and hence its resulted adjacency occurs between two identical SWds, while in (31b) the process of reduplication occurs to fulfill some syntactic requirements; therefore in opposition to (31a), the adjacent elements found in this construction are two MWds.

Since the internal structure within MWds, namely, the construction of SWds into an MWd, is determined at the stage of morphological derivation, (31a) is released from the restriction of the OCP because following the new definition (28), the trigger/target of the identity violation in Hakka grammar is now formalized to be on the basis of each morphosyntactic word. That is to say, any instance of adjacency that occurs between two SWds, or between an SWd and an MWd, is free from the OCP violation.

(31) a.<sup>6</sup>

satisfies the OCP.

b.



violates the OCP.

#### 4.4. Reduplication of compound verbs

The constraint ranking established earlier in Sections 4.1 through 4.3 receives further support by examining the process of reduplication applied to verbs consisting of more than one morpheme, termed “compound verbs” in Hakka. The previously mentioned examples (12) and (13) are now reposted here in (32) and (33) for the sake of convenience:

- (32) Gi **fun-mi** [do tai-ga dong dam-sim].  
 he in.a.coma COMP everyone really worried  
 ‘He’s in a coma, which makes everyone worry about him.’

<sup>6</sup> The dotted lines represent the morphological branches underneath the syntactic branches.

- (33) Gi **fun-mi fun** [do tai-ga dong dam-sim].  
 he in.a.coma faint COMP everyone really worried  
 ‘He’s in a coma, which makes everyone worry about him.’  
*But* \*Gi **fun-mi fun-mi** [do tai-ga dong dam-sim].

The main verb in (32) and (33), *fun-mi*, by itself forms a single MWd that consists of two SWds, for the reason that no other constituent is allowed to be inserted between its two constitutional morphemes. The following Tableau 4 presents the analysis for (32), in which this compound verb is used intransitively and directly followed by a *do*-phrase.

**Tableau 4.**

(32) Gi fun-mi [do...] ‘He is in a coma and...’	OCP	ABUT (WORD)	ABUT (PRED)	UNIFORM
a. ☞ Gi fun-mi= <b>do</b> ...				*
b. Gi fun-mi fun-mi= <b>do</b> ...	*!			*
c. ☞ Gi fun-mi fun= <b>do</b> ...				*

The evaluation in Tableau 4 demonstrates how verb reduplication may optionally occur in this morphosyntactic environment. Candidate (b) reduplicates the entire verb, and the resulted pattern contains two identical compound verbs in juxtaposition, which leads to a fatal violation on the OCP. On the contrary, another candidate (c) avoids the OCP violation by copying only one of its constitutional morphemes; since the OCP modified in (28) is formulated to ban only total reduplication, candidate (c) does not violate the OCP. It can be observed from this tableau, for this language Hakka, verb reduplication is allowed even in environments where no other intermediate constituent exists between the verb and its following CP, given the condition that the verb is composed of more than one morpheme, and the grammatical process copies only part of the entire complex verb.

On the other hand, (34) and (35) present two examples in which a phrasal constituent intervenes between the verb and *do*:

- (34) Gi **fun-mi** [di yi-yen] **fun(-mi)** [do tai-ga dong dam-sim].  
 he in.a.coma PREP hospital in.a.coma COMP everyone really worried  
 ‘He’s lying in the hospital with a coma, which makes everyone so worried.’  
*But* \*Gi **fun-mi** di yi-yen [do tai-ga dong dam-sim].



- (35) Gi **gieu-nap** [soi-gim] **gieu(-nap)** [do      dong      m      gam-ngien].  
 he pay            tax            pay            COMP really      not willing  
 ‘He feels reluctant to pay the tax.’  
*But* \*Gi **gieu-nap** soi-gim [do dong m gam-ngien].

In (34) a prepositional phrase, in (35) a noun phrase, is inserted between the verb and its following clause. As it shows, syntactic reduplication must occur and the main verb has to be copied right after the intermediate constituent. This can be illustrated with the following tableau:

Tableau 5.

