

Causative Compounds across Chinese Dialects: A Study of Cantonese, Mandarin and Taiwanese

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Abstract

A comparison of the properties of verbal compounds in Cantonese, Mandarin and Taiwanese reveals that whereas all three dialects exhibit canonical resultative compounds and causative compounds, the use of causative compounds in Taiwanese is systematically more restricted than their use in Cantonese and Mandarin. In particular, Taiwanese causatives are excluded in cases where the post-verbal objects are definite or referential. This paper proposes that this difference stems from where in the grammar of each dialect the process of causative formation occurs. Whereas in Cantonese and Mandarin both resultatives and causatives are formed by lexical incorporation, in Taiwanese causative formation, but not the formation of canonical resultatives, takes place only in the Syntax through verb movement in a VP shell structure, where definite or referential NP objects occur in [Spec, VP] and non-referential NPs occur as sisters of V under V'. This analysis attributes syntactic variation to lexical variation, arguing for a lexical approach to parametric theory. It also supports the traditional distinction between event causation and factive causation, and provides evidence for the process that raises a verb out of a VP into the position of a functional head.

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1. Introduction

One of the controversies associated with resultative verb compounds (RVCs)¹ centers around the level at which the causative RVCs are formed. There are three different approaches to the formation of RVCs: (a) a lexical approach (Li 1990, 1993 among others), according to which causative RVCs are formed in the lexicon; (b) a syntactic approach (Huang 1991a, etc.), according to which causative RVCs are derived syntactically; and (c) a mixed approach (Cheng 1993), according to which both lexically and syntactically derived causatives are possible. A related issue of causative compound formation is the question of how close the representation of such a compound should reflect its meaning. In this paper, we discuss causative RVCs in Cantonese, Mandarin and Taiwanese. We show that the difference in the formation of causative RVCs between Taiwanese on the one hand and Cantonese and Mandarin on the other is reflected in a restriction on the definiteness of the postverbal object NP.

We argue that the difference is a result of different levels of causative RVC formation: in the syntax in Taiwanese and in the lexicon in both Cantonese and Mandarin. We further show that the lexical derivation of causative RVCs in Taiwanese is part of its overall "analytic" nature.²

2. Causative Constructions

As frequently noted in the literature, RVC formation is very productive in Mandarin Chinese. Long lists of such compounds are readily available, such as *da-si* 'hit-dead', *qi-lei* 'ride-tired', *ti-dao* 'kick-fall',

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1. "Resultative verb compound" is a general term encompassing different types of verb compounds, which include causative verb compounds. See the next section for the types of resultative verb compounds.
 2. It should be noted that Li (1988), Lien (1994) and Teng (1994) have made the observation that many Mandarin compounds can only appear in phrasal form in Taiwanese.

zhui-lei 'chase-tired', *qi-si* 'angry-dead', *lei-si* 'tired-dead', *zui-dao* 'drunk-fall', etc. Syntactically, these RVCs can be either intransitive (i.e. not taking an object as in the pattern [NP1 V]) or transitive (i.e., taking an object as in the pattern [NP1 V NP2]):

(1) ta he-zui le.
he drink-drunk asp
'He drank himself drunk.'
他喝醉了。

(2) ta lei-si le.
he tired-dead asp
'He is extremely tired.'
他累死了。

(3) ta da-si tamen le.
he hit-dead them asp
'He hit them dead'
他打死他們了。

(4) zhe-jian shi lei-si tamen le.
this-cl matter tired-dead them asp
'This matter tired them to death.'
這件事累死他們了。

The two transitive patterns are further divided into two types as exemplified in (3) and (4). (3) takes an agent as its subject and (4) takes an inanimate NP as the causer of the event. The contrast between (3), henceforth the Agentive construction, and (4), the Causative construction, will be the subject of this study. (See Cheng and Huang 1994 and later discussion in this paper for detailed distinction between the two constructions).

The productivity of the RVCs is shared by many other dialects. The sentences in (1-4), for instance, have their exact counterparts in Can-

tonese (5-8):

- (5) keoi jam-zeoi zo.
he drink-drunk asp
'He drank himself drunk.'
他飲醉了。
- (6) keoi mun-sei la.
he bored-dead part
'He is extremely bored.'
他悶死啦。
- (7) keoi da-sei-zo keoidei.
he hit-dead-asp them
'He hit and killed them.'
他打死了他們。
- (8) li-ceot hei mun-sei keoidei.
this-cl movie bored-dead them
'This movie caused them to be very bored.'
這齣戲悶死他們。

Taiwanese also has the counterparts (as shown in (9)-(11)) except, unexpectedly, for the Causative counterpart in (4), as shown in (12) (see also Hsieh 1993):

