

5. Resultative Constructions: Directionality and Re-analysis

5.0 Introduction

Chapter four discussed in detail the ongoing syntactic change taking place in *shi-de* structures when a sentence-final *de* re-positions itself between the verb and its object. In the course of the chapter it was mentioned that such re-positioning of an element from a sentence-final position to one right-adjacent to the verb in fact has a clear historical precedent in Mandarin Chinese and that the element *-le/liao* is known to have undergone a similar change in position. This surface parallelism in the re-positioning of *de* and *-le* discussed in chapter four is schematized below in (1):

- (1) a. V Object *de* → V-*de* Object
b. V Object *liao* → V-*liao/le* Object

The present chapter focuses on a third potential instantiation of the same patterning diachronically found in the creation of resultative constructions such as Modern Chinese (2) and (3) below:

- (2) ta xi-ganjing yifu le
he wash clean clothes LE
'He washed the clothes clean.'

- (3) wo kan-wan shu le
 I look-finish book LE
 'I have finished reading the book.'

Forms such as (2) and (3) in which two verbal elements occurring adjacent to each other produce a resultative meaning historically derive from sequences in which the second verbal element actually followed the object of the first verb.¹ The development of the modern resultative construction therefore seems to parallel the patterns noted in (1a) and (1b) with a sentence-final element re-positioning itself over the object of the main descriptive verb to be right-adjacent to this verb, as indicated in (4):

- (4) V_1 Object $V_2 \rightarrow V_1 - V_2$ Object

Chapter five attempts to see how a better understanding of the change in pattern (1a) as established in chapter four may now offer useful insights into the earlier change which took place in pattern (4) with resultative constructions, continuing this general

¹ Note that since Wei, Jin and Northern and Southern Dynasties there had been other V-V structures consisting in the sequence of V_1 - V_2 -Object, such as (i) below, where both V_1 and V_2 were originally used as transitive verbs and in these V_1 - V_2 sequences occur sharing the same object following both verbs. Such sequences also commonly allowed for the insertion of a co-ordinator (for example, *er* 'and') between the two verbs, as in example (ii). Historically such structures never underwent any re-positioning of the object, unlike the RVC's examined in this chapter, and can be suggested to have originated from rather different co-ordinate structures, as indeed argued in Li and Shi (1998). As a result they will not be considered here in the chapter. Examples below are from Li and Shi (1998).

- (i) tai-tong daolu, wu you zhangai.
 open-through road Neg have obstacle
 'Open the road and make them free of obstacles.'
- (ii) bao zi hou ji er sha zhi.
 leopard from behind attack and kill it
 'The leopard attacked and killed it from behind.'

theme in chapter six with a detailed re-examination of the similar diachronic re-positioning of *le/liao* in (1b).

In both chapter five and chapter six I set out to answer the following important questions:

- (5) a. What was the reason for the re-positioning of the sentence-final element to position right-adjacent to the main lexical verb?
- b. What is the current syntactic status of such constructions?

Broadly this chapter will argue that the second verb V_2 in resultative constructions essentially has the status of an aspectual suffix combined with the main verb V_1 in the lexicon and licensed/checked by discrete aspectual projections which dominate the VP, contra recent syntactic accounts of resultative V-V sequences in Zou (1993) and Sybesma (1999). In sections 5.2 and 5.3, which concentrate on resultative forms, it is suggested that the movement/re-positioning of V_2 to its present position right-adjacent to V_1 occurred as part of a re-analysis process in which V_2 became re-analyzed as instantiating an aspectual head. Specifically it is proposed that the following steps took place in the re-analysis process. First of all, assuming that V_2 may have originally been licensed in some kind of predication relation with the object of V_1 , it is suggested that a significant increase in focus on the telic aspectual contribution of V_2 in the construction subsequently led to the re-analysis of V_2 as *primarily* an aspect marker (with certain additional inherent lexical content). Secondly, as a direct result of this re-orientation of the primary contribution of V_2

from being one of direct predication of a lexical property onto the object of V_1 to being one of aspectual modification of the predicate, syntactically V_2 came to be re-analyzed as predicating of the V_1 and its object together. Formally this resulted in V_1 and its object being re-analyzed as a VP occurring in the Spec of an aspectual projection headed by V_2 . Thirdly, V_2 as Asp^0 underwent re-positioning and apparent movement to V_1 in a way highly similar to the movement of *de* to the verb after *de* re-analyzed as T^0 . However, whereas movement of *de* to the verb occurring (in the VP) in SpecTP is resulting in a new *tense* suffix on the verb, in the case of resultative V_2 re-positioning this created new aspectual suffixes. The chapter then argues that this V_2 -re-positioning was actually not triggered by any phonological reasons or clitic properties of the V_2 but significantly occurred in order to re-align the relevant AspP in accord with the canonical direction of selection in Mandarin and harmonize the location of the AspP with the head-initial parameter setting in Chinese.

Quite generally the chapter shows how current changes in *shi-de* forms and the conclusions reached in chapter four allow for critical insights into the restructuring process when sentence-final elements undergo re-positioning over objects and attach to verbs, using this to arrive at a new and potentially revealing account of Chinese resultative constructions. The chapter also shows how the development of a general process of suffixation in head-initial languages has a natural explanation in terms of headedness and directionality. This I hope to add formal understanding to typological claims that there is language-internal pressure for a single direction of selection and that any examples of non-canonical

directionality in selection relations will undergo 'correction' over time on account of such pressure. Finally, the chapter adds certain speculations on how alternations in resultative constructions in English and various other languages might be re-considered in the light of the suggested analysis of Chinese.

The structure of this chapter is as follows. In section 5.1.1 I introduce the phenomena of resultative verb constructions (henceforth RVC's) in full, and then follow this in 5.1.2-5.1.4 with a critical overview of certain recent lexical and syntactic approaches to RVC's, notably those in Yafei Li (1990), Zou (1994) and Sybesma (1999). In 5.1.5 I raise a number of objections to the syntactic accounts in Zou and Sybesma. In 5.2 and 5.3 I then gradually develop an alternative and fully general analysis of the synchronic and diachronic syntax of RVC's which argues for an aspectual suffix status of V_2 elements and invokes the notion of directionality in functional selection as an explanation for the re-positioning of the V_2 element. In 5.4 I give a brief look at the consequences of the analysis developed in other structures. The chapter closes in 5.5 with a speculation on how the analysis suggested for Chinese resultatives can offer insights to English verb-particle constructions.

5.1 Previous Analyses and Current Objections

5.1.1 Resultative Verb Constructions

In Li and Thompson (1981), Yafei Li (1990) and many other works V-V sequences such as (2) and (3) above are actually referred to as resultative verb *compounds*,

which necessarily infers that they result from a *lexical* concatenation process. Here I employ instead the more neutral term resultative verb construction/RVC to refer to such strings, in order to avoid any premature classification of their origin as either lexical or syntactic. This term RVC does however refer to the same set of V-V sequences in all major accounts.

In Li and Thompson (1981) RVC's are basically defined as consisting of a sequence of two adjacent verbal elements in which the second element 'signals some *result* of the action or process conveyed by the first element.' (p54). RVC's are then broadly divided into three basic sub-types which can be referred to as *simple RVC's*, *directional RVC's* and *phase RVC's*. Simple RVC's are those RVC's which do not fall into the latter two RVC categories and are illustrated in examples (6-9) below:

Simple RVC's

- (6) ta zuotian cai xi-ganjing yifu
she yesterday then wash-clean clothes
'She just washed the clothes clean yesterday.'
- (7) Zhangsan yijing pao-lei-le
Zhangsan already run-tired-LE
'Zhangsan has already got tired from running.'
- (8) Baoyu xia-shu-le qi²
Baoyu play-lose-LE chess
'Baoyu play chess and lost.' (Yafei Li 1990)

² Note that until verbal-*le* is properly re-examined in chapter 6 I will simply gloss it as LE in the examples.

- (9) Lisi da-si-le Baoyu
 Lisi hit-dead-LE Baoyu
 'Lisi beat Baoyu until Baoyu died.'

Directional RVC's are those RVC sequences which involve a V_2 which signals some clear directionality to the action denoted by V_1 . As noted in Li and Thompson, there may even be more than one directional verb following the V_1 action verb, as seen in (12) and (13):

Directional RVC's

- (10) ta song-lai yi-ge-xiangzi
 he send-come one-CL-case
 'He sent over a case.'
- (11) wo fang-xia wo-de-shubao le
 I put-descend my-satchel LE
 'I put down my satchel.'
- (12) ta tiao-guo he le
 he jump-cross river LE
 'He jumped across the river.'
- (13) tamen pao-chu-lai-le
 they run-exit-come-LE
 'They came running out.'

Finally, 'phase' RVC's are classed by Li and Thompson as sequences 'in which the second verb expresses something more like the *type* of action described by the first or the degree to which it is carried out than its result' (p.65). Typically phase RVC's represent simply the completion of an event/action rather than providing

additional lexical description of the result state that an object might be in after application to it of the first verb. Hence in the simple RVC's (6) and (9) the V_2 explicitly classifies the object as being respectively 'clean' and 'dead' as a result of the action of the V_1 , whereas in phase RVC's such as (14-17) below the V_2 indicates primarily just completion of the action and no finer description of the end-state of the object is included:

Phase RVC's

- (14) ta nian-wan shu le
he study-end book LE
'He finished studying.'
- (15) Zhangsan xie-hao-le xin
Zhangsan write-good-LE letter
'Zhangsan finished writing the letter.'
- (16) ta xiang-dao-le wo
he think-arrive-LE I
'He thought of me.'
- (17) ta mai-dao-le nei-ben-shu
he buy-arrive-LE that-CL-book
'He managed to buy that book.'

Precisely how all such sequences should be syntactically analyzed poses many challenging and interesting questions and has consequently been the subject of a large number of theoretical works in recent years. In what follows I now present an overview of two contrastive views of RVC's which can be taken to broadly

represent two fundamentally different approaches commonly adopted in the literature--the 'lexical' approach and the 'syntactic' approach.

5.1.2 *The Lexical Approach--Yafei Li (1990)*

In a careful, well articulated and interesting piece of work, Yafei Li (1990) provides a lexical compounding analysis of RVC's which largely succeeds in accounting for constraints on the productivity of V-V sequences. Prior to Li's work, no serious formal attempt had been made to model the creation of RVC's in a way which also reflected the many restrictions on their interpretation, and in this regard Yafei Li (1990) constitutes a significant step forward in the analysis of RVC's.

Li begins by considering examples such as (18) which have been noted to have two possible interpretations as indicated:

- (18) Baoyu qi-lei-le nei-pi-ma
Baoyu ride-tired-LE that-CL-horse
(a) 'Baoyu rode the horse and as a result Baoyu got tired.'
(b) 'Baoyu rode the horse and as a result the horse got tired.'

Li points out that if the two verbs are compounded together in the lexicon as traditionally believed, then technically the combination of *qi* 'ride' and *lei* 'tired' might be expected to result in a compound verb with a total of three theta-roles--two theta roles from the transitive verb *qi* and one from the intransitive stative verb *lei*. As there are only two argument NPs present in (18) and hence the compound RVC projects only two theta roles, it is clear that any lexical compounding account of

RVC's needs to explain precisely how the theta-grids of two verbs are combined into a single argument structure. In particular a lexical account needs to explain: (a) how the number of theta roles in the theta grid of a new compound verb may often be less than a simple total of the theta roles associated with each verb, and (b) what constraints there might be on the combination of the theta grids of both verbs when compounded. These two together should account for why it is that only a specific sub-set of the imaginable interpretations in compounding is available.

To capture a wide range of restrictions on the interpretation of RVC's, Li proposes a mechanism of 'theta-identification' in which a theta role from one verb may be identified with a theta role in the second verb's argument structure and consequently assigned to a single argument of the newly compounded V-V form. For example, if V_1 *qi* 'ride' in (18) has an external and an internal theta role labelled $[V_1 1]$ and $[V_1 2]$ and V_2 *lei* 'be tired' just has a single theta role $[V_2 1]$, then either $[V_1 1]$ and $[V_2 1]$ can be identified and assigned to the same DP resulting in interpretation (a), or $[V_1 2]$ and $[V_2 1]$ can be identified and assigned to the same DP to give interpretation (b):

- (19) a. V1 V2
qi 'ride' *lei* 'be tired'
 [v₁1] = [v₂ 1]
 [v₁2]
 → X rides and X gets tired: 'the rider became tired'
- b. V1 V2
qi 'ride' *lei* 'be tired'
 [v₁1]
 [v₁2] = [v₂ 1]
 → X rides Y and Y gets tired: 'the horse was ridden and got tired'

When two transitive verbs are combined, and if one restricts one's attention to instances where there are two overt DP arguments licensed by Case in a sentence, it is noted that there are four ways in which the theta grids might potentially be integrated together via theta identification. However, only one of these four potential combinations actually is instantiated in natural language, the one depicted in (20) and illustrated with example (21):

- (20) V1 V2
 [V11] = [V21]
 [V12] = [V22]
- (21) Jiaoda de zhuren da-ying-le zhe-yi-zhang
 Jiaoda DE master hit-win-LE this-one-battle
 'Jiaoda's master fought and won that battle.'

In order to account for the non-occurrence of other potential combinations (and also to explain complex restrictions on further combinations of transitive and intransitive V_1 - V_2 pairs), Li proposes a number of constraints on the combinatorial/identification process. These include assuming that V_1 is the head of the compound in Chinese, that external theta roles have a greater prominence than internal theta roles and that there is also a critical 'prominence-sensitive' *ordering* in the way that theta identification is carried out. Without going into the full details of the proposals here, it can be said that generally what emerges is in fact a highly successful lexical account of restrictions on the combination process, and one which offers a formally tight implementation of the view that V_1 - V_2 RVC formation is indeed an instance of compounding in the lexicon. It should also be noted that Li rejects the possibility that RVC's might be created in the syntax and opts for a lexical-compounding approach for a rather simple but important reason. Li suggests that if both V_1 and V_2 were to project discrete VPs in the syntax and be combined by head-movement from V_2^0 to V_1^0 then one would have to assume that V_1 *selects* for the VP headed by V_2 as a complement.³ However, as there would not seem to be any obvious selection relation holding between V_1 and a complement VP headed by V_2 in V_1 - V_2 pairings (Li maintains), such a syntactic analysis is argued to be unrealistic and unavailable.

³ Li admits that a VP headed by V_2 could occur as an optional adjunct adjoined to VP_1 , but adds that head-movement from V_2^0 to V_1^0 should then violate constraints such as Subjacency/the ECP. Consequently, the only syntactic representation one should potentially consider as a competitor to the lexical compounding approach should be one in which V_2 indeed heads a VP selected by V_1 (hence not constituting a barrier to raising).

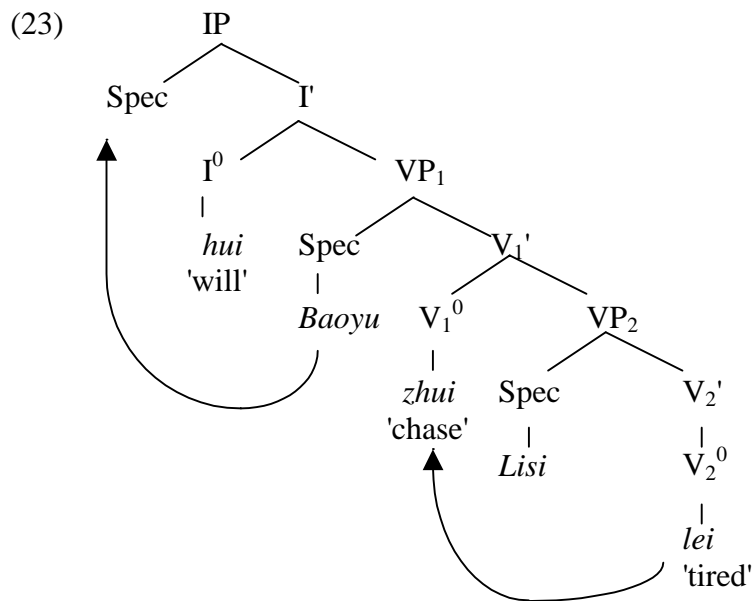
5.1.3 *The Syntactic Approach--Zou (1994)*

A recent example of a syntactic approach which reacts to the lexical proposals in Y. Li (1990) is found in Zou (1994). Zou argues that Li is incorrect when he dismisses the possibility of a selection relation existing between V_1 and a separate VP headed by V_2 . Noting the observation made commonly in the literature that V_2 consistently encodes a result which is directly caused by the activity of V_1 , Zou suggests that there is indeed a semantic relation between V_1 and V_2 , and that V_1 "implicates" V_2 in V_1 - V_2 pairs. Zou then proposes that this semantic implication relation between the two verbs may be captured by suggesting that V_1 selects for a second VP depicting the outcome of V_1 and that this latter VP is indeed headed by V_2 . In Zou's words:

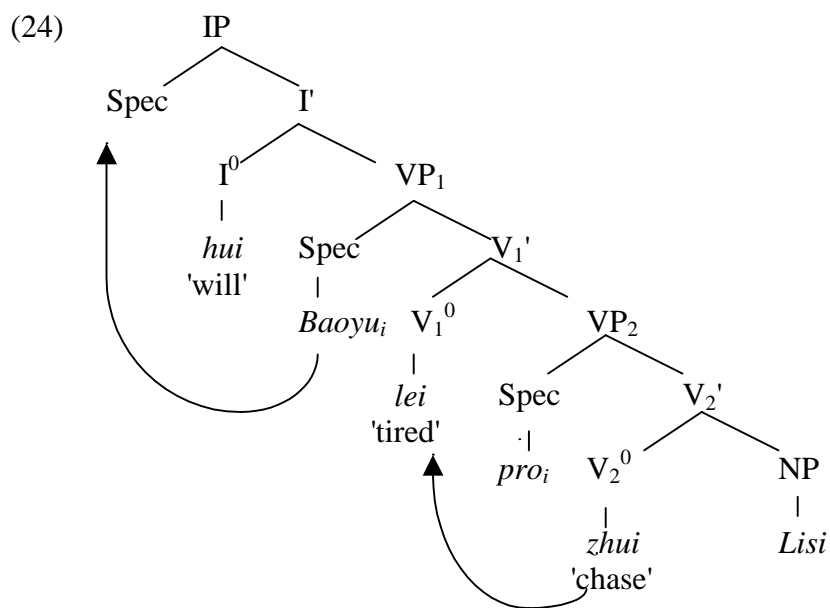
The event conveyed by the first verb "implicates" the event conveyed by the second VP. Following Chomsky (1985) and Hale and Keyser (1993), this implication relation is then "canonically structurally realized" as a complementation relation between the first verb and the second VP, as the syntactic embedding corresponds to a semantic composite in which the event denoted by the second VP is a proper part of the event denoted by the first verb. (p.279)

An RVC such as (22) with the (b) reading will then have a structure approximately as in (23), the V_2 *lei* 'be-tired' raising overtly to V_1 *zhui* 'chase':

- (22) Baoyu hui zhui-lei Lisi
Baoyu will chase-tired Lisi
(a) 'Baoyu will chase Lisi and Baoyu will get tired as a result of it.'
(b) 'Baoyu will chase Lisi until Lisi gets tired.'



In fact, because (22) is ambiguous, there will be other syntactic structures which will correspond to the other interpretations. For example, the (a) interpretation that Baoyu chased Lisi and Baoyu got tired is suggested to result from the structure in (24).



Note that the underlying linear order of *zhui* 'chase' and *lei* 'be-tired' in (24) is in fact actually the reverse from the order in (23). Zou assumes that the surface linear order of the V_1 and the V_2 will in all cases be determined by the following independent linearization principle which applies after V_2 has raised up to V_1 :

The verbal morpheme denoting an activity linearly precedes the verbal morpheme denoting the result of such an activity, no matter what their prior order is. (p.280)

In both (23) and (24) the relations between the predicates and their arguments is syntactically clear and all theta roles are assigned in standard ways. Where the subject *Baoyu* is interpreted as receiving a theta role from both V_1 and V_2 this results from the additional presence in the structure of a *pro* controlled by the subject of VP_1 . As VP_2 is taken to be selected by V_1 , the raising of V_2 to V_1 is also syntactically legitimate. Zou therefore suggests that a syntactic account of RVC's is consequently not only possible once one recognizes the existence of a selection relation between V_1 and $V(P)_2$, but also desirable for the reason that it is well able to represent the thematic relations in V_1 - V_2 forms in a highly transparent way. Finally Zou adds that a syntactic account is superior to a lexical approach because it can be easily adapted to model certain other 'causative' RVC's which may be problematic for Li's lexical account. In examples such as (25), the surface subject *zhei-ping-jiu* 'this bottle of wine' has no direct thematic relation with either of the verbal predicates present *zui* 'get/be drunk' and *dao* 'fall-over'; consequently it is not obvious how it might be licensed to appear in Li's approach:

- (25) Zhei-ping-jiu zui-dao-le Lisi
this-bottle-wine drunk-fall-LE Lisi
'Due to this bottle of wine, Lisi got drunk and fell over.'