(35) Gi gieu-nap [soi-gim] [do...] ‘He paid the tax...’	OCP	ABUT (WORD)	ABUT (PRED)	UNIFORM
a. Gi gieu-nap [soi-gim]= <b>do</b> ...			*!	*
b. Gi gieu-nap= <b>do</b> [soi-gim]...		*!		*
c. ☞ Gi gieu-nap [soi-gim] gieu-nap= <b>do</b> ...				*
d. ☞ Gi gieu-nap [soi-gim] gieu= <b>do</b> ...				*

In Tableau 5, candidates (a) and (b) lose to candidates (c) and (d) because they violate one of the ABUT constraints. Candidates (c) and (d) are equally good because with the interference of an object NP, the verb and its reduplicant will not appear adjacent, and the two candidates get no chance to violate the OCP. Therefore, when reduplication obligatorily takes place in this syntactic environment, we can choose to copy either the entire verb or simply one of its constitutional morphemes.

Another example is shown by the compound verb appearing in the following sentence (36). In this compound the morpheme *zeu* combines with its preceding motion verb to signal that the subject moves away as the result of the action carried out by the main verb. This multiple-morpheme compound is called a “resultative verb compound (RVC)” by Li and Thompson (1981:54), in which the second morpheme signals some result of the action conveyed by the first morpheme:

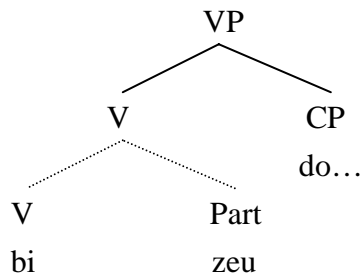
- (36) Diau-e **bi-zeu** (**bi**) [do      dong      giak].  
 bird fly-away fly      COMP really      quickly  
 ‘The bird flew away quickly.’  
*But* \*Diau-e **bi-zeu bi-zeu** [do dong giak].

Based on the proposed OT approach, when a *do*-heading CP immediately follows the RVC, partial syntactic reduplication may optionally take place. The syntactic

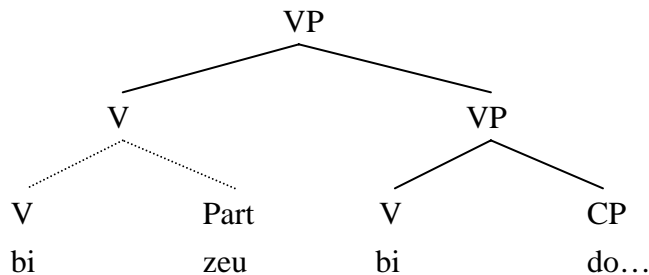
process does not trigger identity violation because the constraint OCP is defined to penalize total reduplication on the basis of each morphosyntactic word. In (37) below it is the second morpheme of this RVC which gets reduplicated, and the resulted pattern contains two identical morphemes in direct sequence. However, since in this case adjacency occurs between an SWd and an MWd, the pattern is safe from the OCP violation, and thus (37) is well-formed. A more detailed illustration is provided in (38).

(37) Diau-e **bi-zeu** **zeu** [do dong giak].  
 bird fly-away leave COMP really quickly  
 ‘The bird flew away quickly.’

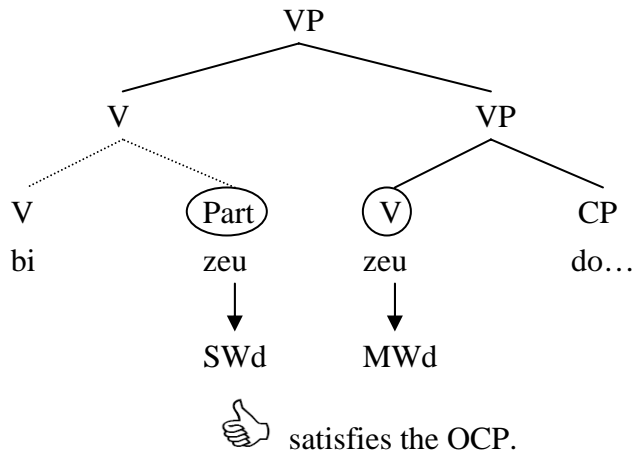
(38) a.



b.



c.



