THE ASPECTUAL SYSTEM OF CHINESE

by

Suying Yang

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Dr. T. E. Hukari, Supervisor (Dept. of Linguistics)

Dr. L. Saxon, Departmental Member (Dept. of Linguistics)

Dr. T. Hess, Departmental Member (Dept. of Linguistics)

Dr. P. Hsiao, Outside Member (Dept. of Asian and Pacific Studie)

Dr. W. Ladusaw, External Examiner (Cowell College,
University of California, Santa Cruz)

Supervisor : Dr. T. E. Hukari

Abstract

Mandarin Chinese has a very interesting and complex aspectual system. This thesis studies this system from a new perspective, a modified version of Smith's (1991) two-component theory. It is shown that the modifications developed in the thesis increase the explanatory power of the theory so that a clearer picture of the Mandarin Chinese system is obtained.

Situation aspect is compositional in nature. It is determined by the interaction of the intrinsic nature of the verb, the kind of argument the verb takes and certain other phrases that may occur in the sentence. In this thesis, a three-level model is developed to account for the compositional nature of aspect. It is argued that aspect composition processes take place at three different levels: i. the lexical level through some lexical processes; ii. the subcategorizational level through the interaction of the verb and its arguments and iii. the post-subcategorizational level through the interaction of the core sentence and certain adverbial constituents. This model has a few advantages. First, it defines clearly what plays what role in situation aspect composition processes. Secondly, this model makes it possible to talk in clear terms of verb types and situation types. Actually this model replaces Smith's situation shifting with situation formation.

The three-level model is supplemented by two new criteria for verb classifications and a further distinction between boundedness and telicity. The two new criteria are: i. the [±result] feature that distinguishes Accomplishment verbs from Achievement verbs and ii. the [±bounded] feature that distinguishes Activity verbs from Semelfactive verbs. The distinction between boundedness and telicity differentiates temporal boundaries and spatial boundaries, the former is referred to by the feature [±bounded], and the latter is referred to by the feature [±telic].

In light of the modified version of Smith's two component theory, the Mandarin Chinese aspectual system is shown to fit in the big picture of the universal grammar. The perfective and the imperfective are the two basic viewpoints in Mandarin Chinese. The perfective is marked by *le* and *guo*, and the imperfective is marked by *zai* and *zhe*. However, these viewpoints have some language specific properties. The most outstanding special properties are displayed by *le*. Unlike the perfective in languages like English and French, the perfective marker *le* does not provide a final endpoint. It only emphasizes the occurrence of a situation as a whole. As a consequence, it requires that the situation it marks is either [+bounded] or [+telic]. *Guo* provides an endpoint to situations and so it is compatible with any situation type either open-ended or closed. However, as it emphasizes the experiential meaning of a particular event, it is limited in use pragmatically. *Zai* emphasizes the progress of a situation, it is not sensitive to endpoint at all. Its function is close to the English progressive form and like the English progressive form, it fits in the general imperfective schema. *Zhe* imposes a static view to situations, and because of this property, *zhe* is selective about situation types.

In Mandarin Chinese, there are some constructions that show certain syntactic and semantic constraints. These constraints are studied in light of the aspectual theory adopted and developed in the thesis. And it is argued that a top-down approach advocated by the Construction Grammar and the Head-driven Phrase Structure Grammar may well explain the form-meaning correspondences of these constructions.

Examiners:

Dr. T. E. Hukari, Supervisor (Dept. of Linguistics)

Dr. L. Saxon, Departmental Member (Dept. of Linguistics)

Dr. T. Hess, Departmental Member (Dept. of Linguistics)

Dr. P. Hsiao, Outside Member (Dept. of Asian and Pacific Studie)

Dr. W. Ladusaw, External Examiner (Cowell College,
University of California, Santa Cruz)

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List of Abbreviations

Accomp.	Accomplishment
Achiev.	Achievement
AP	adjective phrase
Imp	imperfective marker
NP	noun phrase
Part	particle
Perf	perfective marker
QM	question marker
Semelf.	Semelfactive

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All the time I was writing my thesis I was aware that the time would come when I would have to write my acknowledgement. This is a time I have always been looking forward to and also a time I have always been afraid of. I have been looking forward to this time because I feel that my heart is bursting with gratitude and thanks I owe to people around and this time is just the best opportunity for me to repay my debt. I have been afraid of this time because I know that it is difficult to find words that are powerful enough to express the great gratitude that fills my heart. I beg the reader to remember what I say here expresses only one tenth or even less of the gratitude I feel in my heart.

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Chapter 1

Introduction

This dissertation considers the aspectual system of Mandarin Chinese within the context of universal grammar. How does the aspectual system of Mandarin figure in general theories of aspect? Does Mandarin aspect have specific properties? If so, what are they? Can the mechanisms available in current aspect theories account for them? These are the questions I am going to answer through a careful consideration of current aspect theories, a thorough study of the aspect markers and a detailed discussion of some special constructions in Mandarin Chinese.

1.1 Unsolved problems to be considered

It is generally accepted that aspect plays a very important role in Mandarin Chinese. (Wang 1985; Chao 1968; Li & Thompson 1981; among others) Paper after paper has discussed the properties and functions of different aspect markers like *zhe, le, guo* and so on. These papers have, from different perspectives and to various degrees, contributed to the understanding of the aspectual system of Mandarin Chinese. But unsolved problems remain.

The first problem concerns the controversy over the number of aspect markers and the number of aspect viewpoints in Mandarin. Traditional Chinese linguists

usually list a few aspect markers and assume that each represents a viewpoint without arguing for their status as aspect markers. Markers that have been considered as aspect markers are as many as nine. Are they all aspect markers?

The second problem concerns the mysterious behaviour of the marker *le*. It has been considered a perfective marker. And there is evidence to show that it provides a totality view of a situation. Yet, in contrast to the perfective English sentences *He jumped* and *He walked*, the addition of *le* to the corresponding Mandarin verbs does not produce grammatical sentences: **Ta tiao le* , **Ta zou le*.[1] However, the addition of *le* to some other verbs does produce grammatical sentences just as in English: cf.: *Tamen zao le yizuo fangzi* and *They built a house*. What accounts for the difference between the Mandarin *le* and the English perfective?

The third problem is the contrast between a simple Accomplishment verb and a Resultative Compound verb. The same problem is discussed in Smith (1991), but her discussion does not quite convince me, so I offer an alternate solution to the problem.

(1) a. Ta xi le yijian yifu.
he wash Perf a dress
'He washed a dress.'

b. Ta xi-ganjing le yijian yifu.
he wash-clean Perf a dress
'He washed a dress clean.'

The most natural reading of (1a) is a completion reading, that is, the event of washing a dress was completed. Certain circumstances may force an incomplete reading out of it:

[1]These sentences may have inchoative readings. In that case *le* is a sentence-final particle rather than a perfective marker. See my discussion in (4.4.2.).

(2) Ta xi le yijian yifu,
he wash Perf a dress

keshi hai mei xi-wan.
but still not wash-finish

Lit. 'He washed a dress, but he did not finish washing it.'

The sentence in (2) does not constitute a contradiction in contrast to the English translation. Yet if the same thing is done to sentence (1b) that involves a Resultative Compound, a contradiction will be produced:

(3) *Ta xi-ganjing le yijian yifu,
he wash-clean a dress

keshi hai mei xi-wan.
but still not wash-finish.

*'He washed a dress clean but he did not finish washing it.'

What accounts for the contrast shown by (2) and (3)?

The fourth problem concerns the functions of some post-verbal constituents. Look at the following sentences:

(4) a. *Ta qi le.
he angry Perf

b. Ta qi *huai* le.
he angry bad Perf
Lit. 'He was angry-bad.'

(5) a. *Ta ke le.
he cough Perf

b. Ta ke le *sansheng.*
he cough Perf three times

'He coughed three times.'

(6) a. *Ta zou le.
he walk Perf

b. Ta zou le *zou.*
he walk Perf walk

'He walked a little bit.'

All (b) sentences are grammatical, while none of the (a) sentences is.[2] And the only difference between the (a) and (b) sentences is the presence or absence of the post-verbal constituent, including an adjective in (4b), a quantity NP in (5b), a *de* phrase in (6b) and a reduplicate verb in (7b). What are the functions of these constituents?

The fifth problem is very much theory-oriented. That is the punctuality criterion for situation type classification. Is punctuality linguistically significant? This question has been raised by linguists like Verkuyl (1989). And his answer is 'no'. I assume with Verkuyl that punctuality can not serve as a criterion to distinguish verb or situation classes. Then another question follows: is there still a need to distinguish Activities from Semelfactives and Accomplishments from Achievements? If the answer is 'yes', what should the criteria be?

Problem six is also theory-oriented. It has long been realized that situation

[2]The (a) sentences are ungrammatical if they are meant to refer to specific events in the past. Some of them may have inchoative readings, and when that is the case, *le* is considered to be a sentence-final particle instead of a perfective marker.

aspect is determined by the compositional nature of the verb, the arguments of the verb and some other elements. But how each of these figures in the composition process is not quite clear.

The last problem concerns the distinction of temporal boundedness and spatial boundedness. When linguists talk about boundedness, they seem to have different ideas in mind. Some of them treat a temporal boundary provided by a temporal phrase the same as a spatial boundary intrinsic in the structure of a situation (Jackendoff 1991, Deraetere 1995). Others treat them differently (Tenny 1994, Van Voorst 1988). Should temporal boundedness be distinguished from spatial boundedness?

1.2 Theoretical Framework

Basically I work in the theoretical framework of Smith's (1991) two-component theory, but I also borrow ideas from linguists like Comrie (1976, 1985); Vendler (1967); Dowty (1979, 1991); Jackendoff (1990, 1991); Van Voorst (1988, 1992); Verkuyl (1972, 1989); Tenny (1992, 1994); Van Valin (1987); etc. The problems listed above are considered below in light of the works of all these linguists and modifications to Smith's theory are found to be necessary.

In analyzing some special data in Chinese, I also avail myself of the formal representations in the framework of HPSG (Head-Driven Phrase Structure Grammar) developed by Pollard and Sag (1987, 1994) and insights in the framework of CG (Construction Grammar) developed by Fillmore (1985b, 1988); Lakoff (1987); Fillmore, Kay & O'Connor (1988) and Kay (1990).

1.3 Organization

This dissertation is organized as follows. Chapter 2 sketches a brief review of the literature on aspect. In this chapter, I will look at the works of quite a few linguists, but my focus will be on the theory and assumptions I adopt for the analyses in the rest of the chapters: Smith's two-component theory, the compositional nature of situation aspect and so on. Chapter 3 discusses some theoretical problems (problems 5-7) and new assumptions will be made: new criteria to distinguish Semelfactives from Activities and Accomplishments from Achievements; the necessity of distinguishing temporal boundedness from spatial boundedness; and a three-level model to account for the compositional nature of situation aspect. In Chapter 4, I discuss the complex aspectual system of Mandarin Chinese. In light of the theory I adopt and the new assumptions I make, the Chinese aspect markers will be analyzed in terms of their interaction with different situation types. This approach together with some new tests reveals new perspectives on the aspect markers. Chapter 5 considers the special *ba/bei* constructions. It will be shown how an aspectual approach provides a clearer and more unified account of these constructions, and how, on the other hand, a better understanding of these constructions contributes to the analysis of the aspectual system of Mandarin. In Chapter 6, more special constructions are considered. All these constructions display some aspectual restrictions. And only an aspectual approach may well explain their behaviour. The last chapter, Chapter 7, is a conclusion of the entire dissertation.

Chapter 2

The Theory of Aspect – A Short Review

Aspect has been an important topic for decades. Many linguists have contributed to the theory of aspect, however, confusions and controversial areas remain. This dissertation does not aim at a comprehensive and self-contained theory of aspect, but it is my purpose to work away some of the confusions and controversial areas. To facilitate what I am going to do in the next few chapters, I will first give a short review of the voluminous literature on aspect.

2.1 Definition of Aspect

As Holisky says in her 1981 article, "The term 'aspect' has almost as many definitions as there are linguists who have used it'. (Holisky 1981, p. 128) Though more than ten years have passed since Holisky's article, we still cannot say that linguists have the same ideas in mind when they use the term 'aspect'. It is appropriate, therefore, to begin our discussion of the aspect theory with a definition of it.