- (9) i lim-tsui a.
he drink-drunk asp
'He drank himself drunk.'
伊飲醉矣。

- (10) *i thiam-si a.*
he tired-dead asp
'He is extremely tired.'
伊累死矣。
- (11) *i pha-si in a.*
he hit-dead them asp
'He hit them dead.'
伊打死他們矣。
- (12) **tsit-tsan taitsi thiam-si in a.*
this-cl matter tired-dead them asp
'This matter tired to death.'
這件事累死他們矣。

The contrast between (11) and (12) shows that it is not the case that Taiwanese simply does not allow the RVCs to take a postverbal object. Rather, the generalization is that the Agentive type of RVCs contrasts with the Causative type in the acceptability of a postverbal object. In order to understand the contrast between (11) and (12) better, we start with the characterization of these two types of constructions. In general, the Agentive type indicates that some action of an agent results in a theme being in a certain state (for instance, the action of hitting is done by the agent *i* 'him' in (11) resulting in the theme *in* 'they' being dead). The second type, illustrated in (4) and (12), denotes a causer bringing about a causee being in a certain state. *tsit-tsan taitsi* 'this matter' in (12), for instance, is the causer and *in* 'them' is the causee. In other words, the subject of the Agentive construction is an agent and the subject of the Causative construction is a Causer. Pertinent to our discussion here, the Agentive constructions allow a postverbal object but not the Causative constructions. This distinction is further illustrated below:

(13) Agentive Construction

- a. i tsau-kau in tshu a
he run arrive his home asp
'He ran and arrived at his home.'
伊跑到伊的厝矣。
- b. hit-e lang ta-si hit-tsia tua katsua a.
that-cl person step-dead that-cl big cockroach asp
'That man stepped on that big cockroach and it was dead.'
彼個人踏死彼隻大蟑螂矣。
- c. i that-si i-kati-e kiaN a.
he kick-dead his-own son asp
'He kicked-dead his own son.'
伊踢死伊自己的兒子矣。
- d. i pha-phua gun tshu-e pole a.
he hit-break my house's glass asp
'He hit-broke the glass of my house.'
伊打破院厝的玻璃矣。
- e. li mthang pha-phua lang angabo-e kamtsing.
you don't hit-break people couple's love
'Don't you break up the couple's love for each other.'
你不可打破人家夫妻的感情。
- f. i ka-phaiN tsia-e gin-a a.
he teach-bad these children asp
'He taught these children and they turned bad as a result.'
伊教壞了這些小孩子矣。

(14) Causative Construction

- a. *tsit-tsan taitsi kiaN-tsau i/hit-e lang a.
this-cl matter scare-away him/that-cl person asp
'This matter scared off him/that person.'
這件事嚇走伊/彼個人矣。

- b. *tsit-kuan tsiu tsui-to i/hit-e lang a.
 this-cl wine drunk-fall him/that-cl person asp
 'This bottle of wine made him/that person very drunk.'
 這罐酒醉倒伊／彼個人矣。
- c. *tsit-pau hun tsia-si i/hit-e lang a.
 this-cl cigarette eat-dead him/that-cl person asp
 'This pack of cigarette made him/that person dead.'
 這包煙喫死伊／彼個人矣。
- d. *tsit-tsan taitsi tshio-si i/hit-e lang a.
 this-cl matter laugh-dead him/that-cl person asp
 'This matter made him/that person laughed till dead.'
 這件事笑死伊／彼個人矣。
- e. *tsit-kuan tsiu lim-tsui i/hit-e lang a.
 this-cl wine drink-drunk him/that-cl person asp
 'This bottle of wine made him/that person drunk.'
 這罐酒飲醉伊／彼個人矣。

These examples seem to suggest that Taiwanese, as well as Mandarin and Cantonese, has the Agentive construction. On the other hand, Taiwanese, in contrast to Mandarin and Cantonese, does not have Causative constructions involving RVCs. This observation is not quite correct, however. Complicating the issue is that sentences like (12) and (14a-b) can be acceptable, if a different type of postverbal object is chosen:

- (15) a. tsit-tsan taitsi thiam-si (tsit-tun) lang a.
 this-cl matter tired-dead one-pile person asp
 'This matter tired (many) people to death.'
 這件事累死一群人矣。
- b. tsit-tsan taitsi kiaN-tsau be-tsio lang a.
 this-cl matter scare-away not-few person asp
 'This matter scared off quite a few people.'
 這件事嚇走不少人矣。