The (un-)grammaticality of (36) and (37) is demonstrated in the following Tableau 6. With the constraint ranking established in this paper, only candidate (d) is ruled out by violating the OCP. It differs from candidate (b) and (c) in that in this candidate the entire compound verb got reduplicated, while in (b) and (c) the grammatical process copied merely one of its constitutional morphemes. Since the OCP is formulated to ban total reduplication, all candidates except (d) are well-formed because they violate none of the undominated constraints presented in this tableau.

**Tableau 6.**

Diau-e bi-zeu [do ...] 'The bird flew away...'	OCP	ABUT (WORD)	ABUT (PRED)	UNIFORM
a. ☞ Diau-e bi-zeu= <b>do</b> ...				*
b. ☞ Diau-e bi-zeu bi= <b>do</b> ...				*
c. ☞ Diau-e bi-zeu zeu= <b>do</b> ...				*
d. Diau-e bi-zeu bi-zeu= <b>do</b> ...	*!			*

As to issues concerning which of the constitutional morphemes may be copied when partial reduplication occurs; what would happen if the same kind of syntactic reduplication occurs to other types of compound verbs; whether the same phenomenon would result in Mandarin Chinese concerning the same grammatical construction. All these are important but currently beyond the scope of this paper, I will leave it as a challenge for my future research. In conclusion, Section 4 has demonstrated how the proposed OT analysis makes correct predictions regarding the syntactic operation of verb reduplication, and the following (39) summarizes the constraint hierarchy:

(39) OCP, ABUT (WORD), ABUT (PRED) >> UNIFORM

## 5. Other OCP examples

One of the well-known features of Chinese is the homophonous nature of its lexicon. In Hakka, morphemes with the same pronunciation are often used for different meanings or functions. When syntactic structures require two homophonous morphemes being adjacent, the identity violation is however prohibited by the OCP. In this section, I am going to provide some OCP-triggered phenomena to back up the status of OCP as a high-ranking constraint in the grammar of Hakka.

The morpheme *oi* in Hakka has at least the following two distinct functions: in (40) *oi* functions as a lexical verb taking a phrasal NP object, while in (41) it functions as an auxiliary which immediately precedes the main verb.

- (40) Ngai cin **oi** fa.  
 I very like flower  
 ‘I like flowers very much.’
- (41) Gi **oi** hi hok-gau.  
 he will/must go school  
 ‘He will go to school.’

However, when two types of *oi* co-occur adjacently in the same sentence, as in (42), the juxtaposition of two instances of *oi* turns out to be ungrammatical:

- (42) \*Ngai hen gi **oi oi** gia lo-moi.  
 I ask he must like his sister  
 ‘I ask him to love his sister.’

A similar example can be found with the morpheme *yu*, which also has at least two distinct functions as a lexical verb denoting possession (43), or an auxiliary verb with the function of emphatic assertion (44):

- (43) Ngai **yu** go ge bun su.  
 I have ASP that CL book  
 ‘I have had that book.’
- (44) Ngai **yu** mai go ge bun su.  
 I EMPH buy ASP that CL book  
 ‘I definitely have bought that book.’

However, when both *yu*’s are simultaneously present in the same sentence, the resulted pattern (45) is ungrammatical:

- (45) \*Ngai **yu yu** go ge bun su.  
 I EMPH have ASP that CL book  
 ‘I sure have had that book.’

Another example comes from the Hakka morpheme *gong*. Following Zhang’s (1988) argument, this morpheme has two distinct functions as a general verb meaning

‘to say/speak’ (46), and a complementizer which denotes the propositional content for verbs of saying (47) or mental verbs (48):

(46) Gi **gong** den fa.

he speak ASP speech

‘He is talking.’

(47) Gi mun **gong** ma-ngin oi loi.

he ask COMP who will come

‘He asked who will come.’