Traditionally, aspect referred to the representation of events through grammaticalized viewpoints such as perfective and imperfective. Later, linguists came to

realize that the internal structure of situations contribute to aspectual meanings and so the term 'aspect' broadened to include the temporal structures of situations. Three representative definitions may help here. This first is by Friedrich (1974):

> (1) Aspect signifies the relative duration or punctuality along a time line that may inhere in words or constructions.
>
> (Friedrich 1974, S1)

The second one is by Comrie (1976)

> (2) Aspects are different ways of viewing the internal temporal constituency of a situation.
>
> (Comrie 1976, p.3)

And the third is by Smith (1991):

> (3) I shall regard aspect as the semantic domain of the temporal structure of situations (events and states) and their presentation.
>
> (Smith 1991, p. 3)

There is more than a fifteen year time span between the first two definitions and the third and, correspondingly, there are substantial differences in their content. Although all three definitions mention the internal temporal properties of situations (or 'Aktionsart' in Agrell's (1908), Isačenko's (1962) and many others' term; and 'situation aspect' in Smith's (1991) term) and the presentation of these properties ('aspect' in Hopper's (1982) term and 'viewpoint aspect' in Smith's term), they are very different in treating the relation between these two. Friedrich seems to say that aspects are ways to mark temporal properties of words or constructions. So equal signs may be drawn between certain temporal properties and certain aspects. This is shown more explicitly by the description of the three "basic aspect categories" by Holisky (1981) who adopts Friedrich's definition of 'aspect':[1]

[1]The same standpoint is taken by linguists like Charles N. Li, Sandra A. Thompson & R. McMillain Thompson (1982) among others.

(4) 1.durative, continuative, imperfective, etc.
2.punctual, completive, perfective, etc.
3.stative, perfect, etc.

The properties 'durative, punctual, stative' are temporal properties of situations and properties like 'imperfective, perfective' are viewpoint properties.

Comrie's definition seems very vague concerning the distinction between situation aspect and viewpoint aspect. As Hopper (1982, p. 5) describes: "Comrie sensibly eschews the distinction altogether" because "it is not always clear where the boundary between aspect and Aktionsart is to be drawn".[2]

Finally we come to Smith's definition. She not only differentiates viewpoint aspect from situational structure but also considers them equally important. According to her, viewpoint aspect and situation aspect are two separate components of aspect. And these two components interact to decide aspectual meanings.

Both Smith (1991) and Hopper (1982) argue that it is important to distinguish viewpoint aspect and situation aspect, because a verb constellation can always be viewed in different ways. Hopper (p. 5) gives a Russian example: "an aspectual process may carry with it a simultaneous nuance of the type *čital* 'read [impf.pret.]': *pročital* 'read[pf.pret.]': *počital* 'read a little [pf.pret.]'; the two latter forms being in the 'perfective aspect', but differing in the further nuance of 'attenuation' possessed by the last'. And Smith's key examples are the pair in (5):

(5) a. John and Mary built a rock garden last summer.
b. John and Mary were building a rock garden last summer.

(Smith 1991, p. xv)

(5a) and (5b) refer to the same situation, but they differ in perspective. (5a)

[2]Hopper himself asserts that aspect and Aktionsart should be distinguished.

presents the situation in its entirety (a rock garden was built to completion) while (5b) presents only a part of the situation (no information about whether or not the garden was completed).

In my dissertation, I adopt Smith's definition of aspect and I also adopt her two component theory, which I will talk about in more detail later. I differ from her in classification of situation types and in description of situation aspect compositions. My new assumptions concerning these will be the topic of the next chapter.

The first component of aspect, referred to by Smith as situation aspect, concerns situation properties like duration, dynamism, punctuality, telicity and so on. Different verbs or verb constellations display different combinations of these properties. (A State will be durative, an Activity will be durative, dynamic, etc.) And these properties are just what semanticists study when they talk about verb classes. Therefore, an understanding of situation aspect cannot be obtained without a proper verb or situation type classification. As I will discuss later, the above mentioned situation aspect properties pertain not only to verbs but also to verb constellations or sentences, and therefore many linguists prefer terms such as 'event types' (Van Voorst 1992), 'situation types' (Smith 1991) to the term 'verb classes'.

To avoid confusion[3], I will follow Smith and use the term 'situation' to refer to all kinds of verb constellations and the term 'situation aspect' to refer to the temporal properties of situations. I will also use her term 'viewpoint aspect' to refer to the different ways of presenting situations.

[3]Mourelatos (1981) and Bach (1983) distinguish events from processes. 'Process' is the term for atelic situations and 'event' is reserved for telic situations only. Kenny (1963) uses the term 'performances' for Bath's and Mourelatos' events.

2.2 Aspectual properties of situation types

Having defined the term 'aspect', I am going to look at the two components of aspect respectively. I will talk about the first component first.

Aspectual properties of situations, such as dynamism, duration, and telicity, have been recognized for a long time and have played an important role in verb classification. The earliest literature on aspectual verb classes dates back to Aristotle. Kenny (1963) and Ryle (1949) brought Aristotle's taxonomy of verb aspect into the modern literature. Vendler (1967) breathes new life into the Aristotelian tripartition of verb classes (*state* verbs (statives), *energeia* verbs (activities) and *kinesis* verbs (accomplishments and achievements)) by proposing a quadripartition: Stative terms, Activity terms, Accomplishment terms and Achievement terms. Vendler also provides linguistic criteria to distinguish the four categories from one another, thus making the partition linguistically significant.

2.2.1 Vendler's criteria for verb classifications

First, Vendler employs the progressive form to distinguish Stative terms and Achievement terms on the one hand and Accomplishment terms and Activity terms on the other. (The progressive form test is referred to by Verkuyl (1989) as the 'Process' test.) The former two can not have the progressive form whereas the latter two can.

(6) a. *I am knowing, or loving him, ruling the country, etc. (State).
b. He was running, or working, pushing the cart, etc. (Activity).
c. They are building a house, or drawing a circle, etc. (Accomplishment).
d. *I am recognizing her, or reaching the top, etc. (Achievement).

Vendler also notices the different entailments progressive Activities and progressive Accomplishments will have respectively. *He was running* entails that *he did*

run. While *he was drawing a circle* does not entail that *he did draw a circle.*

Activities and Accomplishments are distinguished by time adverbials. (Referred to as the 'definiteness criteria' by Verkuyl (1989).) Accomplishment terms take adverbial prepositional phrases with *in* but only marginally take adverbials with *for*, and Activity terms allow only the *for*-phrase:

(7) a. He pushed the cart for an hour/*in an hour. (Activity)
b. He drew a circle *for an hour/in an hour. (Accomplishment)

Similarly the expression "It took X some Y time to ..." goes with Accomplishments but not with Activities:

(8) a. *It took him twenty minutes to push the cart. (Activity)
b. It took him twenty minutes to draw a circle. (Accomplishment)

Verdler describes Achievement terms as "occurring at a single moment" (Vendler, p. 103) and so the *for* phrase may distinguish State terms from Achievement terms:

(9) a. *He reached the top of the mountain for an hour. (Achievement)
b. He loved her for three years. (State)

To further distinguish Achievement terms from other terms, Vendler mentions Ryle's observation, that is "I can say *I have seen it* as soon as I can say *I see it.*"[4] Vendler goes on and says "in cases of pure achievement terms the present tense is almost exclusively used as historic present or as indicating immediate future." (Vendler 1967, p. 103) According to him, a sentence like *Now he finds the treasure* is not used to report the actual finding but rather to predict that he is going to find. To report a simple fact one has to say *Now he has found it.* (Verkuyl refers to the criterion as *Present Perfect Now* or PPN.)

[4]Ryle (1954, p. 102) quotes Aristotle's Met.

Vendler's classification has been well accepted and the idea shared by linguists who accept his quadripartition seems to be that verbs of any natural language divide into these four categories, although the specific distinguishing criteria may vary across different languages.

2.2.2 Alternate analysis of verb classes

Though Vendler's verb classification has been popular, many linguists have employed different criteria to refine or modify Vendler's verb classification.

Taylor (1977) draws on the *homogeneity* feature and subdivides the set of *energeia* (activity) verbs into homogeneous ones such as *fall, move, ponder, blush, etc.* and heterogeneous ones such as *walk, talk, chuckle, etc.*.

Verkuyl (1989) argues that the progressive form test is not reliable and the Present Perfect Now test does not really work either (see 3.1. for a detailed discussion of this). So 'there are no decisive criteria for Achievementhood.' (Verkuyl 1989, p. 58)

Mourelatos (1981) also draws heavily on the progress-parameter. He uses the feature *Occur* to refer to this parameter. Non-states *occur* but states do not *occur*. And he interprets Vendler's definiteness-parameter in terms of the opposition [±Count]. [+Count] applies to *Development* and *Punctual Occurrence* and [-Count] applies to *Processes*. Finally his *Punctual* feature distinguishes *Development* and *Punctual Occurrence*.

In Smith's more recent work, she proposes a quintapartition. And her classification is based on the recognition of three aspectual contrasts: dynamic/static, durative/instantaneous, and telic/atelic. The dynamic/static contrast distinguishes States from all other situations. The durative/instantaneous contrast distinguishes

Activities and Accomplishments from Achievements. This distinction also leads Smith to splitting up Vendler's Activities into Activities (durative) and semelfactives (instantaneous). Finally the telic/atelic contrast distinguishes situations that have definite and inherent endpoint in time (telic) from situations that lack definite and inherent endpoint in time (atelic).

Let's quote Smith to see how these aspectual contrasts are employed to distinguish verbs:

> (10) Basic situation types
> **States** are static, durative (know the answer, love Mary)
> **Activities** are dynamic, durative, atelic events (laugh, stroll in the park)
> **Accomplishments** are dynamic, durative, telic events consisting of a process with successive stages and an outcome (build a house, walk to school, learn Greek)
> **Semelfactives** are dynamic, atelic, instantaneous events (tap, knock)
> **Achievements** are dynamic, telic, instantaneous events (win the race, reach the top)
>
> (Smith 1991, p. 6)

So for Smith there are five kinds of situation types. And these five types are distinguished by the above mentioned contrasts. Smith employs a binary feature system to represent the situation types schematically:

(11) Features of the situation types

Situations	Static	Durative	Telic
States	[+]	[+]	ϕ
Activity	[-]	[+]	[-]
Accomplishment	[-]	[+]	[+]
Semelfactive	[-]	[-]	[-]
Achievement	[-]	[-]	[+]

(Smith 1991, p. 30)

Smith does not assign any telicity value to States because she thinks that this feature is irrelevant to States. This is arguable, as I will talk about in 3.5.1. and 6.1.1.

2.3 More on Smith's two component theory

Basically, Smith's classification of situation types is not very different from Vendler's. The noticeable differences are her separating Semelfactives from other Activities and also her conscious recognition of the composite nature of aspect. (Aspect is composed of situation aspect and viewpoint aspect and then situation aspect itself is determined by the compositional nature of the verb and the verb's arguments.)

As I will discuss later, since the publication of Vendler's 1967 book, linguists have more and more recognized the compositional nature of situation aspect, that is, both the inherent nature of the verb and the arguments of the verb or even some non-argument elements contribute to the aspectual meanings, (Verkuyl 1972; Dowty 1979; Jackendoff 1990, among others). Although Vendler also seems to be aware of the fact that the direct object appears to co-determine whether a transitive verb belongs to one or another of the four categories, he basically keeps his classification at the lexical level. That is to say, fundamentally he assumes that aspectual properties pertain to the inherent nature of verbs. This view is made explicit by the terminology he employs. He uses 'term' to refer to verb classes: State terms, Activity terms and so on. Smith, on the other hand, uses 'situation' in place of Vendler's 'term', because she assumes with Verkuyl, Dowty and others the idea that aspect is a predicate or a sentence feature rather than a verb feature. This assumption will be discussed in more detail in 2.4.

Smith's chief contribution to the theory of aspect is her emphasis on the distinction between and interaction of situation aspect and viewpoint aspect. In Smith, three aspectual viewpoints are recognized as basic across natural languages. In this respect, Smith is not very far from traditional thinking. In (12) I quote Smith's own definition of the three basic viewpoints:

> (12) Main types of viewpoint
> **Perfective** viewpoints focus on the situation as a whole, with initial and final points.
> **Imperfective** viewpoints focus on part of a situation, including neither initial nor final point.
> **Neutral** viewpoints are flexible, including the initial point of a situation and at least one internal stage (where applicable).
>
> (Smith 1991, p. 6)

In what follows I will give two of Smith's schemata to show how situation types interact with viewpoint aspect. *I* in the schemata stands for initial endpoint. *F* stands for final endpoint. For telic situations the final endpoint will be a natural endpoint represented as F_{nat} while for atelic situations the final endpoint will be an arbitrary endpoint repersented as F_{arb}:

(13)	I	$F_{nat/arb}$	(an event that includes either a natural or an arbitrary final endpoint)
	//////////		(viewpoint that covers the whole event)

As (13) shows, sentences with a perfective viewpoint present a situation in its totality, including both the initial endpoint and the final endpoint.

Sentences with an imperfective viewpoint present only part of a situation without profiling either the initial endpoint or the final endpoint:

(14)	I	$F_{nat/arb}$	(an event that includes either a natural or an arbitrary final endpoint)
	/////		(viewpoint that covers part of the event)

Basically I assume Smith's two-component model as shown in (13) and (14) above. However, in Chapter 3, I argue for a modification of her situation classification and develop a three-level situation aspect composition process.