- c. tsit-pau hun ikeng tsia-si tsap-e lang a.
this-cl cigarette already eat-dead 10-cl person asp
'This pack of cigarettes already made 10 people dead from smoking them.'
這包煙已經喫死十個人矣。
- d. tsit-tsan taitsi tsintsiaN e tshio-si (gopa-gua) lang.
this-cl matter really will laugh-dead (500+) person
'This matter will really cause (500+) people to laugh themselves dead.'
這件事真正會笑死(五百多)人。
- e. in tsit-kuan tsiu lim-tsui saN-to lang a.
they one-cl wine drink-drunk 3-table person asp
'As for them, one bottle of wine got the people at all three tables drunk.'
他們一罐酒飲醉三桌人矣。

Comparing (12) and (14a-e) on the one hand and (15a-e) on the other, we note that the minimal difference between the two sets lies in the type of the object NPs: in the former set, the NPs are definite expressions (pronouns and NPs with a demonstrative); whereas, in the latter set, the NPs are non-definite expressions. The following generalization thus emerges:

- (16) Postverbal objects of Causative constructions in Taiwanese cannot be definite.³

3. Postverbal Constraint on Definiteness

Generalization (16) at the first glance appears to be quite idiosyn-

3. Teng (1994) also notes that the definiteness of NPs can affect the possibilities of their occurring in postverbal object position.

cratic. However, the literature does not lack in similar observations. In fact, generalization (16) reminds us of a broader postverbal constraint in Mandarin Chinese discussed in, for instance, Li and Thompson (1981), Huang (1991b, 1994) and Tang (1990) concerning sentences containing a postverbal object NP and a duration (D) or a frequency (F) phrase. The pattern [V object D/F] requires the object NP to be definite (or more precisely, a referential NP in Huang's term):⁴

- (17) a. *wo kan-le (henduo) shu liang ci/liang-ge zhongtou.
I read-asp many book two times/two-cl hours
'I read (many) books twice/for two hours.'
*我看了(很多)書兩次/兩個鐘頭。
- b. wo kan-le na-ben shu liang ci/liang-ge zhongtou.
I read-asp that-cl book two times/two-cl hours
'I read that book twice/for two hours.'
我看了那本書兩次/兩個鐘頭。

The effect of definiteness/referentiality of the object NPs on the acceptability of the sentences is not only manifested in the Mandarin [V object D/F] constructions, but also in other phenomena in many other languages, including word order variations in Hungarian and agreement requirements in Hindi. In Hungarian, for example, a sentence with a non-referential object occurs in an SOV order whereas the neutral order for a sentence with a referential object is SVO, as shown in (18a-c) (see Maracz 1989, etc.).

- (18) a. a fiu levelet ir (SOV)
the boy letter-acc writes
'The boy is writing a letter.' (The boy is busy letter-writing.)

4. The distinction is not clear. It may be definite vs. non-definite or referential vs. non-referential. It is no more clear whether different languages employ different types of distinctions (see the later discussion in the text concerning Hindi and Hungarian). What matters is that two different types of NPs should be distinguished.

- b. a fiu ir egy levelet (SVO)
the boy writes det letter-acc
'The boy is writing a [specific] letter.'
- c. a fiu irja a levelet (SVO)
the boy writes-Agro the letter-acc
'The boy is writing the letter.'

In Hindi, a sentence with a referential object NP shows object agreement on the verb whereas non-referential object NPs do not trigger object agreement (Mahajan 1990):

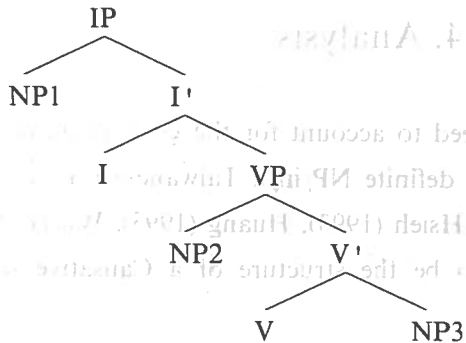
- (19) a. raam-ne kitab paRhii
raam-erg-(m) book read-perf-f-sg
'Ram read the book.'
- b. raam ek kitab paRhegaa
raam-(m) a book read-fut-m-sg
'Ram will read a book.'

To account for (19a-b) and other similar phenomena, Mahajan suggests that a referential object NP must move into the Spec of an object agreement phrase (AgroP) but a non-referential NP must remain as sister of V.

In the spirit of Mahajan (1990) and others, Huang (1991b, 1994) proposes to account for the contrast in (17) in terms of the base-generated position of object NPs. In particular, a referential/definite object NP is base-generated in the SPEC of VP (sister to V') (in the NP2 position in (20)) and a non-referential/indefinite object is generated as sister to V (in the NP3 position in (20)).⁵ (Cf. Chao 1991 and Kung 1994.)