(48) Gi seu **gong** hok-sang-e voi tang m siit.

he worry COMP student will hear not understand

‘He worries that students will not understand.’

Nevertheless, serving as a main verb, *gong* cannot be directly followed by its homophonous complementizer; that is, the instance of two *gong*’s being adjacent is unacceptable in Hakka due to identity restriction:

(49) \*Gi **gong gong** ngai dong yeu-su.

he speak COMP I really people.die.young

‘He said that I am really bad/evil/unreasonable.’

The purpose of this section is to provide some evidence to further strengthen the status of OCP as a highly ranked constraint that conditions Hakka syntactic structures. Other similar OCP-related examples can be found all over the Hakka syntax; even though the search of examples is beyond the reach of current paper, it is definitely worth the contribution of developing another research paper to thoroughly investigate whether other syntactic conditions may intervene and make it necessary to modify the current OCP constraint formulated in (28), or whether it is necessary to propose other OCP manifestations and manipulate the overall constraint ranking established in (39), in order to account for all relevant syntactic OCP effects in this language.

## 6. Summary

This paper discusses the complexity of the construction in Hakka involving the complementizer *do*, and proposes that verb reduplication occurs as a result of the interweaving of two abutment constraints with the markedness OCP. Knowing that a complement clause syntactically follows its main verb, if there exists an interfering element between the verb and *do*, in such cases the attachment of *do* on either the

main verb or the interfering element violates one of the ABUT constraints. Hence, the main verb must be reduplicated to create a structure that fulfills the requirement of both constraints.

On the other hand, when *do* follows the verb immediately, since the main verb adjacently precedes the clitic, attaching *do* to the verb does not violate any of the ABUT constraints. Reduplication can not occur in this environment because the markedness OCP, which disallows two identical verbs in juxtaposition, functions as a crucial syntactic condition to determine whether the process should be blocked.

Finally, the paper discusses the case of reduplication on compound verbs. When a compound verb is followed directly by *do*, reduplication is allowed to take place on part of the verb; however, the construction is ill-formed if the entire verb gets reduplicated, and the ill-formedness is an OCP-triggered effect. Contrastively, if the verb is followed by an intervening element such as an NP or a PP, we can choose to reduplicate either the entire or part of the verb, since neither of which will cause the main verb to be adjacent to its reduplicant. That is, partial reduplication is always a possible syntactic operation for a compound verb whenever it is followed by a complement clause headed by *do*; it doesn't matter if the verb is used transitively or intransitively.

## References

- Anttila, Arto, and Vivienne Fong. 2000. The partitive constraint in optimality theory. *Journal of Semantics* 17:281-314.
- Chao, Yuen-Ren. 1968. *A Grammar of Spoken Chinese*. Berkeley, CA: University of California Press.
- Chen, Yupin. 2007. Mandarin DE in V-DE-C construction. Paper presented in the 15<sup>th</sup> Annual Conference of the International Association of Chinese Linguistics and the 19<sup>th</sup> North American Conference on Chinese Linguistics Joint Meeting.
- Dai, J. X.-L. 1992. *Chinese Morphology and its Interface with the Syntax*. Doctoral dissertation, The Ohio State University.
- Dai, J. X.-L. 1998. Syntactic, morphological and phonological words in Chinese. *New Approaches to Chinese Word Formation: Morphology, Phonology and the Lexicon in Modern and Ancient Chinese*, ed. by Jerome L. Packard, 103-134. New York: Mouton de Gruyter.
- Di Sciullo, A. M., and E. Williams. 1987. *On the Definition of Word*. Cambridge, MA: MIT Press.

