

**A PREDICATION THEORY FOR ENGLISH RESULTATIVE AND
CANTONESE RESULTATIVE *DOU*-CONSTRUCTIONS**

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Abstract

The present work is to investigate whether the syntax and predication theory proposed by Bowers (1993) can be extended to resultative constructions, first to English and next to Cantonese, a dialect of Chinese. Bowers has assigned a single predication structure to intransitive resultative construction but he has not yet attempted to extend the proposed theory to resultative constructions with transitives as well as ergatives.

A causative verb is assumed to be adjoined to an abstract [+caus] verb in an upper PrP in order to check the morphological feature [+caus]. The present work shows that Bowers' theory, in general, can be a theory of predication with some modifications. Bowers is found to have mistakenly interpreted the nature of resultative verb, and consequently the single predication structure assigned to resultative constructions is found to be unsatisfactory. Following the work of Levin and Rappaport (1995), resultative verbs are analysed as causative verbs. Hence, the present study proposes that both intransitive and transitive resultative constructions have a double predication structure.

My work shows that predication theory of Bowers operates well in English resultatives whose predication relations between the resultative predicate and the underlying postverbal NP in transitive, unergative and unaccusative resultatives, the verb and the sentential subject in transitive and unergative resultatives seem plausible to hold. The present work focusing on Cantonese resultative *dou3* constructions shows that Bowers' predication theory can be extended to Cantonese resultatives.

Dou3 and *dak1* are distinct in Cantonese. It is suggested that *dou3*-phrase belongs to resultative expression while *dak1*-phrase is a descriptive expression. Moreover, resultative *dou3*-expressions are clausal complements. Cantonese resultative *dou3*-construction is proposed to have the following syntactic structure:

(1) NP₁ V- *dou3* NP₂ XP

The present work also revises Cheung's (1972) analysis of *dou3* followed by a locative NP as a resultative complement was wrong. A locative NP is only a goal phrase further specifying an endpoint inherent in the meaning of the verb *dou3*, and the verb *dou3* with the meaning *arrive* is different from the extent complement marker *dou3* in resultative constructions. Hence [*dou3*+NP] is not a resultative complement. Such an analysis confines a Cantonese resultative complement to a clausal element.

The results of this investigation show that with some modifications, Bowers' framework can describe the predication relation of both English and Cantonese resultatives.

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CHAPTER I

INTRODUCTION

Resultative constructions have been covered in a number of studies in the literature, but there has been little attempt to reconcile the contrasts found between different languages.

English Resultatives

- (1) Mum ironed the napkins flat.
- (2) Mum cried her eyes out.
- (3) Napkins were ironed flat.

Cantonese Resultatives

- (4) Keui5 yam2 dou3 baau2-saai3.
He/she drink till full-PRT
'He/she drank herself full.'
- (5) Ngo5 haam3 dou3 gui6-saai3.
I cry till tired-PRT
'I cried myself tired.'
- (6) Keui5 piu3 baak6-jo2 tiu4 fu3.
He/she bleach white-PFV CL trousers
'She bleached the trousers white.'

The present work begins with a review of some of the characteristics of English resultatives. The literature (Rapoport 1986, Levin and Rappaport 1995) has shown that there is a predication relation between the resultative predicate and the underlying NP in postverbal position. The question whether this relation can be represented structurally is raised. Among predication theories in the literature, Bowers' predication theory

(1993) is revised to accommodate the predication relation shown in resultatives. My work here is to investigate whether the syntax proposed by Bowers can be extended to resultative constructions, first to English and then to Cantonese, a dialect of Chinese. The results of this investigation show that the predication relations of English and Cantonese resultatives can also be represented in Bowers' framework. This is certainly independent evidence in support of the theory of predication structures which Bowers proposed.

My work shows that predication theory of Bowers operates well in English resultatives where predication relations between the resultative predicate and the underlying postverbal NP in transitive, unergative and unaccusative resultatives, the verb and the sentential subject in transitive and unergative resultatives seem to hold.

The next question is to explore the plausibility of extending Bowers' work to Chinese resultatives. In the literature on Chinese linguistics, the focus of resultatives has long been on the ambiguity of resultative verb compounds (Thompson 1973, Lu 1977, Chang 1989, Ross 1990, Li 1990a, 1993, 1995, Gu 1992). A popular example is the Mandarin sentence in (7), which is often cited and discussed in Li's previous work (1990a, 1993, 1995).

- (7) Taotao zhui-lei-le Youyou le.
Taotao chase-tired-asp Youyou LE
'Taotao chased Youyou and as a result Taotao / Youyou got tired.'

The literature (Lu 1977, Chang 1989, Ross 1990, Li 1990a, 1990b, 1993, 1995) has also demonstrated that the structure and interpretation of resultative verb compounds is neither idiosyncratic nor pragmatically determined as suggested in Thompson's study (1973). Rather, the formation and interpretation of resultative verb compounds are determined by certain semantic features of verbs and by the thematic roles assigned by

verbs (Ross 1990). Though the ambiguous interpretation of Chinese resultatives obviously appears to be problematic in an attempt of extending Bowers' work to Chinese which has productive resultative compounds, the classical Mandarin examples cited and discussed in the literature that demonstrate ambiguity are not (at least rarely) found in Cantonese. The present study does not focus on the ambiguity of resultative verb compounds. It is worth noting that though the ambiguity of Chinese resultative verb compounds has been discussed in the literature, many questions about the syntactic structure of Chinese resultative constructions remain unexplored. The grammaticality of (8-9) still needs explanation whilst their English counterparts in (10-12) are ungrammatical:

Cantonese Resultatives

- (8) Keui5 yam2 dou3 baau2-saai3.
 He/she drink till full-PRT
 'He/she drank herself full.'
- (9) Ngo5 haam3 dou3 gui6-saai3.
 I cry till tired-PRT
 'I cried myself tired.'

English Resultatives

- (10)* He drank full.
 (11)* He ran tired.
 (12)* He cried tired.
- (13) He drank himself full.
 (14) He ran himself tired.
 (15) He cried himself tired.

For intransitive resultatives in Chinese, the resultative predicate seems to be predicated of the sentential subject. With the absence of a postverbal NP, it poses a problem to the DOR: Direct Object Restriction, a generalisation whose basic insight is that a resultative phrase is predicated of the immediately postverbal NP (Levin and Hovav 1995). we argue that in both English and Cantonese transitive resultative constructions, the resultative predicate is not predicated of the direct object. Instead, it is predicated of *PRO* base-generated at the specifier of the embedded PrP. In addition, *PRO* is controlled by the direct object in English.

(8-9) show that besides V-V compounds, Cantonese resultative constructions are found with *dou3* 'until'. An issue of immediate concern is where and what *dou3* is. Furthermore, what is the syntactic structure of these Cantonese resultative constructions? Does their syntactic structure observe the predication relation between the predicate and its subject?

One of the focuses of this study is to give a description of the syntactic structures of Cantonese resultative constructions with *dou3*, which is found to be an extent complement marker. The present study also demonstrates that Bowers' predication theory, with some modifications, can provide an adequate structural description of English and Cantonese resultative constructions.

This study has adopted the system of LSHK Jyutping.

CHAPTER II

THEORETICAL BACKGROUND

2.1 Introduction

In order to account for the phenomena of particular languages ('descriptive adequacy'), and to explain how knowledge of these facts arises in the mind of speaker-hearer ('explanatory adequacy'), generative grammarians have been modelling the Universal Grammar (UG) which comprises a finite system of rules which are believed to be capable of generating an infinite set of well-formed sentence-structures in the language. The grammar must be precise and it contains a highly constrained set of principles because only a maximally constrained theory of language can lead to the development of an adequate theory of language acquisition. A child is believed to be born with a 'language faculty' which innately endows him with the knowledge of what these principles are.

The basic assumption of the Principles and Parameters (P & P) Model (Chomsky 1981a, 1981b, 1981c, Freidin 1991) is that there are universal principles and a finite array of options as to how parameters apply. Under the P & P approach, D-structure is seen as the level of syntactic representation projected from the lexicon in accordance with the Projection Principle and subject to the X'-theory of phrase structure rules (Chomsky 1981a) that only structures which can be lexicalised are well-formed. Syntactic representations must be projected from the lexicon, in that they observe the subcategorisation properties of lexical items. Subcategorisation specifies the range of complement types a given lexical item permits. X'-theory constrains the set of phrase markers allowed; its requirements hold fundamentally at D-structure. It then follows that 'where improper structures are generated, they will be excluded by properties of the lexicon' (Chomsky 1981b, p. 14). S-structure, which represents the superficial syntactic structure of sentences, is the level of structure in syntax. The two levels of

structure (D-structure and S-structure) inter-related by a set of movement rules known technically as transformations (i.e. move α) are incorporated into the model.

The P & P approach to grammar grows out of a consideration of the interaction of mechanisms like move α and of principles such as the Case filter, which states that any NP with phonological content must receive a Case from a Case assigner. Any derivation is grammatical as long as no principle is violated.

Chomsky (1992, 1994) has made a move to the Minimalist Program (MP). The major changes are: constituents move for a reason, not freely; grammaticality depends on a comparison of derivations; principles apply only at the interface of Phonetic Form (PF) and Logical Form (LF) (Chomsky 1992, 1994). The MP gives up the notion that the starting point of the derivation is a single constituent structure tree; instead it claims that syntactic structures are built through generalised transformations that may insert already formed trees into trees (Chomsky 1994). In the further development of MP, Chomsky even abandons X' theory and proposes a conceptually simpler system of syntactic composition. There is no specific level of S-structure in the MP. In other words, D- and S-structures no longer figure into the system. There are no levels of linguistic structure apart from the two interface levels PF and LF.

MP derivations start from a set of lexical resources. Computation involves putting lexical items together and competition among derivations (since an optional grammatical derivation is the most economical one from a set of competing derivations) involves comparison of computations on the same set of lexical items.

Although derivations have no D-structure starting point, comparison of computations and competition among derivations require some sort of 'base' (Marantz 1994).

Moreover, in the computation of a grammatical representation in MP, corresponding to

the former S-structure, there is a point called 'spell out' where derivation splits and heads towards the two interface levels, PF and LF.

For the ease of discussion and illustration of derivations, P & P approach is adopted in the present study because it has a clear notion of 'starting point' of a derivation.

Nevertheless, Economy principles are still assumed to operate across the grammar to constrain the grammar to a minimal. It is a 'least effort' principle (Chomsky 1991) that there is no redundant operation in derivational process and no superfluous symbol in representation. UG principles are more economical than language specific rules. All movements are costly, so elements are moved for a reason. Overt movement is more costly than covert movement, and shorter derivation is more favourable than longer ones. Deletion and assertion are the last resorts.

In addition to Economy principles, the Checking Theory is also assumed. Each lexical item in the lexicon exists as a set of features. The features are checked against in the functional category domain F in the category Inflection, abbreviated to Infl, or simply I. In other words, Infl serves as checking domains for relevant features instead of having morphological elements as traditionally assumed. When a verb is projected from the lexicon, it carries with it a bunch of inflectional features. With this assumption, aspectual markers in Chinese are analysed as verbal suffixes base-generated with the verb (Gu 1995).

2.2 θ -Theory and Arguments

Lexical entries include the specification of the θ -role which assigns to each of their arguments. There exist a set of thematic relations such as agent, theme, experiencer, instrument, goal, etc. distinct from constituent structure relations. θ -theory is concerned with how thematic dependencies are represented in grammar. Arguments play a thematic role independent of their constituent structural status. For example, a

verb such as *roll* in transitive structure in (1) and in ergative structure in (2) assigns the same θ -role theme to its argument *the ball* which has a different constituent structure status in the two cases: object of the verb in (1) and subject in (2).

- (1) The boy rolled the ball down the road.
- (2) The ball rolled down the road.

The fundamental principle of θ -theory is the θ -Criterion (Chomsky 1981), a biuniqueness condition on θ -role assignment:

- (3) Each argument bears one and only one θ -role, and each θ -role is assigned to one and only one argument.

The argument structure and θ -marking properties of lexical items vary across syntactic categories. For instance, nouns may have argument structure; they never θ -mark directly but via prepositions. Examples are:

- (4) construction of the bridge
destruction of Rome
development of suburbs
preparation of the food

Grimshaw (1990) suggests that this can be explained in terms of government. Nouns are not governors and government is required for θ -marking. Based on Chomsky (1986b), government is a locality relation holding between two items:

- (5) A governs B iff A c-commands B and there is no category C such that C is a barrier between A and B.

There are two definitions regarding c-command: one is based on first branching nodes (Reinhart 1973) and the other is based on containment in maximal projections (Aoun

and Sportiche 1983). In order to avoid confusion, Chomsky (1986b) refers to the former one as strict c-command and the latter one m-command.

In the cases in (4), NP *Rome* is the complement of N *destruction*, NP *a suburb* the complement of N *development*:

(6) $[_{NP} \text{ destruction } [_{PP} \text{ of } [_{NP} \text{ Rome}]]]$

(7) $[_{NP} \text{ development } [_{PP} \text{ of } [_{NP} \text{ suburbs}]]]$

As nouns are not governors, N *destruction* and *development* cannot θ -mark their complement but via preposition *of*.

θ -roles may be assigned by a lexical head to its complement as defined by x-bar theory in which all categories project in the same way:

(8) $XP \rightarrow \text{specifier}; X'$

$X' \rightarrow X'; YP$

$X' \rightarrow X'; YP$

A three-level theory of syntax in which there are heads, single-bar constituents and phrasal constituents is assumed.

θ -roles may also be assigned compositionally by the head and its complements to the nearby subject position. The former type is called an internal θ -role and the latter the external θ -role (Williams 1980). Chomsky (1986b) defines direct θ -marking:

(9) α directly θ -marks β only if α and β are sisters.

Accordingly, a head directly θ -marks its complement. However, the θ -role of the subject is determined by the semantics of the head and its complement, as shown in (10-11):

(10) I cut my head open in an accident.

(11) I cut a long story short.

The sentential subject is assigned the role of Experiencer in (10) but the role of Agent in (11). The subject NP receives a so-called 'compositional' θ -role from the entire VP. In Chomsky's terminology, the verb θ -marking the subject NP compositionally is called indirect θ -marking.

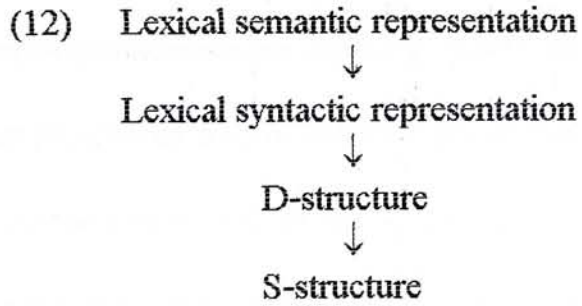
2.3 Argument Structure / Lexical Syntactic Representation

According to the Projection Principle (Chomsky 1981), syntactic structure is projected from the lexicon in that it observes the subcategorization properties of lexical items (i.e. information about the range of categories which a given item allows or requires as its complement) at all levels, LF, D- and S-structures.

Lexical categories bearing the features [$\pm V$, $\pm N$] have the property of being able to have arguments. In semantic projection, the number of arguments a predicate requires is specified in the lexicon in the argument structure or θ -grid (i.e. the abstract specification of thematic function fulfilled by each of the arguments which a given predicate permits) for the relevant items.

Argument structure (henceforth, A-structure) refers to the lexical representation of grammatical information about a predicate. Hence, the A-structure of a lexical item is seen as part of its lexical entry (Grimshaw 1990). A-structure is projected from lexical-semantic structure and D-structure is projected from argument structure and are

subject to the x-bar theory of phrase structure rules. The organisation of the A-structure for a predicate is taken to be a reflection of its lexical semantics. Consequently, A-structure cannot be freely altered by rules. (12) is assumed:



In the works of de Sciullo and Williams (1987), Marantz (1984), Belletti and Rizzi (1988), A-structure is seen as consisting of a set of arguments represented by θ -role labels. The representations of A-structure drawn from these works¹ are given below:

- (13) give (theme, goal)
 put (theme, location)

- (14) see (A, Th)

- (15) preoccupare 'worry' [Experiencer, Theme]

¹ (13) is cited from Marantz (1984, p.18); (14) is cited from di Sciullo and Williams (1987, p. 29); and (15) is cited from Belletti and Rizzi (1988, p.344).

Williams (1980) introduces the notions of internal and external θ -roles and the notions of internal and external arguments. Grimshaw (1990) proposes that instead of consisting of a set of arguments, A-structure is a structured representation over which relations of prominence are defined. According to Grimshaw, the external argument is the most prominent and the internal arguments also have prominence relative to each other. According to Belletti and Rizzi (1988), argument structure is supposed to be constructed in accordance with a thematic hierarchy, which is assumed to be universal rather than language-particular:

(16) (Agent (Experiencer (Goal / Source / Location (Theme))))

In the A-structure, the most prominent argument is also the most syntactically prominent argument, the subject. For an agentive verb like *write*, the agent is always the most prominent argument, hence the subject.

(17) write (x (y))
 Agent Theme

Psych-verbs such as *hate*, *admire*, *fear* are like agentive predicates. The prominence relations of their A-structure are maintained configurationally, with the most prominent element, the experiencer, acting as a subject and the theme as an object.

(18) They fear thunder.
 ↓ ↓
 experiencer theme

However, the *frighten*-class psych-verbs pose problems to the prominence theory of A-structure since the experiencer, with the maximal thematic prominence, is not realized as a subject, as shown in (19):

- (19) Thunder frightens them.
 ↓ ↓
 theme experiencer

Grimshaw argues that the two classes of psych-verbs have the same thematic prominence relations but have different aspectual properties with respect to the D-structure realization of their arguments. Each argument is indexed with a number: one which appears in the first sub-event is numbered as 1 and 2 if it appears in the second. The argument indexed with 1 is the most prominent. The interaction between the aspectual analysis and thematic analysis for the major verb classes are examined in Grimshaw (1990, p. 28):

- (20) Transitive agentive
 (Agent (Theme))
 1 2
- (21) Ditransitive
 (Agent (Goal (Theme)))
 1 x x
- (22) unergative
 (Agent)
 1
- (23) Psychological state
 (Experiencer (Theme))
 1 2
- (24) Psychological causative
 (Experiencer (Theme))
 2 1

For the *fear*-class, the experiencer is maximally prominent both thematically and aspectually, given (23). For the *frighten*-class, the experiencer is not the aspectually most prominent argument; the theme is. A mismatch between the aspectual and thematic analysis results as shown in (24). Finally, the agentive counterparts to the members of the *frighten*-class will have the representation (25) cited from Grimshaw (1990, p.28), in which the two dimensions are perfectly aligned:

- (25) Agentive psychological causative
(Agent (Experiencer))
1 2

There is evidence that argument structure (or lexical syntactic representation) is present. Such evidence comes from different properties of passive, and ergatives as well as middles. Consider the passive examples first:

- (26) The chicken sandwiches had been buttered (by mom).
(27) The song was sung (by Belinda Carlisle).