2.4 The compositional nature of situation aspect

As shown in the previous section, aspectual verb classification or situation classification is roughly based on three contrasts: dynamic/static, durative/instantaneous and telic/atelic. The dynamic/static contrast seems to be straight forward and has not caused much controversy. The durative/instantaneous distinction has been considered either linguistically irrelevant (Verkyul, 1989) or a distinction of secondary importance (Tenny 1994). This will be discussed in detail in Chapter 3. The distinction that has aroused the greatest interest and controversy is the telic/atelic distinction.

There is a voluminous literature on the telic/atelic distinction. And different terms have been employed by different linguists. For Tenny(1994) it is the delimited/non-delimited distinction, for Moens and Steedman (1988) it is the culminated/non-culminated distinction, for Jackendoff (1990) it is the bounded/unbounded distinction, and for Smith it is the telic/atelic distinction. It is not surprising that so many linguists are interested in this distinction because telicity reveals much about the nature of aspect.

2.4.1 How is (a)telicity determined?

Vendler's verb classification has been well accepted, but linguists also observe that his attempt to classify surface verbs once and for all (as state terms, activity terms,

accomplishment terms and achievement terms) is misguided. Dowty (1979) provides some revealing examples. The verb *walk* may be an activity term in *John walked*, but an accomplishment term in *John walked to school.* Dowty also points out that examples that sound equally felicitous with *for* and *in* adverbials, such as those discussed by Fillmore (1971) *He read a book for/in an hour* or *she combed her hair for/in five minutes* "are all cases where a verb phrase can be read ambiguously as an activity or an accomplishment". (Dowty 1979, p. 61)

So a verb may have a different telicity reading depending on the context in which it occurs. Dowty claims, "In fact, I have not been able to find a single activity verb which can not have an accomplishment sense in at least some special context. (Dowty 1979, p. 61) Verkuyl also claims something to similar effect, "The verb needs to be specified as to its having a specific *meaning element* engaged in the composition of aspect, but that this feature cannot be identified with aspect itself, because aspect is to be considered a complex sentential property" (Verkuyl 1989, p. 40). In the following subsections I look at how telicity is decided by the composite nature of the verb, the arguments of that verb and some other elements.

Since Vendler (1967), the *in an hour/for an hour* expressions have been used as reliable tests for distinguishing telic situations from atelic ones. I keep with this tradition and employ these tests with their relevant interpretations in my discussion that follows.[5]

[5]As Tenny points out the use of *in an hour* to indicate that the event will begin in an hour from now is not relevant. And the relevant interpretation of *for an hour* should be that the event continues during the one hour time but does not necessarily stop after one hour.

2.4.2 The interaction of verbs and their NP arguments

First of all, linguists (Dowty 1979, Verkuyl 1989, Jackendoff 1991, Smith 1991, Tenny 1994) find that there is a structural analogy between nominals and verbals. The delimited/non-delimited distinction not only distinguishes situations but also distinguishes nominals. And the delimited/non-delimited distinction among nominals interacts with verbs to decide the (non)delimitedness of situations. Jackendoff (1991) uses a [$\pm b$] feature for both events and nominals. [+b] encodes individual objects and also bounded situations, while [-b] encodes substances and also unbounded situations. The following examples illustrate this interaction of verbs and nominal arguments:

(15)	a.	Mary$_{[+b]}$	drank	beer$_{[-b]}$	(*in/for an hour).	(atelic)
	b.	Mary$_{[+b]}$	drank	the beer$_{[+b]}$	(in/*for an hour).	(telic)
	c.	Soldiers$_{[-b]}$	drank	the beer$_{[+b]}$	(*in/for an hour).	(atelic)
	d.	Mary$_{[+b]}$	liked	the beer$_{[+b]}$	(*in/for an hour).	(atelic)
	e.	Mary$_{[+b]}$	liked	beer$_{[+b]}$	(*in/for an hour).	(atelic)
	f.	Soldiers$_{[-b]}$	liked	the beer$_{[+b]}$	(*in/for an hour).	(atelic)

For the above sentences (15a-c), the same verb 'drink' is used. But the different (non)delimited nature of the nominal arguments affects the telic nature of the situations described by the sentences. (15a) has a specific and delimited subject and a mass object and the sentence describes an atelic event. In (15b) both the subject and the object are [+b] and the sentence describes a telic event. (15c) has a non-delimited subject and a delimited object and the situation described by the sentence is atelic. In the sentences (15d-f) a stative verb 'like' is used and the sentences are all atelic regardless of what nominal arguments occur. The examples show that both the nature of the verbs and the nature of the nominal arguments play a role in deciding the (a)telicity of the situations described by the sentences.

2.4.3 The interaction of verbs and their PP arguments

The function of PP arguments in deciding telicity is also realized by many linguists (Tenny 1994, Smith 1991). Only PPs that denote a terminus will delimit situations:

(16) a. Mary walked in the park *in an hour/for an hour.
b. Mary walked to school in an hour/*for an hour.

(17) a. Mary pushed the cart in the yard *in an hour/for an hour.
b. Mary pushed the cart up the mountain in an hour/*for an hour.

In (16a and17a) the PPs are locatives and the sentences express atelic situations. The PP in (16b) denotes a terminus and the situation is telic. The PP in (17b) implies a terminus and the situation is telic too.

2.4.4 The interaction of verbs and non-argument elements

Linguists (Tenny 1994, Smith 1991, Jackendoff 1991 among others) also observe that some non-argument elements like particles or resultative constructions will also function to produce a telic reading out of an atelic situation or enforce a telic reading of a situation that otherwise may have either a telic and an atelic reading. The following examples are from Tenny (1994).

(18) a. eat the apple in an hour / ?for an hour
b. eat the apple **up** in an hour /*for an hour

(19) a. push the cart *in an hour / for an hour
b. push the cart **over** in an hour / *for an hour

(20) a. hammer the metal *in an hour / for an hour
b. hammer the metal **flat** in an hour / * for an hour

(21) a. wring the towel *in an hour / for an hour
b. wring the towel **dry** in an hour / *for an hour

The (a) sentences in (18-21) are either atelic (19a, 20a, 21a) or capable of both the telic and the atelic readings (18a) However, the (b) sentences have only the telic reading. And it is the particles in (18-19) and the resultative words in (20-21) that account for the contrast.

2.4.5 Smith's schemata for telicity composition process

Now we have seen how argument NPs and PPs and some other phrases interact with verbs to decide sentential telicity. Smith recognizes the aspectual significance of the argument NPs and PPs and so proposes telicity composition schemata for interactions between verbs and NP arguments and also between verbs and PP arguments. She assigns [$\pm telic$] feature to verbs, [count]/[mass] features to nouns and [Direction]/[Locative] features to PPs. She gives the following telicity change processes to illustrate the composite value of verbs and their NP or PP arguments:

(22) a. walk the dog
$_v$[-Telic] + $_n$[Count] = $_{vp}$[[-Telic]]

b. walk to school
$_v$[-Telic] + $_{pp}$[Direction] = $_{vp}$[[+Telic]]

(Adapted from Smith, p.73)

So with an intrinsically [-Telic] verb, NP arguments contrast with directional PP arguments. A [-Telic] verb with a [Count] NP argument will form a [-Telic] VP, while the same verb with a directional PP argument will form a [+Telic] VP. With intrinsically [+Telic] verbs as in (23) [Count] nouns contrast with [Mass] nouns.[6]

[6]Smith's [Count] nouns include specific countable nouns and definite nouns, while her [Mass] nouns include bare plurals and regular sense mass nouns.

(23) a. build a house
$[_V$ + Telic] + $[_{Nom}$ Count] = $[[_{VP}$ + Telic]]

b. build houses
$[_V$ + Telic] + $[_{Nom}$ Mass] = $[[_{VP}$ - Telic]]

(Smith, pp. 73-74)

A [Count] noun object will yield a [+telic] reading of a predicate, while a [Mass] noun object will yield a [-telic] reading of a predicate.

2.5 Tense

Both tense and aspect convey temporal notions but they should be clearly distinguished. Tense locates the time of a situation relative to some other time while aspects are different representations of the internal temporal structures of situations.

Tenses may relate the time of certain situations described to the present moment; "such tenses are referred to as absolute tenses" (Comrie 1976, p. 2). The present tense locates a situation temporally simultaneous with the moment of speaking: *He is reading.* The past tense locates a situation prior to the speech time: *He read a book.* And a situation described in the future is located subsequent to the speech time.

Tenses may also relate the time of certain situations to the time of some other situation. Such tenses are called relative tenses. A quote from Comrie (1976) will suffice to illustrate relative tenses.

> (24) In the sentences (a) *when walking down the road, I often meet Harry* and (b) *when walking down the road, I often met Harry,* the present participle *walking* in both cases indicates a situation located simultaneous with the time of the main verb, irrespective of the tense of the main verb. In the (a) sentence, the situation described by *walking* holds at

> the present, given the present tense *meet,* while in the (b) sentence it held in the past, given the past tense *met;* the relevant factor in the choice of the present participle is thus relative time reference, not absolute time reference. Similarly, the so-called perfect participle in such nonfinite participial constructions indicates relative past time reference, e.g. *having met Harry earlier, I don't need to see him again,* versus *having met Harry earlier, I didn't need to see him again.*
>
> (Comrie 1976, p. 2)

In Chapter 3, some grammatical markers in Chinese will be argued to be relative tense markers.

2.6 Summary

To facilitate my discussion in the following chapters, I have, in this chapter, given a short review of the literature on aspect. I have made explicit that the definition of aspect I adopt is the one by Smith. By this definition aspect is composed of two separate but interacting components: the internal temporal structure of situations and the ways of presenting situations. I also follow Smith (1991) in assuming that aspect is composite in nature too. In talking about the composite nature of situation aspect, I focused on one of the internal temporal properties of situations, namely *telicity.* I have cited various linguists to show how the nature of the verb, the argument of the verb and some other elements interact to determine telicity. Smith's telicity composition process schemata have also been introduced because they pertain to the discussion in Chapter 3.

Chapter 3

Some New Assumptions

Having had a short review of the literature on aspect, we are now in a position to discuss some confusing and controversial areas. The first controversial area this chapter will consider is the durative/instantaneous contrast. This contrast is conceptually valid, but its linguistic significance is questionable. I follow Verkuyl (1989) in assuming that this contrast cannot be used as a primary criterion to distinguish Accomplishments from Achievements. And it follows that Activities and Semelfactives cannot be distinguished primarily by this contrast either. In light of the literature on verb or situation classification as well as data from both English and Chinese, I argue that the primary criterion for distinguishing Accomplishments from Achievements should be the encoding or non-encoding of results in the verbs per se.[1] And the distinction between Activities and Semelfactives is approached from another perspective, that is, the presence or absence of a natural temporal boundary.

The second area to be considered is the confusing terminology and definition of telicity. Is telicity temporal or spatial in nature? After a discussion of a wide range of

[1] As shown in (2.4.), aspect is compositional in nature. It is a predicate or a sentential feature rather than a verb feature. However, the three-level model to be developed in this chapter enables us to talk about verb types and situation types separately and as the same time admit the compositional nature of aspect.

data as well as literature specifically concerned with telicity, the conclusion reached is that temporal boundedness should be distinguished from spatial boundedness. Accordingly the terms *bounded/unbounded* are employed to refer to the former and the terms *telic/atelic* are employed to refer to the latter. Finally this chapter gives a more detailed discussion of the composite nature of situation aspect and proposes that situation aspect composition processes take place at three levels: the lexical-level, the subcategorization-level and the post-subcategorization level.

3.1 Is the durative/instantaneous contrast linguistically significant?

Linguists seem to be nearly unanimous in recognizing the first two of Vendler's classes. These are States and Activities. Yet there is considerable controversy concerning his distinguishing Accomplishments from Achievements. Kenny (1963), before Vendler, had a three way partition: States, Activities and Performances. His Performances include Vendler's Accomplishments and Achievements. Bach (1983, 1986) and Mourelatos (1981) also collapse Vendler's Accomplishments and Achievements. Verkuyl (1989) argues strongly against separating Achievements from the other three classes.

Vendler's distinction of Achievements from Accomplishments is based on the [±momentary] or the [±process] contrasts. Yet, Verkuyl argues that the durative/instantaneous contrast is not of linguistic importance.

The progressive form test has been used by Vendler to show the lack of process on the part of Achievements. But this test has not been accepted as a solid criterion by a great many authors. Verkuyl gives the following examples to show that in many

cases Achievements do appear in the progressive form. Achievement examples in (1) are from Verkuyl (1989, p. 45).

(1) a. She is winning this game.
b. He is dying.
c. She was reaching the top.
d. Look at the screen, the Challenger is exploding now.