Zou suggests that in (25) there is an additional third VP dominating the regular RVC V_1 - V_2 shell and that *zhei-ping-jiu* 'this bottle of wine' is base-generated as a causative argument in the Specifier of this VP. The syntactic account proposed by Zou therefore allows for relatively easy extension to cover such cases.

5.1.4 Sybesma (1999), Hoekstra (1992)

A second more recent syntactic treatment of RVC's which explores a VP-shell type approach in much greater depth is Sybesma (1999). This interesting work draws its original inspiration in large part from ideas on resultative constructions set out in an imaginative paper by Hoekstra (1992). In the latter paper, Hoekstra isolates a number of canonical properties of resultatives cross-linguistically and uses them to build a novel account of resultatives. Specifically it is noted that resultatives consistently seem to exhibit the following classic properties:

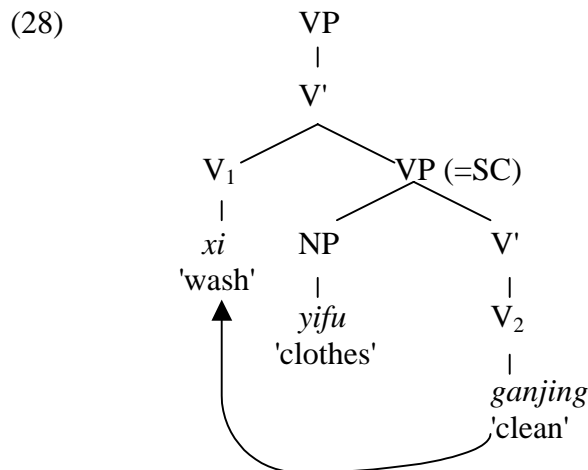
- (26) a. The main predicate is a dynamic activity verb:
John washed the clothes clean.
- b. A secondary element (an adjective, particle or PP) predicates a property of the object of the main verb, but never predicates on the subject:
*John_k washed [_{NP} the clothes]_i clean_{i/*k}.*
*Mary_k looked [_{NP} the words]_i up_{i/*k}.*
*Sue_k sang [_{NP} Mary]_i to sleep_{i/*k}.*
- c. The result state predicated of the object of the main verb serves to make the main activity verb aspectually bounded and telic
- d. Frequently an *intransitive* activity verb may be followed by an 'object NP' and a predicate:
John laughed himself weak.
Bill ran his sneakers threadbare.

Putting this information together, Hoekstra suggests that both transitive and intransitive dynamic activity verbs may select for a *small clause* representing a (result) state predicated of an NP which is the subject of that small clause. Aspectually the small clause functions to provide an endpoint to the activity depicted by the main verb and convert it into a telic predicate, and critically it is this aspectual role which licenses the selection relation between the main verb and the small clause as its complement.

Subsequently considering Chinese RVC's, Sybesma (1999) then focuses in on the well-documented property of such constructions that inclusion of the V₂ element results in the V₁ becoming telic, and proceeds to build the Hoekstra approach to

resultatives into a well-developed account of Chinese RVC's. For V_1 - V_2 sequences such as (27) below, Sybesma suggests that the V_2 occurs base-generated in a small clause selected by V_1 and that V_2 predicates directly onto the NP subject of the small clause from this position.⁴ At some point prior to Spell-Out the V_2 will then raise up to right-adjoin to V_1 , as depicted in (28) (where only the VP structure is shown, and the subject of V_1 is not included).

(27) xi-ganjing yifu
 wash-clean clothes



In support of the small clause analysis Sybesma observes that historically there were indeed linear sequences of [V_1 NP V_2] which parallel the posited underlying structure in (28) and that such [V_1 NP V_2] sequences at a later stage became [V_1 V_2 NP] sequences. The small clause analysis then suggests that synchronic [V_1 V_2 NP] forms still actively derive from a base order which was that of earlier resultatives.

⁴ Note that the small clause here is a VP (assuming *ganjing* 'be-clean' to be a stative verb) but that it could in principle be some other categorial type, e.g., a PP, as argued in Hoekstra (1992).

Sybesma also points to the existence of a similar resultative construction built with the resultative morpheme *de* (meaning 'to the extent of') where the V_2 is again lower than the NP following V_1 , as in (29):

- (29) ta xi-de yifu hen ganjing.
he wash-DE clothes very clean
'He washed the clothes clean.'

Sybesma suggests that the NP *yifu* 'clothes' can be suggested to be in a clear predication relation with V_2 *ganjing* 'be-clean' here, and that V_1 - V_2 resultatives and [V_1 -de NP V_2] resultatives are similar in many ways. The occurrence of forms such as (30) with the linear sequence of [V_1 NP V_2] might then again be seen as suggestive of a V_2 -raising analysis of V_1 - V_2 sequences, with (29) being something like the base underlying order which results in V_1 - V_2 surface forms.⁵

As in Hoekstra's analysis of resultatives above, Sybesma suggests that the small clause structure in (28) encodes a result state predicated of an NP and that this result state critically functions to make the V_1 predicate aspectually telic. Such an aspectual relation is also taken to license the selection of the small clause by V_1 . Note also that an important bi-product of the Hoekstra/Sybesma small clause approach is that there is no direct selection relation between V_1 and the NP which might standardly be considered to be its object. For example, in the English resultative: *John washed [_{SC} the clothes clean]*, it is the small clause AdjP which is

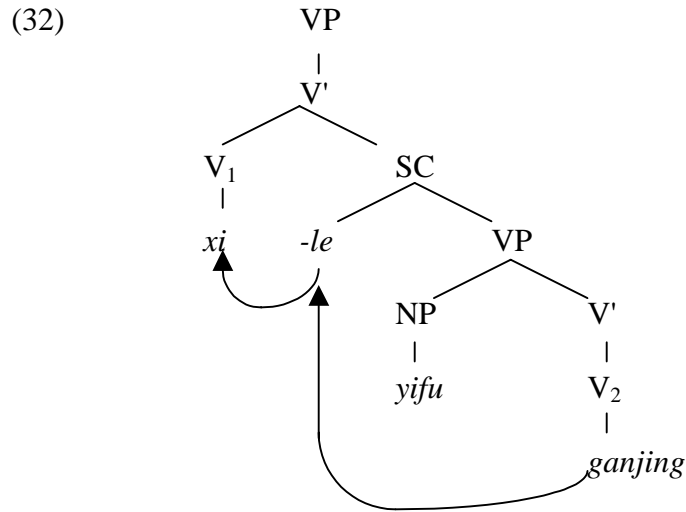
⁵ Later in his analysis Sybesma points out that there are however also significant differences between simple V_1 - V_2 forms and the [V_1 -de NP V_2] type of resultative which suggests that they are not derived from a single underlying structure.

the complement selected by the V_1 *washed* and there is no thematic selection relation between V_1 *washed* and the NP *clothes*. This NP is licensed solely by its predication relation with the small clause predicate *clean*. The same is true in Chinese (28) and there is no thematic relation between V_1 *xi* 'wash' and the NP *yifu* 'clothes' which is base-generated inside the VP-small clause as subject to the predicate *ganjing* 'clean.' Commenting on the relation between V_1 and the NP, and following an idea in Kayne (1985), Sybesma suggests that there is only a pragmatic linking between V_1 and the NP, and that the interpretation of a structure such as (28) is essentially as in (30):

- (30) interpretation of (28): wash [clothes (are/become) clean]
 + There is a washing event.
 + The state of the clothes being clean aspectually closes the washing event.
 → Pragmatic implicature: if the clothes are clean and they are part of a washing event, then they can be assumed to have been washed.
 → Pragmatically the NP is inferred to be the object of V_1 .

Considering the interaction of verbal *-le* and V_1 - V_2 sequences, Sybesma makes the interesting and novel suggestion that verbal *-le* is actually also a resultative predicate and therefore occurs as the head of a small clause. The subject of its small clause in the case of a V_1 - V_2 -*le* sequence will in fact also be a small clause and the proposed underlying (VP) structure and derivation of (31) is shown in (32):

- (31) (ta) xi-ganjing-le yifu
 (he) wash-clean-LE clothes
 'He washed clean the clothes.'



The V_2 *ganjing* 'be-clean' will raise to *-le* forming *ganjing-le* and then this unit will move higher to V_1 and result in the surface sequence: *xi-ganjing-le yifu*.

Sybesma's account highlights interesting parallels between the posited underlying structure for RVC's and earlier diachronic sequences and current [V_1 -de NP V_2] resultatives. Together with Zou's analysis, it furthermore demonstrates that a genuine syntactic alternative to Y. Li's lexical account can indeed be carefully formulated. Finally, Li's principal objection to a syntactic approach that V_1 cannot be taken to select for a second VP headed by V_2 is intelligently responded to: such a selection relation arguably may be motivated on aspectual grounds, VP_2/SC serving to provide a telic bound to the action depicted by V_1 .

5.1.5 *The Objections to the Syntactic Approach*

In spite of the attractions mentioned above, I would however like to argue that there are a number of reasons why such a syntactic account is not in fact fully satisfactory and that one might therefore go on to pursue alternative solutions.

First of all neither Zou nor Sybesma actually provide any real explanation of the movement of V_2 to V_1 , so it is not clear why it takes place and why one doesn't instead find sequences with the earlier historical order: [V_1 NP V_2]. Zou states that: 'the verb-raising from V_2 to V_1 is motivated by the V-V compound formation.' (p.282) However, compounding is obviously a *lexical* operation and so critically may *not* be invoked in a syntactic analysis. Whereas V_1 - V_2 adjacency is a natural consequence of a lexical compounding approach, it really remains significantly unaccounted for in a syntactic treatment of the type outlined by Zou.

Sybesma originally treats V_1 - V_2 forms and V_1 -*de* V_2 resultatives such as (31) and (29) as parallel and suggests that a functional head 'Ext(ent)P' present in the structure always must be filled with overt phonetic material. This is argued to be possible in either of two ways--if the morpheme *de* is present, it occurs in Ext^0 and a lower V_2 will remain in situ as in (33). If *de* is not present, the V_2 will be forced to raise to provide Ext^0 with overt material as in (34):

- (33) xi [ExtP -*de* [VP_2 yifu ganjing]]
wash DE clothes clean

- (34) xi [_{ExtP} ganjing_i [_{VP2} yifu t_i]]
 wash clean clothes

The raising in (34) can therefore be taken to be responsible for the surface V₁-V₂ adjacency. However, later on in the development of the account of RVC's, Sybesma concedes that V₁-V₂ forms and V₁-de V₂ resultatives have different structures and that an ExtP is not projected in the former RVC type. Consequently the V₂ raising is left without any motivation in this account (also as noted in Zou's analysis), and as this is clearly a critical component of the syntactic approach, it is highly unsatisfactory if it cannot in fact be motivated in any way and is only assumed in order to capture the linear sequence of elements. Given that V₂ elements such as *ganjing* 'clean' are clearly not clitics, the hypothetical raising can obviously not be triggered by phonological reasons either.

Secondly, a conceivable problem for both Zou and Sybesma concerns the occurrence of the aspectual morpheme *-le* following V₁-V₂ sequences as in (35).

- (35) Baoyu xi-ganjing-le yifu
 Baoyu wash-clean-LE clothes
 'Baoyu washed clean the clothes.'

Zou assumes that *-le* is an aspectual morpheme located in Infl. This being so, Zou is forced to suggest that V₂ first raises up to V₁, and then the V₁-V₂ complex raises higher to Infl where *-le* is then attached. However, if the V₁-V₂-*le* sequence eventually lands in Infl, a VP-type adverbial should follow such a sequence. As

shown in (36), the potential occurrence of VP-type adverbials linearly to the left of verbs carrying *-le* would strongly argue against overt raising to Infl.

- (36) (ta) man-manr-de xi-ganjing-le yifu
(he) slowly wash-clean-LE clothes
'He slowly washed clean the clothes.'

Sybestma states that an explicit goal of his investigation is to provide an account of the V_1 - V_2 -*le* word order i.e., why one finds this order and not any other such as *[V_1 -*le*- V_2], etc.:

The distributional fact I would like to account for is that verb-*le* may only occur on matrix verb level in cluster resultatives, in which case it may only follow the cluster as a whole. (p.67)

Sybesma thus suggests that *-le* is a type of V_2 element which heads the small clause structure, as shown in (32). Such a treatment of verbal *-le* and RVC's does seem to avoid the problem noted in example (36) for Zou's syntactic approach. However, ultimately the V_1 - V_2 -*le* ordering is *not* in fact derived in any particularly natural way as a result of the underlying structure posited in the analysis. As seen in (32) above, first the V_2 has to raise and *left*-adjoin to *-le* and then this unit has to raise and *right*-adjoin to the V_1 . There is no clear reason why raising should result in attachment to different sides of the target raised to (i.e., left-side in one case and right-side in another), and it seems that the choice is made purely in order to mirror the final surface form. Sybesma indeed admits that:

If we were to strictly follow Kayne (1994), an underlying structure like (32) [my numbering] would lead to Y-*le*-V [i.e., **ganjing-le-xi* = V₂-*le*-V₁]. It seems to be the case that in order to derive the right surface order we need to stipulate that in the lexicon it is somehow determined and recorded that *le* is a suffix: it has to come last. (p.76)

So it seems that a syntactic analysis which was specifically designed to account for the word order by positing an underlying structure which could naturally result in that word order is actually unable to output the surface form, and one has to resort to a stipulation in order to re-convert the output of the syntactic derivation into the attested linear sequence. Furthermore, the notion 'suffix' cannot in fact be employed here; if an element is classified as a suffix, this means that it attaches in the lexicon and hence *not* syntactically. In short there is no principled way to ensure that both V₂ and *-le* attach to V₁ in the syntax and have this attachment mirror the surface order if one assumes an underlying order such as (32). The great potential for a syntactic account to explain the linear sequence of morphemes consequently fails here.

It should be also noted that the same ordering problem occurs in Zou's account. As mentioned above, Zou has to evoke an independent linearization principle which will regularly 'correct' a number of V₁-V₂ orders outputted by the syntax which do not correspond to the surface order found (i.e., correct *lei-zhui* 'tired-chase' to *zhui-lei* 'chase-tired'). The stated goal of being able to capture the linear ordering with a syntactic approach turns out to be unexpectedly problematic.

A third aspect of Sybesma's account which is arguably unattractive (though here depending more on one's theoretical orientation) is that it seems to be building

functional categories into positions which are actually under and dominated by the lexical predicate VP rather than occurring in the functional superstructure which is commonly taken to *dominate* a lexical projection. If one takes the clear aspectual nature and contribution of the V₂ and also *-le* in particular to reflect a functional role, one might expect these elements to correspond to functional heads located *above* rather than below the VP. Nevertheless, in (32) *-le* is built in as a functional-type head *below* the lexical predicate V₁. Related to this, if one takes the position that V₂ and *-le* are *not* related to aspectual heads projected higher than the VP, then it is difficult to explain the co-occurrence restrictions which are found between V₂, *-le* and aspectual heads which do occur higher than VP in aspectuals projections, as e.g., in (37) adapted from Sybesma (1999) (I return to this point later on):

- (37) wo zhengzai ca-gan-(*le) boli
 I ASP wipe-dry LE glass
 'I am just wiping the glass dry.'

A fourth objection to the proposed small clause analysis of Chinese RVC's concerns the conclusion that there is no direct theta relation between V₁ and the NP which might intuitively seem to be its object, i.e., that there is no theta relation between *xi* 'wash' and *yifu* 'clothes' in (31/32). Supposing the NP occurring after the V₁-V₂ unit were to relate to V₁ only via some rather loose pragmatic inferencing, as noted above, rather than stand in a verb-object relation, then one might expect all kinds of interpretations to be possible which do not in fact occur. For example, it is not clear why sentences such as (38) would be ill-formed when compared with (39):

- (38) *Lisi ba Zhangsan jiao-xing-le Baoyu
 Lisi BA Zhangsan call-awake-LE Baoyu
 Intended: 'Lisi called Zhangsan and Baoyu awoke as a result of this.'
- (39) Lisi jiao-xing-le Baoyu
 Lisi call-awake-LE Baoyu
 'Lisi called and Baoyu awoke as a result of this.'

The small clause hypothesis predicts that (38) should have the following interpretation: 'Baoyu resulted in being awake because of a calling event.' In the absence of *ba Zhangsan* as in (39) it is suggested that we pragmatically *infer* that Baoyu was actually the object of the calling event as a natural salient interpretation. However, if a third NP is introduced in a *ba*-NP form or possibly as a sentence-initial topic as in (40) it is expected that this NP could be taken to be the pragmatically inferred object of the scolding action if this could result in a coherent interpretation (for example if Zhangsan was in the same house that Baoyu was sleeping in and Lisi's calling of Zhangsan could wake up Baoyu). The fact that such an interpretation is unavailable strongly suggests that the NP following V_1 - V_2 is necessarily the object of V_1 in a strict syntactic way.⁶

⁶ Such a conclusion is in fact also suggested by Yafei Li (1998) for the similar [V_1 -de NP V_2] resultative type. Li notes that when V_1 -de is intransitive, it is possible to topicalize an NP in the sequence which follows V_1 -de as in (i)

- (i) Zhangsan ku-de [shenme huor]_i Lisi dou bu xiang gan t_i
 Zhangsan cried-DE any work Lisi all not want do
 'Zhangsan cried to the extent that Lisi didn't want to do any work.'

However, when V_1 is transitive, it is not possible to topicalize an NP in the same way. This is taken to indicate that the NP *Lisi* is indeed the direct object of V_1 and so may not be preceded by a topic from a lower clause:

- (40) *Zhangsan ne, Lisi jiao-xing-le Baoyu
 Zhangsan Top, Lisi call-awake-LE Baoyu
 Intended: 'Lisi called Zhangsan and Baoyu awoke as a result of this.'

A fifth important criticism of the Hoekstra/Sybesma small clause analysis of resultatives which will shortly be returned to again is that very often there is in fact no clear predication relation between the hypothetical small clause head/V₂ and the 'object' NP. This is true for both English and Chinese. For example, consider in (41) and (42) below:

- (41) John looked [_{SC} [_{NP} the reference] up].
 (42) Mary beat [_{SC} [_{NP} Peter] stupid]

The small clause analysis predicts the following interpretations for these sentences:

- (43) *interpretation of (41):*
 The reference is up as a result of a looking event carried out by John.
 (44) *interpretation of (42):*
 Peter is stupid because of a beating event carried out by Mary.

-
- (ii) *Zhangsan kua-de [shenme huor]_i Lisi dou bu xiang gan t_i
 Zhangsan praised-DE any work Lisi all not want do
 Intended: 'Zhangsan praised Lisi to the extent that she didn't want to do any work.'

The same conclusion is reached on the basis of prosodic facts. If a pause is created directly after V₁-de via the insertion of a particle *ya*, then this is acceptable only in the intransitive case with *ku-de* 'cried' and not with the transitive *kua-de* 'praised,' indicating that the NP *Lisi* is again the object of a transitive V₁ and cannot be separated from it. Although there are certain differences between V₁-V₂-NP forms and V₁-de NP V₂ resultatives, it is interesting that when the NP occurs between a transitive V₁ and V₂ it clearly does behave like the object of V₁, contra Sybesma's analysis of such forms.

However, it is simply meaningless to say: '*The reference is up,' and the interpretation of (42) is *not* that Peter is stupid after a beating event. Basically 'up' and 'stupid' only convey the meaning they do *through combination with the V₁* 'look' and 'beat' and there is no isolated predication relation between the particle/adjective and the 'object' NP. The small clause analysis clearly leads one to expect that the 'object' NP and the following particle/adjective should be able to stand in a regular predication (together with a form of the copula to carry tense/agreement) without the need for a higher secondary predicate, yet this is not so. The output does not mirror the actual interpretation of a sentence when added to a higher predicate. For example, (42) does not mean [John is stupid] + [this state terminates a beating event]; 'stupid' only has its non-literal meaning 'badly-hurt' when combined with 'beat.' One cannot point to someone after they have been beaten and simply say: "He is stupid now." The same is true of many examples of V₁-V₂ resultatives in Chinese; although (45) is fine, they would not seem to result from combining the parts in (46):

(45) wo liu-zhu-le ta
 I retain-live-LE he
 'I stopped him.'

(46) [ta zhu-le = he lived] + [this was a result of a retaining event]

As in many other cases, *zhu* in (45) can not have its literal meaning 'to live' and can only have the non-literal meaning of being motionless precisely when combined with another verb. For example, one cannot paraphrase (45) with (47):

- (47) wo liu-le ta. *jieguo ta jiu zhu-le.
 I retain-LE him result he then live-LE
 'I retained him. As a result he lived.'

Similarly (48) does *not* mean: [We talked] + [the state that [Christmas arrived] terminated this talking event], that is, it does not mean we talked until Christmas. However, such an interpretation is what is expected from a small clause underlying structure such as (49):

- (48) women tan-dao-le shengdan-jie
 we talk-arrive-LE X'mas
 'We talked about X'mas.'
- (49) women tan [-le shengdan-jie dao]
 we talk LE X'mas arrive

With other V_2 elements if one attempts to isolate the object NP and the V_2 into a single sentence predication, the result is unacceptable in any reading as in (50) and (51).