5. A subject may be base-generated as the Spec of VP (the Internal Subject Hypothesis, see, for example, Fukui 1986, Koopman and Sportiche 1990, among others). If this hypothesis is adopted, we will need more layers of VPs in the structure (see Larson 1988). However, it does not affect the main point of the paper that a definite NP is base-generated in the Spec position and a non-definite NP is base-generated as sister to V.

(20)



To illustrate with the sentences in (17), the definite/referential object *na-ben shu* 'that book' in (17b) occurs in the SPEC of VP (NP2) position. The D/F phrase can occur in NP3 position (see Larson 1988). After V raises outside the VP, sentence (17b) will be derived. On the other hand, if the object NP is indefinite/non-referential, it is generated in the NP3 position, which is competed for by the D/F phrases. (17a), thus, is not possible. The contrast between (17a) and (17b) is thus a manifestation of the constraint on the distribution of object NPs:

- (21) A definite/referential object NP occurs in the SPEC of VP position and an indefinite/non-referential object NP occurs within V' (as sister to V).⁶

6. A reviewer pointed out that sentences like (i) pose a potential problem for (21):

- (i) ta meixingqi he-zui-jiu liang san ci.
 he every-week drink-drunken-wine two three times
 'Every week he gets drunk two or three times.'
 他每星期喝醉酒兩三次。

However, it appears that in (i) *liang san ci* is used as a predicate rather than a complement. There are several properties noted for this kind of usage. First, under the predicative use the frequency phrase takes the preceding (nominalized) VP as its subject. As a consequence, the suffix *-le*, which marks the aspectuality of a bounded event, cannot occur within the subject VP:

- (ii) *ta zhexingqi he-zui-le-jiu liang san ci le.
 he this-week drink-drunken-asp-wine two three times asp
 'This week he got drunk two or three times.'
 他這星期喝醉了酒兩三次了。

Second, the predicative frequency phrase can be optionally preceded by the verb *you* 'have' (see, among others, Li (1987) for a discussion of this):

4. Analysis

With (21), we can proceed to account for the generalization in (16) which prohibits a postverbal definite NP in a Taiwanese Causative construction. Along the lines of Hsieh (1993), Huang (1993), Wu (1994) and Zou (1993), we take (22) to be the structure of a Causative sentence (such as (15a-e)):⁷

- (iii) ta zhexingqi he-zui-jiu (you) liang san ci le.
he this-week drink-drunken-wine have two three times asp
'This week he has gotten drunk two or three times.'
他這星期喝醉酒有兩三次了。

But this is impossible if the VP *he-zui-jiu* contains the aspectual marker *-le*.

- (iv) *ta zhexingqi he-zui-le-jiu you liang san ci.
he this-week drink-drunken-asp-wine have two three times
'This week he has gotten drunk two or three times.'
他這星期喝醉了酒有兩三次。

This is because the appearance of *-le* within the VP *he-zui-le-jiu* prevents it from being a (nominalized) subject. In this case the VP is itself the main predicate, and the frequency phrase is necessarily a complement. This rules out the occurrence of *you* in (iv). More importantly, once the action-denoting VP has the status of a main verb, (21) correctly rules it out, whether *you* is present (as in (iv)) or not (as in (ii)).

Returning now to (i), we note that the sentence can take neither *you* nor *-le* with the frequency phrase, even though we have hypothesized that its grammaticality stems from the possibility of analyzing the frequency phrase as the main predicate.

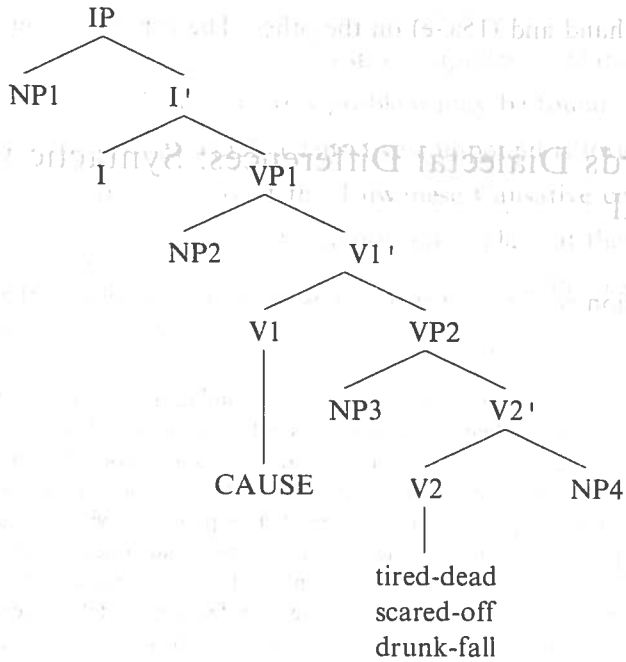
- (v) *ta meixingqi he-zui-jiu (you) liang san ci le.
he every-week drink-drunken-wine have two three times asp
'Every week he gets drunk two or three times.'
他每星期喝醉酒有兩三次了。

There is an independent reason for the ungrammaticality of (v), however. It is well known that the perfective aspect marker occurs only with predicates denoting bounded events. It is not surprising then that generic sentences like (v), with expressions like *meixingqi* 'every week', are incompatible with *-le* and *you*.