Verkuyl then gives the typewriting example to show how 'the length of (a time unit involved in) an event does not qualify as a meaning element that distinguishes certain verbs from others' (Verkuyl 1989, p. 58) By Vendler's criterion (what Verkuyl refers to as Present Perfect Now or PPN, which will be discussed soon). *type the letter p* will be an Achievement, while *type a (business) letter* will be an Accomplishment. Verkuyl says:

> (2) However, in modern technology the reverse argument is also possible in two respects: (a) the typing of the letter p on the screen of a word processor can take a while due to some *Please Wait* command so that it takes time before the p has become visible and has been typed out; (b) the typing of a business letter may take just a moment: if it is standard, it can be produced by hitting on single key. If things are going that quickly it would mean that both *type a letter p* and *type a (business) letter* are members of one and the same category and that they manifest themselves as either Achievement terms or Accomplishment terms dependent on something which has nothing to do with language itself.
>
> (Verkuyl 1989, p. 56-57)

Verkuyl also shows that Vendler's Present Perfect Now test is not convincing. Vendler argues that, with Achievements, the Present Perfect pertains more appropriately to the present than the Present itself. *He wins* is used as 'historic present or as indicating immediate future,' while a Present Perfect sentence like *He has won* is used to report the actual winning (Vendler 1967, p. 103). However, Verkuyl

argues that this criterion is not reliable. First, the present tense is quite often used in Achievement situations. 'In a game, the loser can give up saying *You win* rather than *You have won.*' Secondly, Verkuyl goes on to argue, in many cases, the Present Perfect reports an actual State (hate) or Activity (walk) more appropriately than the Simple Present. The following examples are from Verkuyl (1989):

(3) a. ?She hates him up till now.
b. She has hated him up till now.

(4) a. ?She walks already for an hour now.
b. She has walked already for an hour.

Finally Verkuyl declares "there are no decisive criteria for Achievements."

I follow Verkuyl (1989) (and Kenny 1963; Tenny 1994; Bach 1983, 1986; and Mourelatos 1981) and assume that the durative/instantaneous contrast is not linguistically significant. If this is true, Accomplishments and Achievements will collapse to a single class. And Smith's Semelfactives and Activities will also collapse to one class. What we are left with then is a tripartition instead of a four or five way partition. Whatever terms we use to refer to these three classes, basically we have Aristotle's old tripartition.

Yet I want to look at another fact here and argue that the distinction between Accomplishments and Achievements is still necessary. But the primary criterion for the distinction should be whether or not the verb encodes a result instead of its punctuality. (Henceforth, the [±result] feature will be used to refer to this distinction.) I will also argue that the distinction between Activities and Semelfactives is also necessary. And again the distinguishing feature is not punctuality. I will clarify some of the confusion over telicity and argue for a distinction between boundedness and telicity. It is this boundedness feature that will function to distinguish Activities

from Semelfactives.

3.2 Encoding of result – New criterion

3.2.1 Different definitions of Accomplishments and Achievements

In distinguishing Accomplishments from Achievements, Vendler (1967) seems to draw heavily on the the punctuality criterion. Therefore, a predicate like *type the letter p* will be an Achievement by his definition. Yet for Dowty (1979) Achievements necessarily involve a change of state. His Achievements include:

(5) i. change of physical state (melt, freeze, darken);
ii. change of state of consciousness (awaken, fall asleep);
iii. locatives that indicate a relation of getting into contact or out of contact (reach, arrive at, depart);
iv. cognitive (notice, spot, realize)
v. possessive (acquire, receive).
vi. "Aspectual" complement verbs (begin, start, cease)

(cf. Dowty 1979, p. 68)

According to Dowty the formal representation of Achievements will be:

(6) Achievement: BECOME predicate (x (, y))

(Taken from Van Valin 1987, p. 643)

'Predicate' here represents the logical structure of a State (be asleep, be in the garden, know the answer). 'BECOME' stands for an operator that indicates inchoativeness (a change into the State). That is to say, Achievements involve the inchoativeness of a new state. For Dowty, Achievements involve simple change of

state while Accomplishments involve complex change of state. And the formal representation of Accomplishments will be something like (7):

(7) Accomplishments: x CAUSE y

(Adapted from Van Valin 1987, p. 643)

CAUSE is an operator. X represents the logical structure of an Activity (do (x (y)) and y the logical structure of an Achievement like (6). Therefore a sentence like *The clock broke* will be an Achievement and the sentence like *The child broke the clock* will be an Accomplishment. The sentence *He typed the letter p* involves a complex change of state and so it is an Accomplishment in Dowty's system. The logical form of the sentence should look something like (Type (He) CAUSE BECOME exist (the letter p)).

Smith (1991) uses punctuality as the primary criterion to distinguish Achievements from Accomplishments. She thus defines Achievements: 'Achievements are instantaneous events that result in a change of state.' And she uses the term 'change of state' very differently from Dowty. Her 'change of state' is relevant for both Accomplishments and Achievements. Her major types of results for Achievements include:

(8) i. Affected object (break a cup, tear a paper);
ii. Constructed object (imagine a city, define a parameter);
iii. Consumed object (explode a bomb);
iv. Affected experiencer (see a comet).

(Smith 1991, p. 62)

These types of results are exactly the same as those Smith ascribes to her Accomplishments, except that Accomplishments have one more type of result, namely

that of Path-goal (walk to school):

(9) Major types of Results for Accomplishments:
i. Affected object (bend an iron bar, wrinkle a dress)
ii. Constructed object (build a house, write a letter)
iii. Consumed object (destroy a house, drink a glass of wine)
iv. Affected experiencer (amuse Mary)
v. Path-Goal (walk to the lake, work from 2 to 3)

(Smith 1991, p 52)

Smith's Achievements are distinguished from her Accomplishments only in punctuality, while for Dowty the primary criterion distinguishing Accomplishments from Achievements is the involvement of a simple or complex change of state. The Constructed object and Consumed object types of verb constellations, either Accomplishments or Achievements depending on punctuality in Smith's theory, can only be Accomplishments in Dowty's theory, because they involve complex change of state. (Refer to Dowty for a detailed discussion of logical structures of verb classes.)

We have argued that punctuality is not linguistically significant. Then what about the result and the changed state Dowty (1979) and Smith (1991) talk about? Can we assume that the primary criterion for distinguishing Accomplishments from Achievements is the encoding of the resultant state instead of punctuality?

3.2.2 Dowty's and Smith's systems revisited

A careful look at the verbs[2] listed under the category of Achievement in Dowty (see (5)) reveals that all of them (except the so-called *"aspectual" complement verbs*

[2]It is interesting to note that the list of Achievements in Dowty consists of almost exclusively of verbs, while the list of Accomplishments comprise verbs and their arguments. This fact will be discussed later.

which are considered as super-lexical categories as discussed in 4.3.3.) encode results in themselves. *Freeze* means to succeed in becoming frozen. *Awaken* means to succeed in becoming awake. *Reach* indicates the success of getting into contact with something. *Notice* denotes the result of seeing something and *acquire* describes the success of getting something. These verbs may be transitive or intransitive. What is crucial here is these verbs with their NP complements have result readings. This contrasts with Accomplishment verbs.

A comparison of Achievement verbs and Accomplishment verbs in Dowty's system helps us to see this point clearly. Dowty's major types of Accomplishments include:

(10)
i. Locatives: walk, fly to NP; sit, lie on NP; walk a block; put, place NP into NP; carry, push NP a block or to NP.
ii. Transitive verbs of creation: draw a picture; knit a sweater; build a house;
iii. Transitive verbs of destruction: eat a sandwich; destroy, melt an icecube;
iv. Transitive change of state: kill; break, cook (a turkey);
v. Creation of a "performance object": paint a landscape; draw a unicorn; perform a sonata;

A careful look at this list reveals that most of the verbs do not encode results, they merely imply results or outcomes. Let us look at the locatives first. *Walk* does not mean success in getting anywhere. *Push* does not mean success in pushing something somewhere. It is quite obvious that the endpoints of these locatives are specified by the directional PPs, or the path NPs, the verbs themselves do not include any results or endpoints. Dowty's verbs of Creation do not encode results either. *Build* does not mean success in getting something built. *Knit* does not mean success in getting something knitted. The other kind of creation verbs (creation of "performance object") shows the same property. *Draw* does not indicate

a success of getting something drawn. And *paint* does not denote a success of getting something painted either. With all these creation verbs, the NP complements specify the outcomes or results. Without NP complements these verbs do not have result readings.

What needs a little more discussion is Dowty's *verbs of destruction* and *verbs of transitive change of state*. Some of them encode results while some others do not. *Break* encodes a result, because it mean to succeed in making something broken. *Destroy* also encodes a result, because it denotes the success of the destruction of something. *Kill* and *melt* encode results too. *Kill* means to succeed in making something dead and *melt* denotes the result of being melt. But others like *eat* and *cook* do not encode results. *Eat* does not designate a success in getting something eaten; nor does *cook* indicate that something is cooked.

Now it is clear that the criteria of encoding or not-encoding results will produce a classification of Accomplishments and Achievements similar to that of to Dowty's. The [±result] only re-sorts some of Dowty's *transitive verbs of destruction* and *transitive verbs of change of state*. By the [±result] criterion, *kill*, *destroy* and transitive *melt*, *break* are Achievements instead of Accomplishments.

Most of Smith's Achievement verbs encode results too (see (8)). The reason is: whenever the result is encoded, the achievement of the result is emphasized and the achievement of the result is always punctual. But punctuality is only a side-effect of the encoding of results, it can not serve as a primary criterion as discussed in (3.1.). The [±result] only re-sorts some of Smith's Accomplishment verbs and Achievement verbs. Her *constructed object* type of verbs like *imagine* in *imagine a city*, *define* in *define a parameter* and *type* in *type the letter p* are classified as Accomplishment verbs, because they do not encode results. And some of her *consumed object* and

affected object type of Accomplishment verbs (see (9)) like *wrinkle, bend, destroy* are classified as Achievement verbs, because these verbs encode results.

Both Accomplishment verbs and Achievement verbs are [+telic], because they alike involve outcomes or results, but they involve outcomes or results in different ways. Accomplishment verbs only imply the achievement of the outcomes or results, and these outcomes or results are specified by the complements of the verbs. On the other hand, Achievement verbs encode the achievement of the outcomes or results in themselves. This difference may be seen clearly in the contrast shown by some Accomplishment verbs and Achievement verbs when they are used intransitively.

(11) a. He ate an apple in an hour/*for an hour.
b. He ate *in an hour/for an hour

(12) a. He painted the landscape in an hour/*for an hour.
b. He painted *in an hour/for an hour.

The verbs *eat* and *paint*, when they take a specific complement, have telic readings as the (a) sentences show, whereas when they are used intransitively, they only have atelic readings as in the (b) sentences. This is evidence that [-result] verbs do not encode result or outcome in themselves, they only imply results. The outcome or the result is specified by the complement of the verb. Whenever the complement is optionally absent, the situation described by the verb has no endpoint at all. In contrast with [-result] verbs, the [+result] verbs have telic readings even when they are used intransitively:

(13) a. He won a game in a minute/*for a minute.
b. He won in a minute/*for an hour

(14) a. He melted the icecube in a minute/*for a minute.
b. The icecube melted in a minute/*for a minute.

Sentences (13-14) involve [+result] verbs. They all have [+telic] readings no matter whether they are used transitively or intransitively. That is evidence to show that these verbs encode results or final endpoints in themselves.

3.2.3 More argument for the [±result] criterion

Now the question to be asked is: does re-sorting by the criterion [±result] have any advantages? The answer is affirmative. What follows in this subsection are arguments in support of this conclusion.

3.2.3.1 Avoidance of double entries

Re-sorting by the [±result] criterion avoids double entries for verbs that have the same meanings.

In Smith's and Vendler's system, *type the letter p* is an Achievement and *type the business letter* would be an Accomplishment, although *type* in both predicates has exactly the same meaning. In Dowty's system *The clock broke* is an Achievement, and *The child broke the clock* would be an Accomplishment despite the fact that the transitive *break* means exactly what the intransitive means plus a component of agency. Similarly, *melt* in Dowty's Achievement class *The icecube melted* and his Accomplishment class *The child melted the icecube* means the same thing except for the presence or the non-presence of agency. By the [±result] criterion, *type* is an accomplishment verb, no matter what NP complement it takes, and *break, melt* are Achievement verbs, no matter whether they are used intransitively or transitively.

3.2.3.2. Explanation of facts in Chinese

The new sorting by the [±result] provides an explanation for some facts in Chinese.

To facilitate the discussion of these facts, an introduction to Chinese verbs that encode results is presented first.

In Chinese, there are some [+result] verbs which are monosyllabic such as *si* 'die' and *ying* 'win', but most of the English [+result] counterparts take the form of Resultative Verb Compounds, what Li & Thompson (1981) refer to as RVCs. As I have argued in one of my unpublished papers (1993), RVCs should be divided into three subclasses: Contact Compounds, Resultative Compounds and Achievement Compounds.