- (50) a. ta mai-zhao-le nei-ben-shu.
 he buy-catch-LE that-CL-book
 'He managed to buy the book.'
- b. *nei-ben-shu zhao-le.
 that-CL-book catch-LE
 '??'

- (51) a. ta xianzai zhu-jin-le xin-fangzi
 he now live-enter-LE new-house
 'He has now moved into the new house.'
- b. *xin-fangzi jin-le.
 new-house enter-LE
 '??'

With intransitive V_1 elements, it is suggested in Sybesma (1999) that the surface subject originates as the subject of the small clause and is predicated of by the V_2 , shown in (52) and (53).

- (52) pao [_{sc} ta lei-le] → ta pao-lei-le.
 run he tired-LE he run-tired-LE
 'He got tired as a result of running.'
- (53) wan [_{sc} ta ni-le] → ta wan-ni-le.
 play he bored-LE he play-bored-LE
 'He got bored of playing.'

However in other examples, isolation of the V_2 and such a subject NP often results in a quite different meaning. As shown below, the meaning of the sentence in (54a) does not indicate that the subject originates from the small clause as schematized in (54b), since the result of being afraid is not that the NP *women* 'we' end up dying. The isolation of the subject and V_2 and the subject also often results in a quite unacceptable forms, as shown in (55):

- (54) a. women dou pa-si-le
 we all fear-die-LE
 'We were all scared to death.'
- b. [women si-le = we died] + [this was a result of a fearing event]
- (55) a. ta zou-kai-le. *ta kai-le
 he walk-open-LE he now open-LE
 'He walked away. (!He got open as a result of walking.)'
- b. *ta kai-le.
 he open-LE
 '??'

The compositional account of resultatives in which the meaning of a small clause encoding a predication relation is added to the meaning of a higher verb is simply incorrect. Either the small clause often has no meaning on its own or its meaning may be quite different from the interpretation found in complex V_1 - V_2 sequences.

It should be noted that the counter-examples presented here are mostly "phase resultatives" of some sort. They still remain as fair counter-examples to Sybesma's small-clause analysis. Following Hoekstra's account for "look the reference up" together with "paint the door red" under the same small-clause analysis, Sybesma also attempts to extend the small clause analysis to the resultatives with phase V_2 elements. It is also my belief that these different types of [V_1 - V_2] resultatives should be represented with the same underlying structure. One simple fact is that both literal V_2 's and phase V_2 's contribute to the activity with a telic bound and they never co-occur, as shown in (56) and (57):

- (56) *ta xi-ganjing-wan yifu le
 he wash-clean-finish clothes LE
 intended: 'He finished washing the clothes clean.'
- (57) *ta xi-wan-ganjing yifu le
 he wash-finish-clean clothes LE
 intended: 'He finished washing the clothes clean.'

Historical facts also point to the same direction. First the literal V2's appeared in [V1 object V2] resultatives during Qin/Han Dynasties, then the phase V2's came to appear in the V2 position of the same structure during Wei/Jin/Northern and Southern Dynasties (G. Wu 1999), and finally both literal V2's and phase V2's collectively underwent a shift over the object in the Song Dynasty (Li and Y. Shi 1997). The fact that both phase and literal V₂ elements collectively underwent re-positioning to V₁ is strong evidence that all V₂'s came to be licensed and interpreted very much in the same way.

A final argument against the small clause syntactic approach again relates to the claim that the V₂ in Chinese predicates of the 'object' in a small clause. Basically it is possible to show that there may be a significant difference in (underlying) structure between English resultatives and Chinese V₁-V₂ resultatives, contra the assumption made in Sybesma (1999). Although adverbial modification of the secondary predicate in English resultatives is not common, it can occur with time adverbials as shown in (58):

- (58) John brushed [the table clean of dust for five minutes]
(and then it got dusty again).

In (58) the duration phrase can be understood to modify just the state [the table clean of dust] and not the action of 'brushing.' In Chinese [V₁-de NP V₂] resultatives (which is also analyzed to have a small-clause structure by Sybesma 1999), the same kind of modification is also possible:

- (59) wo qi-de ma lei-le liang-ge-zhongtou
I ride-DE horse tired-LE 2-CL-hour
'I rose the horse so that it got tired for two hours.'

However, parallel modification is significantly *not* possible in V₁-V₂ resultatives:

- (60) *wo qi-lei-le ma liang-ge-zhongtou
I ride-tired-LE horse 2-CL-hour
Intended: 'I rose the horse so that it got tired for two hours.'

What this would seem to indicate is that adverbial modification of this kind is possible when an NP and a predicate occur in a single predicational-type sequence as in (59) *ma lei-le* or (58) 'the table clean of dust' and not possible when the potential predicate V₂ occurs bound to another predicate V₁ in a single unit as in (60). Supposing that V₁-V₂ resultatives were to have an underlying structure in which there was a small clause-type predicational sequence, one would expect similar adverbial modification to be available. As examples like (60) are however

unacceptable, the simple conclusion is that they are not derived from structures encoding a small clause predication.⁷

5.2 An Alternative Analysis--V₂ as Aspect

5.2.1 Telicity and Non-predication

Having seen how a syntactic account of RVC's based on VP-shell-type/small clause structures is problematic in a number of potentially serious ways, I will now attempt to develop an alternative account driven largely by the following three key observations concerning RVC's:

(61) **Lack of necessary predication between V₂ and NP 'object'**

As noted above in 5.1.4. it is not true that there is always a predication relation between the V₂ and the post-V₁-V₂ 'object' NP in RVC's.

(62) **Telic contribution of V₂**

As well noted in the literature (e.g., Li & Thompson 1981), the V₂ in a V₁-V₂ unit makes a dynamic event telic and aspectually bounded.

(63) **Historical re-positioning of V₂**

Historically sequences of [V₁ Object V₂] changed to [V₁-V₂ Object] as the V₂ re-positioned itself right-adjacent to V₁

I will suggest that these three important properties of Chinese RVC's are intimately connected and combine to result in a single analysis of RVC's. The core claim of the

⁷ As there is evidence that the NP *ma* 'horse' in (59) is in object of V₁ position (see footnote 5), one may assume following Yafei Li (1998) that there is a co-indexed pro subject to the clause/predication headed by *lei-le* 'tired' and that *lei-le* predicates onto this NP (which is then

analysis will be that the V_2 in RVC's first underwent re-analysis to become an Aspectual head and then subsequently re-analyzed further as a suffixal instantiation of Aspect which is attached to the preceding V_1 . In order to arrive at this, synchronic analysis of RVC's will involve showing how (61-63) are connected to each other and how they have diachronically conspired to produce the V_1 - V_2 forms of modern Mandarin.

Property (62) that the addition of V_2 to a dynamic V_1 results in a telic predicate is so well-established that it here requires no real further qualification. Later on in chapter 6, I will return to consider in more detail how the aspectual domain may be divided into different sub-types, viewpoint and situational aspect (basically following Smith 1997). As for property (63), I will show that V_2 is attached to V_1 due to the general pressure for uniformity in the direction of selection combined with frequent occurrence of linearly-adjacent V_1 - V_2 sequences over a long period of time.

Property (61) concerning predication of V_2 and the 'object' NP is very important and so can usefully be stressed again. What has been pointed out above in 5.1.4 is that there are many V_1 - V_2 sequences in which the V_2 does *not* predicate of the following NP in any kind of normal way. It should be remembered that the small clause analysis of resultatives suggests that V_2 does indeed predicate directly of the 'object' NP encoding a state which terminates the activity of the V_1 . Syntactically and semantically if the V_2 -object NP relation is one of genuine predication used to

interpreted as being co-referential with the object *ma*.

represent the end of some activity, there is no good reason why it should not be possible to isolate this predication from the activity verb and have it stand in a syntactically independent form. However, as illustrated earlier, this is frequently not at all possible, leading to the conclusion that V_2 and the object NP do not have to be licensed by standing in any predication relation.

Essentially with a whole range of V_2 elements, many of which are categorized as phase V_2 's, there is clearly no direct predication relation between the V_2 and the object NP and the interpretation of the RVC does not arise from first independently computing the meaning of a small clause and then combining this pragmatically with the action depicted by the main V_1 , as is suggested in the Hoekstra/Sybesma approach. Instead it would seem that a large number of commonly occurring V_2 's have particular meanings which are built into the meaning of a sentence in some other way. Instructional textbooks tend to list these V_2 's as characterizing the whole of particular *actions* rather than particular object-types, shown in (64) for example:

(64)

<u>verb</u>	<u>literal meaning</u>	<u>meaning as V_2</u>
<i>dao</i>	arrive	indicates the continuation of an action up a certain point of time
<i>cuo</i>	be wrong	to carry out an action incorrectly
<i>zhao</i>	*arrive (no longer in use as single verb)	completion or attainment of an action

It is also revealing that pedagogical textbooks frequently list the V_1 types that may typically occur with the V_2 , this indicating that the close selectional relation which the V_2 has is to the type of V_1 it is combined with rather than any NP type it might predicate of. The list extract in (65) is from T'ung and Pollard (1982):

(65)	V_2 frequently occurs with:	V_1
	- <i>jian</i> (sensory perception)	kan (look), ting (listen), peng (collide)...
	- <i>kai</i> (detachment)	da (hit), la (pull)...
	- <i>zhao</i> (attainment)	zhao (search), mai (buy), shui (sleep),...
	- <i>hui</i> (learned)	xue (learn/study)

The important conclusion I wish to draw from all of the above is that although it is *possible* that many V_2 elements could be analyzed as predicating of the 'object' NP in RVC's if a small clause analysis were to be adopted, there are also numerous cases where such a predication relation does not and could *not* exist between the V_2 and the object NP. This being the case, at least these V_2 elements must be licensed in the V_1 - V_2 structure in some other way and consequently *not* in a small clause predication. What I will argue for in future sections is that the mode of licensing which is relevant for the above phase V_2 's is also actually made use of by all other V_2 types as well, even those which might seem to have more literal predicative interpretations.

5.2.2 *Re-analysis and Aspect*

I will now propose and develop a syntactic account of the change which suggests that there were two critical cycles of re-analysis in resultative structures responsible for the change, both importantly relating to the category of aspect. In doing so I will show how properties (61) and (62) above are critically relevant to the re-positioning of V_2 , i.e., property (63). I will also show how the account of *shi-de* forms in chapter four allows for useful and important insights into structural aspects of the re-analysis that will be argued for.

In the present section I intend to concentrate on the first cycle of hypothetical re-analysis and focus on the importance of phase- V_2 's in early resultative constructions. Considering the earliest RVC's with [V_1 Object V_2] sequences, it would seem that V_2 was first instantiated by verbs which did indeed have a close selectional relation with the object and seemed to stand in more of a literal than a 'metaphorical' predication-type relation with it. Such verbs I will henceforth refer to as 'literal V_2 's and contrast them with phase V_2 's which do not have any literal predication relation with the object. As G. Wu (1999) notes, phase V_2 's appear later than literal V_2 's in the [V_1 Object V_2] sequences:

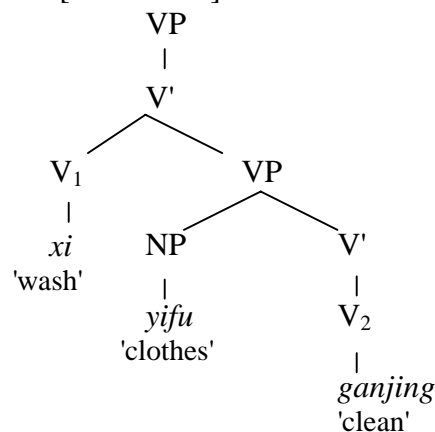
As early as in Qin and Han Chinese already developed the "V(O)+complement" structure. The "V(O)+phase complement" structure emerged during Wei, Jin and Northern and Southern Dynasties. (p.22)

Given that phase V_2 's are generally seen as being more functional in application than the literal V_2 's, this is indeed what one would expect, with more literal lexical

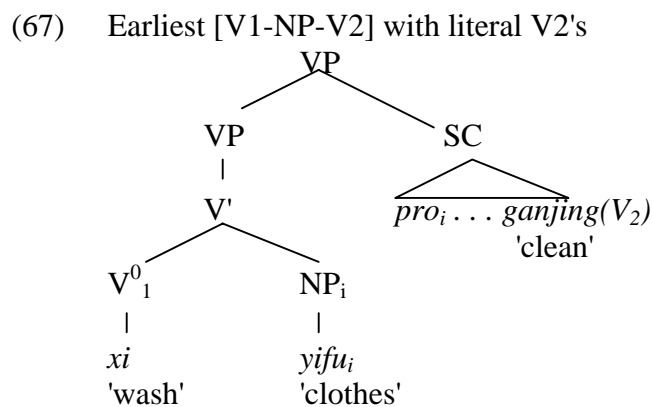
elements preceding the use of more functional elements in a structure. This emergence of phase V₂'s has however very important consequences, as will shortly be explained. First though we need to consider the structural status of literal V₂'s in the [V₁ Object V₂] sequences.

In section 5.1.4 it was argued that V₂ elements in present-day Chinese RVC's are not licensed by any predication relation with the 'object' NP. However, although the various reasons given there showed this to be a valid conclusion for modern Chinese V₁-V₂ forms, it might not be unnatural to suggest that *fully literal* early resultative sequences of [V₁ Object V₂] did in fact encode some predicational relation between the Object and the V₂. In this early stage the literal V₂ was licensed in the resultative structure precisely because of this predicational relation. If this is so, a technical question arises as to how such a predicational relation might have been syntactically encoded. One possibility is to simply assume the small clause structure argued for by Hoekstra and Sybesma, repeated below as (66):

(66) Earliest [V1-NP-V2] with literal V2's



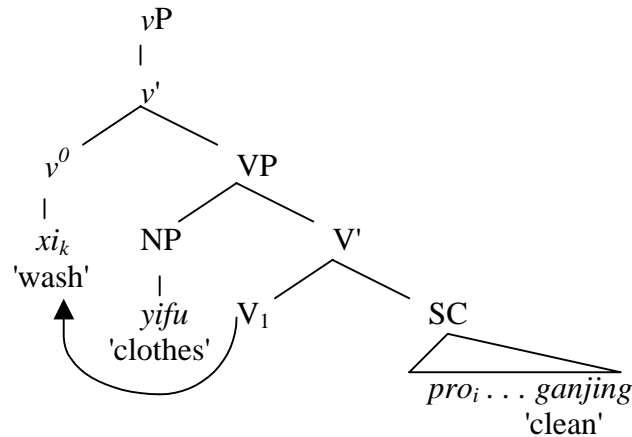
However, in 5.1.4 it was noted that such a structure has the possibly unattractive aspect that there is no theta relation between the V_1 *xi* 'wash' and the 'object' NP *yifu* 'clothes' which feels rather counter-intuitive. We have seen that in $[V_1\text{-de NP } V_2]$ type resultatives where the linear sequencing resembles the early Chinese $[V_1 \text{ Object } V_2]$ RVC's, the post- V_1 NP behaves as if it is an object of the V_1 rather than just in a following predication with the V_2 . Yafei Li (1998) has suggested that in the modern $[V_1\text{-de NP } V_2]$ resultatives the overt object NP is linked to the V_2 via a co-indexed *pro* which itself occurs in the predication with V_2 (see footnote 5 and footnote 6). We can adopt this suggestion for the early $[V_1 \text{ NP } V_2]$ resultatives with literal V_2 's. Allowing for a co-indexed *pro* to mediate the relation between the overt NP object and the early literal V_2 would then permit a rather different small clause structure as in (67). Here the overt NP being truly the object of the V_1 and the small clause being analyzed as an optional adjunct:



If it is objected that the object NP_i will not c-command the *pro* and that this is necessary for co-reference, an alternative possibility might be to assume a VP-shell structure such as (68) with the NP 'object' base-generated in the lower SpecVP c-

commanding the co-referential *pro* in the small clause which is here analyzed as a complement. The verb would then be taken to undergo overt raising to v^0 .⁸

(68) Earliest [V1-NP-V2] with literal V2's



Without further discussion I will simply assume here that one of these possibilities is correct and that there is indeed an early structure which can accommodate both the overt NP as a genuine object of the V_1 and a small clause with a *pro* being predicated of by V_2 . A similar structure must indeed be available to account for simple sequences such as (69) in which both an overt object NP occurs and a resultative clause with a co-referential NP subject:

⁸ A third possibility with a ternary branching structure would be to have both the object NP and the small clause projected off the same complement node, this allowing for c-command between the object NP and a *pro* in the small clause.

(69) I pushed John₁ so that he₁ fell.⁹

What should be stressed here as important is the assumption that the most natural analysis of literal V₂ in early [V₁ NP V₂] sequences is that it was indeed initially licensed via predicating of the object, with this most likely being effected indirectly through the presence of a co-referential *pro*.

Following the establishment of literal V₂ in [V₁ NP V₂], one next finds the introduction of phase V₂'s in [V₁ NP V₂] sequences and this is highly significant. As argued in 5.1.4 phase V₂ elements do *not* predicate of the object NP in RVC's. Consequently, a key important question is how phase V₂'s could have come to be

⁹ Some structure of this type must also be available for resultatives in Korean as reported in Kim and Maling (1997). Case-marking in Korean RVC's is particularly revealing. If the main activity verb is intransitive, the NP 'subject' of the result sequence surfaces in nominative case, as in (i) and (ii):

- (i) Robin-i paykkop-i ppacki-key wus-ess-ta
Robin-NOM belly-NOM come.out-KEY laugh-PAST-DEC
'Robin laughed his belly out.'
- (ii) Chris-ka palpatak-i talh-key talli-ess-ta
Chris-NOM feet-NOM worn-KEY run-PAST-DEC
'Chris ran his feet sore.'

However, if the main event verb is transitive, the NP 'subject' of the result predication occurs in accusative case:

- (iii) Robin-i soy-lul ttukep-key talkwu-ess-ta
Robin-NOM metal-ACC hot-KEY heat-PAST-DEC
'Robin heated the metal hot.'

Kim and Maling suggest that *-key* is an inflectional element which assigns nominative case to the subject of the result clause. Because *-key* is also present in (iii) nominative case must also be available and assigned in (iii). As the overt NP *soy-lul* 'metal' however surfaces in accusative, it must be assumed that a *pro* subject occurs in the result clause in (iii) receiving the nominative case, and that the overt NP *soy-lul* originates in the main clause, being assigned accusative there. It is not possible to suggest that *soy-lul* somehow originates in the lower result clause and skips the subject position avoiding nominative case to explain the fact that it surfaces with accusative. Subject case-positions cannot simply be skipped over as (iv) below shows:

- (iv) *John mentioned him_i [(that) t_i arrived]

Consequently UG must indeed in some way make available structures in which a transitive verb has a genuine NP object and also allows for the projection of a result clause with a co-referential *pro* subject.

licensed in such structures? If the early occurrence of literal V_2 's in [V_1 NP V_2] was naturally legitimized via the predication relation they bore with the object NP but phase V_2 's are not interpreted in the same way (i.e., as predicating of the object), then some other means of legitimization must have become available to allow such elements into the early [V_1 NP V_2] structure. Here I would like to suggest that the emergence of phase-type verbs in the V_2 position is the result of a first important stage in re-analysis which re-oriented the resultative construction in a particular way, subsequently allowing in certain V_2 elements not instantiating any predication relation with the object NP. What is critical here is property (62), which states that all V_2 elements (whether phase or literal) serve to provide a telic aspectual bound to the action depicted by V_1 and the object. Prior to the occurrence of phase verbs as V_2 's, all V_2 elements can be said to have contributed two discrete properties in early [V_1 NP V_2] resultatives:

- (70) a. (Literal) V_2 's lexically encoded the type of result which terminated the event (e.g., the clothes come to be in a clean state after being washed).
- b. All V_2 's functionally provided a telic bound to the event of the V_1 .

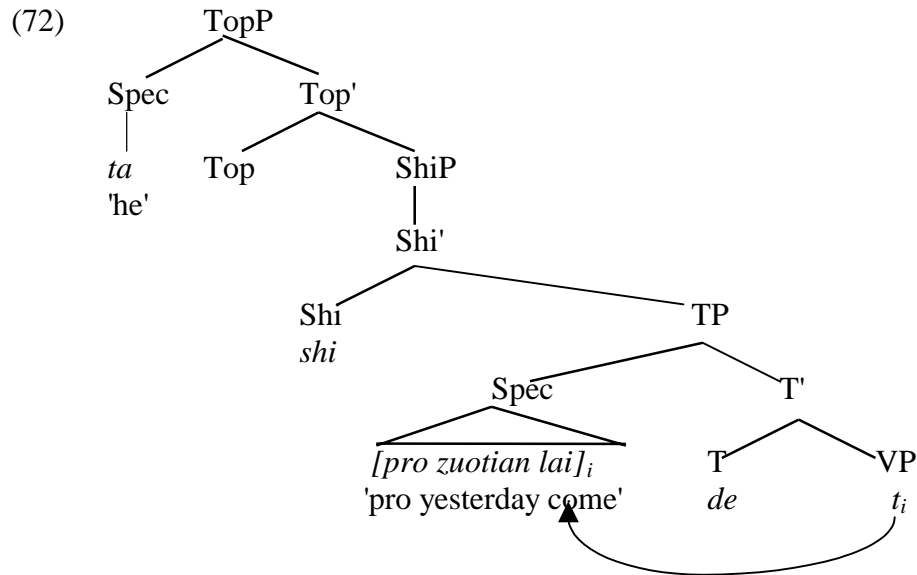
Intuitively, the important change which occurred in RVC's can be suggested to be that after some time V_2 's could be licensed in resultative constructions by providing simply property (b) and not necessarily property (a) as well. Phase V_2 's which do not predicate of the object NP and consequently do not describe the result state of the

object can therefore be said to have become licensed in virtue of providing property (b) alone.