According to Burzio (1986), the subject NP in a *by*-phrase receives the 'assignment of thematic subject role' (p. 187-188) which is different from the assignment of the θ -role to the subject that the realization of the thematic-subject role is optional. According to Jaeggli (1986), *by*-phrase is an optionally subcategorised element. The NP in a *by*-phrase requires a θ -role which is optionally listed in the lexical entry of a passive verb. In other words, this optionally subcategorised position must be linked to a θ -role listed in the lexical entry of a predicate and this θ -role is considered to be optional. The optional presence of a *by*-phrase in (26-27) can be straightforwardly accounted for. In

passive construction, it is called a 'long passive' in the terminology of Baker et al. (1989, p.223) if the thematic role is overtly realised.

Jaeggli (1986) further points out that the NP in a passive *by*-phrase is interpreted as bearing the external θ -role of a passivized predicate. Therefore, its interpretation can be Agent, Source, Goal and Experiencer. Sentences from Jaeggli (1986, p. 599) illustrate this point:

- (28) Kennedy was killed by one of his guards. (Agent)
- (29) The card was sent by Winnie. (Source)
- (30) The letter was received by Dennis. (Goal)
- (31) The Dean of students is respected by students. (Experiencer)

It has been shown that in passives the external θ -role has to be realised in a marked way as a *by*-phrase which supports the assumption of external θ -role absorption. According to Jaeggli's analysis, the verb does assign a θ -role but it is received by the passive morpheme *-en*, which functions as the recipient of the external θ -role of the predicate. Jaeggli assumes θ -role transmission which is simply interpreted as θ -role assignment from the passive suffix to the *by*-phrase. He assumes that the passive morpheme is an argument to which the verb assigns the external θ -role; and the argument structures of both the verbal head and the passive suffix percolate to the branching node dominating them. Then, the external θ -role is assigned to the PP, percolating to the head of PP, *by*, from which the passive morpheme assigns the θ -role to the sentential subject NP. Since it is not listed in the lexicon that the suffix *-en* has a θ -role to assign, a *by*-phrase is not an argument of the verb. The passive suffix receives such a θ -role only after it has been suffixed to a verbal stem.

However, the position and the nature of the *by*-phrase in x-bar theory is still far from clear in Jaeggli's analysis. If the *by*-phrase is not an argument of the verb specified in the lexicon, does it entail that *by*-phrase in a passive construction is an adjunct? In my investigation in passives in English (1992), the passive *by*-passive is found to have the property of an adjunct: it can commute with other adjuncts in sentences:

- (32) Tom_i was killed t_i [this afternoon] [by John].
- (33) Tom_i was killed t_i [by John] [this afternoon].
- (34) Tom_i was killed t_i [in the park] [this afternoon] [by John].
- (35) Tom_i was killed t_i [this afternoon] [by John] [in the park].

For the reasons mentioned above, I speculate that *by*-phrase is an adjunct in a passive construction while the trace of the moved object NP is the complement of the lexical verb. Thus, t_i in (32) is the complement of the verb *kill*. The optionality of the *by*-phrase entails the optional realisation of the agentive NP. External θ -role absorption in passives does not take place before the projection of A-structure. The presence of *by*-phrase in passive suggests that the NP bearing an agentive θ -role is still projected into A-structure.

(36-41) observed by Roeper (1987) still requires an explanation for why the passive constructions in (36), (38), (40) allow a *by*-phrase or a purpose clause whereas ergative constructions in (37), (39), (41) do not.

- (36) The ship was sunk by Alan.
- (37)* The ship sank by Alan.

- (38) The window was broken by Alan.
- (39)* The window broke by Alan.

(40) The boat was sunk to collect the insurance.

(41)* The boat sank to collect the insurance.

Following Burzio (1986) and Jaeggli (1986), Grimshaw (1990) propose that passivization of a verb involves binding a position in the argument structure of a verb. The external argument is bound (or suppressed), therefore, the lexically bound argument cannot be directly expressed in the syntax. However, the argument is still present in argument-structure since lexical binding in passivization takes place in A-structure. This explains why the effect of external argument is observed in (36), (38), (40).

2.4 Lexical Semantic Representation

In regards of ergatives and middles, Levin and Rappaport (1995) observe that ergatives and middles are the intransitive forms of externally caused verbs with an overtly identified external cause arising from binding the external cause within the lexical semantic representation, where this binding is interpreted as existential quantification. In other words, ergative and middle have undergone detransitivization.

Levin and Rappaport (1995) suggest that this lexical binding of the external cause takes place in the mapping from the lexical semantic representation (henceforth LSR) to argument structure. Such lexical binding prevents the projection of this position into argument structure, and onto the syntax since there is no argument associated with this position in the syntax.

Lexical properties of verbs are represented in lexical semantic representation.

According to Levin and Rappaport (1995), the lexical semantic representation of transitive verbs like *tear* and intransitive verbs like *die* are as follows:

(42) Transitive verb

tear : [[x do something] CAUSE [y become TORN]]

(43) Intransitive verb

die : [x die]

Causative transitive verbs have a complex lexical semantic representation involving the predicate CAUSE representing the meaning of these verbs as involving two sub-events, where there are two arguments each an argument of CAUSE: causer and causee.

For intransitive verbs such as *die*, *laugh*, *bark*, they do not involve the predicate CAUSE in lexical semantic representation. There is only one single event in LSR and it is taken to be basically monadic.

Levin and Rappaport (1995) further mention that ergative verbs are 'alternating unaccusative verbs' (p. 85). Their lexical semantic representation is basically the same as that of their transitive counterparts. Ergatives are causative (dyadic) in lexical semantic representation, however, their lexical syntactic representation consists of one single direct internal argument. The causer argument which is lexically bound is prevented from being projected onto lexical syntactic representation.

Detransitivization of *tear* can be schematized in (44):

(44) Unaccusative *tear*

LSR

lexical binding

linking rules

lexical syntactic
representation

[[x do something] cause [y become TORN]]

↓

∅

↓

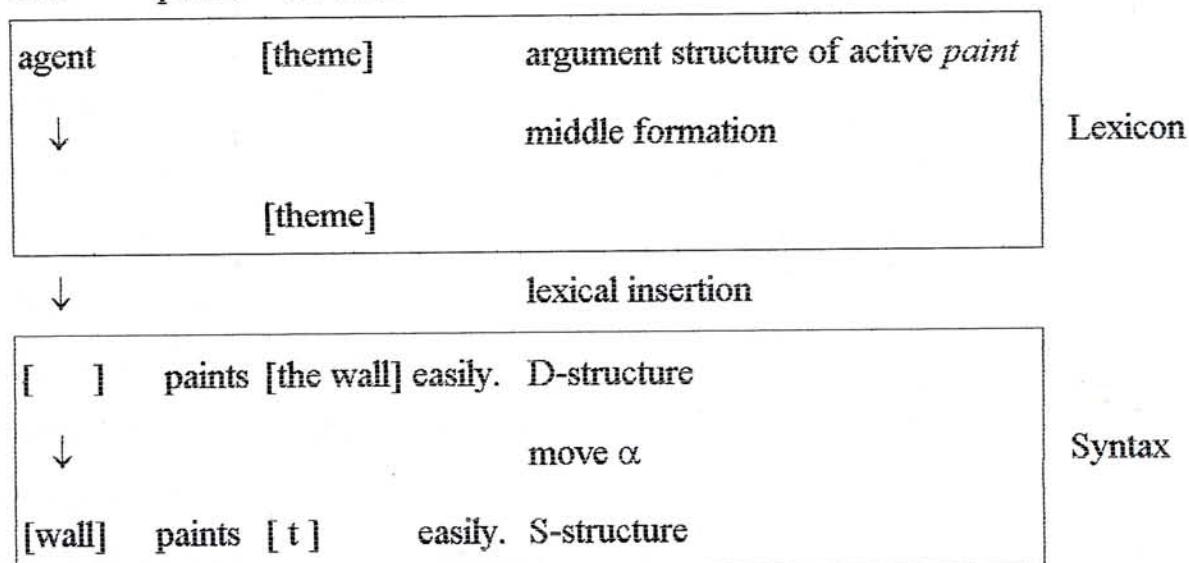
<y>

According to Levin and Rappaport, transitive *tear* means something like *cause to become torn* whereas unaccusative *tear* appears to mean *become torn*.

With the detransitivization process described in (44), the absence of causers in (37), (39), (41) is expected and their ungrammaticality follows straightforwardly.

Carrier and Randall (1992) adopt the view that middle formation involves the suppression of the external argument of the verb as well as the verb's ability to assign accusative Case, and externalisation of a direct θ -role (Fagan 1988). To be more implicit, middle formation applies only to a verb with a direct internal argument.

(45) She paints the wall.



(46) The wall paints easily.

However, (45) is still far from being clear as to explain why middle verb allows an agentive-oriented adverb *easily* whilst an ergative verb in (47) does not allow an agent-oriented adverb:

(47)* The boat sank easily.

The presence of an agentive-oriented adverb suggests that the external argument of a middle verb is still projected onto A-structure. It has not yet been suppressed until the

projection of D-structure. Therefore, middle construction of (46) should involve the following:

(48)	Middle <i>paint</i>				
	LSR	x	paint	y	easily
	linking rules	↓		↓	
	A-structure	<x>		<y>	
		↓		↓	
	D-structure	∅		<y>	
	move α				
	S-structure	y _i	paint	[t _i]	easily

2.5 Summary

The main concern of the present study is to propose a modified version of Bowers' (1993) predication theory for resultative constructions. The focus is the predication relation between the resultative predicate and arguments. Therefore, a review of θ -Theory and argument structure is understood to be a prerequisite for ensuing discussions. Moreover, for the ease of later discussion, the formation of passives, ergatives and middles has been discussed in this chapter since these verbs share some striking similarities and apparent differences in resultative constructions, which are going to be discussed in the next chapter. Moreover, middle formation also serves as a piece of evidence arguing for postverbal NP in a transitive resultative being an argument of the verb.

CHAPTER III

ENGLISH RESULTATIVES

3.1 Introduction

In recent linguistic research, more and more attention has been paid to complex predicate structures. Resultative construction is one of the complex predicate structures. A resultative construction is a construction with an XP specifying a change of state of the referent of the NP as a result of the action denoted by the main verb. However, not all natural languages have a resultative construction, for instance, resultative constructions are not found in Hebrew (Rapoport 1986). Although resultative construction has been covered in a number of studies in the literature, there is little attempt to distinguish a resultative from a depictive construction, and to reconcile the contrast between languages that allow resultative construction and those disallow.

English resultatives

- (1) Mum tore the test paper into pieces.
- (2) Mum cried her eyes out.
- (3) The test paper tore into pieces.

Hebrew allows depictives as shown in (4-5) but resultatives are disallowed, as (6-7) show¹:

¹ (4-7) are cited from Rapoport (1986, p. 208) and the difference of (4-5) and (6-7) is that the former contain a stative while the latter a causative/resultative.

Depictives

- (4) Rut ohevet [et ha-kafe shela shaxor].
Rut likes her coffee black
- (5) Kobi kana [et ha-sapa meshumesh-et].
Kobi bought the sofa used

Resultatives

- (6)* Avi niger [et ha-kelim yavesh].
Avi wiped the dishes dry.
- (7)* Meira avda [et acma xola].
Meira worked herself sick.

Though both English and Chinese allow resultative constructions, they both demonstrate that resultative constructions are not found with certain verbs:

- (8) *The Loch Ness monster appeared famous².
- (9) *The sportsmen felt the rug threadbare through their shoes.

Even though some verbs are found with their XPs inside the VPs they head, these XPs can only be interpreted as depictive phrases.

- (10) Carla remained in the country bored.
- (11) Willa arrived tired.

² The sentence is grammatical meaning that '*the monster appeared to be famous*'. It does not have a resultative interpretation.

(10) and (11) are not resultative constructions that the states are not the results of the actions denoted by their main verbs: that *Carla became bored* is not the result of *remaining in the country* in (10); that *Willa became breathless* is not the result of *arriving* in (11); and even Chinese data demonstrate similar interpretation to that *the driver was dead* is not the result of *being sent to hospital* in (12).

Cantonese

(12) Si1gei1 sung3 yun2 bat1 zi6.

driver sent to hospital dead

'The driver was dead when he was sent to hospital.'

To address these two questions - the absence of resultatives in certain languages and the absence of resultatives with certain verbs - depends on our understanding of features of resultative constructions, contrast between depictive and resultative construction, as well as the formation of resultatives. The next section is devoted to a literature review of the features of English resultatives.

3.2 Features of English Resultatives

An account of the main features of English resultatives will help to distinguish a resultative construction from a depictive one and to establish what a resultative construction is.

3.2.1 Categories for Resultative Phrase

The resultative phrase is fairly free in terms of category - it can be an AP, PP or NP:

AP resultative phrase

- (13) She pounded the dough [_{AP} flat as a pancake].
(14) She painted the barn [_{AP} red].

PP resultative phrase

- (15) She pounded the dough [_{PP} into a pancake].

NP resultative phrase

- (16)* She pounded the dough [_{NP} a pancake].
(17) She painted the barn [_{NP} a weird shape of red].

The resultative phrase must designate a state (Simpson 1983); then, ungrammaticality of (16) follows: *a pancake* does not denote a state.

The most common category for resultative phrases is AP. However, APs headed by *-ing/-ed* adjectives are barred from resultatives. Carrier and Randall (1992) claim that category selection cannot account for this phenomenon and they resort to the existence of an aspectual clash. The following sentences are cited from their work (1992, p. 184):

- (18) The maid scrubbed the pot [_{AP} shiny/ *shined/ *shining].
(19) The chef cooked the food [_{AP} black/ *blackened/ *charred].
(20) The joggers ran themselves [_{AP} sweaty/ *sweating/ *exhausted].

They propose that the meaning of resultatives aspectually clashes with the meaning of *-ed* and *-ing* adjectives. The questions concern why and in what way APs headed by *-ing/-ed* adjectives clash with the resultatives raise.

One plausible explanation is that the morphemes *-ing/-ed*³ are incompatible with the aspectual meaning of resultatives. *-ing* is usually seen as a progressive morpheme and the morpheme *-ed* is deemed to have a passive force. However, resultative phrases are delimiters to denote that eventualities are terminated (see 3.2.3). If a resultative phrase provides an endpoint to an event, a progressive morpheme is obviously incompatible.

The claim that *-ed* is a passive morpheme is arguable. Consider (21):

(21) She swept away the fallen vase.

(21) shows that not all *-ed* morphemes have a passive force. However, such an *-ed* morpheme applies to an active completed action. To summarise, an *-ed* morpheme either has a passive meaning or a meaning which involves an achieved state. Resultative phrase is expected to be incompatible with the morpheme *-ed* with a passive meaning if the postverbal NP (though it is loosely defined at present) is the subject of the predicative expression (see 3.2.5). In addition, an *-ed* morpheme with a meaning involving an achieved state is thus incompatible with a second syntactically encoded delimiter specifying a change of state. To summarize, an *-ed* morpheme which either has a passive meaning or a meaning which involves an achieved state is incompatible with resultative phrase. Such an analysis can also explain why (22) and (23) are possible. The *-ed* morphemes in (22) and (23) do not have a passive meaning or a meaning which involves an achieved state:

³ The *-ed* morpheme in question is not the past tense morpheme but the past participle.

- (22) He ran himself tired.
(23) He ran his Nikes ragged.

Another possible conjecture is a mismatch in categorial selection such that a resultative phrase cannot be a VP⁴ but *-ing/-ed* adjectives are VP instead of AP.

3.2.2 Resultative Phrase as Complement

Most of the resultatives are idiosyncratic in that they require a resultative phrase that can be satisfied only by a small set of lexical items with a highly idiosyncratic meaning, or even by a unique lexical item only:

- (24) He drove his wife [crazy/ bonkers/ to the brink of lunacy/ *happy].
(25) God smote James [dead/ ??half-dead/ ?black and blue].

(24) shows that the resultative state must denote a deranged mental state; and (25) shows that the resultative state of the verb *smite* must be *dead*. Both (24) and (25) suggest that the verb selects the resultative phrase directly.

However, it is not immediately obvious that the resultative phrase is a complement.

- (26) He worked himself to death.

The resultative phrase in (26) denotes a degree. Hoekstra (1988) claims that the degree interpretation in (26) is not determined by the meaning of the sentence per se,

⁴ There has been a long standing analysis that *-ed* participles are considered to be adjectives.

but its inference: the particular situation of *being dead* was brought about by *his working* with the inference that *he worked very hard*.

Hoekstra argues that the meaning is not different from the meaning of other resultative constructions, and concludes that even the resultative phrase in (26), semantically, is a complement of the verb.

Hoekstra (1988) further suggests that resultative phrase is syntactically a complement of the verb as long as a head governs (i.e. c-commands) its complement. In (27), the lexical postverbal NP receives Case from the matrix verb, and in (28), a trace left by a sentential subject is properly governed by the matrix verb.

(27) John smashed [the safe] open.

(28) The safe_i was smashed t_i open.

Rapoport (1986) explicitly states that the verb θ -selects the resultative phrase. Levin and Rappaport (1995) have closely examined the distribution of resultative phrases with transitive, unergative and unaccusative verbs. They also observe this thematic relation and put it in the following way: 'the resultative phrase is an XP that denotes the state achieved by the referent of the NP it is predicated of as a result of the action denoted by the verb in the resultative construction' (p. 34).

Levin and Rappaport further establish that a resultative phrase, no matter with a transitive or an intransitive verb, is predicated of the immediate postverbal NP but not of a subject or of an oblique complement. Though it is found that not all postverbal NPs that have resultative phrases predicated of them are necessarily analysed as objects, roughly speaking, they refer to this restriction on the distribution of resultative phrases as the Direct Object Restriction (henceforth DOR).

In the remainder of this subsection, the resultative phrases are demonstrated to be predicated of the postverbal NP, leaving the question of whether the postverbal NP is an object or a subject for discussion in 3.2.4. (29-30) are cited from Rapoport (1986, p.207), (31-33) from Carrier and Randall (1992, p. 173) and (34-36) from Levin and Rappaport (1995, p. 34):

Transitive Resultatives

- (29) Abe wiped the dishes dry.
- (30) Lailla hammered the metal flat.
- (31) The gardener watered the tulips flat.
- (32) The grocer ground the coffee beans into a fine powder.
- (33) They painted their house a hideous shade of green.

- (34) Woolite safely soaks all your fine washables clean.
- (35) ... a 1,147 page novel that bores you bandy-legged ...
- (36) ... while she soaps me slippery all over ...