A Contact Compound is composed of a manner motion verb and a verb that indicates either getting into or out of contact with something. (Refer to Van Valin (1987) for the distinction of directional motion verbs and manner motion verbs.) (15) are some examples of this type:

(15) zou-kai 'depart from by walking'
walk-away from

pao-dao 'arrive by running'
run-arrive

pa-dao 'reach by climbing'
climb-arrive

The second component of these compounds actually functions to denote end-points of movement, either the starting point (*zou-kai* 'depart by walking') or the finishing point (*pao-dao* 'arrive by running'). More specifically, it denotes a point with which the movement comes into contact or out of contact. These compounds correspond to Dowty's Locative Achievements (see (5)).

A Resultative Compound is composed of an action verb and an adjective or another verb that indicates the result of the action. (16) illustrates this kind of compound:

(16) da-po 'break' (by hitting)
hit-broken

kan-jian 'see' (by looking)
look-see

xi-ganjing 'clean' (by washing)
wash-clean

Most of these compounds correspond to Dowty's "change of physical state", "change of state of consciousness" and "cognitive" Achievement verbs.

Finally, an Achievement Compound is composed of an action verb and an achievement morpheme. Achievement morphemes include *dao, hao, wan.* These morphemes are attached to action verbs simply to indicate that the action is successfully performed, or a process is successfully completed. Most compounds of this type are counterparts of Dowty's "cognitive" and "possessive" Achievement verbs.

(17) chuan-hao finish putting on
put on-finish

zao-dao find
look for-succeed

shou-dao receive
accept-succeed

If all three kinds of compounds are compared with their English equivalents, we see that the English equivalents specify results or achievements without saying anything about the necessary processes for achieving the results. A verb constellation like *reach the top of the mountain* denotes the success of coming into contact with the top of the mountain but says nothing about how this result is achieved. Whereas the Chinese compound that is the equivalent of 'reach' seems to encode both the processes and the results, *pa-dao* 'climb-arrive'.

Although the Chinese Resultative Compounds seem to encode processes as well as results, the emphasis is for sure on the result. As Wang Li (1980a) points out, the Chinese RVCs developed progressively from the Han period (pre-medieval times) to the Tang dynasty and gradually replaced the classical factive structure.[3] Like the English counterparts of the RVCs, the verbs used in the classical factive structure encode only results. The following table adapted from Ren (1991) compares the classical factive structure with the modern RVC structure:

	Classical Factive	Modern RVC
(18)	a. Xian li qi qi. first sharpen his tool	b. Xian xiao (mo,...)-jian tade gongju. first whittle (whet,...)-sharp his tool
(19)	a. shui zhi break it	b. qiao (da, ji,...)-shui ta knock (hit, squeeze,...)-broken it

The addition of the action verb to factive structure serves only to provide semantic reinforcement. That is why Ren (1991) argues that it is the resultative verb (the second component of the compound) that plays the key role. The first component only indicates the way or the manner in which the result is achieved. Therefore, most RVCs in Chinese cannot occur in the progressive form just as is true for most of the Achievement verbs in English. The Chinese progressive is marked by the imperfective marker *zai* which is discussed in detail later.

(20) a. Lisi **zai** zao ta de bi.
Lisi Prog look for his pen.
Lisi is looking for his pen.

b. *Lisi **zai** zao-dao ta de bi.
Lisi Prog find his pen.
*'Lisi is finding his pen.'

[3]RVCs in spoken Chinese should have existed long before they started to appear in written Chinese.

The main verb in (20a) does not encode a result and it is compatible with the progressive marker *zai*, while the Achievement compound in (20b) encodes a result therefore it cannot take the progressive maker *zai*. This can be accounted for by the fact that the focus of a RVC is on the result and the result is usually achieved instantly. However as we have discussed above, the progressive form is not a very reliable criterion for Achievement verbs, because the degree of punctuality of the achievement of the result is very much conceptually determined as Verkuyl (1989) has argued. In certain contexts, the achievement of a certain result may conceptually take some time. In such cases the progressive form is relevant:

(21) Women zheng **zai** da-ying zhechang zhanzheng.
we right now Prog fight-win this war
'We are winning this war.'

'To win a war' may take longer than 'to win a race' conceptually, and so the progressive form is more compatible with 'win a war' than with 'win a race.' Now it can be seen that using the encoding of result as primary criterion to distinguish Accomplishments from Achievements the punctual effect may follow as a natural but not an absolutely necessary consequence.

Following this introduction of the Chinese [+result] verbs, we may proceed to discuss some facts that pertain to the [+result] feature.

The first fact concerns the sensitivity to the contradiction test. It has long been observed by linguists (Tai, 1984 among others) that perfective Accomplishment can be contradicted while perfective Achievements cannot in Chinese. Let us first consider the pair in (22). (*Le* is a perfective marker, the function of which is discussed in (4.4.2.))

(22) a. Ta xie le yifeng xin.
he write Perf a letter
'He wrote a letter.'

b. Ta xie-hao le yifeng xin.
he write-finish Perf a letter
'He wrote a letter.'

The verb in (22b) is an Achievement compound which emphasizes the success or completion of the action and the sentence definitely has a completion reading, that is, the letter was completed. The verb in (22a) is an Accomplishment verb. As assumed in (3.2.2) an Accomplishment verb implies an outcome and the outcome is its NP complement. The verb itself does not encode any information about the success or result of the action named by the verb. If no more information is given, the most natural reading of (22a) will be a completion reading too, but on certain occasions, the completion may be negated, whereas the completion reading of (22b) can never be negated:

(23) a. Ta xie le yifeng xin,
he write Perf a letter

keshi hai mei xie-wan.
but still not write-finish

lit.: 'He wrote a letter, but still hasn't finished it yet.'

b. *Ta xie-hao le yifeng xin,
he write-hao Perf a letter

keshi hai mei xie-wan.
but still not write-finish

This contrast will be explained if the [±result] criterion is assumed. As will be argued in 4.2.2.2., the perfective marker *le* in Chinese only emphasizes the occur-

rence of an event as a whole, it does not emphasize completion nor termination. Therefore, when there is no further information, a sentence like (22a) may have a completion reading, because the event is viewed as a whole. However, as there is no emphasis on the completion or success of the event (provided either by the verb or the perfective viewpoint), the completion may be negated as in (23a). On the other hand, the compound in (22b) emphasizes the result or completion, hence the completion reading cannot be negated as in (23b).

The English perfective differs from the perfective of *le* in that it emphasizes the completion (if the event is telic) or termination (if the event is atelic) of the event. That is why the English Accomplishments and Achievements do not show this contrast. Yet in the potential mood, a similar contrast is displayed by the English Accomplishments and Achievements:

(24) a. He may type the business letter.
b. He may win the race.

Sentence (24a) cannot be uttered if the event is already occurring while (24b) can be uttered when he is already running the race. The reason for this contrast is: *type* emphasizes process whereas *win* emphasizes the result.

The second fact to be considered is that [+result] verbs in Chinese do not take *de* resultative expression while all other verbs do. The *de* resultative expression is a special expression in Chinese. It is added to a VP to indicate either a resultative state or a resultative action that results from the event named by the VP. And the resultative expression may be predicated of either the subject or the object of the matrix clause. If the object predicated of is specific in reference, it has to occur either in the topic position or after *ba*. (The *ba* construction is discussed in detail in 6.1.1.) The verb types in the sentences below are indicated in parentheses.

(25) a. Ta qi **de** ku le qilai. (State)
he angry DE cry Perf start
He was so angry that he started to cry.'

b. Ta pao **de** hen lei. (Activity)
he run DE very tired
He got tired from running.'

c. Ta ke **de** lian dou hong le. (Semel.)
he cough DE face all red Perf
His face became red from coughing.'

d. Tamen *ba* fangzi zao de hen piaoliang. (Accomp.)
they BA house build DE very beautiful
Lit. They built that house very beautiful.'

States, Activities, Semelfactives and Accomplishments all take *de* resultative expressions as the sentences in (25) show. However, an Achievement that involves a [+result] verb will never take a *de* resultative phrase.[4]

(26) *Ta ying **de** hen lei.
he win DE very tired
Lit. He got very tired from winning.'

(27) *Ta *ba* neige fangzi zao-hao **de** hen piaoliaon.
he BA that house build-finish DE very beautiful
Lit. He built that house very beautiful.'

In (26), the *de* resultative expression is predicated of the subject and in (27) the *de* expression is hosted by the object; in both cases, ungrammaticality occur.

The contrast shown by Achievements on the one hand, and States, Activities,

[4]An Achievement may take a *de* descriptive phrase, though, as the following sentence shows:
Ta ying **de** hen rongyi.
he win DE very easy
'He easily won.'
So there is nothing wrong phonologically or syntactically with an Achievement taking a *de* expression. It is only for semantic reasons that an Achievement does not take a *de* resultative expression.

Semelfactives and Accomplishments on the other can be explained if the [±result] criterion is assumed. Achievement verbs encode results already, and so no other result may be added to Achievements. All other kinds of verb do not encode results and so basic situations involving them may take the *de* resultative expression.

There is still another fact that pertains to the [±result] feature. That is the different interpretations of Accomplishments and Achievements when they take durative NPs. In Chinese, a verb can in general only take one phrase after it, and several kinds of phrases have to occur in the postverbal position, the object NP, the durative NP, the quantity NP and the goal PP. Whenever the postverbal position is occupied by the object, the verb has to be repeated to take an extra phrase. Let us first look at an Accomplishment.[5]

(28) Tamen zao nazuo fangzi zao le san nian le.
they build that house build Perf three year Part
'They have been building that house for three years.'

In sentence (28) the temporal NP occurs after the repeated verb, and it has a scope only over the repeated verb. This repeated verb does not include the result of the possible outcome of the process, that is the house, and so this temporal phrase can only be denoting the lasting period of the building process. The following sentence will make this clearer:

[5]The sentence-final *le* is a particle that roughly carries the perfect meaning. There is a detailed discussion of it in (4.4.2.1.).

(29) Tamen zao nazuo fangzi zao le san nian le
they build that house build Perf three year Part

hai mei zao hao.
still not build finish

'They have build the house for three years
and still have not finish building it.'

The sentence says that the building process has lasted for three years and is still going on. However, with an Achievement, things are very different:

(30) Xiaohai da-po na kuai boli da-po san tian le.
children hit-broken that glass hit-broken three day Part
'The children have broken the glass for three days.'

With the sentence-final particle *le*, this sentence carries the perfect meaning too. The repeated verb is a verb that encodes result and has emphasis on the result. Therefore it comes natural that the temporal NP that has scope over it will only denote the length of time the result lasts. So the sentence can only have the reading that the glass has been broken for three days.

The different readings the Accomplishment and the Achievement situations have can only be accounted for by their different values of the [result] feature.[6]

To sum up, the special facts in Chinese find explanations in the re-sorting of Accomplishments and Achievements by the [±result] criterion.

[6]The durative phrase in Chinese is the counterpart of the English *for* phrase. But the contrast can be seen only in Chinese because of the special position of the durative NP in Chinese.

3.2.4 New definitions for Accomplishments and Achievements

With the new [±result] criterion, Accomplishment verbs have emphasis on the process that leads to a certain outcome, or result, but the verbs themselves do not provide any information concerning the success or achievement of the outcome or result. And the outcome or result to which the process leads is specified by the NP argument of the verb. On the other hand, the Achievement verbs encode results in themselves. The processes necessary to achieve the results may be totally ignored (win, die), or adverbial in nature (da-po 'hit-broken'). These properties of Accomplishment verbs and Achievement verbs may be represented by the following definitions revised from Smith (1991):

> (31) Accomplishment verbs are [+dynamic], [+telic] but [-result] in the sense that they indicate some process of successive stages leading to but not necessarily achieving the natural outcome.
>
> (32) Achievement verbs are [+dynamic], [+telic] and [+result] in the sense that they indicate and focuse on the achievement of some result or change of state with or without profiling the process leading to the results.

3.3 Telicity vs. boundedness

This section considers another confusing area and argues that the primary criterion for Semelfactive should be the feature of *boundedness*. Here the term *boundedness* is used differently from Jackendoff (1991). The term is borrowed here to mean temporal boundedness only. It will be shown that it is necessary to distinguish temporal boundedness and spatial boundedness, which will be referred to as *telicity* henceforth. And the boundedness vs. telicity distinction distinguishes Semelfactives

from Activities on the one hand, and States, Semelfactives, and Activities from Accomplishments and Achievements on the other hand.