If a V_2 comes to no longer predicate of an object inside the VP but instead provides instead a more general telic bound to the whole predicate signalling completion of an action, it can be argued that in terms of scope and configurationality the V_2 essentially becomes interpreted as applying its function to the *entire VP* rather than just a sub-part of it (i.e., just the object). If this is correct, a question which naturally arises now is how could such a potential change effect itself structurally in RVC's? Here I believe is precisely where the account of changes in the *shi-de* construction developed in chapter four is now potentially very helpful and enlightening and there is indeed a remarkable parallelism in the diachronic development of *shi-de* forms and RVC's. In order to make this parallelism clear, I will now make a short backtrack through the conclusions of chapter four and remarks on the surface similarity of *shi-de* constructions and RVC's.

As noted at the beginning of this chapter, there is an obvious similarity in the way that *shi-de* forms and RVC's have shown changes in linear order. In both constructions a sequence of [V Object X] changes into a sequence [V X_i Object t_i] with the element X representing *de* in *shi-de* constructions and a V_2 in RVC's; in both cases it also seems clear that the element X re-positions itself leftwards, right-adjacent to the main verb, rather than there being any rightward object movement. Considering *shi-de* forms it was argued that *de* undergoes re-analysis from category D to category T and that sentences such as (71) have a structure such as (72):

- (71) wo shi zuotian lai de
 I SHI yesterday come DE
 'It was yesterday that I came.'



Where the element *de* occurs between the verb and its object as in (73) it was argued that the re-analyzed tense head *de* raises to the verb and cliticizes to it, essentially becoming a tense suffix attached to the verb as is found in many other languages:

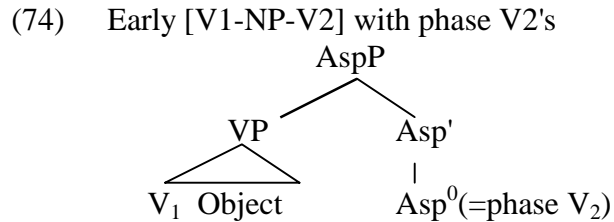
- (73) wo shi zuotian mai-[de]_i piao t_i
 I SHI yesterday buy-DE ticket
 'It was yesterday that I bought the ticket.'

If one considers again the structure and derivation in (72), it was suggested that the VP complement of T^0 undergoes raising from its base-generated position to the right of *de* up to the SpecTP position. Such raising was motivated on the grounds that *de*

is derived from the D^0 element *de* and $D^0 de$ was argued to trigger raising of an IP to its Spec for phonological support (see chapters 3 and 4).

Such a structure now provides exactly the model necessary to understand the V_2 change in RVC's. What we have arguably found with *de* is a structure in which a functional head T^0 has its sole argument occurring rather exceptionally in its leftward Spec position. The interpretation of such a structure is that T applies its functional tense value to the VP located in its Specifier position. Turning now to early [V_1 NP V_2] resultatives, we have argued that the emergence of phase-type verbs in the V_2 position indicates that after time resultative V_2 elements could be licensed by simply providing a general telic bounding of the situation described in the predicate VP rather than necessarily also providing a predication onto the object of V_1 . It was then suggested that this change points to a significant change in scope of the V_2 from being a function applied just to the object NP to being a function applied to the whole VP. The general telic completives of this type are therefore interpreted as functional elements which essentially take entire VPs as their arguments. The question we then raised was how it could be possible for such a semantic relation to be syntactically encoded in [V_1 Object V_2] forms. Now having briefly re-examined the *shi-de* construction, we have indeed a model and precedent on hand which can suggest what the critical syntactic re-organization in RVC's might have been. I would here like to propose that the first important change which introduced the phase V_2 's into the [V_1 Object V_2] resultatives was that the V_2 position instantiated by phase-type verbs became re-interpreted as a functional Aspect head projecting a

single argument VP in a leftward Specifier position as in (74), precisely on a par with *de* as T⁰ projecting a VP in a leftward Specifier:



The development of phase-V₂'s into a predicate-final functional projection is then suggested to be very similar indeed to the ongoing development of *de* into Tense. Shortly I will turn to examine the actual re-positioning of the phase-V₂ Aspect-head and suggest that this second major change in RVC's also closely resembles the re-positioning of *de* as Tense. Just as *de* was argued to re-position itself after its re-analysis as a Tense-head and attach itself leftwards to the main verb of the predicate, the re-positioning of V₂ elements to attach to V₁ in RVC's will be suggested to have occurred as a later direct consequence of the first stage of re-analysis outlined here, V₂ elements essentially becoming re-interpreted as aspectual suffixes in the same way that *de* is fast becoming a new tense suffix. Precisely how (and also more explicitly why) this second stage of re-structuring in RVC's takes place will be considered in greater detail in a later section.

Returning to (74) above and focusing on phase-V₂'s, it can be noted that such a structure can indeed be argued to accurately represent the relation between V₂, V₁ and the object, and that V₂ in fact *selects* for V₁ and the object as its (VP)

head rather than simply a unique morpheme (as might be the case in other functional heads such as Tense), it can be noted that elsewhere there are cases of clear functional elements which have multiple instantiations. One good example here is the nominal classifier system found in Asian languages, where each member of a potentially large classifier set functionally selects for a different range of complement types (and in this sense classifiers are rather similar to the V_2 aspectual completives, the latter 'classifying' different situations according to telicity).

Before closing this section and continuing to examine how literal V_2 's fit into the picture of change sketched out above, I would briefly like to mention that there is also certain evidence from tone sandhi phenomena that phase V_2 's have a functional rather than a lexical status, as suggested here. In Shanghainese (Selkirk and Shen 1999) one finds that tone sandhi clearly differentiates between lexical and functional elements in an interesting way. Essentially a phenomenon of 'tone-spreading' begins at the first syllable of a lexical word and continues (spreading) throughout all following syllables until a second lexical element is met. Functional elements are distinguished from lexical elements in that they do not constitute independent tone sandhi domains and simply undergo the spreading initiated by a preceding lexical syllable (regardless of their syntactic relation to the preceding lexical element). Relevant here is the fact that V_2 's such as *taw* (=Mandarin *dao* 'arrive') in (75) are treated as if they are functional and not lexical elements, undergoing tone-spreading from the preceding lexical syllable and not instantiating a new tone sandhi domain:

(75) (MH MH) (LH HL) (M H) (L H)
 tsou taw 'noetsiN → tsou taw 'noetsiN
 'walk to Nanjing'

In the southern Wu dialect of Wenzhou reported in Chen (2000) the same basic phenomena occur. Chen presents the following example and notes that the tone of the V_2 *dao* 'arrive/to' is deleted as with all functional elements and *dao* receives a tone spread from the preceding lexical syllable. In Chen's notation the material between slash brackets indicates a tone sandhi domain; the inclusion of *dao* in the tone sandhi domain initiated by the preceding lexical V_1 element *la* 'pull' indicates that *dao* is interpreted as being a functional element rather than a lexical element:¹¹

(76) /ba sanlunche / la dao / menkou /
 BA tricycle pull arrive gate
 'Pull the tricycle to the gate.'

5.2.3 *Literal V_2 and Re-analysis*

Above I have largely been concerned with the re-analysis of phase-type V_2 elements which do not predicate of the 'object' NP in the [V_1 object V_2] sequences. It was first suggested that early *literal* V_2 elements supplied two discrete properties in resultative constructions: (a) more explicit characterization of the result state of the NP object of the main verb, and (b) a general telic bounding of the predicate. It was proposed that the emergence of V_2 elements which do not provide property (a) is indication that at

¹¹ Note that if no lexical material occurs to the left of a functional element it may be phrased with the lexical element to its right, this occurring here with *ba*.

some stage providing simply property (b) came to be sufficient to be licensed as a V_2 in resultatives. These V_2 elements which had no direct relation to the object NP but supplied a more general telic bound to the predicate became re-analyzed as being base-generated in an aspectual head Asp^0 with a single selected VP argument projected in its Spec position. The obvious question which now arises concerns the status of other *literal* V_2 's in $[V_1 \text{ Ob } V_2]$ sequences and whether literal V_2 's occurred in Asp^0 or continued to be base-generated and licensed in small clause type predication structures. Note that the suggestion that phase-type V_2 's occur in Asp^0 does not exclude the possibility that literal V_2 's might indeed have continued to be base-generated and licensed in a predication relation with the object and that there could in fact have been two different resultative structures (for literal V_2 's and phase V_2 's) present in the language. Shortly I will however argue against such a view and suggest that also literal V_2 's underwent re-analysis and came to be base-generated in the same Asp^0 even in early Chinese, even though it might start out in the small clause structure presented in (67/68). It was an important change in focus on the critical licensing properties of literal V_2 which preceded and allowed for the occurrence of phase V_2 's. I have pointed out that historically the literal V_2 's first came to appear in $[V_1 \text{ object } V_2]$ resultatives, then the phase V_2 's was allowed in the V_2 position of the same structure (G. Wu 1999), and finally both literal V_2 's and phase V_2 's collectively underwent a shift over the object in the Song Dynasty (Li and Y. Shi 1997). I suggest that the fact that both phase and literal V_2 elements collectively underwent re-positioning to V_1 is strong evidence that all V_2 's came to

be licensed and interpreted very much in the same way, therefore causing all V_2 's to undergo a shift over the object from Asp^0 to V_1 .

First I will begin with one of the rather simple reasons for assuming that early literal V_2 must have come to instantiate Asp . Considering again how phase-type V_2 's came to occur as Asp , it was earlier suggested rather informally that literal V_2 elements provided two properties--(a) a description of the result state of the object and (b) a telic bound--and that at some stage elements came to be licensed as legitimate V_2 's by simply providing property (b) (i.e., the occurrence of phase V_2 's). What this change can be argued to indicate a little more formally is that it must have *first* been possible for literal V_2 's to be licensed by just providing property (b) *before* phase V_2 's could then also make use of this less restrictive licensing option and occur in $[V_1 \text{ obj } V_2]$ resultatives. One can assume that phase V_2 's indeed came to be possible in $[V_1 \text{ obj } V_2]$ resultatives precisely because earlier literal V_2 's were optionally licensed in the V_2 position *solely* in virtue of providing property (b). Once literal V_2 's could be licensed primarily via supplying just property (b), this then allowed for other phase-type elements which did not provide property (a) also to occur as V_2 's. Thus sequentially it can be suggested that phase V_2 's could really only have been permitted into the $[V_1 \text{ obj } V_2]$ structure once other earlier literal V_2 's were re-valued in terms of their contribution to the construction. The imagined transition can be schematized as follows:

- (77) Step 1:
- a. Only literal V_2 's occur in early [V_1 obj V_2] resultatives.
 - b. Literal V_2 's provide both properties (a) predication of the object, and (b) addition of a telic bound.
 - c. Literal V_2 's are licensed primarily due to property (a).
 - d. At this point V_2 elements which do not predicate of the object (i.e., phase V_2 's) do not occur in [V_1 obj V_2] resultatives, and the literal V_2 's is predicated of the object.
- (78) Step 2:
- Literal V_2 's which still provide both properties (a) and (b) come to optionally licensed just in virtue of property (b), in which case the literal V_2 's are analyzed as Asp.
- (79) Step 3:
- Licensing simply in virtue of property (b) allows in phase-type V_2 's which do not supply property (a) at all to also occur in early [V_1 obj V_2] resultatives.

This conclusion of course means that clause-final Asp was in fact first created by an initial re-analysis of literal V_2 's into Asp. I will now go on to suggest that this re-analysis occurred due to a simple switch in focus in early resultatives.

Cross-linguistically, it might seem that both properties (a) and (b) above are regularly present in resultative constructions. Reflecting on their frequent co-occurrence one might also initially assume that they are equally weighted in terms of relative importance and that the lexical information provided on the result state of the object is necessarily as important and highly-valued as the bounding effect which occurs. However, it is in fact quite possible that there actually is a critical imbalance

in the relationship between the two properties and that one of the two properties is or becomes more highly valued than the other. For example, it is possible that the lexical descriptive property (a) is of more importance in English 'so that' resultative forms and that the focus of interest largely falls on the characterization of the result-state, with the bounding effect (property (b)) being more of a secondary pragmatic bi-product:

(80) Mary laughed at John so much that he became embarrassed.

In (80) the emphasis is clearly felt to be on describing the type of result state ('embarrassed') rather than focusing simply the completion of an activity (i.e., the termination of laughing). In 'so that' type resultatives it would therefore seem that there is a clear imbalance between property (a) and property (b) and that the latter is of greater importance. In other cases it is not unlikely that an imbalance might swing in the opposite direction and the telic bounding property might become of greater focus than the actual description of the type of result-state. This is precisely what I would like to suggest has occurred in Chinese resultatives. From an earlier stage where the descriptive property (a) was clearly important and necessary for an element to occur as a V_2 , later on the emphasis in resultatives switched to the bounding property (b) and simple completion of an event. In this regard, it has often been noted that the V_2 in RVC's does indeed carry a special focus in the construction, for example Li & Thompson (1981, p.57) state that "the primary communicative function of an RVC is to comment on whether the *result* of an action did or did not,

can or cannot, take place." Thus the emphasis is suggested to be on whether an action is completed, and not so strongly on the characterization of the type of completion. Furthermore, it is often rather clear from the consideration of a V_1 - V_2 combination that if there is indeed a focus on V_2 then it can only be emphasizing the completion rather than the type of result state. For example, if the V_1 - V_2 sequence *xi-ganjing (yifu)* is used as in (81) below, the emphasis is on completion and not on contrasting the result-state of being clean with other potential result-states. Most speakers do indeed agree that the interpretation of (81) is similar to (82), in the latter case the V_2 indicates the end point, instead of the result state (clean or not), of the washing event.

(81) ta ba yifu xi-ganjing-le
she BA clothes wash-clean-LE
'She washed the clothes clean.'

(82) ta ba yifu xi-hao-le
she BA clothes wash-well-LE
'She finished washing the clothes.'

Basically (and this point will be returned to shortly), with a V_1 such as *xi* 'wash' there is almost no choice in what one could use or expect to hear as a V_2 element, and *ganjing* 'clean' or *hao* 'well' is indeed neutrally anticipated as the result state V_2 rather than any other element. The characterization of the result state by means of *ganjing* 'clean' is then neither unexpected nor in real contrast with other states which could have resulted from a washing action. It is not its lexical content which is really

focused here but simply the telic bound of completeness which it marks through its occurrence in the V_2 position. When the particular type of V_2 is almost predicted by the type of V_1 like this, it is then very clear that the bounding effect is the important emphasized contribution of the V_2 , and the lexical characterization of the result-state is almost redundant (i.e., there is basically no other state that clothes could naturally be expected to be in after having been washed to completion).

The suggestion is then again that an imbalance arose in the relative importance of properties (a) and (b) in Chinese resultatives. Consequently, from being a resultative construction in which the lexical description of the result-state was both clearly very important and necessary (hence only literal V_2 's predicating of the object could occur), the V_2 is suggested to have later come to be valued primarily for its bounding function, with property (b) being the identifying and licensing characteristic of any V_2 . Formally V_2 is therefore suggested to have come to be interpreted as more of a functional element providing primarily a telic bound to the predicate and so being licensed as a VP-operator selecting the entire predicate as its argument. Syntactically, the hypothesized switch of early literal V_2 's to a predominantly functional role selecting and applying to the VP can then be argued to have given rise to the predicate-final Aspect projection, with the V_2 's being base-generated in the Asp^0 head position. Following the creation of the aspect projection, any type of V_2 which could provide property (b) could then legitimately occur licensed in resultatives, and this can be argued to have allowed in phase-type V_2 's which only supply property (b). Possibly there may also have been a period when

both the new Aspect-functional structure and the older V₂ prevocational small clause structure may have continued to co-exist in resultatives, but importantly a good many literal V₂'s must have been re-interpreted in terms of their focus as providing primarily a bounding function for the creation of the aspect projection, which allows phase V₂'s to have occurred.

5.2.4 Responses to Apparent Objections

Although I believe that there is no other good formal explanation for how non-literal phase V₂'s could have come to be licensed in resultatives, there might appear to be many objections to any suggestions that literal V₂'s might also occur in Asp⁰. As literal V₂'s could quite naturally be analyzed as occurring in some kind of predication relation with the object and are indeed assumed to have come from such a source, it could simply be assumed that they continue to be licensed in such structures. Secondly, V₂'s might seem to provide key information characterizing the type of result-state the object comes to be in as a result of the action of V₁, and it might be natural to assume that lexical descriptive information of this type is presented in some kind of predication structure rather than with the V₂ occurring as a *functional* element in an aspectual head. Thirdly, the literal V₂ elements might seem to be a fully open class with essentially any predicate being potentially available as a V₂ result. If this is so, it might again seem to argue against literal V₂ status as a functional head, as functional heads are characteristically instantiated by a generally small closed class of elements. However, here I will attempt to show how all of the

above-mentioned objections can in fact be given satisfactory explanations which strengthen the analysis of all V_2 's as Asp.

One important hypothetical objection to analyzing literal V_2 's as instantiating a functional head was that literal V_2 's might seem to be an open class of elements whereas functional elements are normally thought of as a closed set, often with only a single morpheme able to occur as a particular value of a functional head. While this may indeed quite frequently be true and characteristic of functional heads, it is however certainly not always so and there is also nothing a priori which requires that a functional projection be instantiated by a closed and highly reduced set of elements. One example of an assumed functional head which is instantiated by a significantly large membership of overt elements is the classifier position found in eastern Asia, with the languages of Southeast Asia having particularly abundant classifier systems. Note that within classifier systems there are classifiers which may in fact be used with only a single type of noun, this being similar to English 'a pack of lions,' a 'school of dolphins,' a "murder of crows" and "a gaggle of geese" where the classifying elements only used with their respective nouns. A result of this is that classifier systems clearly may potentially be very large with different classifiers corresponding to all the different feature combinations that a particular language chooses to distinguish in its nouns (i.e., +/-flat, +/-long, etc.). In Thai, for example, it is assumed that there may be over 400 distinct classifier elements (p.c., Andrew Simpson). Consequently the hypothetical objection that literal V_2 's could not

instantiate a functional head because they come from a large open-ended class is not in fact so strong a criticism as might be thought.

Related to the size of the set of morphemes which instantiate a functional head, it is natural to conclude that the membership of such a set is often small because functional elements may simply have a functional specification and no additional lexical content, and that a single element with such a functional specification will therefore be sufficient to encode the necessary function in the head. However, it has often been observed that when elements grammaticalize as functional elements they do not in fact immediately lose all lexical content and indeed may continue to show even strong traces of earlier lexical content for a considerable time (see e.g., Bybee, Perkins and Pagliuca 1994). As suggested here, what may often happen in grammaticalization is that there occurs a significant shift in emphasis with the continued use of an element. Initially an element has a predominantly lexical descriptive role, which may also give rise to other semi-functional pragmatic inferences as an accidental bi-product. Later on this may change to a state in which the functional value of the element becomes most highly valued and the element comes to be predominantly functional. When this happens, the element grammaticalizing does not necessarily lose its lexical content; instead there is simply a switch in focus to the mainly functional role it plays. Consequently there is no a priori reason why there should not exist a set of functional elements, such as the V_2 set, which are legitimized as functional heads but also have clearly lexical content as well.

In grammaticalization situations, often one element from a larger set may become more widely used and general in its application (the phenomenon of '*generalization*,' Hopper and Traugott 1993), with the result that other member of the set occur less frequently and eventually disappear. One might therefore possibly not expect for such a large V_2 set to exist as functional heads without such generalization occurring. In fact, as will be seen in chapter 6, it is quite possibly true that verbal *-le* may indeed be just such a generalized completive marker occurring with a whole range of verbs, and therefore that there has been generalization in the completive aspect group. If this is in fact so, one might expect, incorrectly, that the other V_2 elements would no longer be used as instantiations of the aspect head. However, I think there is actually a good explanation for why this has not taken place. We have noted that there is commonly felt to be emphasis on the completion of the event in a resultative construction. If this emphasis requires further stressing, it will only be possible to do this with a V_2 which has the phonetic strength to carry stress and which has not undergone the phonetic reduction that has occurred with *-le*. Therefore the continued use of a range of V_2 's alongside the more general completive *-le* may well be due to phonological reasons and the focus properties of the construction.¹² Furthermore, if one turns again to classifier systems such as that in

¹² Arguably this phenomenon may show through when one considers the position of the verbal complex. If no object follows the V_1 - V_2 pair (as e.g., in a *ba*-construction) and the V_2 is then sentence-final, the V_2 will normally carry a focus stress. In such a situation, it is more common to find a completive V_2 with the phonetic strength to carry this stress rather than the general completive *-le*. Elsewhere when an object follows the V_1 - V_2 pair and the object can absorb any sentence-final stress *-le* occurs quite freely (and verbal completive *-le* is possibly more common than other V_2 completives in such non-emphatic positions):

Mandarin Chinese, one finds that alongside a large set of classifiers which are appropriate for subsets of nouns, there is also a very general classifier *ge*. Consequently it is indeed possible for a generalized functional element to co-exist with a second set of more specialized alternative forms, and the existence of a generalized functional head does not necessarily mean that other more specialized instantiations will automatically cease being used.