Levin and Rappaport distinguish resultatives from depictives by the property that resultative phrases are only predicated of the immediate postverbal NP of a transitive verb, but never of the subject. In depictives, the XPs can be predicated of the postverbal NP, for example, in (37-38). In (37), the verb *like* assigns a θ -role to *her soup* and another predicate *hot* assigns another θ -role to the postverbal NP *her soup*. However, the XPs can also be predicated of the subject of a transitive verb, but they are depictives which could not receive a resultative interpretation, like (39).

Transitive depictives

- (37) Ruth likes her soup hot.
- (38) Shirley bought the chair used.
- (39) Julia entered the room angry.

(39) cannot receive a resultative interpretation that *Julia got angry as a result of entering the room*, but only that *she entered the room when she was angry*.

The present study suggests that the verb in resultative but not depictive construction is able to assign a θ -role of Causer to the sentential subject and a θ -role of Causee to postverbal NP.

- (40) NP V [NP XP]
 | |
 Causer Causee

3.2.3 Transitive Resultatives

There is not without dispute over the issue postverbal NP in transitive resultative being an argument of a transitive verb. Carrier and Randall have offered four pieces of evidence arguing that the postverbal NP in a transitive resultative is an argument of the verb.

3.2.3.1 θ -role assignment and selectional restrictions

Carrier and Randall (1992, p. 186) argue that *the tulips* in the resultative construction in (41) receives the same θ -role from the verb *water* as it does in the non-resultative construction in (42). However, Kayne (1985) argues to the contrary that the intuition that *the tulips get flat as a result of some watering taking place* in (41) is a result of pragmatics, not argument structure. In other words, it is a result of our real world

knowledge. It follows then in (41), *the tulips* is not selected by the verb; it hence does not have to be the direct internal argument of the verb *water*.

(41) The gardener watered the tulips flat.

(42) The gardener watered the tulips.

Hoekstra (1988) argues for the same point and calls this 'shadow interpretation' (p. 121): the expressions that *the door was painted* in (43) and *the chicken was roasted* in (44) exist independently of the actions mentioned by their corresponding matrix verbs rather than coming into existence through the actions.

(43) They painted the door pink.

(44) They roasted the chicken dry.

Carrier and Randall (1992) argue that there are two uses of the verb *water*: transitive and intransitive. *The tulips* in the resultative sentence (41) receives the same θ -role from the verb *water* as it does in the non-resultative sentence (42). They agree with Kayne that there is a reading of (41) in which *the tulips* is not θ -marked by *water* when the verb is used intransitively, with an indefinite object reading as (45):

(45) The gardener watered for hours.

and (46) is an intransitive resultative from intransitive *water*:

(46) The gardener watered his sneakers soggy.

(47-51) are examples Carrier and Randall (1992, p. 187) used to argue that obligatorily transitive verbs such as *frighten*, *shatter*, etc. clinch the necessity of allowing a resultative verb to θ -mark its postverbal NP.

- (47) The bears frightened *(the hikers).
 (48) The baby shattered *(the porringer).

If the postverbal NP in a transitive resultative were not θ -marked by the verb, there should only be an indefinite object reading in (49-50). However, no indefinite reading is possible in (49-50). For example, (49) should mean *the bears frightened someone or other, thereby causing the hikers to become speechless* and *someone or other* must be *the hikers* but not anybody else. Thus, the postverbal NP must be θ -marked by the verb and it must be an argument of the verb.

- (49) The bears frightened the hikers speechless.
 (50) The baby shattered the porringer into pieces.

Carrier and Randall further provide evidence from selectional restrictions that a transitive verb in a resultative construction requires its postverbal NP to be its argument:

- (51)* The bears frightened the campground empty.

If the postverbal NP in (51) could have a non-argument reading, (51) should be grammatical without violating selectional restrictions.

3.2.3.2 The second piece of evidence comes from middles. As reviewed in chapter one, Carrier and Randall adopt the view that middle formation involves the suppression of the external argument of the verb as well as the verb's ability to assign accusative Case, and externalisation of a direct θ -role (Fagan 1988). To be more explicit, middle formation applies only to a verb with a direct internal argument.

If the postverbal NP of a transitive resultative verb is its direct internal argument, it predicts that other things being equal, transitive resultative can form middles. Data from Carrier and Randall (1992, p. 191) show that transitive resultatives do form middles:

Middles from transitive resultative verbs

(52) NP water the new seedlings flat.

→ New seedlings water t flat (easily).

(53) NP break those cookies into pieces.

→ Those cookies break t into pieces (easily).

(54) NP won't scrub my socks clean.

→ My socks won't scrub t clean (easily).

(55) NP iron permanent press napkins flat.

→ Permanent press napkins iron t flat (easily).

It is predicted that intransitive resultatives without an internal argument cannot form middles:

(56) The dog barks its master awake.

(57)* The dog's master barks awake.

(58) The joggers run their Nikes ragged.

(59)* Their Nikes run ragged easily.

3.2.3.3 Adjectival passive formation (APF) also provides evidence for the argument status of the postverbal NP in resultatives. The formulations of APF proposed in the literature are controversial (Williams 1981, Levin and Rappaport 1986, Grimshaw

1990), yet the authors all agree that APF externalises a direct internal argument. Levin and Rappaport (1986, p. 645) list the properties of APF:

- (60) Properties of APF
- a Affixation of the passive morpheme *-ed*.
 - b Change of category: [+V, -N] → [+V, +N].
 - c Suppression of the external role of the base verb.
 - d Externalisation of an internal role of the base verb.
 - e Absorption of Case.
 - f Elimination of the [NP, VP] position.

Levin and Rappaport also argue that APF can be reduced to a rule of category conversion:

$$(61) \text{ APF}_{V[\text{part}]} [V [\text{part}]]_A$$

Adjectival passives are formed from verbal passives, by a process of adjectival formation that involves the conversion of a verbal passive participle to an adjective.

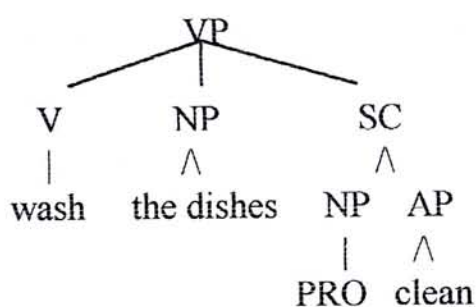
(62)	agent	[theme]	AS of active <i>steal</i>	[_v steal] a car
		↓	Verbal Passive Formation	
		[theme]	AS of passive <i>stolen</i>	a car was [_v steal]-ed _v
		↓	Adjectival Passive Formation	
	[theme]	[]	AS of adjectival passive <i>stolen</i>	a [[[_v steal]-ed _v] _Λ] car

Levin and Rappaport (1986, p. 647-648) note that the argument externalized by APF is a direct internal argument, not an indirect argument. Thus, (63) can only have (64) but not (65).

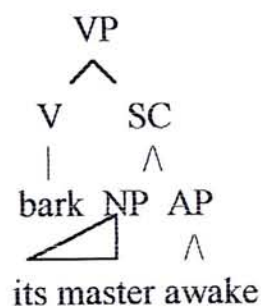
intransitive resultatives a binary-branching VP. The resultative phrase is not regarded as a sister of the verb and therefore not its argument. On the other hand, it assigns transitive resultatives a ternary-branching VP, containing an SC whose subject is *PRO*. It is obvious that the postverbal NP for transitive resultatives is a sister and therefore potentially an argument of the verbs.

(119) Hybrid Analysis

(119a) Transitive Resultatives



(119b) Intransitive Resultatives



The Hybrid SC Analysis shows the contrast between transitive and intransitive resultatives that the subject of a transitive resultative SC is *PRO* whilst that of an intransitive resultative SC is a lexically specified NP.

However, Hoekstra (1988), Carrier and Randall (1992) point out that the Hybrid Analysis runs into problem that transitive and intransitive resultatives require contradictory assumptions about whether the resultative SC is a barrier to government. In order for *its master* in (119b) to receive Case, the resultative SC must be assumed either to be a nonmaximal projection or to be governed by a verb across a SC barrier since the verb has to Case-mark the subject NP. If so, *PRO* in (119a) would be governed, making it ungrammatical.

3.2.7 Change-of-State Linking Rule

As noted by Levin and Rappaport (1992), the resultative construction denotes a change of state even when the verb does not necessarily denote a change of state used in isolation:

(120) The goldsmith pounded the metal.

(121) The goldsmith pounded the metal flat.

They argue that (120) does not necessarily entail a change in the state of the metal since pounding may have no effect on the metal at all. However, the resultative phrase in (121) produces an eventuality that specifies a change in the state of the metal: it becomes flat.

They further assume the applications of the Change-of-State Linking Rule in (122) in resultative construction:

(122) The Change-of-State Linking Rule

Version (a): An NP that refers to the entity that undergoes the change of state in the eventuality described in the VP must be governed by the verb heading the VP.

Version (b): An NP that refers to the entity that undergoes the change of state in the eventuality described in the VP must be the direct object of the verb heading the VP.

(p. 51)

With (122), the resultative phrase can only be predicated of the direct object of the verb or NPs governed by the verb. In transitive resultative constructions, the resultative phrase is predicated of the sentential direct object. As in (121), *flat* is predicated of the direct object *metal*. Version (a) of (122) also applies to resultative

construction with ergatives provided that we assume the derived sentential subject is an underlying object:

(123) The butter melts.

(124) e melts the butter.

For resultative construction with unergatives, Version (b) of (122) applies: the resultative phrase is predicated of the NP governed by the verb. Levin and Rappaport maintain that this NP then must mutually c-command the resultative phrase.

This immediately explains why a resultative construction with a fake reflexive or a non-subcategorized NP is grammatical whereas (127) is ruled out by (122).

(125) She shouted herself hoarse.

(126) The joggers ran the pavement thin.

(127)* She shouted hoarse.

Levin and Rappaport (1995) analyse the fake reflexive as a 'subject' for the predicate heading the resultative phrase.

Then, in resultative construction, the expression of a verb's arguments is preserved. Even with a resultative phrase, arguments of a verb are expressed in accordance with the lexical specifications of the verb and also with the Change-of-State Linking Rule stated in (122). Levin and Rappaport (1995) argue that the introduction of a fake reflexive as in (125) and a non-subcategorized NP as in (126) is forced by the Change-of-State Linking Rule. Without a NP governed by an intransitive verb like (127), the sentence is ruled out.

3.3 Incompatibility of Certain Verbs with Resultatives

3.3.1 Classification of Verbs

Verbs can be classified in several ways. Traditionally, there are two major classes of verbs: transitives and intransitives. The Unaccusative Hypothesis formulated by Perlmutter (1978) claims that there are two classes of intransitive verbs, unaccusative and unergative verbs. In terms of GB, an unergative verb takes a D-structure subject and no object:

(128) Unergative verb: NP [_{VP} V]

Unergatives like *cry* and *laugh* are 'stable' in their intransitivity in the sense that they are not regularly paired with causative transitive counterparts (Levin and Rappaport 1995).

Some unergative verbs have a transitive counterpart. These unergative verbs differ from their transitive counterparts in that an unspecified object is deleted. Minimal pairs of this class of intransitive and its transitive counterpart are shown in (129-130) and (131-132):

(129) He is ironing.

(130) He is ironing his tie.

(131) He eats.

(132) He eats a hamburger every day.

Unaccusative verbs can only take an internal argument but cannot take an external argument since these verbs are unable to assign a θ -role to their subject; hence the sentential subject position is empty. Such verbs only take a D-structure object:

(133) Unaccusative verb:

— [_{VP} V NP / CP]

Unaccusative verbs are also called ergatives. Examples of this class of verbs are *melt*, *grow* and *break*. These verbs also have a causative transitive counterpart. The single argument of unaccusatives/ergatives corresponds to the surface object of transitive counterpart:

(134) The butter mixes with the flour.

(135) The chef mixes the butter with the flour.

(136) The vase broke.

(137) Washington broke the vase.

Burzio (1986) proposes that receiving no accusative Case in its underlying position, the underlying object moves to sentential subject position to receive structural Case from Infl. Such NP movement is not only motivated by Case assignment but also by the Extended Projection Principle, which states that every sentence must have a surface subject in English. Resultative constructions are shown to be compatible with transitive, unergative, unaccusative and even passive verbs in 3.2.3 and 3.2.4. However, resultative phrases are incompatible with certain verbs, which is supposed to be relevant to certain semantic restrictions on resultative constructions.

Besides the classification mentioned above, verbs can also be classified in terms of aspectual properties. Vendler (1957), Dowty (1979), Hoekstra (1988) distinguish four classes of verbs: statives, activities, accomplishments and achievements. These are distinguished by the internal temporal organization of the event or state of affairs denoted by the predicate. In the words of Hoekstra, a stative predicate has no internal

temporal structure, i.e. there is no internal temporal differentiation, without a clear beginning or end. Examples given are: *'know, be famous, be tall, like'* (1988, p. 128).

Activities have an internal differentiation and they end at some time or other. Accomplishments have a defined end point. They are analysed as 'delimited activities' (Levin and Rappaport 1995, p. 62). Hoekstra (1988) used (138) and (139) to demonstrate the distinction between activity and accomplishment where (138) is an activity whilst (139) is an accomplishment:

(138) John is knitting sweaters.

(139) John knits a sweater.

Levin and Rappaport note that the addition of a resultative phrase can be used to map an activity into an accomplishment.

Hoekstra (1988) mentioned that achievements form a heterogeneous group. They behave like statives in not taking progressive and not being agentive. In terms of temporal properties, they are characterized as 'involving a change of state at a certain moment' with 'no further internal temporal structure' (p. 128). Examples are:

(140) John noticed a pretty girl.

(141) The police found some fingerprints of the bank robbers.

3.3.2 Incompatibility of Resultative Phrases with Stative Verbs

As mentioned in 3.2.7, the observation noted by Levin and Rappaport (1995) that resultative constructions denote a change of state and the state denoted by the resultative phrase is part of the core eventuality described in VP, can explain why stative verbs are not found in resultative construction. Since there is no internal temporal differentiation in stative predicate, the entity denoted by the NP being the

direct object or governed by the stative verb cannot undergo a change of state in the eventuality. The following sentences do not have a resultative interpretation:

- (142) The school appeared notorious.
- (143) The students remained quiet in the classroom.
- (144)* The chef felt the cookies brown/black.

Levin and Rappaport posit that in English, an activity can be mapped into an accomplishment with the addition of a resultative phrase; however, there is no eventuality type of delimited state, therefore, resultative phrase cannot be used to create eventualities of this type from stative verbs.

3.3.3 Resultative Phrases as Delimiters

As pointed out in the literature on aspectual classifications of eventualities (Dowty 1979, Tenny 1992), non-delimited (atelic) eventualities are those with no specific temporal delimitation; and delimited (telic) eventualities are bounded in time. A delimited eventuality includes a goal, aim or conclusion which is an inherent part of the situation. Thus, a telic situation implies a final / end state (Brinton 1988). It cannot co-occur with a durative phrase.

Non-delimited Eventuality

- (145) He ran for an hour.
- (146) He pushed the cart for an hour.

Delimited Eventuality

- (147) He pushed the cart to the garage.
- (148)* He pushed the cart to the garage for an hour.

Resultative phrases specifying an achieved state delimit an eventuality. Levin and Rappaport (1995) examine the effect of the presence of a resultative phrase in a sentence. Contrasting (149) to (150), they observe in (149) where there is a resultative phrase which cannot co-occur with a durative phrase. (149) can only have a delimited interpretation. Turning to (150) which is not a resultative sentence, both delimited and non-delimited interpretations are available.

(149) The chef cut the beef into slices (in / *for two minutes).

(150) The chef cut the beef (in / for two minutes).

3.3.4 Incompatibility of Resultative Phrases with Verbs of Inherently Directed Motion

We now come to the question whether the resultative phrase is compatible with lexically delimited verbs. Levin and Rappaport (1992, p. 58-59) give three examples to show that the resultative phrase is not incompatible with all lexical delimitation, the following verbs can occur in a resultative construction:

(151) The river froze solid.

(152) The climbers froze to death.

(153) The bottle broke open.

The presence of the resultative phrase serves to further specify the achieved state. It describes 'the attainment of a state' (p. 59). It is 'a further specification of the inherent state,' not describing 'a second result state in addition to the state inherently specified' by the verb.

However, not all lexically delimited verbs can be compatible with a resultative phrase. Verbs of inherently directed motion specify an attained location. Levin and Rappaport suggest that meanings of these verbs involve an achieved change of

location or state, and hence they cannot take a resultative phrase, a second syntactically encoded delimiter specifying a change of state.

Examples of verbs of inherently directed motion are *come, go, arrive, take, bring* (Levin 1993). They can take a goal phrase to further specify the endpoint inherent in the verbs' meaning but they cannot take a resultative phrase:

With goal phrase

- (154) We arrived *at the zoo*.
- (155) We bring the children *to the zoo*.
- (156) The senior prefect took him *to the headmaster's office*.
- (157) Oak ran his soles *off his shoes*.

With resultative phrase

- (158)* Oak ran his soles off his shoes *into the town*.
- (159)* Oak took / brought Bathsheba *breathless*.

Even though these verbs take an XP specifying an achieved state, these verbs no longer describe physical displacement and lose their motion sense, so that the constructions are no longer resultative constructions.

- (160) The students all fell asleep / silent in Geography lesson.

The verb in (160) means '*become / come to be*'. The verb has lost its motion sense. *The students all came to be asleep / silent* is not the result of a change of position. (160) is not a resultative construction.

CHAPTER IV

A PREDICATION THEORY FOR ENGLISH RESULTATIVES

4.1 Introduction

After reviewing some of the characteristics of English resultatives, the question whether the predication relation between the resultative predicate and the underlying NP in postverbal position can be represented structurally arises. Among predication theories in the literature, though analyses are distinctively different, they all attempt to outline the predicate structure of a sentence. According to Williams (1980), predicate structure (PS) is defined as a level of representation in which the subject-predicate relation is indicated by indexing. The co-indexing of predicates and their antecedents derives predicate structure from surface structure.

Predicate structure is subject to the structural restriction of c-command: NP must c-command any predicate or trace co-indexed with it. Examples in (1-4) are cited from Williams (1983, p. 292). For (1), the NP *John* c-commands and co-indexes with the predicate AP *sad*:

- (1) John_i is sad_i.
- (2) John_j [considers Bill_i [sick]_{APi}]_{VPj}
- (3) John [wants Bill_i dead_i]
- (4) John_i [seems_o [sick]_{APi}]_{VPi}¹

¹ In the terminology of Williams (1983), a lexical head that does not have an external argument, such as *seem*, is assigned the index 0.

Taking (4) into consideration, Williams (1980) notes that any lexical category can be a predicate:

- (5) AP: John made me *sick*.
- NP: John made his son *a highbrow*.
- PP: John kept the precious stone *near him*.
- VP: John *died*.

He further points out that if the predicate is in a VP, its subject is theme of V. Examples given are:

- (6) *John* [became rich].
- (7) *John* [was a slowcoach].