3.3.1 The confusion

We have seen that Smith groups verbs like *flash, cough, knock* as Semelfactive verbs. And she considers these verbs as atelic. Yet for Jackendoff a situation as expressed by the sentence *The light flashed* will be bounded, because it describes a single, specific act. But the sentence *The light flashed continuously* will be unbounded. Finally the addition of another temporal phrase like *until noon* will provide a temporal boundary and the situation as expressed by the sentence *The light flashed continuously until noon* will be bounded. Then we are faced with two questions here. Are Semelfactives bounded? Do temporal phrases provide boundaries?

3.3.2 Endpoints in terms of space

The confusion actually arises from different understanding of endpoints. Traditionally endpoints have been understood as temporal notions as in Bennett & Partee (1972). The initial point and the final point denote two points on a time axis, namely the points in time at which an event starts and at which it ends (Bennett & Partee, 1972).

3.3.2.1. Van Voorst's event structures

Later in time some linguists began to interpret endpoints in terms of space. Van Voorst says "Instead of considering endpoints points in time, we can interpret them as objects in reality that are used to identify these endpoints. This implies that the temporal analysis of events is replaced by an analysis using spatial notions." (Van

Voorst 1988, p. 27) So a sentence like *He ate an apple* will be a telic structure with the subject NP serving as the 'object of origin' and the object NP serving as the 'object of termination'. In his view, for a situation to be delimited, it has to have an object of termination, which is the object that undergo 'an identifiable change of state'. (Van Voorst 1988, p. 33) Sentences like *He is working* only have objects of origin and so they are atelic in nature.

Van Voorst also claims that a spatial interpretation will better account for the indefinite plural/mass noun phenomenon (refer to 2.4.2.). Indefinite plurals and mass nouns do not denote entities that are delimited in space and so they can not serve as objects of termination. The sentence *He drank beer* will be non-delimited, because it contains only an object of origin but not an object of termination. On the other hand, a sentence *The vase broke* will be delimited, because it contains an object that underwent an identifiable change of state.

3.3.2.2. Tenny's measuring out

Tenny's delimitedness is quite similar to Van Voorst's, though a different approach is used, what Tenny calls the 'Measuring Out' approach. All situations that involve 'measuring out' will be delimited. According to her there are "three ways in which a direct internal argument can 'measure out' the event over time. In the case of incremental-theme verbs, the internal argument is created or consumed over time. With the change-of-state verbs the internal argument undergoes some change in a property over time, and with route or path-object verbs, the internal argument, although unchanged, provides a gradient along which the progress of the event may be measured." (Tenny 1994, p18) From what we quote here, we may see that 'measuring out' is actually a spatial notion. And this is made clearer by Tenny's own

examples. Let us look at a couple of them here. *Eat an apple* is a typical example of a [verb + incremental-theme]. The eating event is understood to progress through the apple and the event ends when the apple is entirely consumed. In this way the apple measures out the event. The change-of-state verbs also have arguments that measure out the event. The internal argument *bomb* in *The terrorist exploded the bomb* undergoes a definite change and so it also measures out the event. Finally, let us look at the path-object verbs. *Bill climbed the ladder.* The path object *the ladder* does not undergo a change but it defines a path and a distance traveled in the event. In that sense it measures out the event too. Tenny discusses one kind of delimitedness that does not involve her strict sense of measuring out. And this delimitedness is provided by what she call the 'terminus'. And the terminus actually provides an implicit path and so this kind of delimitedness is also defined in terms of space. *He walked* is atelic but the addition of the terminus with the implicit path will produce a telic situation *He walked to school.* The terminus *to school* actually implies a path and this path measures out the event of walking. So this kind of delimitedness is also spatially defined.

3.3.2.3. Smith's natural final point

Smith (1991) declares that her classification of situation types is based on three basic features: ±static, ±durative, ±telic. And the confusion arises from the nature of her ±telic feature. She says 'The final points of events are natural or arbitrary. ..... The essential factor of a telic event is that it has a natural final point.' Then what is a natural point to her? A sentence like *The light flashed* may describe a single definite act. And a single flashing, however short it is, occupies a time interval with initial and final endpoint. Is this final endpoint not natural? Obviously not

in Smith's view, because she gives the [-telic] feature to Semelfactives. At another place, Smith says 'Activity and Semelfactive are atelic; they do not involve changes of state.' (Smith 1991, p 29) Here she seems to be saying that endpoints necessarily involve changes of state, or objects that undergo changes of state. To see her point more clearly, let us look at her definitions for the only two telic situation types in her system:

> (33) Accomplishments consist of a process and an outcome, or change of state.
> (34) Achievements are instantaneous events that result in a change of state ....
>
> (Smith 1991, p. 49 & 58)

These two types of telic situations necessarily involve outcome or change of state. Then it seems that Smith's natural endpoint is actually spatially defined too. Because either outcome or change of state should involve objects in space. However, when talking about the result types of Accomplishments, she illustrates the path-goal type with *walk to school* and *work from 2 to 3* . The former involves a spatial endpoint but the latter involves a temporal endpoint. Judging from this Smith's natural final endpoint may be temporal too. At another place Smith discusses a sentence *Mary went to Paris for three days for three weeks* . This sentence has the interpretation that Mary went to Paris with the intention of staying for three days, but actually stayed for three weeks. Smith says the innermost adverbial is internal to the situation and characterizes the situation entity, but the outmost one is external to the situation and only locates the situation. So in her system, temporal endpoints may be natural endpoints if they are intended.

3.3.2.4. Depraetere's boundedness and telicity

Depraetere (1995) argues for a distinction of boundedness and telicity, but her boundedness is actually Smith's viewpoint aspect, namely, the way a situation is presented, partially or entirely. And her telicity covers both spatial and temporal endpoints. So the sentence *Judith played in the garden for an hour* will be telic as the sentence *I ate an apple* is. (Depraetere 1995, p. 3-5)

3.3.3 Spatial endpoints vs. temporal endpoints

As Lyons (1977, p. 718) observes "spatial expressions are more basic, grammatically and semantically than various kinds of non-spatial expressions." It may be easily noted that all the spatially delimited situations will have temporal boundaries too. A situation like the one expressed by *They built a house* has an incremental-theme or an object of termination, 'the house'. When the house was built to its completion the event of *building the house* ended, so did the temporal interval during which the event of building the house is true.

Spatial delimitedness always implies temporal boundedness, but the converse is not true. Jackendoff's sentence *The light flashed continuously until noon* is temporally bounded but it is not delimited in Van Voorst's term or in Tenny's term, or telic in Smith's term.

Then we may ask the question: "Is the temporal bound provided by a phrase like *until noon* significant linguistically?" I will argue for a 'yes' answer to this question in the following subsections.

3.3.4 The temporal boundaries of Semelfactives

Semelfactives represent a very interesting situation type. They pattern with Activities as open-ended when they have multi-event interpretations:

(35) a. He coughed *in an hour/for an hour. (Semelfactive)
b. He walked *in an hour/for an hour. (Activity)

but they differ from Activities in that they shift between a single-event and a multi-event reading while Activities always have a single-event reading. First, a progressive Semelfactive always has a repetitive reading while a progressive Activity always has a single-event reading. When we say *Mary was coughing* , we talk about a series of coughs, but when we say *Mary was walking*, we refer to only one specific walk. Second, as ter Meulen (1995) mentions, even a non-progressive sentence like *He coughed* , standing alone, may have a repetitive reading as well as a single-event reading (a cough or a series of coughs). However, an Activity in the same form, *He walked* , usually has a single-event reading.

The fact that Semelfactives pattern with Activities with regard to telicity makes is necessary to distinguish them both from Accomplishments and Achievements. And the spatial delimitedness or lack of it suffices to account for this distinction. As discussed in 3.3.2.3. both Accomplishments and Achievements have spatial final endpoints while Semelfactives and Activities do not. However, there is the other fact to be explained, that is the single-event vs. multi-event reading difference between Semelfactives and Activities. This difference has been accounted for by the puncutual/durative contrast (Comrie 1976, Smith 1991). It is true that Semelfactives are usually punctual in nature but punctuality again can not be used as a criterion to distinguish Semelfactive from Activities. As Verkuyl (1989) has shown punctuality is very much conceptually determined. *Jump* is a Semelfactive verb by the *punctuality* criterion, but a basic situation with this verb may be ambiguous between a single-event or a multi-event reading. And we do not really need to resort to modern technology (like the typing example by Verkuyl) to have a case like this. We know

that a man jumps six times as high on the moon as on the earth, so a jump on the moon takes a much longer time. Therefore, it is natural for moon people to say *He was jumping* to refer to one single jump. But still it will not be a surprise if they refer to several jumps by uttering the same sentence.

As in the case of Achievements, I discard the punctuality property as the decisive criterion for Semelfactives. In place of the punctuality criterion, I propose the natural temporal endpoints as the new criterion. We may observe that whenever it is possible to have repetitive readings, there are temporal boundaries involved. Repetition is possible only when there are natural temporal boundaries. And Jackendoff (1991) seems to have the same ideas in his mind when he says that a sentence like *The light flashed* is bounded as is the sentence *Bill ate the hot dog.* And the evidence for this is the fact that when a Semelfactive takes the progressive form, or a duration temporal phrase it will have a multi-event reading. *He was coughing* or *He coughed until noon* will be understood to mean that there were several coughs by him, while an Activity *He was walking* refers to a single event. Jackendoff (1991) equates the repetition effect of Semelfactives with the plural effects of NP arguments (see 2. 4.2. for the indefinite plural and mass noun effect on telicity). He says "in the case of objects, the plural maps an expression denoting an instance of a category (say, apple) into an expression denoting a multiplicity of instances of the category (apples). In the case of repetition, an expression denoting a single instance of a particular category of events (the light flashed) is mapped into an expression denoting multiple instances of the same category." (Jackendoff 1991, p 16)

The temporal boundaries of Semelfactives may be attested by defining or describing their cognate nouns. *A cough* may be defined as a single outburst of air from the lungs. This outburst of air does not extend in time and so it is temporally

delimited. *A knock at the door* is a single contact of something with the door. It begins and ends almost at the same time, and the short instant it occupies is bounded. *A jump* takes a little longer time than a cough or a knock, and we may talk about a jump in the effect that a jump begins when something lifts away from the ground and ends when it falls back down to the ground. With the cognate nouns of Activity verbs, we can not do the same thing as we have done with the cognate nouns of Semelfactive verbs. *A walk* may extend endlessly and can not be defined as a single movement of the leg. *A drive* may also extend without limits.

On the one hand Semelfactives have no spatial endpoints and pattern with Activities with regard to telicity, on the other hand they are distinguished from Activities because they have temporal boundaries which Activities do not have. Therefore the (un)boundedness vs. (a)telicity distinction is needed for distinguishing Semelfactives from other situation types.

However, as will be discussed later, the natural endpoints of Semelfactives are much weaker in bounding force than the spatial endpoint. And Semelfactives easily get repetitive readings. Whenever they have repetitive readings, they are unbounded. So beside the repetitive reading effect, Semelfactives behave much the same as Activities. In short, Semefactives should be conceived of as [-telic] and both [-bounded] and [+bounded]. And accordingly the definition of Semelfactive verbs should read as (36):

> (36) Semelfactive verbs are dynamic and atelic, have natural temporal endpoints but shift between bounded and unbounded readings. That is to say Semelfactive verbs are: [+dynamic], [-telic] and [±bounded].

3.3.5 Temporal boundaries provided by temporal phrases

It is assumed by many linguists that temporal phrases provide endpoints and so close off events. (Jackendoff 1991; Comrie 1976; Depraetere 1995) This is not very obviously true in English or some Slavic languages like Russian, because in these languages the past tense and the perfective aspect morphology may always provide temporal endpoints to unbounded or atelic situations. Let us look at the sentences in (37):

(37) a. She walked.
b. She walked for a hour.

Though (37a) does not specify for how long the walking lasts, we know it ended because of the complex tense and aspect morphology. However, in a language like Chinese which has a special temporal system, a temporal phrase does make a great difference. As will be discussed in the next chapter, Chinese is a tenseless language in a strict sense (see Wang 1985). There are two grammatical categories which function sort of like tense markers but they are not full-fledged tense markers. One of the perfective aspect markers *le* is used to give a totality view of situations in past or future sequence, but this marker does not provide a temporal endpoint. Another perfective marker *guo* provides a temporal endpoint, but it only conveys experiential and perfect meaning. Therefore situations have to be either [+bounded] or [+telic], if they take the perfective marker *le* to refer to specific facts.

(38) Tamen zao **le** yizuo fangzi.
they build Perf a house
'They built a house.'

(39) Ta da-po **le** yige chabei.
he hit-broken Perf a cup
'He broke a cup.'

(38) is an Accomplishment and (39) is an Achievement. Both are telic and grammatical. In (40) we have an Activity. (40a) is out because it is atelic and unbounded, (40b) is good because it is bounded by the temporal phrase.

(40) a. *Ta zhan **le**.
he stand Perf

b. Ta zhan **le** yige xiaoshi.
he stand Perf a hour

'He stood there for an hour.'