Before leaving the general topic of functional heads being commonly taken to correspond to closed sets of elements, I would like to make one more relevant point. There is possibly a tacit common assumption that because literal V_2 elements provide simple descriptions of the result state, the set of such literal V_2 elements is most probably fully open. Then it should be possible for any descriptive verb to be employed as a V_2 , making the set of elements hypothetically associated with a functional head obviously very large indeed. Such an assumption is actually not so clearly true when one comes to probe a little further, and it has been commented on

-
- (i) wo ba shu kan-wan-le/?kan-le
 I BA book look-finish-LE/look-LE
 'I finished reading the book.'
 - (ii) nei-ben-shu wo kan-wan-le/?kan-le
 that-CL-book I look-finish-LE/look-LE
 'I finished reading the book.'
 - (iii) wo kan-le liang-ben-shu le
 I look-LE 2-CL-book LE
 'I read two books.'

Note interestingly that it is technically incorrect to classify the relevant stress as being sentence-final because it actually occurs on the element preceding sentence-*le*. If one assumes that sentence-*le* is a sentential operator and therefore in some structurally high position, the stress can therefore more accurately be classed as occurring on the most deeply-embedded element--the object in (iii) and the V_2 in (i) and (ii). Such a conclusion clearly raises interesting questions about the position of sentence-*le* and when the stressing rule applies (i.e., is the sequence to the left of sentence-*le* possibly raised there to Spec-*le* from a rightward complement position, and does the stress rule apply to the sequence before raising?).

in various works that result-state predicates are often more restricted than generally thought (see e.g., Lüdeling 1997). Essentially what one often finds in resultative constructions is that there is a strong preference for V₂-type result-state predicates to represent *canonical results*, or results which are frequently expected given the content of V₁. For example, as was noted above, with a V₁ such as *xi* 'wash' the type of result *ganjing* 'clean' is heavily predicted and expected, and it is difficult to imagine what other kind of predicate could occur as V₂. Elsewhere one finds very naturally co-occurring V₁-V₂ pairs such as those listed in (83):

- (83) *kuo-da* expand-big
 da-ying fight-win
 qi-lei ride-tired
 yong-guan use X until one is used to X

In all cases the V₂ represents a largely canonical or expected result. In certain cases there may be a small number of alternate possibilities; for example, alongside *da-ying* 'fight-win' there is also *da-bai* 'fight-lose,' but by and large the V₂ is frequently predicted to a considerable extent by the V₁ and actually not so wide open as one might otherwise imagine. Such restrictions have been noted to occur in resultatives in English, German and many other languages. For example, Lüdeling (1997) points out that only certain result-state predicates seem possible in a considerable number of cases, as illustrated in (84-88) below:

- (84) a. He laughed himself insane.
b. *He laughed me happy.
c. *He cried me sad.
- (85) He ran me tired/*exhausted.
- (86) Sally painted the door red/*beautiful.
- (87) We laughed the speaker off the stage/*embarrassed.
- (88) Robert ran clear of the door/away/*exhausted.

In many cases it might seem that the result described by the secondary predicate is best when it is the most general canonical description of what might be expected as a result given the action of the main verb. For example, in (85) 'tired' is fine where 'exhausted' is unacceptable; as 'exhausted' is simply a more explicit characterization of being 'tired,' it seems that the simplest and most general descriptive form is preferred over more explicit less common forms.¹³ In (86) too, the action of painting leads one to expect a color result state and it is found that a non-color result state such as 'beautiful' is unacceptable. Elsewhere the result states have the feeling of being idiomatic and also not open, as for example in (84) and (87).

What this may be taken to indicate is that the set of result state predicates is possibly not so wide open as might be initially assumed. The preference for

¹³ The preference for canonical commonly occurring general forms such as 'tired' rather than 'exhausted' in resultative constructions focused on completion can be linked up with a universal common preference for generality found in grammaticalization. In Bybee et al (1994) and elsewhere it is noted that it is standardly more general verbs such as 'come' or 'go' which tend to grammaticalize as functional tense and aspect elements rather than semantically related but more specific manner of motion verbs such as 'amble,' 'wander,' 'stroll,' etc. The more general forms allow more easily for focus to fall on the particular abstract tense/aspect *function* they encode whereas more specific descriptive verbs have stronger lexical content which distracts away from functional uses.

canonical results encoded by general and commonly-occurring predicates also suggests as before that the primary function of result state predicates in many resultative constructions is indeed to supply a telic bound to an event rather than to focus on the description of the result state. Where a non-canonical result state predicate occurs this will tend to attract the focus away from the emphasis on completion and so there will be two competing focal points, resulting in the oddity felt in many RVC's. The idiomatic nature of many resultatives also suggests that the result state may be so commonly expected from application of the V_1 that the result state and the V_1 become a quasi-lexical unit.

Similar patterns may arguably also be discerned in Chinese, and not all V_1 - V_2 pairs are felt to be well-formed. For example, (89-91) below are all felt to be either quite unacceptable or rather odd:

- (89) ??ta xiao-le-le wo
 he laugh-happy-LE me
 intended: 'He laughed and as a result I became happy.'
- (90) ?*ta (shuo gushi) shuo-ku-le wo
 he say story say-cry-LE me
 intended: 'He told a story which made me cry.'
- (91) *ta ku-beishang-le wo
 he cry-sad-LE me
 intended: 'He cried so that I became sad.'

- (92) *ta xi-ganganjingjing yifu
he wash-clean clothes
intended 'He washed clean the clothes.'

Note that I have suggested that the focus is on the completion of the event in V_1 - V_2 resultatives rather than on the description of the result state, and that this imbalance in favor of property (b) is what has resulted in V_2 elements being interpreted as Asp. I also suggested that this imbalance might not necessarily be present in other resultative constructions which could quite possibly value property (a) more highly than property (b). This would seem to be true of the English 'so-that' resultative already mentioned, and also Chinese [V_1 -de NP V_2] forms. Because the V_2 must encode a genuine independent description of the result state, one finds that only genuinely predicative V_2 elements may occur in such forms. As expected, English resultative particles and Chinese phase V_2 's which do not predicate of the object may not occur in such resultatives:

- (93) a. *I looked (at) the number so that it was up.
b. I looked the number up.
- (94) a. *I threw him so that he was out.
b. I threw him out.

- (95) a. *wo kan-de shu wan-le
 I look-DE book finish-LE
 intended: 'I finished reading the books.'
- b. wo kan-wan-le shu le
 I look-finish-LE book LE
 'I finished reading the books.'
- (96) a. *wo zhao-de shu dao le
 I search-DE book arrive LE
 intended: 'I searched and found the books.'
- b. wo zhao-dao-le shu le
 I search-arrive-LE book LE
 'I searched and found the books.'
- (97) a. *wo mai-de shu zhao-le
 I buy-DE book arrive-LE
 intended: 'I managed to buy the book.'
- b. wo mai-zhao-le shu le
 I buy-arrive-LE book LE
 'I managed to buy the book.'

This ungrammaticality frequently found when one attempts to convert a V_1 - V_2 RVC into a corresponding [V_1 -de NP V_2] resultative strongly confirms both that phase V_2 's do not predicate of the object in V_1 - V_2 RVC's (as they cannot be predicated of the same NP in [V_1 -de NP V_2] resultatives), and that phase V_2 's are consequently not licensed in V_1 - V_2 RVC's in virtue of any predication relation with the object but rather for their pure bounding effect.

The ungrammatical examples involving literal V_2 's in (89-91) can further support the suggestion that literal V_2 's also instantiate Asp, when compared to their [V_1 -de NP V_2] counterparts. [V_1 -de NP V_2] resultatives consequently require a genuine predication relation onto the NP preceding V_2 and so may be considered to require and possibly highly value property (a). This contrasts with V_1 - V_2 RVC's which focus property (b) and do not require property (a) with V_2 's. Given this potential difference in focus and orientation between the two resultative constructions, one might wonder if those literal V_2 elements which do not occur well in V_1 - V_2 RVC's might possibly be better in [V_1 -de NP V_2] resultatives, and quite interestingly this turns out to be so in an obvious number of cases. (98-100) are [V_1 -de NP V_2] equivalents to the unacceptable/odd V_1 - V_2 RVC's in (89-91) and are all fully well-formed. This suggests that literal V_2 's in V_1 - V_2 RVC's do not form a predication relation with the object. Linguists such as Sybesma have argued that literal V_2 's in V_1 - V_2 RVC's are derived from the [V_1 -de NP V_2] resultatives, and therefore assumed a predication relation for V_1 - V_2 RVC's. As we can see from the comparison between (89-91) and (98-100), the derivation from (98-100) to (89-91) can not be held true and neither can the predication relation in V_1 - V_2 RVC's.

- (98) ta xiao-de wo hen le
 he laugh-DE I very happy
 'He laughed and as a result I became happy.'

- (99) ta (shuo gushi) shuo-de wo ku-le
 he say story say-DE I cry-LE
 'He told a story which made me cry.'
- (100) ta ku-de wo hen beishang
 he cry-DE I very sad
 'He cried so that I became sad.'
- (101) ta xi-de yifu ganganjingjing
 he wash-DE clothes clean
 'He washed so that the clothes are very clean.'

What all the above might seem to show is that V_2 elements may actually be more restricted than imagined in V_1 - V_2 RVC's and that this is not because of any inherent semantic incompatibility between a particular result state and a main event verb V_1 (as these V_2 's may co-occur in a different type of resultative with the same V_1 's), but rather because of the focus of the V_1 - V_2 RVC. V_1 - V_2 RVC's are *primarily* oriented around bounding the activity rather than describing the result state and hence frequently predictable, canonical result type predicates are naturally preferred because they result in the least distraction away from the focus on completion. Consequently the potential objection to a primarily functional analysis of V_2 elements that they constitute a fully open random class is again actually not so strong and V_2 's turn out to be often surprisingly more predictable than imagined.^{14 15}

¹⁴ A further observation that also indicates that V_2 's may frequently be highly predictable and hence not fully open is that it is very difficult to stress a V_2 and understand this as *contrastive*. This is because it is simply often difficult to imagine what the V_2 might contrast with, i.e., what other possible outcomes application of the V_1 to the object could result in:

-
- (i) ?*wo ba yifu xi-GANJING-le, bushi HONG-le
 I BA clothes wash-clean-LE, not red-le
 ?*'I washed the clothes CLEAN, not RED.'

Furthermore, in German resultatives (see Lüdeling 1997) focus-topicalization patterns show that V_2 -equivalent type elements are often not really new information but actually rather predictable. In (ii) below it is seen that the adjective *kaputt* 'broken' can appear fronted in a simple sentence licensed by encoding new information in the focus-topic position:

- (ii) Kaputt ist die Tür
 broken is the door
 'The door is broken.'

However, when *kaputt* occurs in the resultative adjective-verb pairing *kaputt-schlagen* 'hit-broken' it can only occur in the fronted position if it is emphasized by an additional intensifier such as *ganz* 'quite' or *völlig* 'completely' as shown in (iii). This indicates that when it occurs in a resultative the adjective does not encode information about a new state in the same way that it does in (ii) and is instead licensed *primarily* as a telic bounding element. Only if further intensification is added to the adjective can it therefore be licensed in the focus-topic position:

- (iii) *(Ganz/völlig) kaputt hat Max die Tür geschlagen.
 quite/completely broken has Max the door hit
 'Max completely smashed the door.'

¹⁵ Having argued at length that V_2 elements are licensed in RVC's in virtue of providing the general bounding property (70b), I have not discussed how any lexical descriptive content they may have comes to be interpreted. There are a couple of points and possible suggestions which can be made here. First of all, it has been noted that many functional elements do also have clear lexical content; if these elements are however licensed as primarily functional and therefore base-generated in functional heads, it must be assumed that any lexical content they have may be built into the structure from their position of origin in the functional head. Such an assumption may now also be made for V_2 elements argued to be base-generated in Asp and the lexical content of literal V_2 's may be interpreted from within the functional head Asp. Note also that V_2 -Asp is taken to select for the VP and hence the type of situation represented by the VP. The frequent interpretation that the object in the VP has the result state property represented by V_2 may then be a function of V_2 selecting for the situation in which that object is affected (e.g., a 'washing' event is one which can be selected by a V_2 -Asp 'clean,' and the object of the washing may then naturally be interpreted as having such a result state property). In some way the selection relation here is similar to that existing between classifiers and nouns; just as a classifier is sensitive to certain features of a range of nouns (e.g., +round), V_2 's may classify situation types according to their potential natural outcomes, and in both classifier and V_2 -Asp case this translates into a selection relation. There is also a possible similarity here to the idea of 'pragmatic association' proposed in Kayne (1985) and taken up in Sybesma (1999) in a different way from the proposal here. It can be suggested that if there is a washing event involving an object and this is terminated by some clean state, then it is just pragmatically natural to associate the object with that clean state. Another alternative might be to make use of Borer's (1994) idea that objects check case in the Spec of a telic aspectual head and suggest that at LF the object raises to an outer SpecAsp to check its case and at the same time is predicated of by the V_2 in Asp. This would be similar to analyses of *tough*-movement in which the surface subject is raised from object position and predicated of by the entire *tough*-predicate when in its raised position (see e.g., Brody 1994):

- (i) John_i [is easy to please t_i]

So, to briefly summarize, in this section I have argued that a significant change occurred in the underlying structure of early V_1 Ob V_2 sequences. From an original form in which V_2 occurred licensed as a genuine secondary predicate, the V_2 underwent re-interpretation as instantiating an aspectual head which encodes a telic bound on the event depicted by the V_1 and its object. Such a change was suggested to have been the result of a change in focus of the resultative construction. An increase in the focus on the pure bounding property of V_2 later allowed phase V_2 's with no direct predicational relation with the object NP to also occur in early V_1 Ob V_2 sequences. The syntactic realization of this change was argued to be that V_2 became base-generated in a discrete Asp-head selecting VP as its argument projected in a leftward Specifier position. This has a clear parallel in the structural re-analysis of *de* as Tense also projecting its predicate argument in a leftward Specifier. Finally I reflected on certain potential objections to the claim that V_2 instantiates Asp and attempted to show that a functional analysis of V_2 elements can in fact be maintained. Having established the V_2 -as-Asp proposal and showed how it is able to offer certain insight into the early development of resultatives, I will now proceed to examine a second significant change in Chinese resultatives: the re-positioning of V_2 to a position right-adjacent to V_1 . I will offer an account of how and why this important re-structuring took place and suggest that the change should be similarly attributed to the functional-aspectual properties instantiated by V_2 .

Because the V_2 -Asp is licensed in virtue of its functional-aspectual property (70b), such predication would not be forced to occur and phase V_2 's would not have to predicate of the object (in contrast to small clause analyses in which the V_2 is licensed precisely as a predicate and therefore must predicate of the object in order to be legitimized). As we will shortly see, the situation is clearer in V_1 - V_2 pairs

5.3 V₂ Re-positioning and Directionality

According to G. Wu (1999) and Li and Shi (1997), V₁ NP_{object} V₂ resultatives largely changed into V₁-V₂ NP_{object} forms around the time of the Song dynasty (960-1279), possibly having first appeared during the Tang dynasty (Mei 1981). Certainly V₁-V₂ Ob sequences are taken to be the only acceptable forms from the time of the Song dynasty onwards. The linear re-positioning of V₂ over the object to become right-adjacent to V₁ is represented again in (102):

$$(102) \quad V_1 \text{ NP}_{\text{object}} V_2 \rightarrow V_1 V_2 \text{ NP}_{\text{object}}$$

First of all it should be noted that the later forms do not seem to have resulted from earlier sequences via any Heavy NP Shift type operation which post-poses heavy objects. It is fairly clear that even light object NPs occurred after V₂ in the new order and so the change is much more likely to have resulted from a re-positioning of the V₂ and possibly movement of the V₂ to V₁. The critical question in need of answering is of course what actually triggered this re-positioning and what this might then be able to tell us about the synchronic structure of V₁-V₂ forms?¹⁶ Both the

after the second stage of re-analysis and so I will not discuss this further here.

¹⁶ As noted earlier, there are certain obvious parallels between Chinese RVC's and English verb-particle forms. In the latter there are currently two orders available, which might seem to reflect the two historical orders in Chinese. In (i) the particle follows the object, whereas in (ii) the particle occurs preceding the object and adjacent to the verb:

- (i) John found the information out.
[_{VP} V Object Prt] similar to early Chinese [V₁ Obj V₂]
- (ii) John found out the information.
[_{VP} V Prt Object] similar to later Chinese [V₁ V₂ Obj]

syntactic accounts of Chinese RVC's we have reviewed assume that there is indeed movement of V_2 to V_1 still actively occurring in the underlying syntax, and hence that the historical source is still present in the base-generated structure of RVC's; however neither account offers any understanding of what might actually cause the movement of V_2 to V_1 . In Y. Li's lexical approach by way of contrast, reference is simply not made to the earlier [V_1 Ob V_2] forms and there is consequently no attempt to explain how syntactically created [V_1 Ob V_2] sequences might later come to be formed as V_1 - V_2 compounds in the lexicon. The development of the modern [V_1 V_2 object] forms from [V_1 Ob V_2] sequences therefore remains as an interesting puzzle.

5.3.1 Arguments Against a Phonological Explanation

One possible mode of explanation for the change to V_1 - V_2 forms which one initially might entertain could be that the re-positioning may have occurred for *phonological* reasons; this I will also argue against. Earlier in the introduction it was noted that the change in RVC's and with verbal *-le/liao* might seem to resemble the change in *shi-de* forms in that an initial sequence of a main verb, an object and some sentence-final element X (where X= *-de, liao, V_2*) undergoes re-ordering to [V X Object]. With *de* it was pointed out that the change in position arguably resulted from *-de* as a clitic targeting the verb as its new phonological host following earlier syntactic re-analysis

It is pointed out in Johnson (1991) that the variant in (ii) is also not produced by any Heavy NP Shift operation as the object can be significantly lighter than in regular Heavy NP Shift examples. For example, simple NPs can normally not be extraposed in potential HNPS forms such as (iiia), yet bare NPs do easily occur following particles in verb-particle sequences:

as a tense element. Considering the V_2 's in RVC's however, it is not possible to argue that such elements moved to attach to the main verb V_1 in any parallel way because the V_2 series do not show obvious signs of being clitics. Both phase V_2 's such as *wan* 'finish,' *dao* 'attain,' *zhu* 'hold,' and non-phase V_2 's such as *ganjing* 'clean,' *lei* 'tired,' etc. seem to occur quite unreduced in phonological shape when occurring in V_1 - V_2 pairs.¹⁷ It would therefore be somewhat implausible to attempt to treat such elements as clitics. Furthermore, as will be shown in a later section, there is also good evidence that verbal *-le* only underwent reduction from its full pronunciation as *liao* to its present *-le* form *after* it had moved adjacent to the V_1 and so this re-positioning can similarly not have been caused by any cliticization targeting V_1 .

There is also a second way in which one might attempt to explain the V_2 re-positioning in phonological terms. Although it is unlikely that clitic-like phonological dependency in the V_2 alone was responsible for V_2 movement to V_1 , there is a possibility that some rather more subtle phonological deficiency in the V_1 could have resulted in the attraction of V_2 to the V_1 . It has long been noted that Chinese early on developed an increased tendency for bi-syllabic compound-type elements in places where mono-syllabic forms had previously often occurred, and frequently given explanations for this increase in bi-syllabicity significantly relate it to some other process of other phonological decay. A number of researchers (e.g.,

-
- (iii) a. *John painted t_i red the door $_i$.
 b. John painted t_i red all the doors which face northwards $_i$.

¹⁷ Directional V_2 's do however lose their tone when occurring in RVC's.

Karlgren 1923, Wang 1980, Norman 1988) have pointed to the fact that Chinese underwent a large-scale simplification in its syllable structure from being (C)(C)V(C)(C) to (C)V(C) and noted that the immediate decrease in the number of contrasting syllables available led to an increase in ambiguity among mono-syllabic words. It is then suggested that in order to compensate for this increased ambiguity, many earlier monosyllabic words came to be bi-syllabic, with the addition of a second syllable serving to disambiguate otherwise similar mono-syllabic words. A more recent and interesting treatment of the increase in bi-syllabic words along the same basic lines is found in Feng (1998). Feng agrees that the increase in bi-syllabic words in Old Chinese was most likely due to the simplification of the syllable structure, but argues against the view that it was increased ambiguity which caused the growth of bi-syllabicism. Instead it is argued that simplification of the syllable structure led to the occurrence of a changed prosodic structure in which new mono-syllabic elements may no longer have been heavy enough to form minimal independent prosodic units/feet. Feng claims that consequently the new prosodic system required that a prosodic foot be formed by not just one but two syllables, this leading directly to the increase in new bi-syllabic words.