Williams (1980, 1983) denies the motto of the small clause theory² in which all subjects are claimed to be structural subjects. The notion of 'subject' is clearly spelt out as 'an external argument' of a maximal projection.

- (8) I consider [_SJohn a slowcoach].

- (9) VP Stipulation

Only VP appears in the underlined position in the base rule for S:

S → NP

² There is an alternate account of SC predication proposed by Bowers (1993): SC (small clause) is seen as a maximal projection of PrP (Predication Phrase) (for further details, see 4.2).

Williams' theory of predication (1980, 1983) is not to be addressed in greater detail because it cannot explain certain phenomena without assuming an SC constituent. One of these is the possibility of a stranded quantifier in object position, like (10).

(10) I consider the boys all lazybones.

(11) I consider all the boys lazybones.

The facts of quantifier stranding argue against Williams' predication theory in which the direct object and the following phrase predicated of it do not form a syntactic unit. Moreover, intransitive resultative constructions such as that in (12) pose problems for Williams' non-structural theory of predication since the representation required by his theory violates the θ -Criterion.

(12) I drank myself sick.

(13)* I drank sick.

In addition, conjoined structures like those in (14-15) are impossible to generate under Williams' predication theory in which predication is represented by co-indexation.

(14) I consider John a fool and Mary a witch.

(15) I expect John to stay and Mary to leave.

In Bowers' theory (1993), (14) and (15) are instances of across-the-board extraction of V from a conjoined VP and the extracted verb is located at head of Pr. The derivations of (14) is shown in (16):

(16) $[_{PrP} I [_{Pr} consider_i [_{VP} [_{VP} John t_i a fool] and [_{VP} Mary t_i a witch]]]$

Besides, Bowers' predication theory is also able to explain the possibility of a stranded quantifier in object position and the presence of an intransitive resultative construction.

Assuming object-raising, i.e. direct object raising from embedded [Spec, PrP] to matrix [Spec, VP] (For further details, see 4.2), Bowers argues that sentences like (10) and (17) follow while (19) is ruled out because the object NP lacks a predicative complement. (20) shows that when there is no place the object NP could have moved from, stranding of the quantifier will never be possible.

(17) I consider the boys all chatterboxes.

(18) $[_{IP} \dots [_{PrP} I [_{Pr'} \text{consider}_i [_{VP} \text{the boys}_j [_{V'} t_i [_{PrP} \text{all } t_j [_{Pr'} e \text{ chatterboxes}]]]]]]]$

(19)* I saw the boys all.

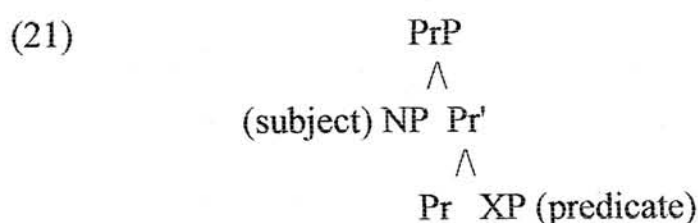
(20)* $[_{IP} \dots [_{PrP} I [_{Pr'} \text{saw}_i [_{VP} \text{all the boys}_j [_{V'} [_{V'} t_i]]]]]]$

In the analysis of Bowers (1993), (12) does not violate θ -Criterion. The reflexive in (12) will bear the same grammatical relation to the verb as the object in a simple transitive sentence: it has undergone object raising, hence it is not in a θ -position. Instead, it is the subject of an SC.

My work here is to investigate whether the structure proposed by Bowers can be extended to resultative constructions, first in English and next in Cantonese, a dialect of Chinese.

4.2 Bowers' syntax of predication

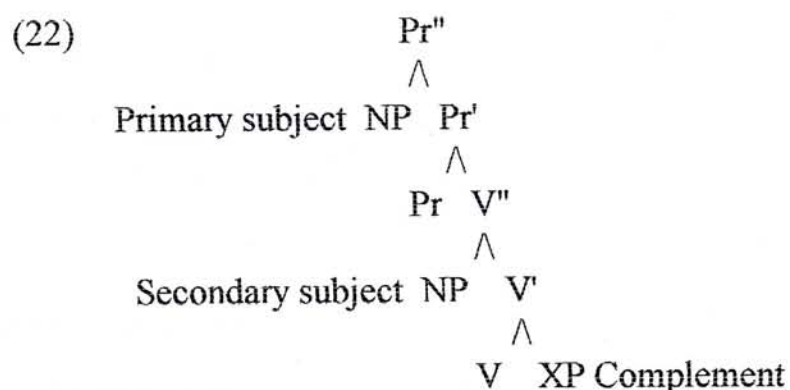
Bowers (1993) introduces a new functional category, Pr which projects into a maximal projection PrP (or Pr''). The semantic function of Pr is predication. Pr^o F-selects the maximal projection XP of any lexical category X. The theory also hypothesises that the D-structure position for external argument is [Spec, Pr]. Predication is represented as in (21):



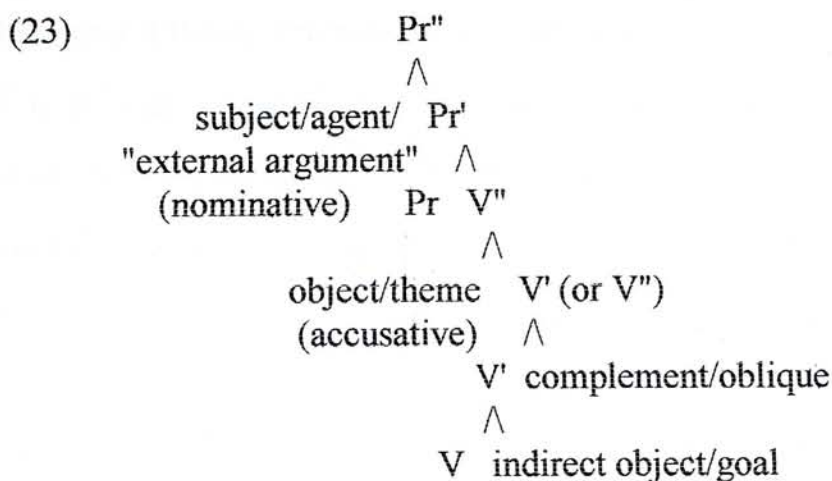
X={V, A, N, P}

(p. 595)

Direct objects are assumed to be generated in Spec of VP, parallel to the position of subjects in Spec of PrP. Direct objects are referred to as secondary subjects. Clauses universally have the following uniform D-structure representation:



The general argument structure of Pr'' is shown in (23):



(22) and (23) capture a few formal syntactic similarities between subjects and objects:

- (24)a The subject c-commands everything else in the clauses; the object c-commands everything but the subject.
- b Both subject and object are assigned structural Case.
- c Both subject and object can agree with the verb.
- d Both subject and object control PRO subject of infinitive and SC complements.
- e Both subject and object are possible θ positions.

(Bowers 1993, p. 598)

θ -role assignment is assumed to correlate with the syntactic structure: starting from the innermost θ -role to the outermost. In (22), the innermost θ -role is assigned to complement XP within V'; the next innermost θ -role is assigned within VP to the secondary subject (i.e. direct object); and, in order to assign the outermost θ -role to the primary subject base-generated in [Spec, Pr''], V raises to Pr^o. θ -roles are assigned locally to complement and to NPs in Spec positions through Spec-head agreement. Thus, the structural conditions of θ -role assignment and Case assignment are identical.

It is salient that if θ -role assignment is assumed to be local, the obligatory V-raising from V° to Pr° follows, otherwise, the primary subject would not be assigned a θ -role. In addition, with V-raising, the right surface order obtains. Bowers argues that V-raising to Pr° is obligatory even if a verb assigns no θ -role to its primary subject since it is subject to the principles governing θ -assignment.

Since English does not allow certain adverbs such as *often*, *sometimes*, the negative element *not*, and quantifier *all* to appear in postverbal positions:

(25)* He takes seldom a bath.

(26) He seldom takes a bath.

(27)* He takes not a bath.

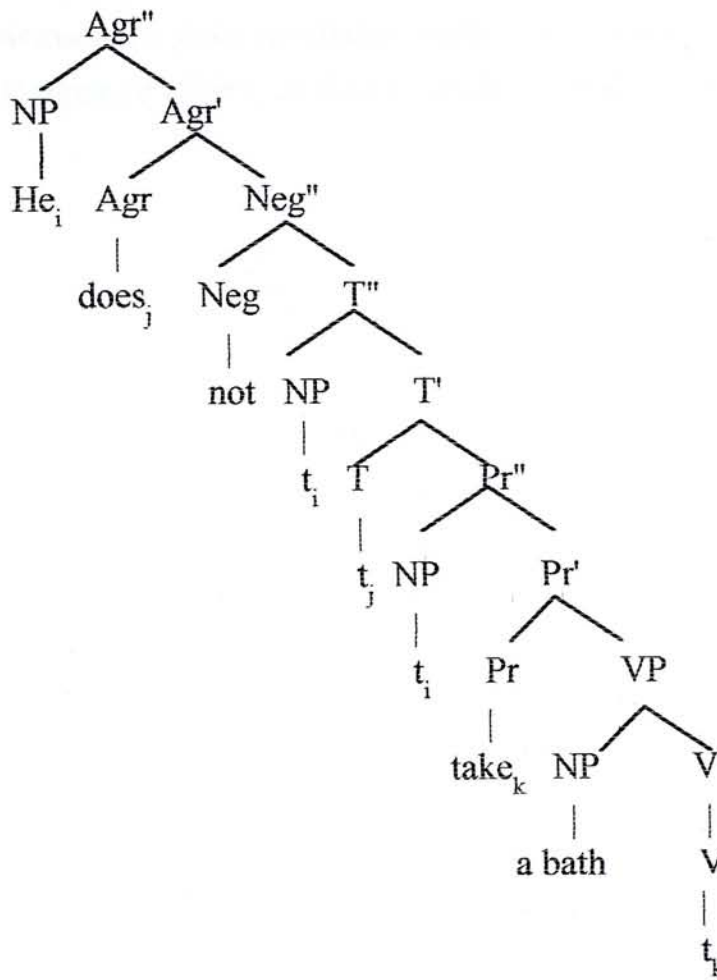
(28) He does not take a bath.

(29)* They take all a bath.

(30) They all take a bath.

Following Pollock (1989), Bowers maintains that in English, the verb remains in Pr° in PF and does not raise to T° and subsequently to Agr° until LF. However, it is worth noting that this is language specific. The French data show that V-raising to T° and Agr° is overt in French. Modals in English, however, behave like the main verb in French. It moves from T° to Agr° before PF, accounting for the position of negation after the first modal. Therefore, (28) has undergone the derivations shown in (31):

(31)



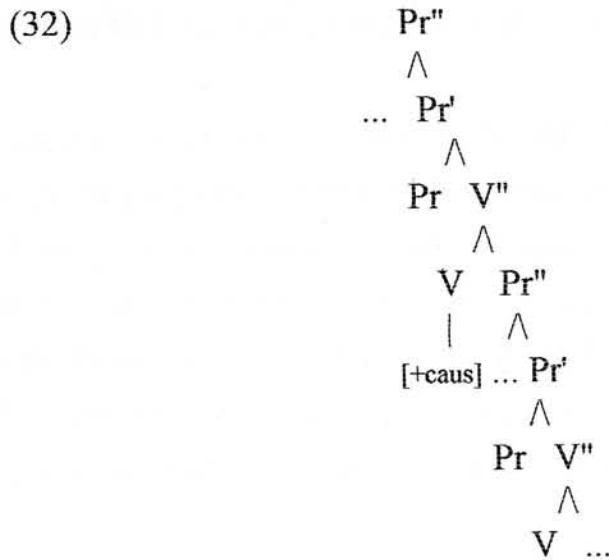
4.3 An Extension of Bowers' Predication Theory to English Resultative Construction

4.3.1 Introduction of Double Predication Structure

Bowers' theory is chosen to analyse resultatives because it has a number of advantages. Besides those mentioned in 4.1, it also provides a uniform structure for main clauses and small clauses (SCs). SC is simply a maximal projection of PrP. The external argument is the argument in Spec of PrP. By definition, predication holds between the argument in Spec of PrP and the complement of Pr. A uniform two-level version of X'-theory is always maintained.

More importantly, Bowers proposes a 'double predication' structure containing a PrP complement to causative verbs. A verb with the feature [+caus] in lower PrP is forced to adjoin the 'abstract' [+caus] verb in the upper PrP in order to have the morphological feature [+caus] checked. The double predication structure sheds light

on resultative constructions since resultative verbs are causative in nature (Rapoport 1986, Levin and Rappaport 1995). A double predication structure is sketched below:



4.3.2 The Notion of Causativity

(33) I broke the window.

The subject *I* in (33) is the Causer of the action and the object *the window* is the Causee. The observation made from (33) indicates that the causative verb is able to assign a Causer role; and according to Grimshaw (1990) and Li (1991), such a property is listed in the lexicon.

A resultative construction like (34) suggests that resultative verbs are causative in nature: the resultative verb assigns a Causer role to the subject *Mom* and a Causee role to the object *the napkin*.

(34) Mom ironed the napkin flat.

It seems to be true that resultative verbs are causative, which are listed in the lexicon. However, this claim does not hold in (36):

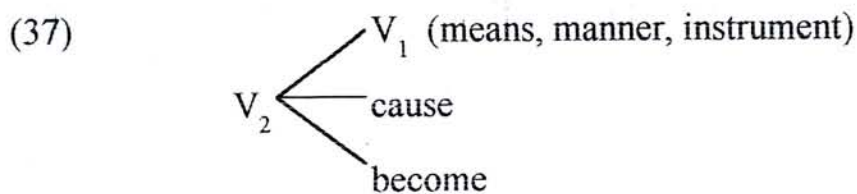
- (35) Mom cried.
 (36) Mom cried her eyes out.

The verb *cry* used alone is not causative. It cannot be [+caus] in its entry. Other activity verbs like *eat*, *bake*, *hammer*, *water*, etc. are not causative in nature.

Following Gu (1992), we assume that causativity is formed in the syntax instead of being a lexical property. Intransitive unergative verbs and activity verbs mentioned above do not have an intrinsic [+caus] feature unless they enter a resultative configuration in which the [+caus] feature exists as an abstract morpheme. This morpheme needs to be conflated by the lexical verb. The verb *cry* in (36) enters a resultative configuration and it becomes a conflated causative verb in syntax. It is able to assign a Causer role and a role of Causee to its subject and object respectively.

4.3.3 More about Conflation and Resultative Verbs

Conflation is proposed in the work of Rapoport (1986) as in (37):



In the spirit of Rapoport (1986), resultatives involve 'conflation', a process which associates additional semantic notions with the meaning of a verb, thus creating a new verb without changing the morphological form. Conflation integrates the notions 'cause' and 'become' into the meaning of a verb of means, manner or instrument. In other words, conflation changes a verb's meaning in resultatives. Thus, the verbs *hammer* and *laugh* in (38-39) represent the action denoted by the verb₁:

- (38) pound₁: Oak pounded the metal.
 (39) cry₁: Betsy cried.

The verbs *pound* and *cry* in (40-41) have integrated with additional notions of 'cause' and 'become':

(40) *pounded*₂: Oak pounded the metal flat.

(41) *cry*₂: Betsy cried herself sick.

The spellings-out of the definitions of the new verbs are as follows:

(42) *pound*₂: x CAUSE y to BECOME z, by POUNDING y

(43) *cry*₂: x CAUSE y to BECOME z,
by CRYING to great EXTENT

where x and y denote entities, z a state

Rapoport further points out that it is the new verb, the result of conflation, θ -selects the predicate in a resultative.

In the spirit of the work of Levin and Rappaport (1995), the lexical semantic representation of the new verbs in resultative construction in (40-41) should be as follows:

(44) *pound*₂: [[x pound] CAUSE [y become FLAT]]

(45) *cry*₂: [[x cry] CAUSE [y become SICK]]

and in (45), x and y are co-indexed because x is the antecedent of y.

If the analysis is correct, the 'double predication structure' Bowers (1993) puts forward that causative verbs should be extended to resultative constructions. The

resultative verb in the lower Pr" will then be forced to adjoin the 'abstract' [+caus] verb in an upper PrP in order to have the feature [+caus] checked.

4.3.4 Weakness of Bowers' Structure

In the spirit of Bowers (1993), causatives have a double predication structure. If the above analysis is correct, all resultative constructions should have a double predication structure in syntax; then the structure Bowers (1993) proposed in (47) should not be a correct representation for intransitive resultatives with an unergative verb.

(46) John ate himself sick.

(47) $[_{IP} \dots [_{PrP} \text{John}_i [_{Pr'} \text{ate}_j [_{VP} \text{himself}_i [_{V'} e_j [_{PrP} t_i [_{Pr'} e \text{ sick}]]]]]]]]$ (p. 62)

The structure in (47), being a one single predication structure, raises serious problems. First of all, the structure in (47) does not account for the fact that resultatives are causatives. Secondly, the resultative verb has not checked the feature [+caus] as the resultative verb has not moved into a morphological checking domain.

Besides, Bowers claims that the reflexive in (46) is not in a θ -position since *John* is not construed as *eating himself*. Such an interpretation forces Bowers to claim that the object reflexive is not an object, rather it is the subject of an SC only. It is in line with the observation of Levin and Rappaport (1995) that the resultative XP is predicated of the postverbal NP, *himself*. The structure demonstrates the predication relation between the resultative XP and the subject of the SC. The resultative phrase *sick* is predicated of the subject of the SC, *himself*. *Sick* is not predicated of the sentential subject, *John*. The sentential subject is just co-referential with the reflexive.

However, the analysis of Bowers (1993) and Levin and Rappaport (1995) fail to distinguish the postverbal NP in a resultative construction from a normal SC subject like *John* in (48):

(48) I consider John foolish.

Here we argue that both the SC subjects in (46) and (48) are not objects of the verbs but the SC subject in (48) is not assigned a θ -role by the verb. However, the verb in (46) which enters a resultative configuration conflates with an abstract [+caus] morpheme. The verb has become a conflated causative verb in syntax so that it is able to assign a Causer θ -role to the sentential subject and a θ -role of Causee to the postverbal NP which is now in a [+ θ] position.

Bowers (1993) has not mentioned resultative constructions with ergative or transitive verbs in his paper. He has not yet made any attempt to spell out the predication relation of transitive resultatives. My analysis here attempts to propose a modified structure for intransitive resultatives with an unergative verb and to extend Bowers' predication theory to resultative constructions with ergative and transitive verbs.