In other words, the grammaticality of (i) does not pose a problem for the generalization indicated in (21). Indeed, if we were to give up this generalization in the presence of (i), then the ungrammaticality of (ii) and (iv) would be totally unexplained.

7. The compound verbs *thiam-si* 'tired-dead', *kiaN-tsau* 'scare-away' and *tsui-to* 'drunk-fall' may be further analyzed as consisting of two VPs, which will not affect the analysis here.

2)



For the sentences in (15a-e), the object NP *tsit-tun lang* 'a group of people' occurs in NP4 position, since it is indefinite. V2 moves up to V1 and combines with it to become a causative verb, deriving the well-formed sentences in (15a-e).

Turning to (12) and (14a-e), the causee is a definite NP. It should be base-generated in the SPEC position, NP3. Verb movement (V2 to V1) applies, as in the case involving indefinite NPs since it is an obligatory process to create a causative verb. This movement, however, would create the verb chain [V1, V2]. The minimal domain for the causative verb should therefore be VP1, not VP2. That is, with respect to the postverbal object constraint, we can no longer consider only V2. Rather, we need to consider the chain [V1, V2]. In other words, the Spec position that matters is no longer NP3 but NP2 of VP1. After verb movement, the definite NPs in (12) and (14a-e) occurs within the projection of V1' rather than outside of the V1', violating the constraint on where a definite object NP can occur as stated in (21). Note that V-movement to Cause does not create problems for (15a-e), since the indefinite object NP is

still within V1'. (21) thus accounts for the contrast between (12) and (14 a-e) on the one hand and (15a-e) on the other. The generalization in (16) is captured.⁸

5. Towards Dialectal Differences: Syntactic vs. Lexical

The discussion so far, however, raises the question of why the coun-

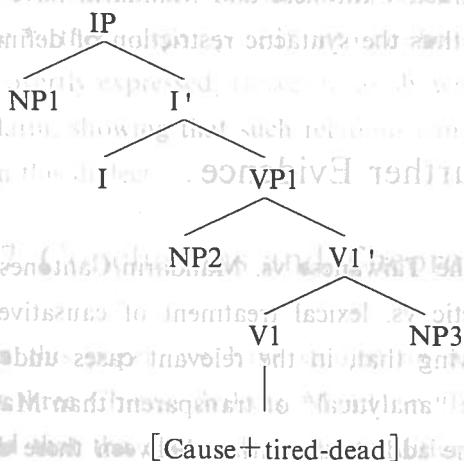
8. Our proposal to derive the generalization (16) from (21) in hierarchical terms goes far beyond previous linear accounts of word order restrictions on Chinese. For example, the general observation (e.g., Li and Thompson 1981) that NPs "tend to be definite" in preverbal position and indefinite in postverbal position is highly problematic, and at any rate lacks predictive power, in view of numerous examples with postverbal NPs with definite determiners and other overtly marked definite NPs. The postverbal object constraint, in fact, *requires* certain postverbal objects to be definite. Our account relates the feature of definiteness to the Spec position of a VP, and the lack of it to the sister of V⁰ position. According to our analysis, apparent counterexamples arise from the effect of verb movement out of a maximal VP, and only in such cases. This account not only accounts for counterexamples that are problematic for the traditional informal observation, but also makes a strong prediction on when such apparent counterexamples can occur. Another case in point is the interpretation of bare NPs in Chinese. It is well known that a preverbal bare NP (except the *bei*-NP of a passive construction) has to be definite, whereas a postverbal bare NP can be ambiguous:

- (i) ren zao zou le.
person early left asp
'The person left a long time ago.'
人早走了。
- (ii) wo zhao-dao-le shu le.
I find-arrive-asp book asp
a. 'I found the book(s).'
b. 'I found a book/some books.'
我找到了書了。

According to our theory, the postverbal NP *shu* in (ii) may be indefinite or definite, depending on whether it occurs underlyingly to the right of the verb *zhao-dao* as its complement, or to the left of the V, in the Spec of the VP, before the verb itself moves across the Spec out of the VP: *wo zhao-dao_i ti shu le* vs. *wo zhao-dao_i shu ti le*. In the case of a preverbal NP, such as the *ren* in (i), it must occur in the Spec of some category, and hence it must be definite. Again, note that the facts under consideration are unexpected given the informal characterization that postverbal NPs 'tend to be' indefinite, but they are exactly as we have predicted.

counterparts of the Taiwanese (12) and (14a-e) in Mandarin and Cantonese are acceptable, as illustrated by (4), (8), especially considering the fact that the postverbal definiteness constraint applies in Mandarin and Cantonese as well. An answer to this problem may be found in the literature concerning the level at which a causative compound is formed.