Either the more traditional view relating to ambiguity or that proposed by Feng could clearly be used to attempt to account for the change in RVC's and the re-positioning of V_2 adjacent to V_1 . It has also been suggested that mono-syllabic V_1 verbs may have become either too potentially ambiguous or have been prosodically too light to stand on their own and that re-positioning of the V_2 adjacent to V_1 would

have served as a means to overcome this deficiency, creating unambiguous phonologically legitimate bi-syllabic resultative compounds (as proposed in Frank Li (in prep). Note that similarly ambiguous or phonologically weak mono-syllabic V_2 elements would also have arguably benefited from such a re-positioning.

Despite the possibility of a phonological account of the creation of V_1 - V_2 forms however, there are several reasons to be suspicious of such a mode of explanation. First of all, if main verbs essentially became either too ambiguous or prosodically too light to stand alone and unsupported, it is not clear why a resultative V_2 and not other elements should have necessarily been selected as the means to overcome such a phonological deficiency. If mono-syllabic main verbs became too light or ambiguous on their own, one might expect that the NP *object* of the verb could have been re-phrased together with the verb to create a prosodic unit with enough weight to stand alone. It is certainly true that a significant number of verb-object compounds do exist in Chinese so one might expect verb-object re-phrasing to have been the most naturally available solution to overcome any phonological weakness in a monosyllabic verb. The presence of the object with the main verb would have also arguably overcome any ambiguity present. Another option which could have been made use of would have been to add a second verb with a similar meaning to the first resulting in sequences. Such a 'strengthening/disambiguating' strategy may seem to have been made use of with nouns (e.g., *dao-lu* 'way-path') so could have been a natural means to strengthen/disambiguate verbs as well: such as *da-ji* 'hit-strike' and *guan-kan* 'view-watch,' etc. Nevertheless one finds that instead

of these options it is a specifically resultative V_2 which becomes added to the main verb and the obvious potential for the object of a verb to strengthen it seems to have been curiously ignored, which is very puzzling. If one reflects on the fact that [V_1 Object V_2] sequences became [V_1 V_2 Object], it is not at all clear why the presence of the object as a second mono-syllable adjacent to the V_1 could not have been enough to support it and the V_1 specifically required the re-positioning of the V_2 to provide it an extra syllable. One would certainly not expect any phonological deficiency to be so semantically selective.

Furthermore if monosyllabic elements became too weak to stand as legitimate prosodic units in Old Chinese and this triggered the creation of V_1 - V_2 forms, one would expect to find the necessary presence of bi-syllabic units throughout the language; however, singular pronouns and a large number of adverbs did not obligatorily add on second supporting syllables. As the suggested dramatic change in phonological structure should have affected all phonological units in the same blind way, the particular increase of V_1 - V_2 resultative forms tends to stand out as somewhat odd. Note also that it is indeed phonologically legitimate for monosyllabic verbs to stand licensed in sequences of [V_1 Object V_2] in Chinese if they have a non-resultative purpose interpretation, as shown in (103). This again indicates that there is nothing ill-formed in such strings from a phonological point of view:

- (103) (wo qu) [VP [V₁ mai] [OBJ dongxi] [V₂ chi]]
 I go buy things eat
 'I am going to buy something to eat.'

A third reason to be wary of any claim that a change in the prosodic structure directly triggered the re-positioning of V₂ to V₁ is that dramatic phonological change of this type (i.e., movement of V₂ over the object to V₁) in general tends to *follow* on from some underlying syntactic change rather than precede and bring about new syntactic forms/changes (see e.g., Harris and Campbell 1995). So if there are phonological changes in V₁-V₂-NP resultatives, they would have in principle occurred *after* the repositioning of V₂; the phonological changes do not trigger the repositioning of V₂.

Finally, and possibly most significantly, there is a telling and important time difference between the suggested rise of bi-syllabicity in Chinese and the formation of V₁-V₂ resultatives. Packard (1998), Feng (1998) and others report that the noted shift from mono-syllabic to bi-syllabic words began at some time during the Zhou dynasty around 1000-700 BC, and that this turned into a sharp increase in bi-syllabic words during the Han dynasty (206 BC–220 AD). Feng argues that the prosodic changes responsible for the increase in bi-syllabicity also largely occurred around the Han period. This being so, if V₁-V₂ forms did result from the need for mono-syllabic main verbs like other mono-syllabic elements to be supported by a second syllable, one would clearly expect that V₁-V₂ resultatives would have been formed at the time when other mono-syllabic elements became bi-syllabic--i.e., during the Han period.

However, it is well-reported that the critical change from [V₁ Object V₂] to [V₁-V₂ Object] resultatives only came about in the Tang dynasty (618-907 AD) and that [V₁-V₂ Object] only fully replaced [V₁ Object V₂] sequences in the Song dynasty (960-1279 AD) which is well over 700 years later than the Han period and the time of the suggested change in prosodic/syllable structure. This seems to cast seriously in doubt any possibility that early phonological changes leading to necessary bi-syllabism was the trigger for the change from [V₁ Object V₂] to [V₁-V₂ Object]. It seems that [V₁ Object V₂] forms in fact existed quite legitimately for many centuries after the general switch to bi-syllabic forms in the Han period, and therefore that the change to V₁-V₂ resultatives arguably must have some other non-phonological trigger and explanation.

5.3.2 *V₂ Elements as Verbal Suffixes*

One important aspect of the approach towards RVC's being developed here has been to highlight and focus in on the obvious parallels with ongoing changes in the *shi-de* construction. In both RVC's and *shi-de* forms a sentence-final element (V₁/*de*) repositions itself over the object, targeting the main verb, and settles in a position right-adjacent to the verb as in (104):

- (104) a. V₁ Ob V₂ → V₁ V₂ Ob
 b. V Ob de → V de Ob

Such clear and striking similarity in the change in both constructions suggests that some common re-structuring process is indeed likely to be responsible for both the

earlier RVC change and the present re-analysis in *shi-de* forms. Considering how we approached the latter construction in chapter four, we essentially first noted the positional change with *de* in northern dialects of Mandarin and then worked our way on to various claims about restructuring in *shi-de* forms. Observing from a range of data that *de* appears to be developing into a verbal suffix of some kind, we reflected on the kind of verbal suffix this was likely to be, and subsequently came to the conclusion that *de* is undergoing re-analysis as a past tense morpheme suffixed to the verb.

Supposing now that the linear re-positioning in RVC's and *shi-de* forms does indeed reflect a common restructuring process and that sentence-final V_2 elements in RVC's targeted the verb in the same essential way that *de* is currently doing, the natural conclusion to make then would be that resultative V_2 elements in the Tang/Song dynasty underwent re-analysis as verbal suffixes. Having furthermore spent time clearly motivating an earlier re-analysis of V_2 elements as heads of an Aspect phrase, the parallel with *de* might really seem to become very clear and in both cases a functional head with a verb-related meaning would be re-analyzing as a verbal suffix, (past) tense in the case of *de*, completive aspect in the case of V_2 elements in RVC's. It is also cross-linguistically common for tense and aspect to be encoded via suffixes on a verb, and so the suggestion that V_2 elements which were re-analyzed as Aspect ultimately came to be encoded as verbal suffixes would seem to be rather natural from a very general cross-linguistic perspective too.

However, despite the intuition that suffixation of V_2 as Aspect is both generally plausible as an ultimate description of V_1 - V_2 pairs and that such a change is also specifically motivated by the parallels with *de*, there is nevertheless still much to explain here. First of all and as mentioned earlier, V_2 elements are phonologically not obviously reduced or weakened, and so in this regard not so immediately like suffixes. Secondly, it is also not fully obvious that re-positioning of the V_2 to V_1 was actually the result of *movement* of the V_2 to V_1 , as might be initially assumed. Thirdly, although movement of *de* to the verb is possibly consistent with *de* becoming a tense suffix, it does not really *explain* this movement. It should be remembered that evidence was presented indicating that sequentially *de* first undergoes re-analysis in its sentence-final position and then raises up to the verb; having successfully re-analyzed as tense, it is not entirely clear why *de* should then subsequently need to raise to the verb. Noting that *de* is a clitic element, it could be suggested that this simply reflects a re-alignment of what its target host element is specified to be. That is, as an enclitic *de* has to target some phonological host for support, and if it encodes a classically verbal property such as tense then it may be natural for it to specify the verb as its target-host. Such a clitic-based explanation is however unavailable for the V_2 re-positioning for the noted reason that V_2 elements are not obviously clitic-like. Quite generally then there is a significant difficulty in understanding why V_2 should have raised to V_1 . Remember that the analysis developed so far has argued that V_2 elements were first re-analyzed as instantiating a sentence-final Aspect head, and critically it was argued that as such aspectual heads

the V_2 -Asp elements became operators which apply their function to entire VP predicates. Such scope over the VP was therefore taken to be encoded by V_2 -Asp selecting VP as its (sole) argument and projecting this in its Specifier position. Given therefore that such a configuration with V_2 in the head of AspP naturally corresponds to the scope and selection relation between V_2 and the VP, the obvious question in need of an answer is why V_2 would re-position itself and adjoin instead to the V_1 -head. Such a re-adjustment might seem to represent a *decrease* in its scope, with V_2 c-commanding and having scope only over V_1 rather than the whole VP. A similar criticism could be possibly made of the encliticization of *de* to V^0 --tense is an operator which takes a predicate as its argument and this is naturally represented in the structure with *de* in T^0 and the VP in its Specifier. If *de* re-positions to adjoin to V^0 this might again seem to represent a decrease in its scope to just the V^0 , so there is clearly much to explain here.

5.3.3 *V₂ Elements Do Not Undergo Raising to V₁*

In what follows I will argue that the surface re-positioning of V_2 to V_1 did indeed directly result from the aspectual properties of V_2 as Asp and does also represent V_2 -Asp turning into a verbal suffix. I will however claim that this re-positioning did not occur as the result of any movement of V_2 to V_1 but arose due to natural V_1 - V_2 adjacency. It will be suggested that due to focus on the V_2 representing completion the object in such RVC's is frequently old information and therefore either fronted to a pre-verbal position or null as a *pro*, resulting in V_2 being linearly adjacent to V_1 .

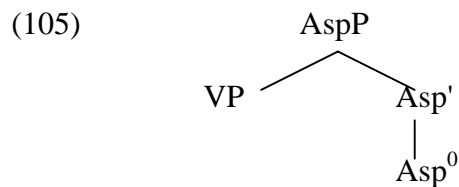
Such natural adjacency is then argued to lead later generations of speakers to re-analyze the V_2 -Asp in V_1 - V_2 pairs as an aspectual suffix attached to V_1 in the lexicon. The critical motivation for such a re-analysis is then suggested to be *directionality*--re-analyzing V_2 -Asp as a suffix results in speakers constructing an analysis in which the suffix V_2 -Asp is licensed at LF by a higher AspP generated to the *left* of VP, with VP as its *complement*. Such an analysis then effectively serves to re-align the AspP in synchronization with the general head-initial direction of selection in Mandarin Chinese. Prior to this the earlier sentence-final AspP is shown to have grammaticalized in a way which was in disharmony with the canonical direction of functional selection, and re-interpretation of V_2 -Asp as a suffix represents a natural correction made by speakers having a default head-initial parameter setting in their language.

An important assumption made in the approach here is that there is constant pressure towards uniformity in the directionality of selection in a language and that languages are indeed canonically either head-initial or head-final. Such a view of directionality is essentially present from the time of Greenberg (1963) through other early typological work in Lehmann (1973), Vennemann (1974), Hawkins (1979) and continued on in Chomsky (1981) and other more recent work. At least among the earlier typologists, the view is also commonly held that if a language somehow exhibits a structure which goes against the basic directionality of selection in a language, there will be a general pressure for the language to re-align such a structure in harmony with the canonical direction of selection. Vennemann (1973)

talks of a Principle of Natural Serialization as a force which operates to restore consistency in languages which become 'inconsistent' (i.e., not uniformly head-initial or head-final) as the result of external influence or disruptive language-internal change. Lehmann (1973) also argues that if inconsistency creeps into a language then there will be pressure for this inconsistency to be corrected, and Hawkins (1979) proposes that a Principle of Cross-Category Harmony will similarly lead to languages re-aligning any non-uniform directionality. Commenting on the above proposals, Mallinson and Blake (1981, p.417) point out that correction of this type may be explained in terms of natural economy, and that it leads to a reduction in category/word-specific rules: "A disharmonic language requires more category-particular ordering rules and thus the grammar of such a language is more complex." In more recent work, Audrey Li (1990) and Travis (1984) seek to explain deviations from expected orderings by considering the possible interactions of case and theta theory, while Kayne (1994) suggests that apparent ordering inconsistencies are in fact surface distortions of an underlying universal SVO/head-initial order which result from often large-scale movement operations. Descriptively, much research has shown that languages do tend to follow either a consistent head-initial or head-final ordering and that there would seem to be internal pressure for all categories to conform to the basic directionality present in a language.¹⁸

¹⁸ An interesting case here is Amharic as reported by Comrie (1989). Amharic having originated as a classically head-initial Semitic language, migration of the Amharic-speaking people to a head-final Cushitic-speaking area resulted in change in many of the basic orderings, due to the external influence of the Cushitic languages. Pressure for uniformity has now led Amharic to become head-final in just about all its category types, preposition-NP ordering being the sole residue of the earlier head-initial order.

The sentence-final Aspect projection argued to have arisen in Chinese as a natural result of V_2 elements being re-analyzed as instantiating completive aspect can now be suggested to be in potential conflict with the general directionality of functional/complement selection in Chinese. When the sentence-final AspP was initially proposed, we took as a model the structure assumed for *de* in the TP after re-analysis, and suggested that the argument VP selected by V_2 -Asp is projected in the SpecAspP position. The parallel pointed to with TP headed by *de* was that the predicate complement of T^0 -*de* becomes raised into SpecTP. It therefore seemed to be a reasonable suggestion that the predicate complement of V_2 -Asp might similarly be simply occurring in a Spec position, likening this to in essence to unergative intransitive verbs which are taken to project their sole argument NP in a Specifier position. However, I would now like to argue that such a suggestion needs to be re-assessed and that the label 'Specifier' here is actually rather deceptive. Consider again the basic structure which has been proposed for AspP:



What needs to be reflected on is the way in which the term 'Specifier' is understood and the way in which a Specifier is licensed in the projection of a head. Canonically it might seem that a Specifier has the following general properties:

(106) Specifier properties

- a. a Specifier is an XP position
- b. the XP in the Spec position is either directly selected by the Y^0 -head of YP if base-generated there, or agrees with the Y^0 -head if moved to the Spec position.
- c. the Specifier closes off the YP
- d. the Specifier is built into the YP *after* the complement of Y^0 is combined with Y^0 .

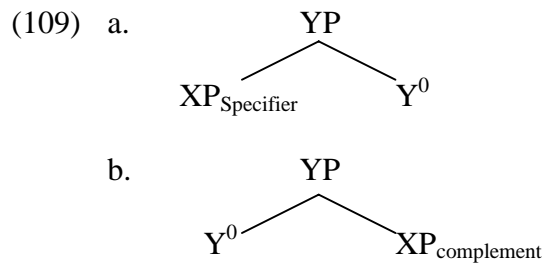
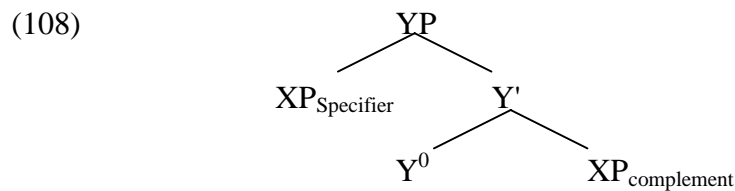
Complements, have the general properties in (107):

(107) Complement properties

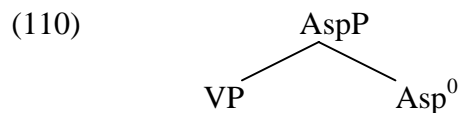
- a. a complement is an XP
- b. the XP is directly selected by the Y^0
- c. the complement is combined with its selecting head Y^0 as the first branching sister of Y^0 .

Abstracting away from the issue directionality in the projection of Specifiers and complements, it might seem that in one sense a Specifier is only really different from a complement in virtue of being built into a projection critically *after* the complement of the head has been combined with the head. Both Specifiers and complements are maximal projections commonly selected by the head of a projection; the Specifier simply happens to be inserted into the structure at a point later than the complement. While such an ordering relation does indeed result in a clear hierarchical difference when both complements and specifiers are projected as in (108) (assuming a Spec-initial complement-final pattern for illustration), if a head were not to project any complement, the difference between a Specifier and a

complement becomes less obvious. If indeed one follows assumptions commonly-made in recent work that a node is not projected unless it is genuinely branching (i.e., there should be no vacuous non-branching nodes (see Chomsky 1995a and references therein)), then configurationally the difference between complements and Specifiers reduces further, as illustrated in (109):

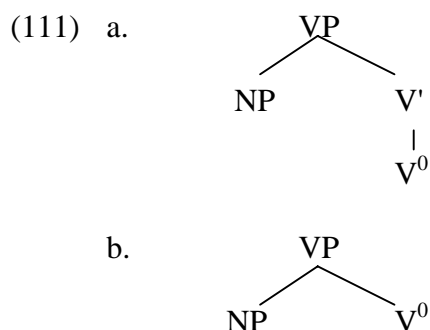


Now, considering the structure for AspP in (105), Asp⁰ is a head which is suggested to have a Specifier which hosts the single argument of Asp⁰ (the VP) and will therefore never have a complement branching off Asp' to its right. If the Asp' node should therefore not be projected (due the no vacuous branching nodes constraint), (105) should instead actually be represented as (110):



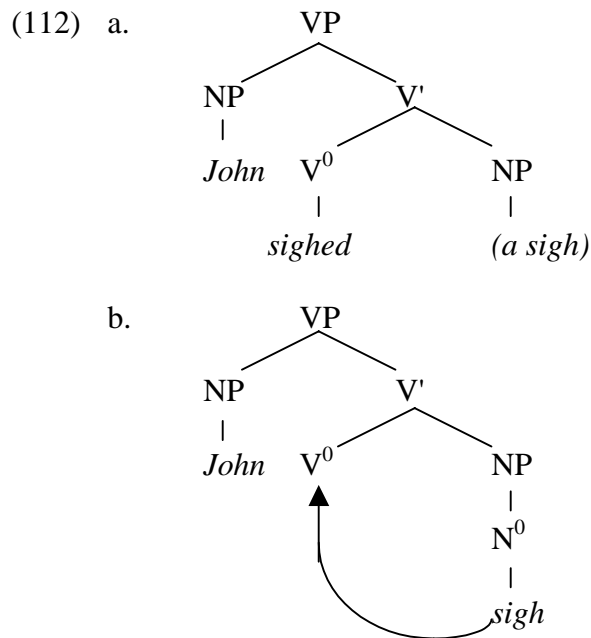
I would now like to suggest that in such a structure, where the head Asp⁰ importantly *never* projects any complement XP off an intermediate Asp' level, that the leftward

branching XP (i.e., the VP) can no longer be determined as a Specifier but is instead itself interpreted as a *leftward-branching* complement. In other words, one might suppose that a Specifier is a relation which may possibly depend on the potential existence of a complement XP, so that an element can only be functionally determined as a Specifier if there may also occur a hierarchically lower complement XP. Here in the AspP projection, the VP is essentially so similar to a complement of Asp^0 that although we have been referring to it as a Specifier, in fact in the structure in (110) it gets actually interpreted as a complement. Note that the structure in (108) and (109) had two particular models: (a) *de* with VP in SpecTP, and (b) unergative intransitive verbs. In case (a) the VP was certainly originally raised to SpecTP from regular complement position and so T^0 did have a complement (therefore VP could be determined as a legitimate Spec for a time). In case (b) it might be assumed that unergative verbs have a structure such as (111a), assuming English as the relevant language here. If a no vacuous non-branching nodes constraint is adopted, this should then be represented as (111b):



In (111b) this should mean that the NP cannot be determined as a Specifier and should be interpreted as a complement, making it an exceptional head-final structure

in a language such as English. However, in recent work (e.g., Hale & Keyser 1993) it has been argued that unergative intransitive verbs do in fact have complement NPs in addition to Specifier subjects. One may either assume that unergative verbs have null cognate object type complements so that an example such as: 'John sighed' is interpreted as: 'John sighed a sigh.,' or one may suggest that 'John sighed.' is possibly derived via incorporation of the N⁰ head of an object NP 'sigh' into V⁰, represented as (112a) and (112b) respectively:



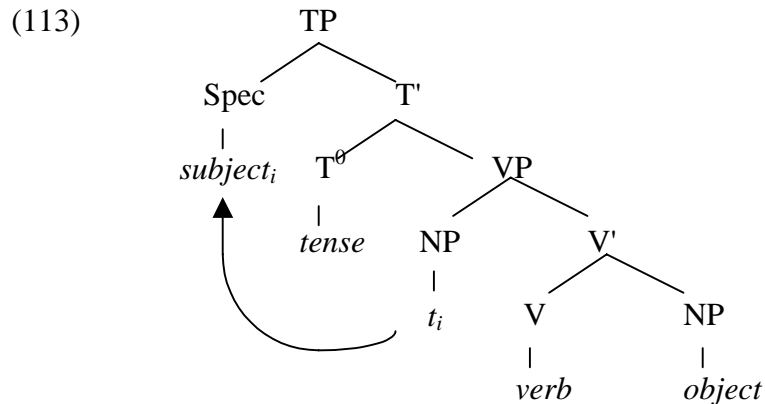
In either case there would be no head-final structure as the subject NP could be legitimately determined as a Specifier due to the existence of the complement NP.