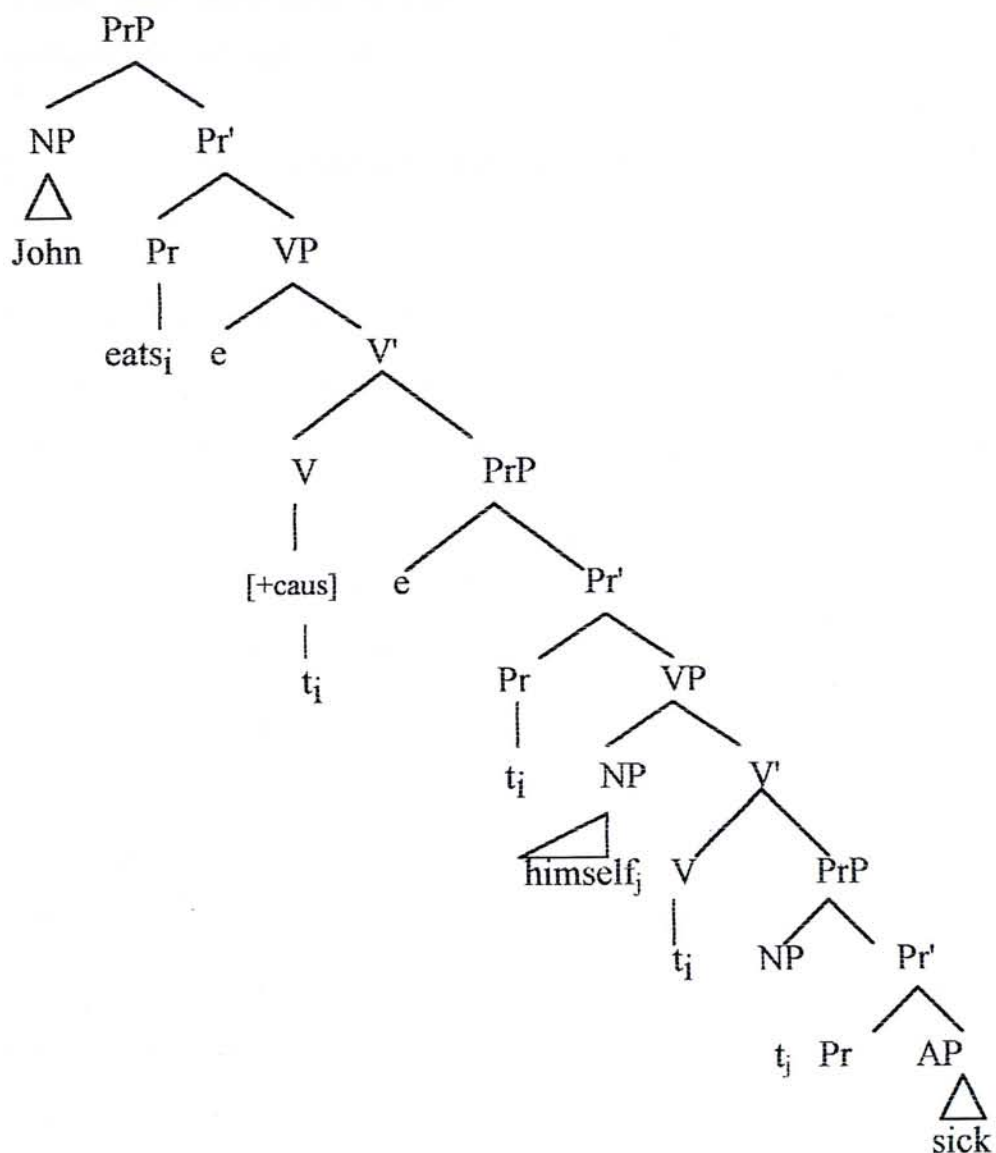
4.3.5 A Modified Structure for *Intransitive Resultatives with an Unergative*

Our analysis in 3.3.2 and 3.3.3 has argued that resultative verbs are conflated causative verbs. Even an unergative does not have an intrinsic [+caus] feature, once it enters a resultative configuration, the abstract [+caus] morpheme exists and needs to be conflated. With such an analysis, it is necessary to modify the structure for intransitive resultative construction with an unergative verb in (47).

Prior to presenting an appropriate structure for (46), what a double predication structure is should be explicitly outlined. In the description made by Bowers, a double predication structure contains a verb with an abstract [+caus] morpheme and

such a verb takes a PrP complement (p. 641). If so, (46) should have the syntactic representation shown in (49):

(49)



The verb *eat* raises to Pr^o and then moves to the morphological checking domain containing an abstract [+caus] morpheme. The verb adjoins to the head of the matrix VP. Then, it raises to the head of the matrix PrP to assign θ -role locally to the subject NP *John* in Spec position through Spec-head agreement.

Under this analysis, the subject of PrP is lexical in intransitive resultative construction. This lexical subject raises to the object position to receive Case. It also

raises to a position (i.e. specifier of VP) which enables an NP to be passivized. Therefore, passives from intransitive resultatives are found:

(50) Oak's soles have been walked thin.

(51) The farmers are crowded awake.

Case is not assigned in situ and PrP is a barrier to government.

4.3.6 A Suggested Structure for *Transitive Resultative*

According to Bowers, only NPs located at specifier of VP can be passivized. (53) shows that the NP *the cookies* can be passivized, which is in support of the suggestion that such an NP in transitive resultative is a direct object originated in specifier of VP. Assuming that a resultative verb is causative after conflation, i.e. in effect, the resultative construction has a double predication structure, the syntactic structure of a transitive resultative construction is predictable.

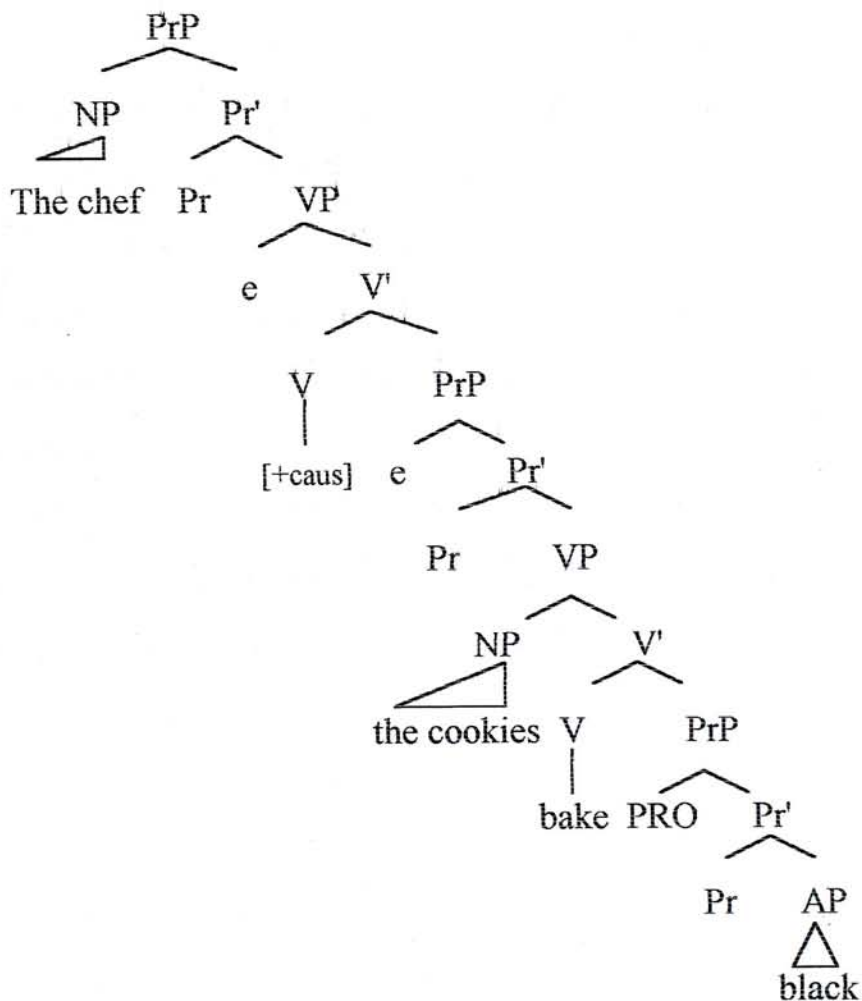
(52) The chef baked the cookies black.

(53) The cookies were baked black.

The syntactic structure of a transitive resultative should be different from that of intransitive resultative: the NP *the cookies* is base-generated at specifier of the lowest VP which can account for the fact that *the cookies* is the object of the verb *bake* as shown by Carrier and Randall (1992). However, how can the structure account for the fact that NP *the cookies* is also the subject of the resultative predicate? Besides, how does the predication relation hold between the resultative AP *black* and the postverbal NP *the cookies* in an upper VP? If (52) has a D-structure that the verb *bake* takes a PrP [*the cookies black*] as the complement, how does one account for the fact that *the cookies* is a complement of *bake*?

One possible solution is that the specifier of the embedded PrP is *PRO* which is controlled by the direct object of the verb. *PRO* is a pronominal anaphor, and the occurrence of *PRO* which is limited to the subject position of non-finite clause is presumably universal. As we have assumed above, the subject position of the resultative phrase is not a Case position and Case is not assigned in situ. In the case of transitive resultatives, the object position has a D-structure object, the subject of the resultative phrase cannot be a lexical subject and the analysis of the subject PrP to be *PRO* follows. The syntactic representation of (52) is shown in (54) in which predication relation holds between *PRO* and the resultative predicate.

(54)



As we have assumed above, PrP is a barrier to government. *PRO* is not governed.

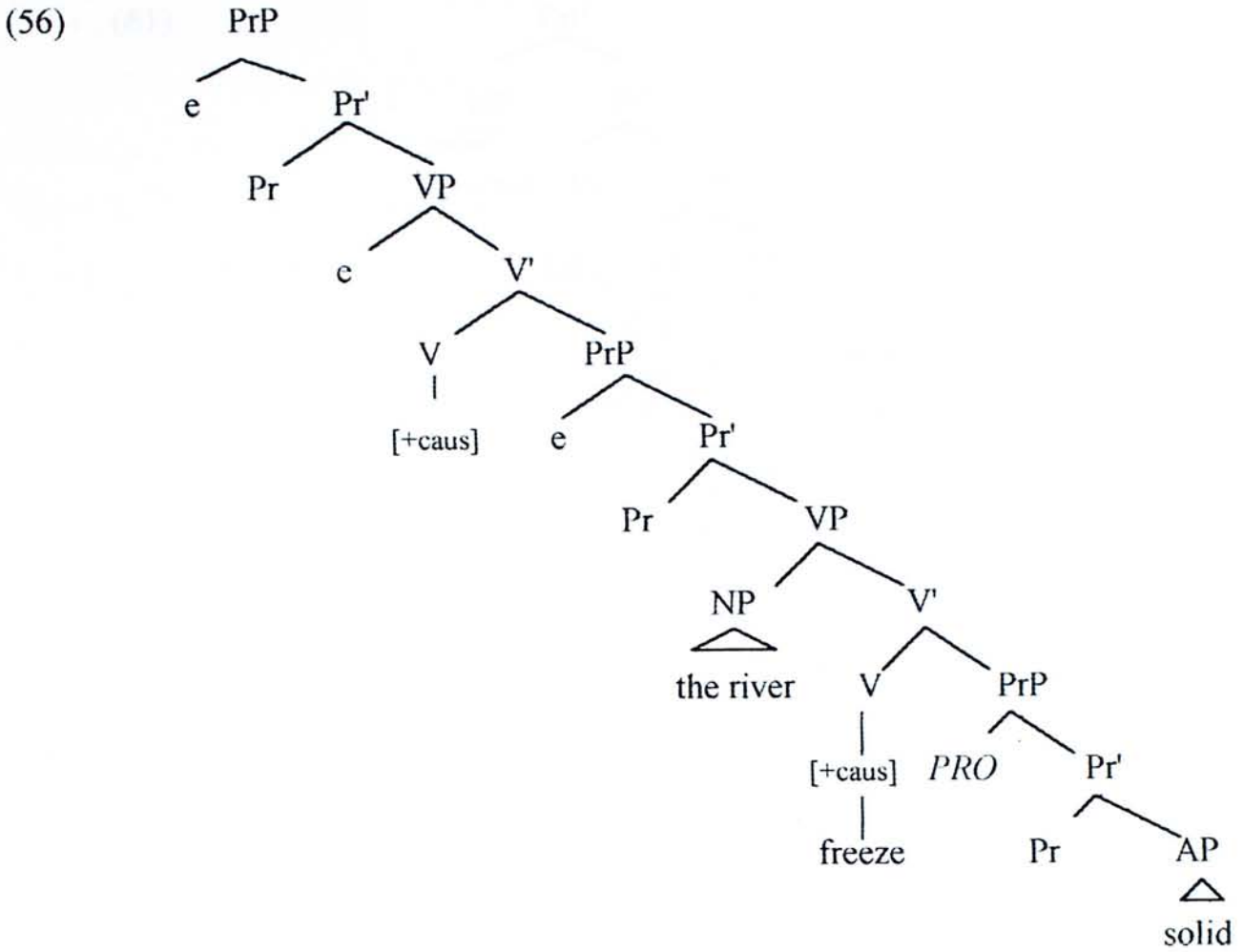
4.3.7 A Suggested Structure for *Intransitive Resultatives with an Ergative*

Recall that the surface sentential subject of an ergative construction is the result of move α . It is, in fact, an underlying object base-generated at postverbal position, as an object in a transitive construction.

Assuming this, it is obvious that the surface sentential subject in intransitive resultative with ergative verb is instead the logical object of the main verb.

(55) The river froze solid.

(55) will have the following syntactic structure: the predicate *solid* is the complement of the Pr while *PRO* is an argument base-generated at the specifier of the embedded PrP, is controlled by the object of the verb. Predication holds between the argument in Spec of PrP and complement of Pr. Such a structural representation predicts that the resultative AP is predicated of *PRO* which is controlled by the NP *the river*. The conflated causative verb *freeze* is base-generated at the head of the embedded VP. It raises to the matrix V^0 to have the [+caus] feature checked. The D-structure representation of (55) is shown in (56). Under Burzio's generalisation (1986), a verb which lacks an external argument fails to assign accusative Case and a verb which fails to assign accusative Case fails to θ -mark an external argument. The unaccusative verb *freeze* fails to assign accusative Case to NP *the river*, which is forced to move to sentential subject position to receive a structural Case from Infl.



The analysis can explain why quantifier stranding is possible in transitive resultatives but not in intransitive resultatives.

(57) The chef baked all the cookies black.

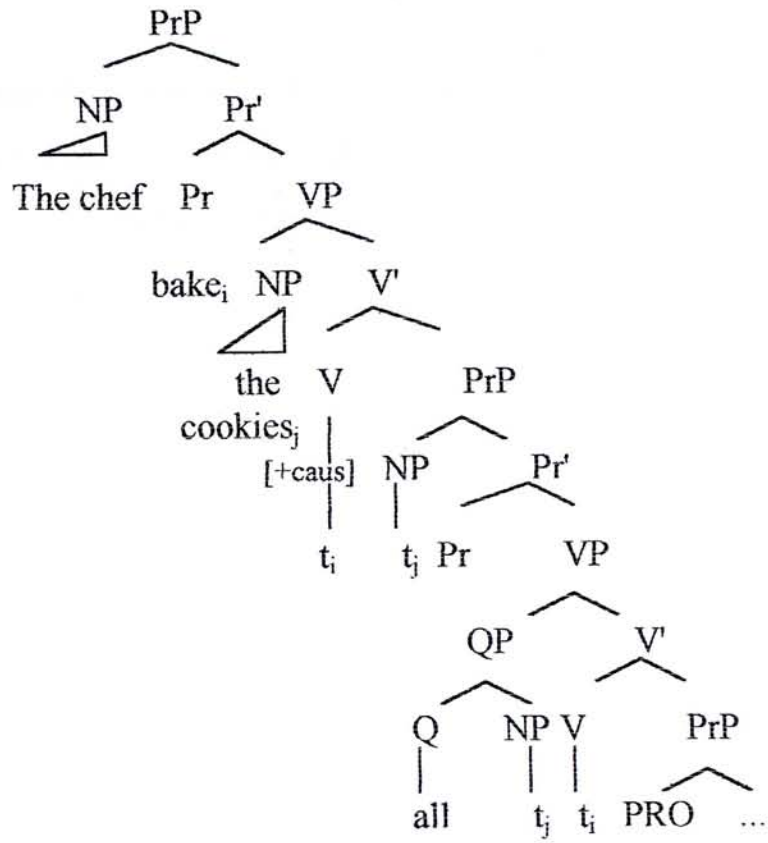
(58) The chef baked the cookies all black.

(59) She cried all her eyes out.

(60)* She cried her eyes all out.

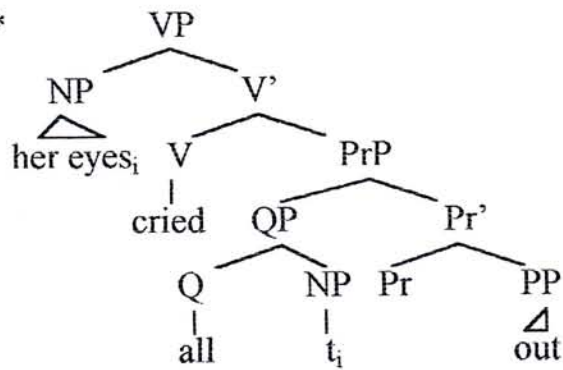
Assuming object-raising, the direct object *the cookies* raises to from the spec of the lowest VP to the spec of the matrix VP, leaving the quantifier in situ. Therefore, (58) has the following representation:

(61)



However, in the case of intransitive resultatives, raising of the lexical subject of PrP is obligatory; so (60) is impossible and then (62) is ruled out.

(62)*



4.4 Concluding Remarks

The analysis so far shows that the predication theory of Bowers (1993) has certain weakness in the analysis of English resultatives. However, with some modifications of the theory, predication relations between the resultative predicate and the postverbal NP in intransitive resultatives or *PRO* controlled by object in transitive resultatives hold.

CHAPTER V

CANTONESE RESULTATIVE CONSTRUCTIONS

5.1 Introduction

Cantonese belongs to the Yue dialect group of Chinese. Properties of Cantonese syntax have been described and discovered by predecessors (Cheung 1972, Matthews and Yip 1994). However, Cheung (1972) and Matthews and Yip (1994) are meant to be descriptive grammars which are not expected to be explanatory in the Chomskyan sense.