States may have perfective readings too if temporal boundaries are added:

(41) a. Liming ai Xiaojuan.
Liming love Xiaojuan.
'Liming loves Xiaojuan.'

b. *Liming ai **le** Xiaojuan.
Liming love Perf Xiaojuan

c. Liming ai Xiaojuan ai **le** san nian.
Liming love Xiaojuan love Perf three year
'Liming loved Xiaojuan for three years.'

(41a) contains no aspect marker, therefore, most naturally, it will be interpreted as describing an open-ended state. If a specific single situation is meant, a temporal endpoint has to be there as the contrast of (41b) and (41c) show.

The Semelfactives are atelic and either bounded or unbounded. They behave

like Activities in referring to single specific facts.

(42) a. *Deng shan **le** (only current relevance reading)
light flash Perf

b. Deng shan **le** yi huir.
light flash Perf a while
'The light flashed for a while.'

(42a) can not refer to a single specific fact because it is not [+bounded]. To make a Semelfactive [+bounded], a temporal phrase has to be added. If one single flash is referred to the sentence will be:

(43) Deng shan **le** yixia.
light flash Perf once
'The light flashed once.'

The quantity NP *yixia* 'once' definitely demarcates the boundaries and so the indefinitely bounded Semelfactive becomes definitely bounded. The behaviour of Semelfactives may be explained by the fact that Semelfactives are, not necessarily, but quite usually, punctual and tend to have repetitive readings. Whenever they have repetitive readings they are unbounded. So an extra delimiting device is needed if a definite situation is referred to.

To sum up, it is necessary to distinguish (un)boundedness from (a)telicity. First temporal boundaries serve to distinguish Semelfactives from Activities. And secondly, in languages like Chinese, where there is no tense and the crucial perfective viewpoint does not provide endpoint, temporal boundaries are very important. In Chinese atelic situations States, Activities and Semelfactives require overt temporal boundaries to have perfective interpretations, while telic situations Accomplishments and Achievements do not.

3.4 Verb classes

Here I use the term *verb classes* rather than *situation types*, because in the section that is to follow, a three-level model will be developed to specify clearly what role each of the contributing elements plays in deciding the situation aspect of a sentence. This model together with the new criteria [±result] and [±bounded] make it possible to talk of verb types and situation types separately in clear terms. Verbs are assumed to have intrinsic aspectual features. The arguments of verbs and some of the non-argument adjuncts also have some aspectual features. The verb, the arguments of the verb, some adjuncts, and some other delimiting mechanisms interact with each other to determine the situation aspect of the entire sentence. As a result we look at situation type formation rather than situation type shifting. The advantage of this approach is: we may avoid double or triple listings of a verb (with one meaning) under different category headings, eg. list *drink beer* with Activities and *drink the beer* with Accomplishments. Verbs that have more than one meaning have to be double or even triple listed, *taste* with the meaning of *have the flavor* will be a State verb, and the same verb with the meaning of *find out the taste of* will be an Activity verb. Verbs will be classified according to their basic meanings by the generally accepted features [±dynamic], [±telic] and the two new features I have just proposed [±bounded], [±result]. To facilitate the discussion in the next Chapter, a table of verb classes containing both the English and the Chinese verbs is given in Table 3.1. The Chinese and English examples are counterparts of each other. See Table 3.1.

Table 3.1. lists the basic types of verbs. And the verbs are categorized according to their basic meanings in terms of the four binary features: [±dynamic],

Table 3.1: Table of Verb Classes

i. **State verbs:** [-dynamic, -telic, -bounded]
   English: know, love, live, resemble, be green,
   Chinese: zhidao, ai, zhu, xiang, lǚ,
ii. **Activity verbs:** [+dynamic, -telic, -bounded]
   English: run, walk, rotate, drive, push,
   Chinese: pao, zou, zhuan, kai, tui,
iii. **Semelfactive verbs:** [+dynamic, -telic, ±bounded]
   English: cough, flash, jump, knock,
   Chinese: ke, shan, tiao, qiao,
iv. **Accomplishment verbs:** [+dynamic, +telic, -result]
   English: build, cook, knit, eat, paint,
   Chinese: zao, zhu, zhi, chi, qi,
v. **Achievement verbs:** [+dynamic, +telic, +result]
   English: win, die, arrive, freeze, recognize,
   Chinese: ying, si, dao,

[±bounded], [±telic] and [±result].[7] These verbs interact with their associated arguments, adverbials and some other elements to form situations of the same five basic types and some other peripheral types. (For these situation types, see Table 3.2.) Lexical process may derive new verbs from these basic verbs. And the categories of the derived verbs are determined by the nature of the processes. All this is the topic of the next section.

[7]The reader may find some redundance in the feature system adopted here, because [±result] implies [+telic] and [±bounded] implies [-telic]. However the redundancy will disappear when we come to talk about the situation types (see Table 3.2.).

3.5 Three level telicity and boundedness change processes

The compositional nature of aspect has long been recognized by linguists (Verkuyl 1972, Dowty 1979, among others). It has been shown in 2.4. how (a)telicity is determined by the interaction of verbs, the arguments of the verbs and some other elements. However, for the reason that the distinguishing criteria most linguists adopt (punctuality/durativity, simple/complex change of state, measuring arguments) depend too much on the nature of the verb's associated arguments, it is always hard to talk about the nature of verbs separately from the nature of situations, though these linguists also admit the intrinsic nature of the verbs. With the new criteria proposed in 3.2.2.3 and 3.3.3. the intrinsic nature of the verbs can be fully recognized and how a basic verb interacts with other elements to form a certain kind of situation will be looked at at three different levels.

Smith provides schemata that account for the interaction of verbs and their NP or PP internal arguments (see Chapter 2: (22)-(23)). But those schemata do not account for the roles played by adverbial phrases of time, cognates, quantity NPs etc. in the telicity or boundedness change processes. The three-level model proposes in this section will show how at each level certain elements contribute to the telicity or boundedness composition processes. The basic assumption for the model is that verbs have intrinsic boundedness or telicity features, then other elements - arguments, cognate objects, temporal phrases, quantity NPs, etc. - , interact with the intrinsic nature of verbs to determine the boundedness or telicity feature of the entire sentences. Basically the intrinsic features of verbs are assumed to be the features pertaining to the basic meanings of the verbs. NP arguments

have the [±count] feature and PP arguments have [dir] or [goal] features.

3.5.1 Lexical level

At this level, we look at lexical processes that will change [-telic] or [-bounded] verbs into [+telic] or [+bounded] verbs through the addition of items denoting result or contact. We will also look at a special delimiting mechanism in Chinese: the verb reduplication process. I assume the following schemata for these lexical processes:

(44) $\text{Verb}_{[-telic/-bounded]}$ + $\text{Item}_{[result/completion]}$ = Complex $\text{Verb}_{[+telic]}$

(45) $\text{Verb}_{[-telic/-bounded]}$ + reduplicant = $\text{Verb}_{[+bounded]}$

The $item_{[result/completion]}$ may be an AP describing result, a particle denoting completion or a morpheme indicating the completion of getting into or out of contact. Items of all three kinds provide spatial endpoints, so it is natural that the resulting complex verb will be [+telic]. The verb reduplication process in Chinese conveys a delimitative meaning of an action, so it provides temporal boundaries and the, resulting verb will be [+bounded].

3.5.1.1. The [Verb + $\text{Item}_{[result/completion]}$ process]

The following are some examples to show how the addition of the $Item_{[result/completion]}$ will produce a complex verb that has telicity features different from the base verb. Let us first consider some English sentences. The sentence in (47) is adapted from Tenny (1994, p. 36).

(46) a. Mary wiped the table for an hour.
b. Mary wiped the table clean *for an hour. (resultative AP)

(47) a. John pushed the cart for an hour.
b. John pushed the cart over *for an hour. (completion particle)

(46a) is an Activity, so it is compatible with the *for* temporal phrase. In (46b), the addition of the word *clean* actually adds a result to the verb *wipe* . In other words, the discontinuous complex verb *wipe ... clean* is a derived Achievement verb. This derived Achievement verb and the definite subject and object form an Achievement situation, and that is why the *for* phrase is bad for it. Again, (47a) is an Activity. In (47b) the particle *over* denotes the achievement of a new state – namely that of the cart's being overturned, and so the Activity verb is changed into an Achievement verb and the resulting situation is an Achievement too.

In Chinese, the addition of the $item_{result/completion}$ to verbs is a compound-formation process that is extremely productive. An $item_{result/completion}$ may to added to any verb (except the Achievement verbs) to form a compound of any of the three types: the Resultative, the Contact and the Achievement. A Resultative Compound consists of the verb denoting a state or an action and a morpheme that indicates the result of the state or the action. A Contact Compound is composed of a manner movement verb and a morpheme that denotes the success of getting into or out of contact. (This kind of contact morpheme may be regarded as a kind of result morpheme too.) And an Achievement Compound consists of an Accomplishment verb and a morpheme that indicates completion. All three kinds of compounds are derived Achievement verbs, no matter from what base verbs they are derived. To show this clearly let us look at a few Chinese sentences. In these sentences, the phrase *zai yige xiaoshi nei* , the English counterpart of 'in an hour' and the [verb +

yige xiaoshi] or [repeated verb + yige xiaoshi],[8] the counterpart of the English 'for an hour' will be used as tests for telicity.

(48) a. Ta xi neixie yifu xi le yige xiaoshi.
he wash those clothes wash Perf a hour
He washed the clothese for an hour.

b. *Ta xi-ganjing neixie yifu xi-ganjing le yige xiaoshi.
he wash-clean those clothes wash-clean Perf a hour
Lit. He washed clean the clothes for an hour.'

(49) a. *Ta zai yige xiaoshi nei zou le.
he in an hour walk Perf
*He walked in an hour.'

b. Ta zai yige xiaoshi nei zou-dao le pengyou jia.
he in an hour walk-arrive Perf friend home
He arrived at his friend's home in an hour.'

As the *in/for* phrase tests show, the (a) sentences are atelic, while the (b) sentences are telic. And the only difference between the (a) and (b) sentences is the presence or absence of the $item_{result/completion}$. The resultative morpheme *ganjing* changes *xi* into an Achievement verb and the contact morpheme *dao* does the same thing to the activity verb *zou*.

After the above general remarks about the [verb + $item_{result/completion}$] process, a discussion of some particulars will follow to tidy things up.

First, a few more words need to be said about why the [verb + $item_{result/completion}$] process is assumed to be a lexical level process. Traditionally, particles like the one in (47b) are considered as forming complex verbs with the verbs. And the AP predicate

[8] In Chinese, a verb usually takes only one phrase after it (except for the double object construction). If a verb has an object then the verb has to be repeated to introduce the temporal phrase.

in the resultative structure as the one in (46b) has also been argued to bear close relation to the verb. Rapoport (1993) argues: "in resultatives the predicate is part of the action described also by the verb. This can be seen in the examples ... : *Joshua nailed every window* does not describe the same action as that in (6c) (*Joshua nailed [every window] shut.*);" Dowty (1979) and Simpson(1983) have suggested that the verb and the adjective form a complex verb. Bolinger (1971) has argued that the two form a discontinuous lexical item. I will accept the assumption of these linguists here without argument. The reader may refer to these linguists for detailed discussions of this assumption.

If the AP predicate is part of the complex verb, then the addition of it has to take place at a lexical level. In terms of aspect, this [verb + $item_{(result/completion)}$] process is a process that changes the nature of a verb. An intrinsically [-telic] verb will be changed into a [+telic] verb, or a [-result] verb will be changed into a [+result] verb through the addition of a specific result or specific endpoint.

In English, the [verb + resultative AP] form a discontinuous complex verb: *wipe the table clean.* The [verb + particle] may either form a continuous or discontinuous complex verb, *push the cart over* or *push over the cart* . In Chinese both the resultative AP and the completion item will be attached to the verb and form Resultative, Achievement or Contact compounds.

Secondly, a more particular discussion of the Chinese Resultative, Achievement, and Contact Compound formation process is needed

As mentioned a few paragraphs earlier, the addition of $item_{result/completion}$ to verbs in Chinese is a compound formation process. This process is extremely productive. It applies to verbs of all kinds except the Achievement verbs, while in English, this process only applies to a limited number of dynamic verbs. In (50), we will have

some examples of [State verbs + item$_{[result]}$]:

(50) Stative verbs + resultative APs:

a. Zijuan qi-feng le.
Zijuan angry-crazy ASP
'Zijuan was so angry that she became crazy.'

b. Women hen-tou le ta.
we hate-through ASP he
'We hated him through.'

c. Lisi gaoxing-si le.
Lisi happy-dead ASP
'Lisi was extremely happy.'
Lit:'Lisi was so happy that he became dead.'