- Dragunov, A. A. 1952. *Issledovanija po Grammatike Sovremennogo Kitajskogo Jazyka*. Moscou: Akademija Nauk.
- Duanmu, San. 1998. Wordhood in Chinese. *New Approaches to Chinese Word Formation: Morphology, Phonology and the Lexicon in Modern and Ancient Chinese*, ed. by Jerome L. Packard, 135-196. New York: Mouton de Gruyter.
- Embick, D., and R. Noyer. 2001. Movement operations after syntax. *Linguistic Inquiry* 32:555-595.
- Goldsmith, A. John. 1976. *Autosegmental Phonology*. Doctoral dissertation, MIT.
- Golston, Chris. 1995. Syntax outranks phonology: Evidence from Ancient Greek. *Phonology* 12:343-368.
- Huang, C.-T. James. 1982. *Logical Relations in Chinese and the Theory of Grammar*. Doctoral dissertation, MIT.
- Huang, C.-T. James. 1988. *Wo pao de kuai* in Chinese phrase structure. *Language* 64: 274-311.
- Kang, Mi-Og. 1995. Reduplication in Chinese. MA thesis, National Tsing Hua University.
- Lai, Huei-ling. 1988. A preliminary study on Hakka *do*. MA thesis, National Chengchi University.
- Lai, Huei-ling. 2002. From verb to verbal affix: Evidence from the verb *do* in Hakka. *Form and Function: Linguistic studies in honor of Shuanfan Huang*, ed. by Lily I-wen Su, Chinfa Lien, and Kawai Chui, 225-247. Taipei: Crane.
- Leben, William. 1973. *Suprasegmental Phonology*. Doctoral dissertation, MIT.
- Li, Charles N., and Sandra A. Thompson. 1981. *Mandarin Chinese: A Functional Reference Grammar*. Berkeley: University of California Press.
- Li, Shan. 2003. *Dongci Chongdieshi Yanjiu [A Study of Verb Reduplication]*. Beijing: Yu-wen.
- Li, Yafei. 1998. Chinese resultative constructions and the uniformity of theta assignment hypothesis. *New Approaches to Chinese Word Formation: Morphology, Phonology and the Lexicon in Modern and Ancient Chinese*, ed. by Jerome L. Packard, 285-310. New York: Mouton de Gruyter.
- Lin, Chien-Jer. 2003. Aspect is result: Mandarin resultative constructions and aspect incorporation. *Proceedings of the West Coast Conference on Linguistics (WECOL)*, ed. by Benjamin V. Tucker, 437-464. Fresno, CA: California State University Pres.
- McCarthy, John. 1979. *Formal Problems in Semitic Phonology and Morphology*. Doctoral dissertation, MIT.
- McCarthy, John. 1981. A prosodic theory of nonconcatenative morphology. *Linguistic Inquiry* 12:373-418.

- McCarthy, John. 1986. OCP effects: Gemination and antigemination. *Linguistic Inquiry* 17:207-263.
- McCarthy, John, and Alan Prince. 1993a. Generalized alignment. *Yearbook of Morphology*, ed. by G. E. Booij, and J. van Marle, 79-153. Dordrecht: Kluwer.
- McCarthy, John, and Alan Prince. 1993b. Prosodic morphology I: Constraint interaction and satisfaction. Unpublished manuscript, University of Massachusetts, Amherst, and Rutgers University, New Brunswick.
- Mei, Kuang. 1972. *Studies in the Transformational Grammar of Modern Standard Chinese*. Doctoral dissertation, Harvard University.
- Mohanan, Tara. 1994. Case OCP: A constraint on word order in Hindi. *Theoretical Perspectives on Word Order in South Asian Languages*, ed. by Miriam Butt, Tracy Holloway King, and Gillian Ramchand, 185-216. Stanford: CSLI publications.
- Morimoto, Yukiko. 2001. Deriving the directionality parameter in OT-LFG. *Proceedings of the LFG01 Conference*, ed. by Miriam Butt, and Tracy Holloway King, 238-258. Stanford: CSLI publications.
- Nespor, Marina, and Irene Vogel. 1982. Prosodic domains of external sandhi rules. *The Structure of Phonological Representations (Part I)*, ed. by van der Hulst, H. and N. Smith, 225-255. Dordrecht: Foris Publication.
- Nespor, Maria, and Irene Vogel. 1986. *Prosodic Phonology*. Dordrecht: Foris Publication.
- Packard, J. 2000. *The Morphology of Chinese: A Linguistic and Cognitive Approach*. Cambridge, MA: Cambridge University Press.
- Paris, Marie-Claude. 1979. *Nominalization in Mandarin Chinese*. Paris: Department de Recherches Linguistiques, Universite Paris VII.
- Paris, Marie-Claude. 1988. Durational complements and verb copying in Chinese. *Tsing Hua Journal of Chinese Studies New Series* 28:423-439.
- Prince, Alan, and Paul Smolensky. 1993. *Optimality theory: Constraint interaction in generative grammar*. Unpublished manuscript, Rutgers University, New Brunswick, and University of Colorado, Boulder.
- Ross, Claudia. 1984. Adverbial modification in Mandarin. *Journal of Chinese Linguistics* 12:207-234.
- Selkirk, Elisabeth O. 1982. *The Syntax of Words*. Cambridge, MA: MIT Press.
- Selkirk, Elisabeth O. 1984. *Phonology and Syntax: The Relation between Sound and Structure*. Cambridge, MA: MIT Press.
- Shi, Dingxu. 1997. Issues on Chinese passives. *Journal of Chinese Linguistics* 25:41-70.