Cantonese, being a natural language, should be constrained by principles of universal grammar. The present work aims to show that Cantonese data can provide cross-linguistic evidence for Bowers' predication Theory. This chapter explores the plausibility of extending Bowers' work to Chinese resultatives. However, the picture becomes much more complicated since there are several forms of resultative constructions. Potential problems also emerge since resultative verbs in Chinese are morphologically complex verbs with two parts, the first indicating an action and the second the result of that particular action (Thompson 1973). For instance, (1) are some Mandarin complex resultative verbs cited in Thompson (1973, p. 377-378):

(1) Mandarin Complex Resultative Verbs

guan-jin	(close-tight)	la-jin	(pull-tight)
la-chang	(pull-long)	piao-bai	(bleach-white)
da-po	(hit-damaged)	kai-dong	(drive-move)

However, not all the Mandarin complex resultative verbs find corresponding forms in Cantonese. Some classical examples of Mandarin resultatives cited and discussed in the literature as containing ambiguous interpretations are not found in Cantonese:

- (2) da-pao (hit-run)
 qi-lei (ride-tired)

Examples like those in (2) found in the discussion of the work of Li (1990a, 1993, 1995) are not acceptable in Cantonese. This does not mean that Cantonese has no resultative verb compounds; on the contrary, Cantonese has a wide range of resultative verb compounds, some of which are described in Matthews and Yip (1994) as shown in (3):

- (3) giu-seng (call-wake)
 chouh-seng (nosiy-wake)
 haam-seng (cry-wake)
 gaau-waaih (teach-bad)
 jeuk-laahn (wear-out)
 gwun-jeui (pour-drunk)
 sihk-baau (eat-full)
 tai-baau (watch-full)
 yaph-muhn (enter-full)
 choh-muhn (sit-full)
 gik-sei (annoy-dead)
 tai-waaih (watch-bad)
 gaau-yuhn (teach-finish)
 yuhng-yuhn (use-finish)

Besides 'combining two verbs to form a resultative predicate' (Matthews and Yip 1994, p. 154), resultative constructions are also formed with *dou3* and *dak1* introducing a clausal complement or an adjective to express the end result or extent of an action or process (p. 155). However, Matthews and Yip do not distinguish syntactically between *dou3* and *dak1* in resultative constructions.

Dou3 and *dak1* are syntactically distinct in Cantonese. Their difference in selectional properties is illustrated by the following distributional contrast:

- (4) Keui5 tai2 dak1 hou2 faai3.
He/she read **dak1** very fast
'He/she reads very fast.'
- (5)* Keui5 tai2 dou3 hou2 faai3.
He/she read **dou3** very fast
'He/she reads very fast.'
- (6)* Keui5 paau2 dak1 hou2 gui6.
He/she run **dak1** very tired
'He/she ran herself/himself tired.'
- (7) Keui5 paau2 dou3 hou2 gui6.
He/she run **dou3** very tired
'He/she ran herself/himself tired.'

These sentences in (4-7) suggest that *dak1* and *dou3* are used in different expressions. A *Dak1*-phrase describing the manner of an action is a descriptive predicate. The AP predicate *hou2 faai3* 'very fast' in (4) describes the verb. It is a descriptive expression, which cannot co-occur with a *dou3*-phrase.¹ In contrast, the resultative expression *hou2*

¹ It was pointed out to me (Lee Thomas, p.c.) that the following sentence can be acceptable since running can be construed in terms of extent. The sentence can be quite natural when one is talking about an activity in which one can go from slow to fast, for example, one is on a jogging/hiking machine.

Keui5 paau2 dou3 hou2 faai3.
He/she run **dou3** very fast

gui6 'very tired' in (6) can co-occur with *dou3* but not *dak1*. A *dou3*-phrase describes the extent of the action denoted by the verb. In the terminology of Cheung (1972), who has made a comprehensive description of Cantonese spoken in Hong Kong, *dou3*-phrase is the 'complement of extent' (1972, p. 128). (8-12) contain examples given in his work (1972, p. 128-129):

- (8) Haamdou houchih lohkyuh gam.
Cry till like raining PRT
'Somebody is crying as it is raining.'
- (9) Yuhndou tai mgin.
Far till watch not see
'It is so far that we cannot see.'
- (10) Chohdou ngohdeih fan mjeuk.
Noisy till we sleep not
'It is so noisy that we cannot sleep.'
- (11) Bei keuih gikdou yauh haam yauh siu.
By he/she annoyed till and cry and laugh
'Somebody is annoyed by him/her that he cries and laughs.'
- (12) Sedou yauh cheuhng yauh chau.
Write till long and nasty
'Something is written long and nasty.'

5.2 *Dou3*-constructions

5.2.1 The Syntactic Properties of *dou3*-constructions

Our discussion about the properties of *dou3*- and *dak1*-phrases shows that they do not belong to the same type of expressions, the former in a resultative expression and the latter in a descriptive expression.

Until seems not to be a perfect translation of Cantonese *dou3*. 'Until' in English selects a finite clausal complement. It cannot take an adjectival phrase or a non-finite clause:

- (13) We did not stop working until we got tired.
- (14)* We did not stop working until tired.
- (15)* We did not stop working until to be tired.

Cantonese *dou3* seems to allow an adjectival complement as well as a clausal complement:

Adjectival Complement

- (16) Ngo5dei6 ja3 yau4ja3gwai2 ja3 dou3 cheui3-bok1-bok1.
 We fry doughnuts fry till crispy-crispy
 'We fried the doughnuts crispy.'
- (17) Ngo5dei6 sai2 saam1 sai2 dou3 yit6-laai6-laai6.
 We wash clothes wash till warm-hot-hot
 'We washed the clothes and we were hot.'

Clausal Complement

- (18) Keui5 bong1 ngo5 bong1 dou3 keui5dei6 chaa2 keui5 yau4yu2
 He/she help me help till they fry her/him squid
 'He/she helped me to the extent that they fried her/him.'
- (19) Go3 sai3lou6jai2 hou2 daai6-seng1 gam2 gong2-je5 gong2 dou3
 CL kid very big- voice so speak-thing speak till
 ngo5 mou5 gaau3 hou2 fan3.
 I not-have sleep good sleep
 'The kid spoke so loudly that I didn't sleep well.'

The present work argues, however, that descriptive expressions are APs whereas resultative expressions are clauses; *dou3*, in fact, patterns with 'until' in English in that

they both take a clausal complement. *Dou3*-sentences in (16-17) are only apparent counterexamples. They in fact not only conform to but also provide further support for the analysis that resultative *dou3*-expressions are clausal complements.

The descriptive expression *hou2 faai3* 'very fast' in (4) cannot have a lexical subject as shown in (20):

- (20)* Keui5 sik6 dak1 keui5/go3 jan4 hou2 faai3.
 He/she eat ADV he/she / CL-man very fast
 'He/she eats very fast.'

In contrast, the resultative expressions *cheui3-bok1-bok1* 'crispy' in (16) and *yit6-laai6-laai6* 'very hot' in (17) accept a lexical NP as a subject: *keui5dei6* 'they' and *go3 jan4* 'body, person, man' function as subjects of the resultative predicate:

- (21) Ngo5dei6 ja3 yau4ja3gwai2 ja3 dou3 keui5dei6
 We fry doughnuts fry till they
cheui3-bok1-bok1.
 crispy-crispy
 'We fried the doughnuts crispy.'
- (22) Ngo5dei6 sai2 saam1 sai2 dou3 go3 jan4 yit6-laai6-laai6.
 We wash clothes wash till CL-man warm-hot-hot
 'We washed the clothes and we were hot.'

The facts shown in (20) and (21-22) indicate that in Cantonese, descriptive predicates are APs whilst resultative predicates are clauses.

Another piece of evidence for resultative expressions being clauses comes from an observation made by Cheung (1972): the sentential subject of the matrix predicate can 'move' to the NP position after *dou3*. For instance,

- (23) Ngo5 paau2 dou3 sei2sei2-ha5.
I run till dying PRT
'I ran myself tired that I seemed to be dying.'
- (24) Paau2 dou3 ngo5 sei2sei2-ha5.
Run till I dying PRT
'I ran myself so tired that I seem to be dying.'
- (25) Ngo5 se2dou3 hou2 gui6.
I write till very tired
'I have written for so long that I am very tired.'
- (26) Se2dou3 ngo5 hou2 gui6.
Write till I very tired
'I have written for so long that I am very tired.'

Based on the description of Cheung, sentences in (24) and (26) are derived from (23) and (25) respectively.

Cheung also observes that not all *dou3*-phrases allow such NP-movement:

- (27) Ngo5 se2dou3 go3go3 zi6 dou1 cho3saai3.
I write till every word all wrong PRT
'I wrote all the words wrong.'

The sentential subject and the subject of the verb *se2* 'write' *ngo5* 'I' cannot appear in position after *dou3*².

- [28]* *Se2dou3 ngo5 go3go3 zi6 dou1 cho3saai3.*
Write till I every word all wrong PRT

Cheung only mentions that the sentential subject is different from the subject of the embedded predicate *cho3* 'wrong'. Cheung's analysis is only descriptively adequate. The contrast between (23) and (24), (25) and (26), (27) and (28) calls for a generalization and reconciliation. (28) cannot be interpreted as *I have written all words wrong*, which suggests that sentential subject cannot appear in NP-position after *dou3* if the matrix verb is a transitive verb.

- (29) *Ngo5 bei2 keui5 gik1dou3 yau6 haam3 yau6 siu3.*
I by he/she annoyed till and cry and laugh
'I was vexed by him to the extent that I cried and laughed'
- (30) *Bei2 keui5 gik1dou3 ngo5 yau6 haam3 yau6 siu3.*
By he/she annoyed till I and cry and laugh
'I was vexed by him to the extent that I cried and laughed'

The possibility of (30) suggests that even when the matrix predicate is a passive verb, the sentential subject can appear in NP-position after *dou3*.

The syntactic derivation proposed by Cheung may not be correct but his observation supports the categorial status of resultative *dou3*-construction being a clause.

² (28) is grammatical and acceptable if *ngo5 go3go3 zi6* is interpreted as an NP, as 'every word of mine'.

To conclude, *dou3*, syntactically, takes an IP complement while semantically, *dou3*-expression expresses the result of the action denoted by the main verb. Furthermore, the following generalization can be drawn from the above sentences in (22-30): the embedded resultative predicate, no matter whether it is an AP or VP, is predicated of the NP after *dou3*: VP *sei2sei2-ha5* 'dying' in (24) is predicated of *ngo5* 'I', AP *hou2 gui6* 'very tired' in (26) is predicated of *ngo5* 'I', AP *yau 6 haam3 yau6 siu3* 'crying and laughing' in (30) is predicated of *ngo5* 'I'. The NP after *dou3* is the logical subject of the embedded predicate. This follows if the resultative *dou3*-construction is a clause.

Then, it is likely that the NP after *dou3* in resultative construction remains in its underlying base position instead of having moved all the way down from sentential position, a Case-marked position. There is no motivation for NP movement. The Principle of Economy (Chomsky 1991, 1993) constrains the grammar such that no movement should apply when there is no motivation. NP movement here obviously violates the Principle of Economy.

With no NP movement, *ngo5* 'I' in (28) cannot be interpreted as an agent. (28) cannot be interpreted that *I write all the words and every word is written wrong*. The impossibility for sentential subject (NP₁) to appear after *dou3* follows straightforwardly when *go3go3zi6* 'every word' generated at the object position.

There is no reason for *ngo5* 'I' (NP₁) to lower to the NP-position after *dou3* as it is Case-marked by the matrix Infl. Moving down to post *dou3* NP position would violate the Principle of Economy. Moreover, an accusative Case has been assigned to the object, thus, no Case would be available for *ngo5* 'I' if it moved down to post *dou3*-position. *Ngo5* 'I' in (28) is subject to the Case Filter. Therefore, sentential subject of a transitive verb would not lower to NP-position after *dou3*. It is base-generated at Spec of matrix IP.

5.2.2 Null Elements in Cantonese

Returning to (23) and (24), NP₂ in (23) is a null NP while NP₁ in (24) is null. There are two possible candidates for the identification of the null element if it is not a trace. In Chomsky (1982), these two null elements are called *PRO* and *pro*. *PRO* is assumed to be a pronominal anaphor, and *pro* a pure pronominal. The occurrence of *PRO* which is limited to the subject position of non-finite clause is presumably universal. *pro*, which is a non-overt pronoun, is not a universal property of all human languages (Jaeggli and Safir 1989). Languages that allow *pro* are called *pro*-drop languages. The subject pronoun can be left unexpressed. This cross-linguistic variation is referred to as the *pro*-drop parameter.

The presence of null subjects in matrix clauses or in embedded clauses is possible in Cantonese. It is due to a parameter setting of Chinese including Cantonese: Chinese is a *pro*-drop language (Huang 1989), which allows the subject pronoun to be dropped.

- (31) *e* Siu3dou3 ngo5 din1jo2.
laugh till I mad-ASP
'I laughed to the extent that I seemed to be mad.'
- (32) *e* ho1sam1dou3 *e* fei1hei2.
happy till fly up
'Somebody is so happy that he seems to be flying.'

For example, (32) has a null subject in both matrix and embedded clauses while the logical subject is understood to be present in the discourse. (31) can be an answer to a question like, *When you learnt you won the first prize, how did you feel?*

Whether the null element is *PRO* or *pro* is put aside at the moment and to be discussed in chapter six.

5.2.3 The Status of V₁

It is observed that V-*dou3* cannot take aspectual marking, or other morphological changes as a main verb usually does.

- (33) Keui5 yam2dou3 jeui3-jo2.
He/she drink till drunk-PFV
'He/she has been drunk.'
- (34)* Keui5 yam2-jo2 dou3 jeui3.
He/she drink-PFV till drunk
- (35) Ngo5 gui6dou3 sei2sei2-ha5.
I tired till dying PRT
'I am so tired that I seem to be dying.'
- (36)* Ngo5 gui6-ha5 dou3 sei2.
I tired-PRT till death

(33-36) seem to suggest that V is not the main verb since main verbs usually take aspect markers:

- (37) Keui5 haam3-jo2 hou2 lou6.
He/she cry-PFV very long
'He/she has been crying for so long.'
- (38) Keui5 yam2-jo2 jau2.
He/she drink-PFV wine
'He/she has drunk wine.'
- (39) Keui5 ngaam1ngaam1 haang4-jo2 yahp6 jau2lau4.
He/she ust just walk-PFV in restaurant
'He/she has just walked into the restaurant.'
- (40) Ngo5 jaan6-jo2 hou2 do1 chin2.
I earn-PFV very much money
'I have earned a lot of money.'

However, the scope of the emphatic marker/negation/modal/adverb in preverbal position of V is a main verb and [NP V] cannot be a subordinate clause.

- (41) Keui5 [[hai6] [yam2dou3 jeui3]]
He/she is drink till drunk
'He/she is drunk.'
- (42) Keui5 [[mhai6] [yam2dou3 jeui3-jo2]]
He/she is not drink till drunk-ASP
'He/she is not drunk.'
- (43) Keui5 [[wui5] [yam2dou3 jeui3 me1]]
He/she will drink till drunk PRT
'He/she will not be drunk.'
- (44) Keui5 [[si4si4dou1] [yam2dou3 jeui3-saai3]]
He/she often all drink till drunk V-PRT
'He/she often gets drunk.'

If V in (41-44) were an adjunct rather than a main verb, the scope of emphatic marker and others could not extend to the resultative clause.

Moreover, not all Cantonese main verbs take aspectual marking. A Cantonese main verb does not take any morpheme or aspectual marker when another verb is attached to it to form a verb compound:

- (45)* Keui5 yam2-jo2 jeui3 jau2
He/she drink-PFV drunk wine
- (46) Keui5 yam2 jeui3-jo2 jau2
He/she drink drunk-PFV wine
'He/she has been drunk.'
- (47)* Leih5 sihk6-jo2 baau2 mei6 a3?
You eat-PFV full not yet PRT

- (48) Lei5 sik6 baau2-jo2 meic6 a3?
 You eat full-PFV not yet PRT
 'Have you been full?'

Yam2-jo2 jeui3 jau2 'drink-PFV drunk' in (45) and *sik6-jo2 baau2* 'eat-PFV full' in (40) are not acceptable because *yam2* in (45), for example, has been attached to another verb to form a verb compound; so *yam2* cannot take aspectual marking.

The fact that V does not have any aspectual features is due to the attachment of *dou3*. *Dou3* being the extent complement marker is attached to a resultative compound:

- (49) V
 ^
 V *dou3*

It is this new verb that selects its own complement, a clause. Then, an answer for the question concerning Case assignment follows. This new verb assigns Case to the subject of the embedded resultative clause.

In line with the analysis of Gu (1995), the fact that [V+*dou3*] cannot co-occur with aspectual markers can be explained by LF feature checking in Chinese. Since Chinese has a weak Infl, features are checked at LF, complying with the Principle Procrastinate (Chomsky 1993). When V is selected from the lexicon, the verb carries a bag of features including aspectual features (Gu 1995). In light of this, we can assume aspectual features are not 'licensed' as a legitimate LF object with a [V+*dou3*] constituent since *dou3* has a meaning of 'until' and 'by' which is incompatible with progressive markers *gan2*, *jyu6*, the delimitative marker *haa5*, and overlapping with the meaning of a perfective marker *jo2*.

It is possible that causative verb is an abstract verb in Cantonese, instantiated by *V-dou3*. It is listed in the lexicon that V has the feature [+activity] and *V-dou3* complement selects either an idiocyncratic expression or a non-activity expression. The complement selection of *V-dou3* helps to explain why (52) and (55) are not acceptable.

- (50) gui6 dou3 ngo5 sei2sei2 ha5.
 Tired till I dying PRT
 'I was so tired that I seemed to be dying.'
- (51) Ngo5 gui6 dou3 sei2sei2 ha5.
 I tired till dying PRT
- (52)* Ngo5 gui6 dou3 ngo5 sei2sei2 ha5.
 I tired till I dying PRT
- (53) Keui5 hung4 dou3 faat6 zi2
 He/she red till become-purple.
 'He/she is very popular and famous.'
- (54) Hung4 dou3 keui5 faat6 zi2.
 Red till he/she become-purple
- (55)* keui5 hung4 dou3 keui5 faat6 zi2.
 He/she red till he/she become-purple.

The above sentences³ show that if the main predicate is an adjective, only one of the NPs can be lexical.

³ Sentence in (33-38) are suggested to me by Lee Thomas (p.c.).

5.3 Directional Complements

In Cheung (1972), *dou3* in (56-59) is analysed as a 'directional complement' (p. 111):

- (56) Faan dou ngukkei.
Come arrive home
'Arrive home.'
- (57) Leuhn dou bingo?
Turn arrive who
'Whose turn is it?'
- (58) Gongdou nisyu, ngaamngaam gaujung.
Talk arrive here, just just enough time
'There is just enough time to finish talking here.'
- (59) Keuih laih dou Heunggong.
He/she come arrive Hong Hong
'She came to Hong Kong.'

Dou3 in (56-59) has the meaning of *reach; arrive* and takes a locative complement.

Such a *dou3* is different from the *dou3* as the extent complement marker.