Note that the analysis of the Taiwanese Causative constructions assumes that the causative verb formation takes place at the syntactic level: V-movement takes place at the syntactic level, creating a structure where the definite object NP is within V', rather than the SPEC of its V. In other words, in Taiwanese, the RVC *thiam-si* 'tired-dead' is only a resultative verb in the lexicon and its causative counterpart is derived in syntax. On the other hand, the causative verb formation may take place at the lexical level, as suggested in Li (1990) among others. In other words, a surface verb such as 'tired-dead' may in fact be ambiguous: it can be the resultative 'tired-death' or it can be the causative 'CAUSE + tired-dead'. The former has one argument [theme] and the latter, two arguments [causer, theme]. The causative verb, with its two arguments [causer, theme], projects into the following structure, like any two argument verbs:



The causer argument is in NP1 position. The theme argument is in NP2

or NP3 position, depending on whether the theme NP is definite or not.

We suggest that Cantonese and Mandarin causative RVCs are derived lexically. That is, there is no verb-movement to the position of an empty causative verb CAUSE in syntax, as we have seen in Taiwanese. In contrast, a sentence such as (4) in Mandarin or (8) in Cantonese will be generated in exactly the same way as a sentence like 'John hit Mary' or 'John ate lunch', since the causative verb is treated as a lexical item taking two arguments. Given a structure such as (23) for the causative sentences in (4) and (8) as well as typical transitive sentences, the definite object NP will be generated in NP2 whereas the indefinite object NP will be in NP3. Since there is no further VP projection to "extend" the domain of the verb, NP2 will remain as the Spec of the VP even after the verb raises out of the VP to Infl. This entails that what we are dealing with in the case of syntactic causatives (the Taiwanese case) is a VP-shell (Larson 1988), the lower VP being part of a bigger VP. In contrast, with verb to Infl movement, we have a simple case of verb movement in Mandarin and Cantonese not involving VP-shells and the status of the NP positions does not change.

To sum up, Taiwanese derives the causatives syntactically and therefore given the extension of VP domain in a VP-shell, postverbal definite NPs are not allowed. In contrast, Cantonese and Mandarin have lexical derivation of causatives and thus the syntactic restriction of definite object NPs is always obeyed.

6. Further Evidence

We have characterized the Taiwanese vs. Mandarin/Cantonese contrast in terms of the syntactic vs. lexical treatment of causative compounds. This amounts to saying that, in the relevant cases under consideration, Taiwanese is more "analytical" or transparent than Mandarin and Cantonese. There is some additional contrast between these dialects that further demonstrates the relative transparent nature of Taiwanese syntax. This involves *ba/ka*-constructions of the sort illustrated below:

- (24) a. lan ka i pa-si.
we ba him hit-dead
'We hit him dead.'
咱把伊打死。
- b. lan ka i pa ho- (i) si.
we ba him hit give him dead
'We hit him dead.'
咱把伊打給(伊)死。
- (25) a. women ba ta da-si le.
we ba him hit-dead asp
'We hit him dead.'
我們把他打死了。
- b. *women ba ta da gei (ta) si.
we ba him hit give him dead
*我們把他打給(他)死。

The contrast shown between (24b) and (25b) shows that the causation expressed by *pa-si* 'hit-dead' can be "spelled out" in a transparent way in Taiwanese but not in Mandarin. In (24b), we see that *pa-si* 'hit-dead' can be further "decomposed" into *pa-ho-si* with the causative meaning being overtly expressed. However, as shown in (25b), this is impossible in Mandarin, showing that such relations can only be expressed in a covert way in this dialect.

7. Conclusions and Theoretical Implications

In this paper, we have studied an area of comparative grammar across three Chinese dialects: Mandarin, Taiwanese and Cantonese, and showed that the observed systematic differences among these dialects in the syntax of causative sentences and other related constructions can be described with considerable insight within a formal model of Universal

Grammar and linguistic variation. In particular, treating dialectal variations as instances (on a smaller scale) of normal linguistic variation, we have assumed that the computation system of a language is invariant across languages and dialects, the seemingly radical superficial differences being reducible to the lexical or morphological variations among them. In particular, whereas all dialects compared have a lexicon that contains RVCs, only Mandarin and Cantonese have lexical causative compounds. (Pure) causative compounds in Taiwanese must originate in the lexicon as ergative (inchoative) compounds. Their causative use is permitted only when an ergative compound is underlyingly embedded under an abstract verb Cause, to which the ergative verb compound must be incorporated. This causes a definite/referential object to fall within the domain of a V^0 , thus exhibiting the definiteness effects observed in this paper:

- (26) a. *tsit-tsan taitsi thiam-si hit-e lang a.
this-cl matter tired-die that-cl person asp
'This matter caused that person to be tired death.'
*這件事累死彼個人矣。
- b. *hit-kuan tsiu tsui-to Li SiansiN a.
that-cl wine drunk-fall Li Mr. asp
'That bottle of wine got Mr. Li to be so drunk as to fall.'
*彼罐酒醉倒李先生矣。
- (27) a. tsit-tsan taitsi thiam-si gopa-gua lang.
this-cl matter tired-die 500+ person
'This matter got 500+ people to be tired death.'
這件事累死五百多人。
- b. hit-kuan tsiu tsui-to tsin-tsoe lang.
that-cl wine drunk-fall quite-many person
'That bottle of wine got many people to be drunk and fall.'
彼罐酒醉倒很多人。

No similar definiteness effect is observed in Mandarin or Cantonese be-

cause the causative compounds may be lexically derived, and hence are not embedded under Cause, and hence a definite object in the Spec of VP would not be brought under V' as a result of verb-movement:

- (28) a. zhe-jian shi lei-si nei-ge ren le.
that-cl matter tired-dead that-cl person asp
'This matter got that person tired to death.'
這件事累死那個人。
- b. nei-ping jiu zui-dao-le Lisi.
that-cl wine drunk-fall-asp Lisi
'That bottle of wine got Lisi so drunk as to fall.'
那瓶酒醉倒了李四。

There is also no definiteness effect if an overt causative verb appears above the ergative compound, since an overt verb like *ka*, *ho*, *hai* 'cause' takes a proposition (a clausal category) but not an event (an ergative VP) as its complement and does not force the definite object to be a complement of a (complex) V⁰.

- (29) a. tsit-tsan taitsi ka/ho/hai hit-e lang thiam-si a
this-cl matter cause that-cl person tired-die asp
'This matter caused that person to be tired to death.'
這件事把/使/害彼個人累死矣。
- b. hit-kuan tsiu ka/ho/hai Li XiansiN tsui-to a.
that-cl wine cause Li Mr. drunk-fall asp
'That bottle of wine caused Mr. Li to be so drunk as to fall.'
彼罐酒把/使/害李先生醉倒矣。

With respect to definiteness effects in causative compounds, then, Taiwanese is characterized as being more of an analytic language whereas Mandarin and Cantonese are more synthetic, a point further corroborated by a difference in periphrastic causative constructions.

In the analysis of each of these differences, we have assumed that

the dialects under consideration differ only in the contents of their Lexicons, but share a Computation System that operates according to general principles throughout these dialects. In the present cases, the existence of an abstract Cause and the absence of pure causative compounds distinguish Taiwanese from Mandarin and Cantonese. This result seems quite desirable and optimal, in the sense that our theory of linguistic variation makes use of little more than what appears to be a "virtual conceptual necessity" (that languages clearly must differ in their morphologies), and it seems possible to assume that language variation is reducible to, and in fact limited to, morphological variation. This conception of parametric theory is clearly more optimal than one that directly stipulates, say, the existence of definiteness effects in certain grammatical constructions in one dialect but not in another, or that of a given head-movement process in the computational system of one language but not another.

In other words, on a descriptive level, we can state the generalization, based on our analysis, that Taiwanese is more "analytic" and more transparent, and Mandarin and Cantonese more "synthetic" and more opaque, in that more goes on in the lexicon in Mandarin and Cantonese than in Taiwanese. But from the point of view of a more restrictive parametric theory, this generalization can be reduced to mere morphological differences among languages, in particular, in the distribution of certain grammatical lexical items.

Indeed, this "minimalist" parametric theory also appears to be the most optimal when it comes to the major differences that distinguish among languages of different typological types. One well known typological difference among languages is the existence of "wh-movement" in the formation of constituent questions. In early linguistic literature, this typological difference was directly taken to reflect in a variation in the design of the computation systems of individual languages: some languages possess the rule of "wh-movement" and others do not, this in turn follows from the elementary assumption that languages may differ in the distribution of certain substantive and formal constraints. A paramet-