- Tai, James H-Y. 1973. A derivational constraint on adverbial placement in Mandarin Chinese. *Journal of Chinese Linguistics* 1:397-413.
- Tang, Ting-Chi. 1977. *Guoyu Bianxing Yufa Yanjiu [Studies of Transformational Grammar of Chinese]*. Taipei, Taiwan: Student Book.
- Tang, Ting-Chi. 1988. *Hanyu Cifa Yufa Lunji [Studies on Chinese Morphology and Syntax I]*. Taipei, Taiwan: Student Book.
- Tang, Ting-Chi. 1989. *Hanyu Cifa Yufa Xuji [Studies on Chinese Morphology and Syntax II]*. Taipei, Taiwan: Student Book.
- Tang, Ting-Chi. 1992a. *Hanyu Cifa Yufa Sanji [Studies on Chinese Morphology and Syntax III]*. Taipei, Taiwan: Student Book.
- Tang, Ting-Chi. 1992b. *Hanyu Cifa Yufa Siji [Studies on Chinese Morphology and Syntax IV]*. Taipei, Taiwan: Student Book.
- Xiao, Richard, and Tony McEnery. 2004. *Aspect in Mandarin Chinese: A Corpus-based Study*. Amsterdam and Philadelphia: John Benjamins.
- Yip, Moria. 1995. Repetition and its avoidance: The case of Javanese. Unpublished manuscript, University of California, Irvine.
- Yip, Moria. 1998. Identity avoidance in phonology and morphology. *Morphology and Its Relation to Phonology and Syntax*, ed. by Stephen G. Lapointe, Diane K. Brentari, and Patrick M. Farrell, 216-246. Stanford, CA: Center for the Study of Language and Information.
- Zang, Ling-Ying. 1988. *Keyu de gouci yu yufa yanjiu [Studies in Hakka morphology and syntax]*. MA thesis, Fu Jen Catholic University.

[Received 14 September 2007; revised 17 December 2007; accepted 11 January 2008]

Department of Anthropology  
University at Albany, State University of New York  
Albany, NY, USA  
Yu-Ching Tseng: [ty3067@albany.edu](mailto:ty3067@albany.edu)

## 從優選理論分析客語的動詞重疊結構

曾郁景

紐約州立大學奧本尼分校

客語和其他漢語相同，動詞後面可以跟隨修飾動詞的補語，如果在動詞跟補語之間插入其他詞組，則該動詞必須被複製於介入詞組與補語之間。本文以優選理論分析上述動詞重疊結構，並主張由於補語必須緊貼動詞，這個動詞強制重疊現象可以經由兩個規範詞素位置的制約條件來解釋。另一方面，如果補語緊跟在動詞之後，該動詞不能接受複製，此現象可由「強制性非等值原則」來說明，此原則不允許相同成分相鄰，如果動詞複製會造成兩個相同動詞相鄰，便違反此一強制原則。

關鍵詞：客語、動詞重疊、優選理論、強制性非等值原則