In the work of Cheung (1972), besides *dou3*, there are other directional complements which are also analysed as one of the 'resultative complements' (p. 111):

- (60) laih: Jam buichah laih.
Pour cup tea laih
- (61) heui: Nidi yeh, ling heui binsyu a?
This thing put heui where PRT
- (62) seuhng: Haahng seuhng luhk lau.
Walk up sixth floor
- (63) lohk: Haahng lohk saamlau.
Walk down third floor

- (64) hoi: Keihhoidi, maih joyyuh tiuh louh.
Stand away a bit, not block CL-road
- (65) maaih: Daaihga chohmaaih kinggai.
We sit together chatting
- (66) cheut: Ngoh yat haahng cheut daaihwuihtohng...
I once walk out City Hall
- (67) yahp: Keuih haahngyahp jaulauh go jahn, gogo mohngjyuh
He/she walk in restaurant that time, everybody look at
keuih.
him/her
- (68) gwo: Ga feigei feigwo saandeng.
CL-plane fly over the peak
- (69) hei: Yatsau pouhhei gosailougo.
One hand hold up CL-kid
- (70) faan: Haahngfaan ngukkei.
Walk back home

These 'directional complements' can combine with other 'directional complement(s)'. The combination is quite flexible and extensive. Examples are cited in Cheung (1972, p. 116-117):

- (71) seuhng-heui, seuhng-laih, lohk-laih, lohk-heui, hoih-laih, hoih-heui,
maaih-laih, maaih-heui, cheut-laih, cheut-heui, yahp-laih, yahp-heui,
faan-laih, faan-heui, faan-seuhng-laih, faan-seuhng-heui, faan-hoi-laih,
faan-maaih-laih, faan-maaih-heui, faan-yahp-laih, faan-yahp-heui,
faan-cheut-laih, faan-cheut-heui, faan-gwo-laih, faan-gwo-heui

However, it is worth noting that Levin and Rappaport (1995) insist that the resultative phrase further specifies the achieved state of the action denoted by the verb. It is a further 'specification of the inherent state' (p. 59). They argue that verbs of inherently

directed motion having specified an attained location are incompatible with a resultative phrase. They can only take a goal phrase to further specify the endpoint inherent in the meaning of the verbs, but not a resultative phrase.

In line with Levin and Rappaport, a Cantonese verb with *dou3* or any 'directional complement' in (60-71) that takes a locative NP is not a resultative construction. Therefore, *saam1 lau2* 'third floor' in (72) is a goal phrase instead of a resultative phrase.

- (72) Haahng4 dou3 saam1 lau2.
Walk arrive third floor
'Walk to the third floor.'

5.4 Summary

Our discussion about the properties of *dou3* shows that *dou3* is attached to a verb to form a new constituent [V+*dou3*]. In resultative constructions, [V+*dou3*] is an abstract causative verb in Cantonese. The subject of the resultative clause can be a lexical overt NP or a null element. In the following chapter, we formulate arguments surrounding the status of the subject of the resultative clause if it is a null NP. We also provide syntactic structures of resultative *dou3*-constructions in Cantonese.

CHAPTER VI

A PREDICATION THEORY FOR CANTONESE RESULTATIVES

6.1 Introduction

The previous chapter has made a substantial description of Cantonese resultative constructions, including *dou3*-resultative expressions as well as resultative V-V compounds. Recall that Cantonese resultative expressions are distinguished from descriptive expressions in that the former are clauses and the latter phrases.

The focus of this study so far has been the relation between resultative constructions and the predication theory. The description of certain phenomena like *dou3* taking a clausal complement cannot be satisfactory with Williams' predication theory (1980, 1983) which does not assume a small clause constituent.

In this chapter, we analyse that Cantonese transitive and intransitive resultative *dou3*-construction share the same syntactic structure with their English counterparts:

$$(1) \quad NP_1 \text{ V-}dou3 \text{ NP}_2 \text{ XP}$$

6.2' The Syntactic Derivations of *Dou3*-constructions with Intransitive

It has been mentioned in 3.2. that English unergatives must take a reflexive or a non-subcategorized NP in resultatives. This may be because there is a θ -role to be assigned by the resultative XP.

However, for Cantonese intransitive resultative *dou3* constructions, no reflexive and a non-subcategorized NP are necessary. Compare (51-52) with (53-56):

English Intransitive Resultatives

- (2) I walked myself tired.
(3)* I walked tired.

Cantonese Intransitive Resultatives

- (4) Ngo5 haang4 dou3 go2 yan4 hou2 gui6.
I walk till CL-man very tired
'I walked myself tired.'
- (5) Ngo5 haang4 dou3 hou2 gui6.
I walk till very tired
'I walked myself tired.'
- (6) Haang4 dou3 [ngo5] hou2 gui6.
Walk till I very tired
'I walked myself tired.'
- (7) Haang4 dou3 hou2 gui6
Walk till very tired
'I walked myself tired.'

(4) patterns with its English counterpart (2) but (5-7) show that the presence of both lexical NP₁ and lexical NP₂ is optional. This phenomenon is due to a parameter of Chinese (including Cantonese) that Chinese is a *pro*-drop language which allows a null clausal subject.

In the work of Chomsky (1981, 1982) and many others (Huang 1989, Jaeggli and Safir 1989, Safir 1996, Quicoli 1996), besides NP- and wh-traces, there are two null elements: *PRO* and *pro*.

PRO is a D-structure null element. It is assigned a θ -role independent from its antecedent. The position in which *PRO* is generated at S-structure is a theta-position. Since *PRO* has its own θ -role, *PRO* need not have an antecedent:

- (8) *PRO* To love Bathsheba is a mistake.

PRO must be ungoverned and its interpretation is determined by control theory, for example,

- (9) I am anxious *PRO* to finish this study.

The *PRO* subject in (9) is controlled by the main clause subject.

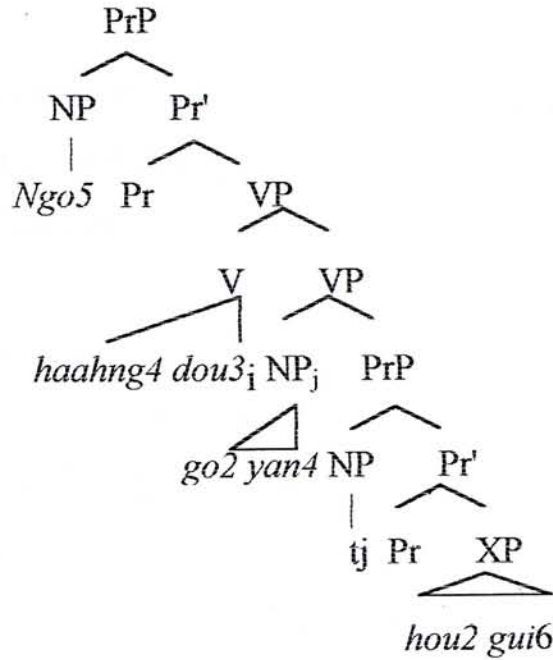
pro is a null element with the feature [-anaphor, +pronominal]. It is a non-overt pronoun. *pro* subjects are not a universal property of all human languages. Rizzi (1986a) proposes that *pro* is licensed under head-government and the content of *pro* is recovered through the rich agreement specification. However, Huang (1984) argues that Chinese allows null subjects despite the fact that Chinese lacks agreement (AGR) entirely.

According to Quicoli (1996), *pro* must be Case-marked to satisfy the requirements of the Case Filter. Therefore, the subject position of the resultative XP cannot be *pro*.

Cantonese intransitive *dou3* construction is assumed to pattern with its English counterpart. The lexical subject of the resultative XP raises to the object position to receive a Case. An NP trace is left in the spec of the lowest PrP.

(4) has the following syntactic structure:

(10)



The same derivation should be found in (5-7), except that for (5), *PRO* is generated at Spec of the lowest Pr''; and for (7), *pro* is found at the spec of the matrix Pr'' and *PRO* at the spec of the embedded Pr''.

With such a structure, the resultative XP is predicated of the NP in Spec of Pr''. Predication relation holds between specifier and complement.

6.3 The Syntactic Derivations of Dou3-resultative Constructions

It has been shown in 3.2.3 that an English transitive resultative has the following structure and resultative XP is predicated of *PRO* controlled by NP₂:

- (11) English Transitive Resultative
 NP₁ V NP₂ PRO XP

Consider English transitive resultatives and Cantonese counterparts cited in Matthews and Yip (1994, p. 156), and compare:

English Resultatives

- (12) I pounded the metal flat.
(13) I ironed the shirt dry.

Cantonese Resultatives

- (14) Ngo5 yam2 jau2 yam2 dou3 jeui3-jo2.
I drink wine drink till drunk V-PRT
'I have been drunk.'
- (15) Ngo5 jeuk3 dou3 deui3 haai4 laan6-saai3.
I wear till pair shoes out PRT
'The pair of shoes have been worn out.'
- (16) Keui5 gong2-syu1 gong2 dou3 yan4dei6 fan3-saai3-gaaui3.
He/she talk-book talk till people fall-all-asleep
'His lecturing has put everyone to sleep.'

English transitive resultative XP is predicated of *PRO* which is controlled by the object. But for Cantonese, data in (14-16) show that Cantonese transitive *dou3*-construction may have the following surface structure:

- (17) NP₁ V NP₂ V-*dou3* NP₃ XP

The resultative XP can be predicated of NP₁ (as in (14)), NP₂ (as in (15)) or another NP different from NP₁ and NP₂ (as in (16)). In other words, Cantonese resultative XP can be predicated of an NP other than subject and object of a transitive verb. NP₃ seems to be needed in a general structure for Cantonese transitive *dou3*-construction.

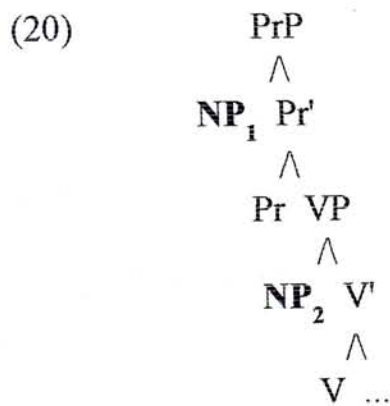
6.3.1 Base Positions for NP₂ and NP₃

Consider (18) and (19):

- (18) [_{NP1} Ngo5] jyu2 dou3 [_{NP2} di1 dung1-gu1] laan6-saai3.
 I cook till mushrooms to pieces-PFV
 'I cooked the mushrooms to pieces.'

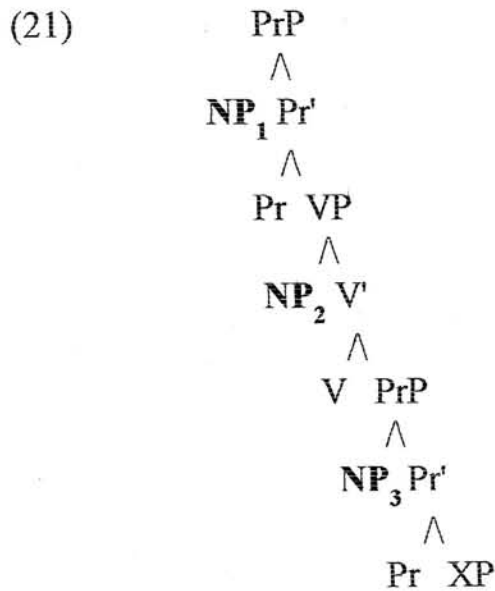
- (19) [_{NP2} Di1 dung1-gu1] bei2 [_{NP1} ngo5] jyu2 dou3 laahn6-saai3.
 Mushrooms by I cook till to pieces-PFV
 'Mushrooms have been cooked to pieces by me.'

The fact that NP₂ can be passivized suggests that NP₂ in (18) is generated at secondary subject position instead of complement position of V, in the structure proposed by Bowers. In brief, NP₂ is base-generated at specifier of VP, and NP₁ at specifier of PrP.



It has been argued that Cantonese *dou3*-construction with a transitive verb, the resultative XP is predicated of NP₃. The sentence in (18) has only two overt NPs, which raises the question whether NP₂ or NP₃ is a null element. Following Bowers, NP₃ being the subject of the resultative XP should be generated at the specifier of the

lowest PrP. Then, (18) should have the following syntactic structure: NP₃ is a null element. It is co-referential with NP₂ because NP₂ is the understood subject of the resultative XP.

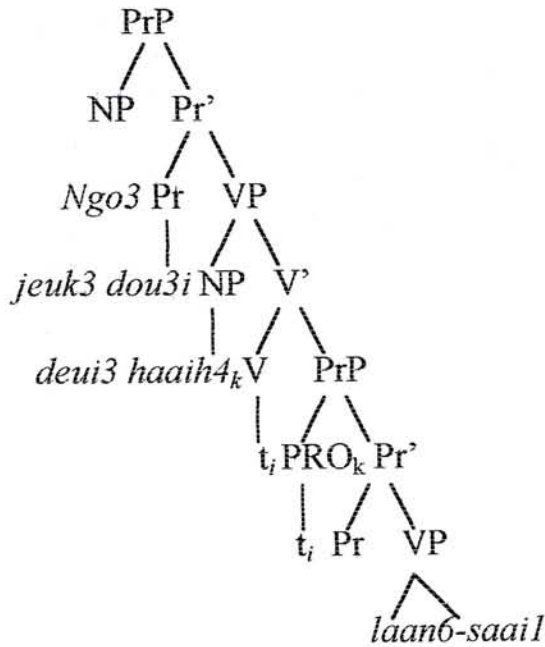


If NP₂ were a null element and *dil dungl-gul* 'mushrooms' were generated at Spec of embedded Pr'', the configuration in which an empty element asymmetrically c-commands its antecedent would violate Condition C of the Binding Theory which requires all referential expression should be free (Chomsky 1981). As NP₃ is settled to be a null element, the next question to be tackled is the status of NP₃. PrP is assumed to be a barrier to government and spec of PrP is not a Case position, NP₃ must be PRO.

As NP₃ must be PRO in transitive *dou3*-construction, *deui3 haai4* 'the pair of shoes' is NP₂, located at the spec of VP. (22) should have the structure shown in (23):

- (22) Ngo5 jeuk3 dou3 deui3 haai4 laan6-saai3.
 I wear till pair shoes out PRT
 'The pair of shoes have been worn out.'

(23)



Here we argue that *tong1* 'soup' in (24) is not NP₂. Rather than being the object of the verb, it is an adjunct. A piece of evidence comes from the fact that 'the soup' cannot be passivized but 'mushrooms in the soup can be passivized. The real object of the resultative verb is 'mushrooms'.

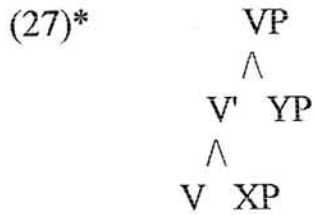
- (24) Ngo5 jyu2 tong1 jyu2 dou3 di1 dung1-gul laan6-saai3.
 I cook soup cook till mushrooms into pieces
 'I cooked the soup and the mushrooms were cooked into pieces.'

- (25)* Tong1 bei ngo5 jyu2 dou3 laan6-saai3.
 soup by me cook till into pieces
 'The soup was cooked into pieces.'

- (26) Di1 dung1-gu1 bei ngo5 jyu2 dou3 laan6-saai3.
 mushroom by me cook till into pieces
 'The mushrooms were cooked into pieces.'

6.3.2 Reduplication and V' Constraint

According to Huang (1982), duplication of the main verb is due to V' Constraint, which states that for Chinese, V' cannot take any complement with the assumption that the general word order patterns of Chinese is primarily head-final except for the lowest level of VP or PP expansion. Hence, (27) is ruled out:



Without assuming Bowers' syntactic representation, constructions with cognate objects indicating frequency of action like those in (28-34) cited in Cheung (1972, p.72) should have been violating V'-Constraint and ruled out. Given Bowers' syntactic representation, (28-34) do not violate (27), instead, these sentences are pieces of evidence in support of Bowers' representation of predication theory.

Cognate Objects indicating Frequency of Action

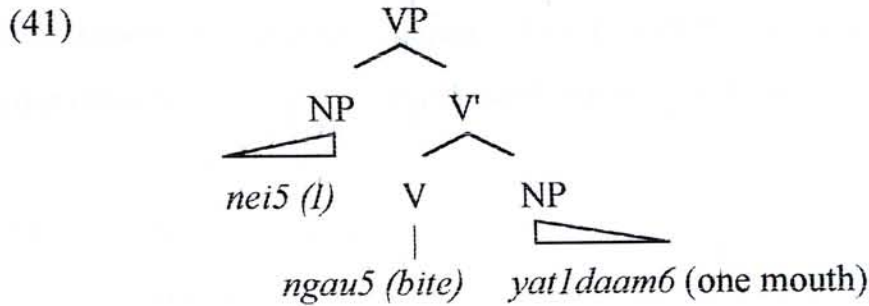
- (28) Ngaau5 nei5 yat1daam6.
 Bite you one-mouth
- (29) Aai neih saamseng.
 Call you three-sound
- (30) Gaaufan yatfaan.
 Teach one-time

- (31) Dam neih yatkuhn, tek neih leuhng geuk.
Hit you one-fist, kick you two-feet
- (32) Kam neih yatba jeung.
Hit you one-hand
- (33) Mohng-jo ngaahn.
Look-PFV eye
- (34) Da neih yatchaan.
Hit you one-meal

Recall that Bowers put forward the hypothesis that NP base-generated in [spec, VP] can be passivized but NP located in the complement position cannot be passivized. Cognate objects cannot be passivized, which suggests that cognate objects are base-generated in complement of Pr.

- (35) Lei5 bei2 keui5 ngaau5-jo2 yat1 daam6.
You by he/she bite-PFV one-mouth
- (36)* Yat1 daam6 bei2 keui5 ngaau5-jo2.
One-mouth by he/she bite-PFV
- (37) Lei5 bei2 keui5 kam2-jo2 yat1 ba1 (jeung2).
You by he/she hit-PFV one-CL (palm)
- (38)* Yat1 ba1 jeung2 bei2 keui5 kam2-jo2 lei4.
One-CL (palm) by he/she hit-PFV you
- (39) Lei5 bei2 keui5 tai2-jo2 gei2 ngaan5.
You by he/she look-PFV several-eye
- (40)* Gei2 ngaan bei2 keui5 tai2-jo2 lei5.
Several-eye by he/she lookt-PFV you

Sentences in (35-40) show that postverbal NP can be passivized, suggesting that postverbal NP is the secondary subject, generated in [spec, VP]. The VP structure for a sentence like (28) will have a representation in (41):



(41) demonstrates that Cantonese constructions with cognate objects do not violate V' Constraint though they seem to be. Instead, they provide evidence in support of Bowers' predication theory.

With V' constraint, the duplication of the main verb in sentence (24) follows. As V' cannot take any adjunct, duplication of the main verb saves the sentence.

6.4 Passive Resultatives

Since there exists substantial literature on Chinese passive construction which contains a *bei*-phrase, the present study will only briefly outline some properties it shares with and the ways in which it differs from English passives, but concentrate on its syntactic derivations in resultative construction.