ric theory of this sort, however, went little beyond observational adequacy. As Huang (1982) shows, this conception of the typology of constituent questions misses important generalizations about the cross-linguistic similarities and differences with respect to subcategorization, scope interpretation, and movement constraints (Subjacency, CED and the ECP). Huang's suggestion was to conceive of the *wh*-movement parameter in a different way: all languages share the substantive universal of having a *wh*-movement rule, but differ in where that rule may apply: if not in overt Syntax than in Logical Form. The hypothesis of *wh*-movement as a substantive universal explained the similar properties shared by *wh*-constructions across all languages, and their differences in where the rule applies account for observed differences among these languages with respect to locality constraints, etc. This conception of the typology of *wh*-constructions enjoys a level of descriptive adequacy that previous conception did not in that it captures certain linguistically significant generalizations that might have been treated as accidental properties of languages. This conception of parametric theory is not optimal, however, since the parametric differences, being in terms of the components of a computation system where a given rule may apply, relies on an assumption that is not itself of virtual conceptual necessity. Furthermore, although the issue of learnability does not arise, it is not explained why *wh*-movement may apply overtly in English, but only covertly in Chinese-rather than, say, the other way around.

More recent work offers a promising line of inquiry that has the prospect of attaining explanatory adequacy. One line of research, undertaken in Cheng (1991), relates the lack of overt *wh*-movement in Chinese-like languages to the existence in them of certain functional elements, in particular, question particles occupying the position of C in syntax. This assumption explains the clustering of properties in one language and their joint absence in another, and is relatively optimal in that it reduces superficially vast syntactic differences to a morphological difference in the distribution of certain functional categories. In current work, furthermore, Tsai (1994) proposes that the obligatoriness of overt *wh*-move-

ment in English, and its obligatory procrastination until LF in Chinese, can be directly tied to a morphological difference in the internal structure of the wh-words themselves. In English, wh-words have a microscopic syntax with a self-contained operator-variable structure; they are therefore inherently interrogative operators, and hence are subject to movement, given the general assumption that operator must occur in operator position, with expected locality effects. In Chinese, on the other hand, wh-words are open categories, i.e., polarity items that are underspecified for their interrogative vs. quantificational features. As such, they are not inherently identified as operators, and not subject to overt syntactic movement. Their interpretations are determined by the licensors that c-command them elsewhere within a sentence, outside of their internal structure. Thus the wh-words are on a par with variables that are unselectively bound in the sense of Heim (1982) (cf. Lewis (1975)). In the case of the interrogative interpretation, it is assumed that the wh-in-situ is bound by a (base-generated) null operator. The vastly different syntactic difference between Chinese and English thus boils down to the difference of the possibility of base-generating null operator, i.e., of whether the null OP is in the lexicon of either language. Chinese has null operators for all operator positions, but English has none, except those cases where the null operator is strongly bound (in the sense of Chomsky (1986), i.e., in parasitic gap constructions, *tough*-constructions, certain relatives, etc.). (See also Aoun and Li 1993a, 1993b for similar considerations.)

This difference in the presence of non-strongly bound null OP has further implications. For example, it also underlies the "null topic parameter" of the sort described in Huang (1984) concerning the distribution and interpretation of certain null arguments in Chinese and German. The theory, which is in spirit a minimalist theory of linguistic variation, thus explains why English and Chinese should differ not only with respect to the existence of overt wh-movement, but also with respect to the distribution and interpretation of certain null arguments.

Two additional theoretical implications of our analysis are worth

mentioning: First, our analysis supports the traditional distinction between resultatives and causatives, against recent attempts to treat them uniformly. As S. Huang (1974) argued, both the resultatives and causatives carry with them the semantics of causation, but a distinction is still necessary, between what he terms "event causatives" (resultatives) and "factive causatives" (causatives). Recently, Sybesma (1992) argues that these two construction types (what he calls "canonical resultatives" and "causatives") should be treated alike, as forming a typical ergative-causative paradigm. What we have shown here is that the three dialects under consideration do not differ with respect to their syntax of the resultatives, but do so with respect to their syntax of causatives. For us, the resultatives constitute an unergative-transitive paradigm, whereas the ergatives and causative compounds constitute a separate paradigm. The resultatives have an inherent semantics of causation, but they do not have a syntax of causation; only the (pure) causatives do. Our analysis, if correct, thus provides important evidence in defense of the traditional distinction, against the uniform-treatment hypothesis of Sybesma (1992).

Finally, if our analysis is on the right track, we have provided additional support for the hypothesis, advanced in Johnson (1992), that there is a process of movement that invariably raises the verb out of VP into a higher head position, as a universal principle and irrespective of the morphological properties of the functional projections of a particular language (such as the French-English contrasts of the sort considered in Emonds 1978 and Pollock 1989). This assumption is necessary to allow for cases of grammatical resultatives and (lexically derived) causatives taking definite postverbal NPs as their objects. The existence of such a process in Chinese has also been demonstrated in Chao (1991), Huang (1991b, 1994) and in Kung (1994) in accounting for the definiteness effects in connection with the occurrence of objects with certain duration and/or frequency expressions.

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