Returning to Chinese (110) now, I would like to maintain that such a structure is indeed interpreted as being head-final, with the VP failing to be determined as a Specifier and instead being interpreted as a leftward projected

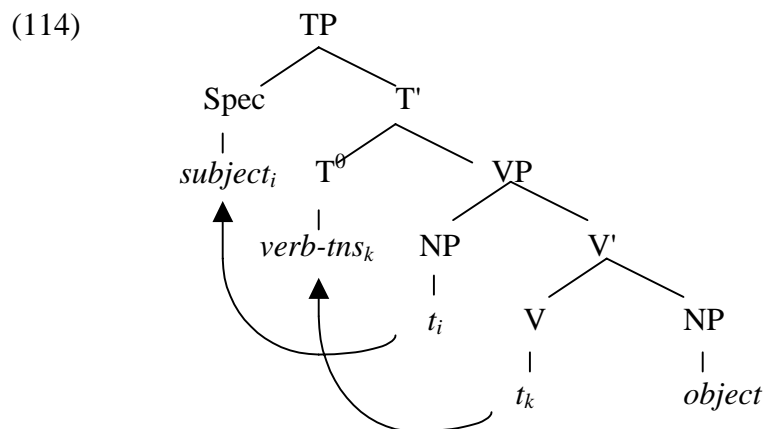
complement. Having argued in chapter three that Chinese is essentially a head-initial language, and having noted in this section that languages will tend to be either head-initial or head-final wherever possible, the grammaticalized AspP clearly goes against the general headedness and directionality of complement selection in Chinese. Assuming there to be pressure towards a uniform directionality of headedness, one might naturally imagine that structures such as (110) would then be under pressure to be re-analyzed in a way conforming to the head-initial parameter if the opportunity for this arose. I will now attempt to argue that such directionality considerations are exactly what motivated the re-positioning of V_2 to V_1 and show how re-alignment of the structure in a head-initial way was indeed able to take place.

In a Minimalist (Chomsky 1995b) approach to morpho-syntax, X^0 -level functional morphemes which correspond to syntactic head positions are taken to be base-generated either as independent word-level elements actually in the relevant head positions or alternatively as affixes attached to other (generally) lexical X^0 -level elements. If an element is base-generated as an affix on a lexical head but instantiates a functional category (such as for example tense), it is assumed that the element (or the formal features it carries) will undergo raising from the base-generated lexical head position to a relevant higher functional head position to be licensed at some point in the derivation. Concretely this allows for three possibilities, illustrated in (113-115). Considering here the example of a functional morpheme instantiating tense and how it occurs and is licensed in syntactic structure, if the tense morpheme is a free standing word, it may be base-generated separately

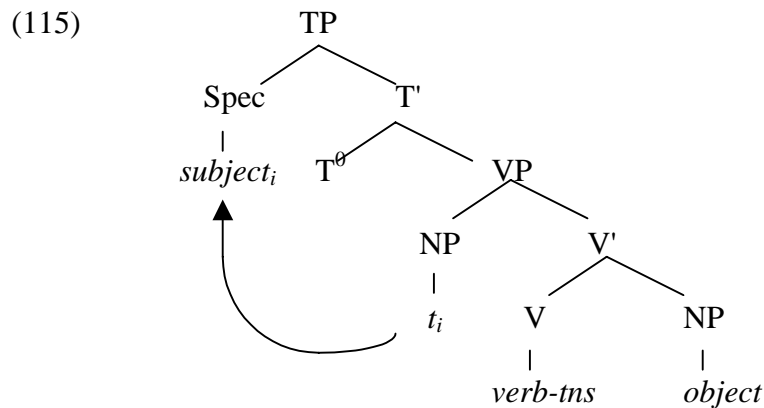
from the verb and directly in the tense head T^0 as in (113). It will therefore be licensed directly in this base-generated position. (113) is modeled on an SVO language with overt subject raising:



A second possibility is if the tense morpheme is an affix, it will be base-generated attached to the verb in the lexicon and then inserted together with the verb in V^0 . If the licensing of tense has to be effected in the overt pre-Spell-Out syntax in a language, this will then trigger overt raising of the verb-tense combination to T^0 as in (114):



The third possibility occurs when the tense morpheme is base-generated as an affix on the verb but licensing of tense does not have to be effected in the overt syntax. Here it is assumed that the verb+tense affix (or the formal features present in the tense morpheme) will undergo covert post-Spell-Out raising to T^0 to be licensed/feature-checked at some point prior to LF. (115) represents the Spell-Out structure of this possibility with the verb and its tense affix still *in situ* in V^0 . Raising of the verb-tns combination to T^0 will occur later at LF:

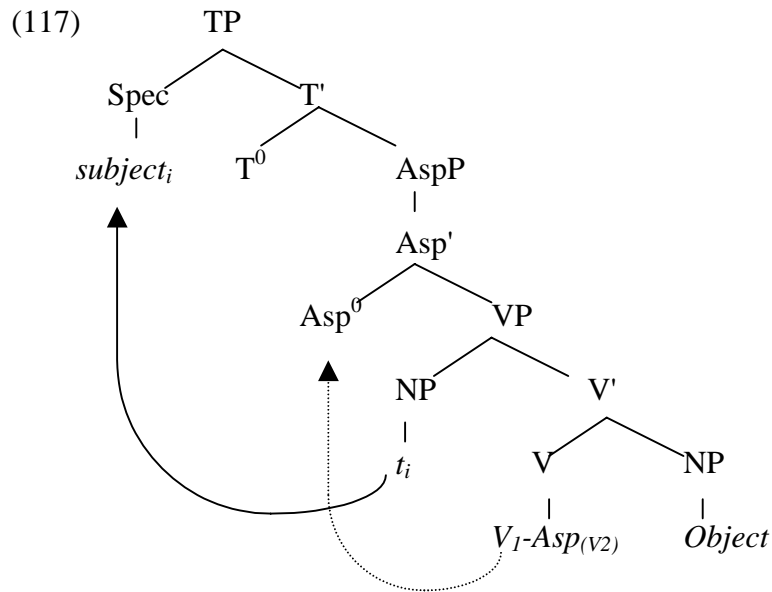


Returning now to Chinese RVC's, the analysis of V_2 -Asp elements as occurring base-generated in a sentence-final Asp^0 essentially corresponds to the situation in (113)--the functional morpheme occurs as a free-standing word directly in the relevant licensing functional head, and this has been argued to lead to interpretation as a head-final structure in disharmony with the head-initial parameter-setting in Chinese. Supposing however it were to be possible for V_2 -Asp elements to be somehow re-interpreted as aspectual suffixes attached to the V_1 in the lexicon, it could then be assumed that the V_1 -Asp unit is inserted directly into V^0 . Due to the occurrence of the V_1 -Asp unit to the right of VP-type adverbials such as *manmarde*

'slowly' (see example in (31)), it would then be assumed that the aspectual suffix is licensed later at LF, this corresponding in essence to the third possibility above where tense is licensed by LF-raising of the *verb-tns* unit to T^0 in (115).

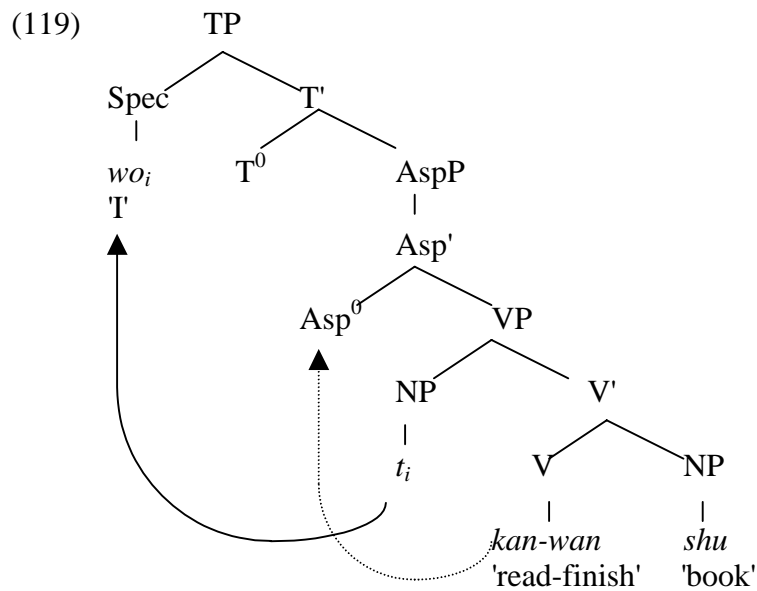
- (116) ta man-manr-de xi-ganjing-le yifu
he slowly wash-clean-LE clothes
'He slowly washed clean the clothes.'

Significantly it then becomes possible to assume that the AspP projection which will license the aspectual suffix at LF in fact occurs as a fully regular head-initial functional projection selecting its VP argument in the canonical rightward direction. This is represented in the Spell-Out structure (117). It is assumed that the V_1 -Asp unit (or the formal features of the Asp-suffix) will then at LF undergo raising up to the licensing Asp^0 -head (and maybe also higher to T^0), this now being represented by a broken line in (117). TP is included in the structure in order to place the subject; I return to consider the status and instantiation of TP and other higher functional projections in chapter 6. Note that I also do not include verbal *-le* here as this is examined in depth in chapter 6.



(117) if instantiated with lexical items would result in (119) corresponding to the simple string in (118):

(118) (yaoshi) wo kan-wan shu, ...
 (if) I look-finish book
 'If I finish reading the book, ...'



Importantly then, re-analysis of V_2 -Asp as a suffix attached to V_1 in the lexicon and licensed via LF raising to Asp^0 would critically allow for the grammaticalized sentence-final AspP to be re-interpreted as a regular harmonic head-initial structure. I will now suggest that certain aspects of the resultative construction conspiring with general properties of Chinese in fact made such a re-analysis of the V_2 -Asp as a suffix very easy to arrive at.

Earlier it was suggested that an important aspect of the earlier re-analysis of V_2 as completive aspect occurring in Asp^0 was that the focus in RVC's came to be squarely centered on the completion of the event represented by V_2 . Such emphasis on the V_2 has been frequently pointed out (e.g., Li & Thompson 1981) and, as noted earlier, may well have arisen naturally due to the sentence-final position of V_2 in early Chinese, sentence-final position attracting a natural focus. Now, if the V_2 element does indeed encode the focus in RVC's, this will have a consequence that the object of the verb will normally not be taken to be in focus. This will in turn mean that the object in RVC's will frequently be old and given information rather than represent a newly-introduced NP (which, being new information, would constitute a focus). Consequently, commonly being old information, the object of the verb will often be represented either pronominally and hence normally by a null *pro* element in Chinese, or as a topic fronted to a sentence-initial position. It is also suggested in Li and Shi (1998) that many V_1 -O- V_2 occurrences in the Song dynasty were later replaced by verb-copying, *ba*-preposing of the object and object topicalization in

order to prevent the intervention of the object in between V1 and V2. We can represent these instances abstractly in (120).

- (120) a. Subject V1 (pro) V2
b. Subject V1 O V1-V2
c. Subject ba-O V1-V2
d. Topic_i Subject V₁ (t_i) V₂

The result of such representation of the object in earlier [V₁ Object V₂] sequences will be that the V₁ and the V₂ are effectively heard linearly adjacent to each other. It can now be suggested that such frequently occurring linear adjacency of V₁ and V₂ would naturally allow for V₂ to be re-analyzed as a suffix attached to V₁ rather than being taken as base-generated in an independent head position. Consequently, suitable conditions for a re-analysis of V₂ in a way which would automatically permit a head-initial re-alignment of AspP were indeed arguably quite naturally available in the language. I would therefore like to suggest that general pressure for uniformity in the direction of selection combined with frequent occurrence of linearly-adjacent V₁-V₂ led speakers in the late-Tang and Song periods to re-analyze V₂-Asp as a suffix on V₁ in the way outlined. These speakers may then have formally reinforced the re-analysis by themselves producing new RVC's with objects occurring in situ in post-V₂ positions. In other words, speakers during the period of change can be suggested to have had frequent input of forms with objects either in pre-verbal position or phonetically null and from such data re-analyzed the V₁-V₂Asp linear sequences as verb-suffix units occurring in V⁰. Following this, such speakers

with a re-analyzed interpretation of V_{2-Asp} as a suffix would have then deduced that if an object were to be both overt and in situ, then it should occur *following* the V_1 -Asp unit. Such a hypothetical process of re-analysis would then eventually have led the new generations of speakers to produce forms with overt objects following V_1 - V_{2Asp} units.¹⁹

Note that in such an analysis one does not in fact need to assume that any movement of V_2 over the object to V_1 ever actually occurred and the whole sequence of change is simply the result of different generations of speakers re-analyzing what they hear in rather different ways. Whereas it was noted that the 'movement' of V_2 to V_1 largely remains unexplained in other syntactic accounts of RVC's, here with the suggestions made above and following careful justification of each step of the argumentation it has finally been possible to reach a rather natural explanation of the critical re-positioning of V_2 . The suggested account therefore achieves the important joint goals set out earlier in section 5.1 of explaining both the historical re-positioning of V_2 and the current syntactic status of V_1 - V_2 RVC's, and doing this in a

¹⁹ It should be noted that (rather unsurprisingly) reference to certain resultative V_2 elements as suffixes has in fact been made elsewhere, though largely without much justification. For example, Smith (1997) simply states that: 'Mandarin marks the distinction between telic and atelic verb constellations with verb suffixes known as Resultative Complements.' (p.43). There is no further qualification of use of the term suffix, nor any discussion of whether it is intended to refer to just phases or more literal V_2 's as well. In Starosta, Kuiper, Ng & Wu (1998) there is also suggestion that certain phase-type V_2 elements may be considered to be suffixes on the grounds that they are not elements which encode literal predication on any NP (precisely as argued here). However, there is no proposal that any unifying property (such as telicity/aspect) might possibly link these elements together as a single functional group and so the conclusion is simply that any non-predicating V_2 should by default be classed as a suffix. The critical question of why literal V_2 's might pattern syntactically in the same way as phase V_2 's is also not touched upon. Here the attempt has been made to develop a unified treatment of literal and phase V_2 's both from a historic and a synchronic point of view and provide a principled account of precisely why the modern structures may exist as they do. For further general discussion of the possibility that V_2 elements in the V_1 - V_2 -Object sequences may be aspectual verbs, see Wang (1990) and Mei (1994).

way which links the two together in a principled and natural way. The analysis now developed has taken the three properties of RVC's identified as critical in section 5.2.1, notably (a) the lack of necessary predication between V_2 and the NP 'object,' (b) the telic bounding property of V_2 , and (c) the historical re-positioning of V_2 , and suggested how these interact in important ways to result in the present day V_1 - V_2 resultative. It has been suggested that there were in fact two stages to the re-analysis process. First, increased focus on the completive function of V_2 led to its re-analysis as instantiating a sentence-final Aspect head and allowed in non-predicative phase V_2 elements. Later, V_2 was re-analyzed as an aspectual suffix attached to V_1 in the lexicon and raised to Asp^0 for licensing in the covert syntax, this being fully in line with recent Minimalist assumptions concerning morpho-syntax.

In such an analysis with V_{2Asp} added to V_1 in the lexicon and inserted together as a unit in V^0 , the V_1 - V_2 pairs are essentially formed rather like complex-predicates, as a single verbal element combining the properties of two discrete morphemes, the main activity verb and the aspectual V_2 element. Consequently it is now fairly straightforward to suggest that any predicational properties which the V_{2Asp} might have in addition to its critical aspectual function may be simply added to those of the main V_1 . If there are lexical descriptive properties inherent in the V_{2Asp} which apply to the object (as with 'literal' V_2 's), then these can be applied to the object in a natural way from within V^0 . Given that there are possibly a range of restrictions on the ways that V_1 - V_2 pairs may be interpreted, I would now like to suggest that Yafei Li's (1990) rather successful lexical account of the way the

predicational structure of V_1 and V_2 is merged together may now be adopted and taken up into the present analysis which takes V_2 to be *primarily* a functional aspectual element with *possible* additional lexical content/contribution. As noted earlier and stressed several times, there are numerous V_{2Asp} elements which are *purely* functional and it was suggested that the V_{2Asp} group is syntactically licensed in virtue of its functional contribution. Consequently V_{2Asp} elements will not necessarily have to contribute any descriptive properties in V_1 - V_{2Asp} pairs--any lexical/descriptive properties which are present may be interpreted subject to the set of constraints presented in Yafei Li (1990), but all of the V_{2Asp} group will be formally licensed by the aspectual contribution.²⁰

5.4 Related Consequences to Other Structures

From a general point of view, it has been suggested that in certain circumstances structures might in fact naturally grammaticalize in a way which is ultimately in conflict with the general direction of selection in a language. It was also suggested that in such cases there will be pressure for these structures to be re-analyzed in a way which does conform with head-parameter setting in the language. As part of the

²⁰ Note that Wang (1990) and Mei (1994) also suggest that wherever a V_2 element from an earlier V_1 -Obj- V_2 form occurs re-positioned before the object in a new V_1 - V_2 -Obj sequence, this V_2 element is an aspectual morpheme. The present analysis attempts to provide a principled explanation for exactly how such a reanalysis may have taken place. In view of the fact that V_2 elements could occur in V_1 -Obj- V_2 sequences without there being any predication relation between V_2 and the object, such patterns strongly suggest that V_2 elements grammaticalized as functional aspect heads in final position prior to re-positioning and suffixation to V_1 . The latter re-positioning of V_2 in the present analysis occurred as a direct result of the re-analysis of V_2 as a functional category in final position. In this sense the *surface reflex* of re-analysis, i.e., suffixation of V_2 to V_1 , consequently occurs *after* the underlying syntactic re-analysis. Such a sequencing of surface reflex following initial re-analysis is suggested to be quite common in diachronic change (see Harris and Campbell 1995).

argumentation here, it was proposed that elements may become functionally determined as Specifiers only if there is a hierarchically lower complement present. In the absence of such a complement the 'Specifier' may instead become functionally determined as a complement itself. If this element then branches in a direction which does not coincide with the general direction of complement selection, the result will be that the structure constitutes an exception to the general headedness directionality in a language and will be under pressure to undergo re-analysis. Reflecting on this idea of functional determination of the Specifier relation, one might now reconsider certain other cases which could seem to be counter-examples to such a proposal. Although we noted that unergative verbs may be analyzed as having null cognate objects (or to arise via N-incorporation into V^0 and hence derivationally have a complement position present), one might wonder about the structures projected with relative clause *de* and the Taiwanese complementizer *kong*; in both such cases there is a large predicate-like element in the 'Specifier' of a functional head (D^0 and C^0 respectively) and so they might seem to be similar to the AspP case where the predicate VP occurs in 'Spec'-AspP. However, in relative clauses the D^0 head does indeed have a complement--the CP--and so the leftward IP is in fact legitimately licensed as occurring in a Specifier position. In the case of *kong*, the IP predicate in its Spec is raised to this position from regular rightward complement position, so again the Spec position is legitimately licensed (in virtue of the existence of the lower complement position). What the potential constraint might seem instead to class as exceptional and therefore under pressure to be re-analyzed is

structures in Chinese in which a predicate element is base-generated in the 'Spec' of a functional head which has no other complement. Here one might think of sentential *-le*--if the predicate argument of *-le* is base-generated to its left and *-le* has no other complement then the predicate will be determined as a left-branching complement rather than a Specifier. However, in footnote 14 it was pointed out that there may be prosodic stress-related evidence indicating that the predicate is actually raised to its surface position from an underlying position as a rightward complement, and so this case might also not be an exceptional left-branching structure.

One last non-Chinese case I would like to consider briefly here is that of N^0 elements, and I believe that the hypothetical constraint on Specifier determination might possibly offer some insight into a hitherto unsolved puzzle. Specifically one might wonder whether it is possible for nouns to project a specifier external argument but not a complement. In a language such as English where Specifiers branch to the left and complements branch to the right this would result in an exceptional structure--the 'Specifier' would be determined as a left-branching complement. In this regard, Grimshaw (1990) suggests that only process nominals have a genuine argument structure with external 'subject' arguments and internal complements, and furthermore that the projection of this argument structure is largely optional. What is of particular interest and relevance here is the observation Grimshaw makes that the external subject argument of process nominals may *only* be projected if the internal complement argument also co-occurs and that whereas (121) is fine, (122) with 'John' being interpreted as the agent of the 'examination' is not.