First of all, a logical object is preposed to sentential subject position. This initial NP is regarded as the subject of a Chinese passive construction. This is shown by the fact that such NP in *bei*-construction can trigger reflexivization (A. Li 1990, p. 15):

- (42) Ta_i bei ziji_i de pengyou hai le.
He by self's friend hurt ASP

Though Chinese is a *pro*-drop language, (43) shows the obligatory movement of an underlying object to sentential subject position, just as the English passives:

- (43)* e bei ren pian le ta.
By men cheat ASP him

A. Li has claimed that a duration/frequency phrase has to receive Case (A. Li 1990, p.157); so she argued that the passive verb in (44) must be able to assign Case:

- (44) Ta bei wo pian le san ci/san nian.
He by me cheat ASP three time/three year

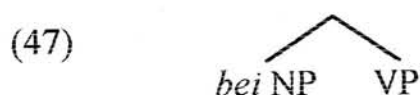
If the analysis of A. Li is correct, a Chinese passive verb retains the ability to assign Case. With respect to Case assignment, such an analysis is found to be unsatisfactory since the obligatory movement of an underlying object in passives lacks explanation.

A *bei*₂-phrase in Cantonese is different from a *by*-phrase in English in that the agent in *bei*-phrase is obligatory:

- (45) Ngo₅ bei₂ lei₂ gik₁ sei₂.
I by you vexed-die
'I am vexed to death by you.'

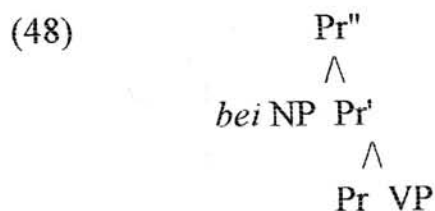
- (46)* Ngo₅ bei₂ gik₁ sei₂.
I by vexed-die
'I am vexed to death.'

Bei in Mandarin can immediately precede either an NP [*bei* NP] or a V [*bei* V]: so (45-46) are said to be possible in Mandarin. *Bei2* in Cantonese, however, can only precede an NP and a passive sentence must contain [*bei2* NP]. It is impossible for a Cantonese passive sentence to contain [*bei2* V]; so (46) is not possible in speech in Cantonese. Without *bei*, a sentence cannot be interpreted as passive in Chinese. *By*-phrase in English is optional but *bei2*-phrase is obligatory. Therefore, *bei2*-phrase behaves more like an argument than an adjunct. A. Li has assumed [*bei* NP] is a constituent with the following configuration:



Given that *bei* NP is an argument of Chinese passives, it is plausible for A. Li to assume that a *bei* NP is directly assigned an external θ -role by VP in passive. If the external θ -role is assigned to the subject position, the sentence is ruled out because [*bei* NP] will not have any θ -role, violating θ -Criterion. Therefore, if an external θ -role is not assigned to the subject position, the *bei*-phrase must appear.

In the spirit of the analysis of A. Li, the constituent [*bei* NP] is assumed to precede Pr' under the present approach:

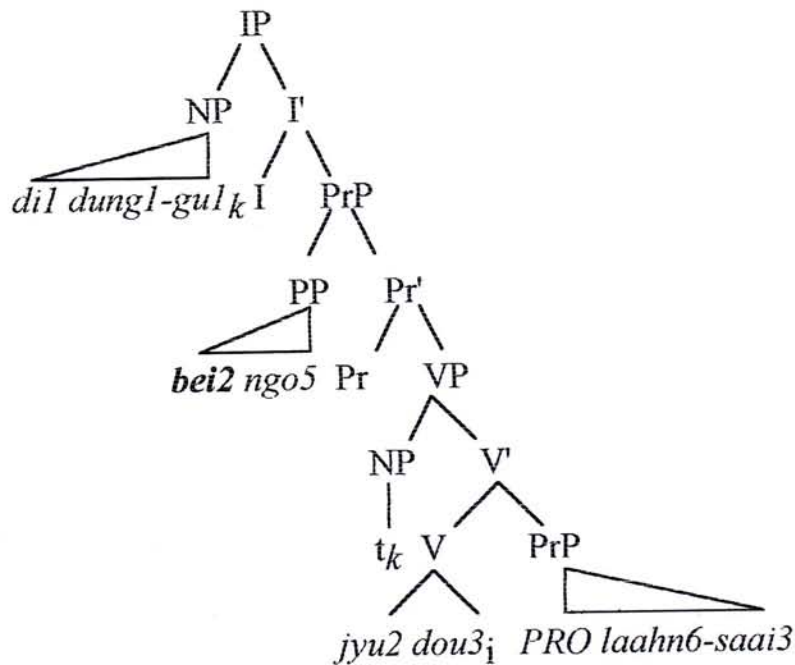


If we assume with A. Li that passive verb in Chinese retains its ability to assign Case, and assume with Bowers' proposed structure, the logical object is in a Case position. Then, why should the logical object move to sentential subject position? Such movement should be ruled out by the Principle of Economy and there would be a Case conflict: the head of the Case chain receives a nominative Case and the foot receives an accusative Case.

However, if Chinese (including Cantonese) passive verbs pattern with their English counterparts in that they fail to assign an accusative Case, the logical object must move to the sentential subject position. No problem emerges in (50). The only problem is to provide a plausible explanation for (44). The passive counterpart of (49) is assumed to have undergone the derivation shown in (50).

- (49) Ngo5 jyu2 dou3 di1 dung1-gu1 laahn6-saai3.
 I cook till mushrooms to pieces-PFV
 'I cooked the mushrooms into pieces.'

(50)



For (44), one possible solution is that the duration/frequency phrase receives a partitive Case if it indeed must receive a Case. According to Belletti (1988), unaccusative verb still preserves the capacity to assign partitive Case. It is assigned in conjunction with θ -role assignment. Most importantly, partitive Case is incompatible with definite NP, and NP with universal quantifiers. Partitive Case always selects an indefinite meaning for the NP.

- (51)* Ta bei wo pian le zhe san ci/san nian.
He by me cheat ASP this three times/three years
'He was cheated three times/for three years by me.'

We can assume that Chinese and Cantonese passive verbs still preserve the capacity to assign partitive Case, and (51) is a piece of evidence that the duration/frequency phrase in (44) receives a partitive Case instead of an accusative Case. The duration/frequency phrase in (51) displays definiteness, which is incompatible with partitive Case. Thus, it has not received either partitive Case or accusative Case, and is ruled out by the Case Filter.

To summarize, with the assumptions that the *bei*₂-phrase in Cantonese resultative *dou*₃-constructions is located at the specifier of the matrix PrP. Cantonese passive verbs fail to assign an accusative Case to the logical object, and so the logical object moves to the sentential subject position to receive a Case, the syntactic derivations of Cantonese *dou*₃-constructions with a passive verb can be structurally presented. Moreover, the predication relation holds between the specifier and complement. In (50), PRO is located at the specifier of the embedded PrP and the resultative XP is the complement of the embedded Pr⁰. Thus, (50) is another piece of evidence in support of Bowers' theory.

6.5 A Note on Resultative *Dou3*-constructions with Causatives

The Cantonese example in (52) is deemed to be not only resultative but also causative constructions. It parallels the Mandarin sentence shown in (53) which has been discussed in Huang (1984, p. 294). In both sentences, NP₁ is the Causer, NP₂ Causee, and V₁ action.

- (52) Ni1jek3 laai5-fan2 sik6-dou3 di1 bi4bi1 fei4-saai3.
 This CL milk-powder eat till CL baby fat-PRT
 'The babies get fat after eating this milk powder.'

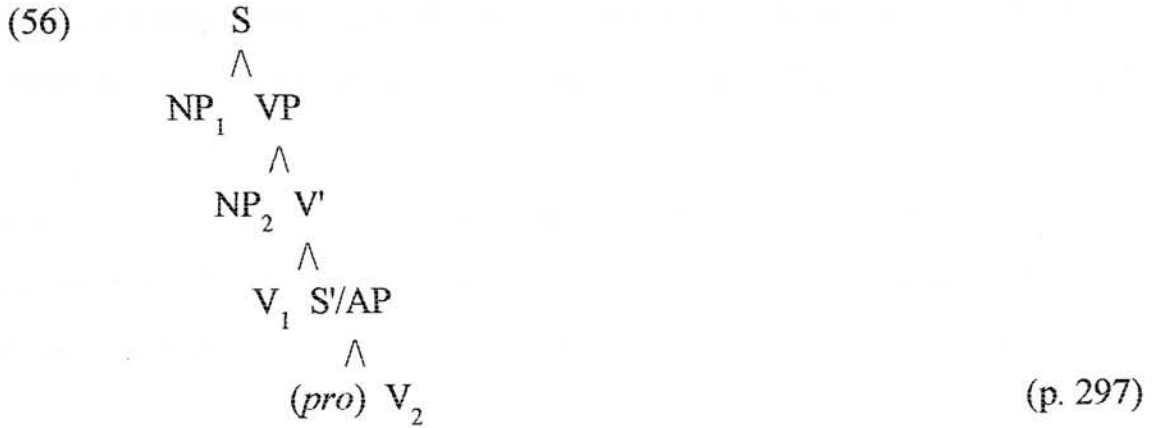
- (53) [_{NP1} Zheping jiu] zuide [_{NP2} Zhangsan] zhan-bu-qilai.
 This wine drunk DE Zhangsan cannot-stand-up

Huang analyses sentences like (54) in which Causer is absent and NP₁ is either an agent or an experiencer as having the D-structure shown in (55):

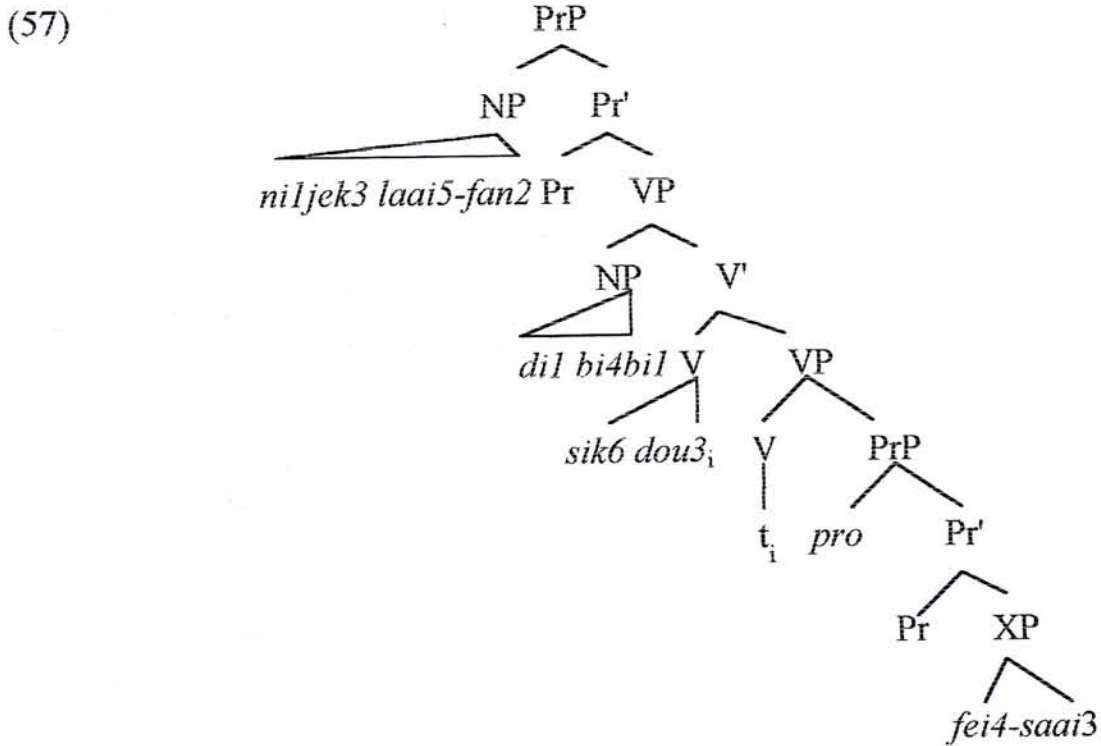
- (54) [_{NP1} Zhangsan] zuide zhan-bu-qilai.
Zhangsan drunk DE cannot-stand-up (p. 293)

- (55)
- $$\begin{array}{c}
 S \\
 \wedge \\
 NP_1 \quad VP \\
 | \\
 V' \\
 \wedge \\
 V_1 \quad S'/AP \\
 \wedge \\
 (pro) \quad V_2
 \end{array}$$
- (p. 297)

(55) should not be the D-structure representation of (52) and (53) since Causer is present. NP₂ is in the spec of V₁. (52) and (53) should share the same D-structure representation shown in (56):



If (56) is the correct D-structure representation for (52) and (53), overt verb raising to an upper VP, and to PrP seems to be obligatory in Chinese. Without overt V-raising, (52) and (53) cannot be yielded. Derivations of (52) is shown in (57):



6.6 A Remark on V-V Compounds

Ross (1990) gives a detailed description of Chinese resultative verb compounds as 'low, left-handed lexical compounds' (p. 61). The first verbal morpheme of the compound (V_1) as the head and the second one as the complement have been analysed and accepted in the field of Chinese linguistics (Thompson 1973, Lu 1977, Chang 1989, Ross 1990, Li 1990a, 1990b, 1993, 1995, Gu 1992).

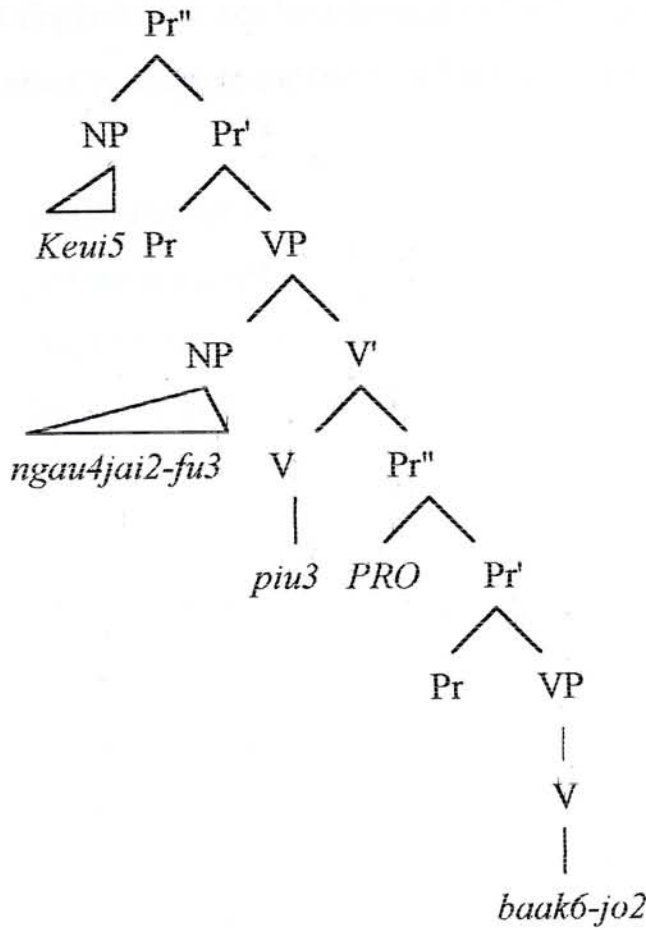
It is worth reiterating that Cantonese resultative verbs do not (at least rarely, if even) display ambiguity. The focus of the present study has been given an account of the structure of resultative constructions in terms of Bowers' predication theory.

In the light of the Bowers' predication theory and the discussion above, we may extend (1) to all Chinese resultative constructions including those with V-V compounds.

Resultative constructions with V-V compounds are an instance of (1): the sentential subject is NP_1 , logical object NP_2 and *PRO* NP_3 . The only difference is the absence of *dou3*. In addition, NP_2 and NP_3 are co-referential. (58) has the underlying structure shown in (59):

- (58) Keui5 piu3-baak6-jo2 tiu4 ngau4jai2-fu3.
He/she bleach white-PFV CL jeans
'He/she bleach the jeans white.'

(59)



V-V compound in Cantonese (or Chinese) involves verb incorporation (Li 1990b, Gu 1992). To be explicit, the embedded V *baak6-jo2* 'white' directly adjoins to the matrix V *piu3* 'bleach'. Then, the new formed V-V compound *piu3 baak6-jo2* 'bleach-white' raises to Pr^0 , and later to I^0 . The predication relation between the predicate *baak6* 'white' and *pro* co-referential to NP_2 *ngau4jai2-fu3* 'jeans' is syntactically represented. The predication relation between the predicate *piu3-baak6* 'bleach-white' and PRO at the specifier of the embedded PrP is also observed.

To conclude, different surface word orders found in English and Chinese including Cantonese resultatives are not due to a parametric difference in word order. Rather, Chinese allows lexical verb compound formation which involves the lexical movement of V but not VP (Gu 1994) to form V-V resultative compounds. On the other hand, English does not allow lexical verb incorporation in resultatives. It does

not entail that English does not have lexical verb incorporation. Evidence for English verb incorporation is found in the work of Hale and Keyser (1991, p. 9-10):

- (59) carpet the floor
- (60) jail the prisoner
- (61) shelved the book
- (62) bridle the mare
- (63) salt the food

These verbs are said to involve a relation corresponding to that embodied in the verb 'put'; the verbs incorporate the concept of induced motion or physical transfer as well as the class of 'places' corresponding to the endpoint, or locational goal, of motion.

(59-63) are derived from (64-68):

- (64) NP put a carpet on the floor.
- (65) NP put the prisoner in jail.
- (66) NP put the book on the shelf.
- (67) NP put a bridle on the mare.
- (68) NP put some salt in the food.

6.7 Summary

The results of this investigation show that predication relation of English and Cantonese resultatives can both be represented in a modified version of Bowers' framework. The theory hypothesises that predication relation holds between the specifier and the complement of PrP, which is found to be correct in English and Cantonese resultatives though there are differences in these two languages. One of these is that Cantonese has a distinguished extent complement marker *dou3*, which adjoins to the main verb to form a resultative verb compound.

Both English and Cantonese resultative constructions have the structure shown in (69). NP_2 is also present in Cantonese *dou3*-construction. This is considered to be due to the fact that a resultative predicate has a θ -role to assign. Moreover, in intransitive construction, NP_2 in both English and Cantonese is the specifier of the embedded PrP and raises to the object position to receive Case, leaving a trace in the base position. Such a structure observes the predication relation between NP_2 and the resultative predicate. The only difference is that NP_2 in an English intransitive is either a reflexive or a non-subcategorized NP. However, NP_2 in Cantonese is not necessarily a reflexive or a non-subcategorized NP.

(69) NP_1 V NP_2 XP

NP_2 in English transitive is a lexical NP but in Cantonese, NP_2 can be a lexical NP or a null object *pro*. The presence of an NP_3 PRO is observed in both English and Cantonese transitive resultative constructions.

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