Note that the adjective 'continual' is used to ensure the process nominal interpretation:

(121) John's continual examination of the patients impresses everyone.

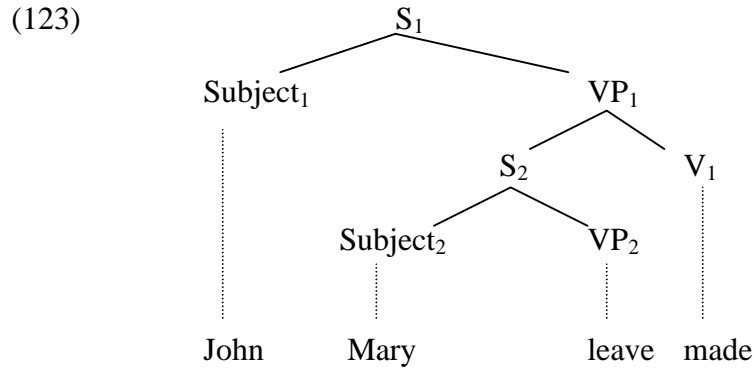
(122) (*)John's continual examination impresses everyone.

(*) = ungrammatical if 'John' is Agent, only acceptable if 'John' is Patient

This interesting fact about the interpretation of process nominals has arguably not been explained in any non-stipulative way since Grimshaw's original observations. However, given what has been suggested above it is actually predicted that (122) should be exceptional with 'John' being interpreted as the external argument of the noun. For 'John' to be interpreted as the external argument it would have to be base-generated in Spec of NP (and then raised to Spec of DP for case). However, if the complement patient NP 'patients' is not projected, the result will be that the subject in NP Spec position will be determined as an exceptional leftward complement. This exceptionality may then explain why (122) is commonly felt to be bad. What is also of interest is that there *is* in fact a legitimate (although not immediately obvious) interpretation of (122). If 'John' is interpreted not as the external *agent* but instead as the *patient complement* of the 'examination,' (122) is relatively acceptable (although perhaps not an immediately obvious interpretation). This is quite possibly a consequence of the 'Spec' position functionally being determined as a complement position in the absence of a true rightward branching complement--the NP base-

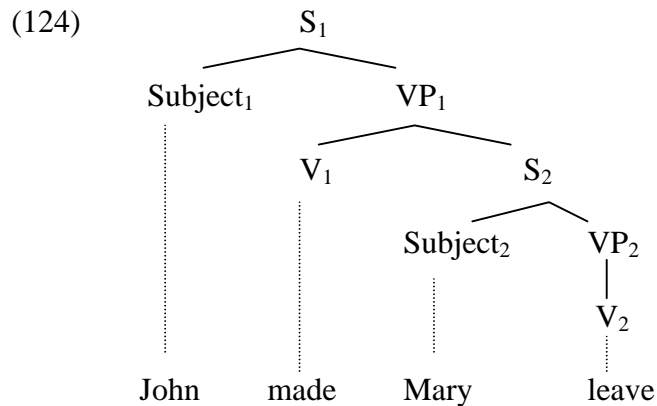
generated in this position actually does get interpreted as if it were the complement of the N^0 -head.

Finally, another general aspect of the account has been to show how suffixation may come about in an SVO type language. Typologically suffixation is extremely common in head-final SOV-type languages and much less frequently found in SVO type languages (see e.g., Greenberg 1963, Dryer 1992). This imbalance is generally explained by the way suffixes arise naturally in SOV-type languages. Most commonly verbal suffixes are grammaticized functional morphemes which originated as independent verbs embedding a clausal complement (which they applied their particular function to). For example, causative suffixes often arise when an embedding verb encoding causation such as 'make/do' reduces and becomes dependent on the main lexical verb in its clausal complement. Such a grammaticalization process is both common and natural in SOV languages for the reason that the lexical verb of the subordinate clause and the functional verb of the higher clause occur linearly adjacent to each other, as seen in (123) (using English words for simplicity; see Mallinson and Blake 1981 for details). (123) is intended to mean: 'John made Mary leave.':



Such adjacency between the lexical verb of the lower clause and the functional embedding verb of the higher clause together with the phonological reduction frequently accompanying grammaticalization of a functional element naturally results in the V_1 becoming phonologically dependent on the verb in VP_2 and re-analyzed as a suffix attached to the verb VP_2 .

With SVO-type languages there is no such adjacency between a matrix verb and the verb of its complement clause²¹, as seen in (124):



²¹ Unless of course the $Subject_2$ comes to be positioned after V_2 in a PP as in certain Romance languages in causatives:

- (i) Jean a fait manger les pommes à Marie. (French)
 Jean has made eat the apples to Marie
 'Jean made Marie eat the apples.' (personal communication, Lina Choueiri)

Consequently the conditions for natural re-analysis of a higher embedding functional type verb as a suffix attached to a lower lexical verb are absent from SVO type languages. The existence of limited suffixation in such languages therefore needs some explanation. Here a commonly adopted approach has been to suggest that suffixation in SVO languages must actually have arisen at a time when the language in question was SOV in its basic word order, and the existence of suffixation in SVO languages is even suggested to be evidence that such languages must have been SOV at some earlier point--see e.g., Givon (1971) on Bantu. However, while such a theory may be justified for west European languages with earlier SOV forms and their origins in Latin, it is very contentious for languages such as the Bantu group which otherwise show no real convincing signs of ever having been SOV. One clear result of the current chapter has been to show precisely how and why suffixation might in fact also arise in SVO type languages, and the analysis developed therefore now allows for potential insights into directionality and suffixation in other head-initial languages.

5.5 English Resultatives--a Speculation

Finally before continuing on in next chapter to consider the nature of verbal *-le* and its relation to resultative sequences, I would like to add certain thoughts about the structure of resultatives such as (125) in English:

(125) John ate the apple up. [V-Obj-Prt]

English resultatives appear to show a number of similarities with Chinese RVC's. First of all there are resultatives in which the element following the object of main verb is an adjective which seems to predicate rather literally of the object in some way, as in (126), and there are also resultatives in which a particle occurs and there is no literal predication relation between this element and the object NP, as illustrated in (127). This split resembles the distinction noted between literal and phase/non-literal V_2 elements in Chinese RVC's:

- (126) a. John washed the plates clean. The plates are now clean.
b. Mary painted the door purple. The door is now purple.

(127) [V-Obj-Prt]:

- a. John ate the apple up. *The apple is now up.
b. John looked the article over. *The article is now over.
c. He thought the problem through. *The problem is now through.
d. He dried the socks out. *The socks are out.

Secondly it has been noted that there are two distinct orders possible with verb-particle resultatives; alongside the [V Object Prt] order in (127) it is possible to use a [V Prt Object] order as in (128):

(128) [V-Prt-Obj]:

- a. John ate up the apple.
b. John looked over the article.
c. He thought through the problem.
d. He dried out the socks.

These two orders possible with V-Prt pairings seem to resemble the past and present orderings of V_1 and V_2 in Chinese RVC's, with the [V Object Prt] appearing like the original [V₁ Object V₂] Chinese type and the [V Prt Object] alternate possibly resembling current Chinese [V₁-V₂ Object] forms, as schematized in (129) and (130).

- (129) a. Old Chinese V_1 OB V_2
 b. English (i) V OB Prt
- (130) a. Mod. Chinese V_1 V_2 OB
 b. English (ii) V Prt OB

It should be noted that this second [V Prt Object] ordering is perfectly natural with verb-particle pairs, but often rather odd and unacceptable with verb + literal adjective sequences:

- (131) ??He painted purple the door.
- (132) ??/*He rode tired the horse.

For this reason I will here restrict my attention to verb + particle pairs, which seem to show more of the patterning found in Chinese RVC's. Such English verb-particle sequences have indeed been studied by numerous investigators, e.g., Curme (1914), Kennedy (1920), Visser (1963), Kayne (1984), Johnson (1991), Hoekstra (1992), den Dikken (1995) and Collins and Thrainsson (1996) among many others, and a variety of different analyses have been proposed (which I will not review here for obvious reasons of space). Now that the present chapter has developed an analysis of Chinese RVC's, and given the apparent similarities with English verb-particle

resultatives, it is natural to wonder whether the account of Chinese might allow for some further new insight into English verb-particle sequences.

Supposing that English verb-particle forms were indeed to be syntactically equivalent to Chinese RVC's, then the particle would essentially be the equivalent of the Chinese V_{2Asp} . The [V Object Prt] sequences might be analyzed as having an underlying structure in which the particle instantiates a completive aspect head Asp^0 with the [verb + object] as a VP projected in Spec of AspP. Other [V Prt Object] forms if directly paralleling the analysis of Chinese might then have resulted from re-analysis of the particle as an aspectual suffix attached to the main verb and licensed by a higher AspP via LF raising, precisely as outlined for Chinese.

Such an analysis cannot however be correct English, I believe, for two simple reasons. First of all, supposing the particle were to be interpreted as an aspectual suffix in [V Prt Obj] forms, this would result in a morphological sequence in (133):

- (133) [verb-stem + tense-suffix + aspect-suffix]
- | | | | |
|-------|-----|------|---------------|
| look- | -ed | over | (the article) |
| dry- | -ed | out | (the socks) |

Such a sequencing would seem to go against the cross-linguistic patterning commonly observed that aspectual morphemes occur closer to the verb stem than tense morphemes. This cross-linguistic patterning corresponds to the assumption that tense projections are structurally higher than aspect projections and that the highest functional projections relate to affixes which are farthest away from the verb stem (essentially Baker's 1985 Mirror Principle). If Tense is universally ordered

higher than Aspect in syntactic structure and if the Mirror Principle (or a Minimalist equivalent) is a universally valid constraint then one should always find the affix order in (134):

(134) expected order following the Mirror Principle

*look-over-ed = V-Asp-Tns

*dry-out-ed = V-Asp-Tns

Secondly, conversion of $[V_1 \text{ Object } V_{2\text{Asp}}]$ forms into $[V_1\text{-}V_{2\text{Asp}} \text{ Object}]$ sequences in Chinese is suggested to have resulted from $V_1 V_2$ adjacency arising naturally through frequent topicalization of an old/definite object and the occurrence of *pro* in object position. As English does not obviously have *pro* in regular object position nor topicalization to the same frequent extent as in Chinese, it might seem that this natural route of change would not be open to English verb-particle structures.

If this is so, it is natural to ask where the English alternation comes from and how it might relate to Chinese RVC's, as there are clear surface similarities. Here I suggest that a potential solution is to be found in considering an additional piece of extremely interesting and revealing historical information which is curiously ignored in most recent analyses of verb-particle constructions. Abundant evidence from Old English recorded in Curme (1914), Kennedy (1920) and Visser (1963-1973) indicates that there was in fact much earlier a *third* alternative ordering of verb, particle and object, in which the particle actually *precedes* the verb as in (135):

- (135) English "type (iii)" resultatives:
particle - verb - object

In fact a fourth variant of this was also apparently possible, with the object preceding both the particle and the verb, as in (136):

- (136) Type (iii) variant
object - particle - verb

Thus there were equivalents to forms such as:

- (137) a. X out dried the-clothes
b. X the-clothes out dried
- (138) a. X up ate the-food
b. X the-food up ate

Certain researchers such as Curme (1914) and Kennedy (1920) suggest that such forms were in fact more common than equivalents in which the object and the particle follow the verb (127) and (128). They also argue that these forms with the particle critically preceding the verb were earlier than the forms with the particle following the verb.

Such an early order in which the particle occurs before the verb is interesting and revealing. If the particle occurs to the left of the verb it could be suggested that the particle is actually in some functional head higher than the VP, hence quite naturally in a (completive) Aspect head. Such a possibility is indeed quite likely to be correct for verb-particle resultatives which occur in the Kartvelian languages as

reported by Harris and Campbell (1995). There it is noted that in Svan there are particles which occur either following the verb as in (139), or alternatively preceding it as in (140). Interestingly when the particles precede the verb they are clearly not prefixed or cliticized to the verb for two reasons. First of all an adverb such as *ud* 'again' may intervene between the particle and the verb as in (141):

(139) acad sga
 s/he.go inside
 'S/he went inside.'

(140) sga acad
 in s/he.go
 'S/he went inside.'

(141) sga ud etqarix yerbats
 in again they.implore God.DAT
 '... again they implore God.'

Secondly, the particles may occur standing alone and unsupported as (affirmative) answers to yes/no questions, as in (142) with the particle *ka* 'out':

(142)	ka acad ma?	→ answer:	ka
	out s/he.go Q		out
	'Did s/he go out?'		'Yes.'

This suggests that such elements are neither raised from some lower position and cliticized to the front of the verb, nor base-generated as verbal prefixes, as if they were clitics/prefixes they should not be able to stand alone without the verb or be

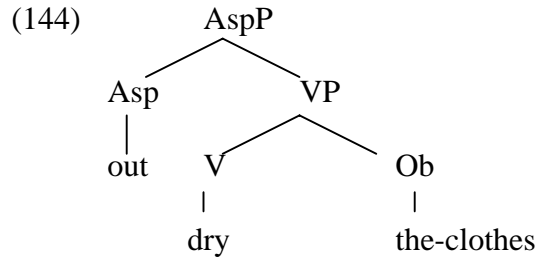
separated from the verb by adverbs. The patterning rather suggests that such elements are instead free standing heads occurring base-generated in some functional head dominating the VP, hence naturally in an Aspect head. Furthermore, it is a common characteristic across a wide range of languages (including Chinese, Thai, Vietnamese, etc.) that yes/no questions are answered in the affirmative with the highest verbal element in a sentence (hence a modal if present, otherwise the main clause lexical verb, see Simpson (forthcoming)). This might again seem to indicate that the particles in Svan and other Kartvelian languages are indeed independent heads in a verb-related functional projection dominating VP - as the hierarchically highest 'verbal' elements present they are used as answer-forms instead of the main verb which is lower down in the structure.

Returning back to English, if it is true that forms with the particle preceding the verb are indeed older and were more frequent than present-day forms in which the particle (and the object) follows the verb, then it is reasonable to suggest that the present-day forms may well have derived from the earlier particle-verb sequences.

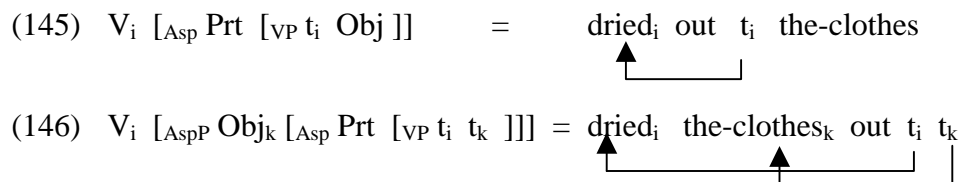
(143b) and (143c) should then be both derived from (137a) in some way:

- | | | | | |
|-------|----|-------------------|---|---------------------------------------|
| (143) | a. | (Obj) Prt V (Obj) | = | (the-clothes) out dried (the-clothes) |
| | b. | V Obj Prt | = | dried the-clothes out |
| | c. | V Prt Obj | = | dried out the-clothes |

That is, type (iii) forms schematized in (144) historically developed into the present type (i) and type (ii).



Various possibilities suggest themselves. Certainly it would seem that one needs to allow for object-shift to play a role (as in fact assumed in Johnson (1991), as it is clear that the object may occur in two independent positions in (143a). In addition to this one might perhaps then make the assumption that the particle is indeed in Asp^0 , and not just in (143a) but in (143b) and (143c) as well. In (143a) both the particle and the verb would be in their base-generated positions in Asp^0 and V^0 respectively. (143c) would then be derived from an underlying sequence [Prt V Obj] by raising the verb to some higher position above completive Asp as in (145). (143b) would result from similar raising of the verb combined with object-shift to Spec-AspP, as in (146):



However, if the particle is in fact in Asp^0 , it might be objected here that movement of the verb to a higher head-position should possibly violate the Head Movement Constraint (HMC), being head-movement from a lower V^0 over a filled Asp^0 to some higher X^0 . An alternative might therefore be to propose that the particle is actually an aspectual-prefix attached to the verb in the lexicon and inserted into V^0 . In a way

similar to Johnson (1991) it can then be suggested that when the verb raises it strands the aspectual particle in V^0 and then moves on higher. This would not result in any HMC violation and would essentially be a treatment of particle-stranding similar to that commonly adopted for particle-verb separation in German V2 clauses. As shown in the following, whereas the German particle and verb occur together in V^0 in (147), when the verb raises to C^0 in V2 clauses, it strands the particle in V^0 (or possibly some other higher head), as in (148):

(147) [CP Johann [C will [IP die Tür aufmachen]]]
 Johann wants the door open-make
 'Johann wants to open the door.'

(148) [CP Johann [C macht_i [IP die Tür auf-t_i]]]
 Johann makes the door open
 'Johann opens the door.'

In such an approach to English, the particle as a stranded aspectual prefix would then undergo raising to Asp at LF for licensing/feature-checking. A further variant of such an approach would be to suggest that the verb + particle prefix first raise together to Asp^0 and the particle is stranded there when the verb moves to a higher head.

Either way, understanding the particle as an aspectual prefix added in the lexicon in a way similar to the analysis of Chinese allows for a plausible account of resultative verb-particle structures which has historical support and is able to make good sense of the third type of patterning noted where the particle precedes the verb.

This third patterning is curiously ignored in recent treatments of particle-verb forms and has led to an emphasis on analyses in which the particle is taken to predicate of the object, e.g., Hoekstra (1992), Collins and Thrainsson (1996). As noted in (127) there are clear problems with such predication-based analyses, problems which an alternative aspect-based approach is able to avoid.²² Furthermore, if historically later [V Object Prt] sequences such as [dry the-clothes out] are actually derived via verb-movement and object-shift from earlier structures in which the particle was a verbal prefix, then syntactically there is no predication relation between the particle and the NP 'the clothes'--the NP in such sequences is in a derived hence non-theta position and is consequently not the subject of any (small) clause type predication. The 'predication' structure seen in the linear sequence of NP followed by particle in [dry [NP *the clothes*] out] is actually a derivational illusion resulting from a combination of raising operations and is not a primitive theta relation. Finally, the conclusion that particle elements in both English and the Kartvelian languages (among others) are either verbal affixes or base-generated in a pre-verbal Asp-head would seem to add support to suggestions here that similar resultative V₂ elements in Chinese are also affixal instantiations of completive Asp. Further careful historical research is certainly now required, but generally the analysis of resultative elements as being

²² The aspect-based approach proposed here is most similar to the account argued for in Johnson (1991). However, Johnson treats the particles as unclassified lexical suffixes on the verb and makes no connection to aspectual characteristics. Treatment of the particles as suffixes in English can also be suggested to run into a number of difficulties concerning the generation and licensing of the tense suffix which appears attached inside the particle (see Collins and Thrainsson 1996 for relevant criticism here).

potentially re-analyzed instantiations of Aspect would seem to open up a number of interesting cross-linguistic possibilities.

5.6 Summary

Before continuing on to examine the diachronic and synchronic patterning of verbal *-le* and how it may or may not relate to the changes which have taken place in RVC's, I now provide a short summary of the main conclusions of this chapter.

The chapter began as an investigation of the apparent diachronic re-positioning of V_2 elements to a position right-adjacent to the main verb V_1 and how an understanding of this historical change might shed better light on the current syntactic status of V_1 - V_2 resultative sequences. Reviewing first previous syntactic approaches to V_1 - V_2 composition, I pointed out a number of unsatisfactory aspects in analyses which assume that V_2 elements must synchronically undergo raising to the V_1 and instead attempted to develop an alternative approach, critically linking the diachronic word order change to an increase in focus on the telic contribution of V_2 and the lack of a necessary predication relation existing between V_2 and the object of V_1 . Suggesting that V_2 elements became re-analyzed as instantiating a sentence-final aspectual head, this allowed for an explanation of why it was that phase-type V_2 elements could occur licensed in such positions with no necessary predicational relation to the object of V_1 . Subsequently considering the actual re-ordering of V_2 elements right-adjacent to the V_1 , it was argued that this actually did not result from any movement of V_2 but instead occurred as an instance of re-structuring when both

the fronting of objects and the occurrence of objects in null pronominal form would have given rise to natural instances of $V_1 V_2$ adjacency. In such re-structuring it was suggested that the V_2 aspectual head became re-analyzed as an aspectual suffix taken to be combined with V_1 in the lexicon. Trying then to make sense of why such a re-analysis might have actually taken place, it was ultimately argued that re-structuring of this type would have allowed for a non-canonical head-final structure to be naturally re-analyzed as head-initial, and hence that *directionality* can be suggested to have been the critical force behind the second stage in the re-analysis and the physical 're-positioning' of V_2 adjacent to V_1 . Finally, it was noted that the occurrence of suffixation in head-initial languages is typologically much less common than in head-final languages for certain fairly simple reasons relating to the linear ordering of elements in SOV-type languages. A significant general conclusion of the chapter has therefore also been to provide a principled explanation of just how and why less frequent instances of suffixation in head-initial languages might in fact possibly develop.

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