The verbs in (50a,b,c) are all Stative verbs. And the resultative component of the verb describes the resultant state resulted from the emotion or state described by the Stative verb.[9] One thing that needs to be point out is that the resultative state may be figurative. (50a) says that Zijuan was so angry that she got mad. Zijuan does not need to be literally crazy. (50c) is an expression to say that *Lisi was extremely happy*, he does not need to be dead as a result of the extreme happiness. In the real world, these result morphemes may not denote real results, but what is crucial here is that linguistically the addition of the result morpheme does change the telic nature of the State verbs. Compounds of the form [State verb + Item$_{result}$] form a natural class with other kinds of Resultative compounds. State verbs by themselves

[9]One thing that needs to be noticed here is that the resultative component may be predicated of the external argument (50a, c) as well as the internal argument (50b). This is true not only with the psych Stative verbs but with other kinds of verbs as we will discuss below. Whenever the resultative component is predicated of the external argument, it is the external argument that measure out the event. These sentences constitute counterexamples to Tenny's assumption that external arguments never measure out events.

can not occur with the perfective perfective marker *le* to refer to definite situations in past or future sequence:

(51) a. *Women hen **le** ta.
we hate Perf he

b. *Zijuan qi le. (only the inchoative reading)
Zijuan angry Perf

c. *Lisi gaoxing le. (only the inchoative reading)
Lisi happy Perf

But when the resultative AP is added, the sentences are grammatical with a perfective interpretation as sentences in (50) show.[10]

The fact that the [verb + item$_{result/completion}$] process applies to State verbs is of some significance, because it shows that State verbs also take part in telicity composition processes. That is why in my system I assign the [-telic] feature to State verbs.[11]

In the following we look at Activity, Semelfactive, and Accomplishment verbs respectively.

[10]With intransitive State verbs, the verb-final position is also the sentence-final position. The inchoative interpretations of (51b,c) show that *le* in them is a sentence-final particle instead of perfective marker.

[11]Smith assumes that States never take part in the telicity composition processes and so she gives no telicity feature to States.

(52) Activity verbs + Item$_{[result/completion]}$

a. *Lisi zai yige xiaoshi nei jiu tiaowu le.
Lisi in an hour then dance Perf
*'Lisi danced in an hour.'

b. Lisi zai yige xiaoshi nei jiu tiao-lei le
Lisi in an hour then dance-tired Perf
'Lisi became tired from dancing in an hour.'

(52a) is atelic, and so it is incompatible with the phrase *zai yige xiaoshi nei.* 'in an hour'; whereas (52b) is telic and compatible with the *in* temporal phrase.

In (53) are some resultative compounds with semelfactive verbs as the first component.

(53) Semelfactive verb + Item$_{[result/completion]}$

a. *Ta zai yige xiaoshi nei ke le.
he in an hour cough Perf
'He coughed in an hour.'

b. Ta zai yige xiaoshi nei ke-huai le sanzi.
Ta in an hour cough-bad Perf voice.
'He spoiled his voice in an hour by coughing.'

(53a) is bad because the situation is [-telic] and the *in* phrase is not compatible with a [-telic] situation. The addition of the resultative morpheme to the Semelfactive verb changes the verb to an Achievement verb and so in (53b) we have an Achievement situation.

As Accomplishment verbs imply results only, it is possible to add a resultative or completion item to an Accomplishment verb to enforce a result reading. This is seen in the minimal pair *He ate an apple ?for an hour* and *He ate up an apple *for an hour* . In Chinese, the addition of an *item$_{result/completion}$* also enforces a result

reading. In other words, a [-result] Accomplishment verb is changed into a [+result] Achievement through the addition of the $item_{result/completion}$. The following are some examples from Chinese:

(54) a. Ta zao le yizuo fangzi.
he build Perf a house
He built a house.'

b. Ta zao le yizuo fangzi keshi mei zao-wan
he build Perf a house but not build-finish
'He built a house but had not finish building it.'

c. *Ta zao-hao le yizuo fangzi
keshi mei zao-wan
he build-complete Perf a letter
but not build-finish
Lit. 'He built-complete a house but had not finished building it.'

Build is an Accomplishment verb and the sentence in (54a) name an Accomplishment. It may have a completion reading as the translation of (54a) suggests, but the completion may be negated as (54b) shows, because an Accomplishment verb does not encode result and the Chinese perfective *le* does not provide an final endpoint (See 4.4.2. for more discussion of this). In (54c) the addition of the completion morpheme changes the Accomplishment verb into an Achievement verb, and negation of completion is no longer possible.

3.5.1.2. The verb reduplication process in Chinese

The verb reduplication process in Chinese delimits a situation in time, so it may change a [-bounded] situation into a [+bounded] one. There is a detailed discussion of this process in Chapter Four. Here I will just give some sentences as illustration of the process. First, let us look at how Activities and Semelfactives get bounded

by this process. As the contrast shown here is between boundedness and unboundedness, the *in/for* phrases test is not relevant. Here the perfective marker *le* may be employed to show if a situation is bounded. (There is a detailed discussion about how *le* has to occur with either [+bounded] or [+telic] situations in 4.4.2.)

(55) a. *Ta zou le. (departure reading only)
he walk Perf

b. Ta zou le zou.
he walk Perf walk

'He walked a little bit.'

(56) a. *Ta tui le che.
he push Perf cart

b. Ta tui le tui che.
he push Perf push cart

'He pushed the cart a little bit.

(57) a. *Ta qiao le men.
he knock Perf door

b. Ta qiao le qiao men.
he knock Perf knock door.

'He knocked at the door a little bit.'

(55a) and (56a) are Activities. They are ungrammatical because these situations are neither [+bounded] nor [+telic] and are incompatible with the perfective marker *le*. (55a) is grammatical with the departure reading, but in that case the verb *zou* means 'leave'. (55b) and (56b) are grammatical because they are [+bounded]. Sentences in (57) involve a Semelfactive verb, they show the same bounded and unbounded contrast.

This process may apply to Accomplishment verbs to delimit the process too. In such cases, the situations involved are usually unbounded (because of bare plural object or mass noun object and so on). *Tamen zao le zao fangzi* has the interpretation of *They did a little bit of building houses. Ta chi le chi pingguo* has the interpretation of *He did a little bit of eating apples.*

This process does not apply to Achievement verbs, because Achievement verbs have spatial endpoints built in.

3.5.1.3. Summary

The addition of a $item_{resultorcompletion}$ may change an intrinsically [-telic] verb into a [+telic] verb; [12] or a [-result] verb into a [+result] verb. This process is assumed to take place at the lexical level, because the verb and the added morpheme form a complex verb. In English this complex verb may be either discontinuous or continuous. In Chinese, this process is actually a compound formation process. In English this process applies to a very limited number of dynamic verbs. In Chinese, however, it applies to an extremely large number of verbs including State verbs too.

The Chinese verb reduplication process is one that provides temporal limits, so it may change a [-bounded] verb into a [+bounded] one.

By looking at the change of verb nature at the lexical level, we explain the phenomenon of verb type shift without adding complexity to our lexicon, because the shift is governed by the two rules proposed in this subsection. There is no need to add the derived verbs to the lexicon. Our verb classification may be kept untouched and the nature of the derived verbs are explained by the rules.

[12] [-Telic] does not imply [-bounded]. As we will see in Table 3.2., a situation may be [-telic] but [+bounded]. On the other hand, [+telic] implies [+bounded].

3.5.2 The subcategorizational level

At this level, we look at the interaction of verbs and their arguments in determining telicity or boundedness. There is extensive literature on this as mentioned in 2.4. Here I will not elaborate too much on the bare plural, mass noun/definite, count noun distinction, the goal PP and locative PP distinction and so on. I will introduce added arguments discussed in Tenny (1994). I will also discuss partitive NPs in Chinese.

3.5.2.1. Bare plural/mass noun effect

In contrast with individual NPs, when bare plurals are combined with [+telic] verbs, [-telic] situations are produced:

(58) a. He drew a circle *for an hour/in an hour.
b. He drew circles for an hour/*in an hour.

(59) a. The guest ran into the house *for an hour/in an hour.
b. Guests ran into the house for an hour/in an hour.

(58b) has a bare plural object and (59b) has a bare plural subject, both (b) sentences have atelic readings in contrast to the (a) sentences that have telic readings.

Mass nouns have the same effect as the bare plurals.

(60) a. Mary drank the beer *for an hour/in an hour.
b. Mary drank beer for an hour/*in an hour.

In Chinese, the same effect obtains. The temporal phrase that is the counterpart of the English *for* phrase has to occur after the repeated verb whenever the verb has an object. Therefore this test can not be used for Accomplishments (see discussion in 3.2.3.2.) In the following examples I use the *zai yige xiaoshi nei,* the counterpart of 'in an hour', as a test for Accomplishments.

(61) a. *Ta zai yige xiaoshi nei hua le yuanquan.
he in an hour draw Perf circle
He drew circles *in an hour.

b. Ta zai yige xiaoshi nei hua le yige yuanquan.
he in an hour draw Perf a circle.
He drew a circle in an hour.'

(62) a. *Ta zai yige xiaoshi nei he le pijiu.
he in an hour drink Perf beer
*He drank beer in an hour.

b. Ta zai yige xiaoshi nei he le neixie pijiu.
he in an hour drink Perf that beer
He drank the beer in an hour.

3.5.2.2. Goal PPs and path NPs

Goal PPs and path NPs may provide endpoints and change atelic situations into telic ones.

(63) a. He walked for/*in an hour.
b. He walked to school *for/in an hour.

Directional and locative PPs do not function the same as goal PPs:

(64) He walked towards school for an hour.

(65) He walked in the park for an hour.

Path NPs in Tenny's definition "define a path and a distance traveled in the event". The following sentence is adapted from Tenny (1994, p 17):

(66) He walked the Appalachian Trail for/in an hour.

(66) allows both a telic and an atelic reading, but without the path object, *He walked* can only have an atelic reading.

Chinese has directional PP and locative PP but does not have goal PP. The idea of successfully arriving at a location is expressed by the Contact Compound. (See 3.5.1.1.) The Chinese directional PPs and locative PPs do not close off events either.

(67) Ta wang xuexiao zou le yige xiaoshi.
he towards school walk Perf a hour
He walked towards school for an hour.'

(68) Ta zai gongyuan li zou le yige xiaoshi.
he at park in walk Perf a hour
He walked in the park for a hour.'

In Chinese a path NP requires an Achievement Compound, so it is different from the Path NP in English.

3.5.2.3. Added arguments

By added arguments I mean cognate objects, *his/her* way, and reflexives.[13] These arguments are not obligatory, but in certain contexts, these arguments may occur as the objects of the verbs. Tenny (1994) has a detailed discussion on how these added arguments function to close off situations. I refer the reader to her for more information. I will just give some of her examples here:

[13]In addition to these three kinds, Tenny has another kind: ' expletive body parts', *I cried my eyes blind* . This kind of sentence involves resultative structure, so I will not discuss it here.

(69) a. Mary laughed for/*in an hour.
b. Mary laughed a mirthless laugh in/for one minute. (cognate object)

(70) a. Mary embraced her cousin *in/for one minute.
b. Mary embraced her way through the reunion crowd in/?for an hour. (his/her way)

(71) a. John shaved for/in an hour.
b. John shaved himself *for/in an hour. (reflexive)

All these added arguments either provide spatial endpoint – *his/her* way and reflexive – or temporal endpoint – cognate objects so they contribute to the telicity or boundedness composition processes. A cognate object is not a concrete object in the real world, but linguistically it functions like an object that takes up space with clear boundaries. *His/her way PP* actually specifies a path that has an end. And reflexives specify the affected object.

Chinese does not have real cognate objects. Some repeated verbs produced by the verb reduplication process look like English cognate objects, but that is not true, because the repeated verbs can not take adjectives as other NPs. In other words, they are verbs rather than NP objects. Chinese does not have equivalents of *his/her way* or the kind of reflexive as seen in the English example (71b).

3.5.2.4. Partitive NPs

The part-whole relation is expressed in English by the expression *"... of ..."* in the order of part-whole. Examples: *two of them* , *two of the five apples*. In Chinese the part-whole relation is expressed in the order of whole-part:

(72) wuge pingguo zhong de liangge
five apple among DE two

De is a possessive or modifier marker. In *ba/bei* constructions the NP(whole) may

occur before *bei* or after *ba*. When that is the case, a partitive NP may occur or has to occur after the verb that follows *ba/bei*. And whether the partitive NP is optional or obligatory is determined by the nature of the verb that follows *ba/bei*. As will be discussed in 5.3., *ba/bei* constructions have to name [+bounded] situations. When the verb that follows *ba/bei* is [+telic] in nature, the verb together with its definite or count noun arguments will represent a [+telic] situation ([+telic] implies [+bounded]) and the boundedness requirement will be satisfied without any extra delimiting mechanism. When such is the case the occurrence of a partitive NP only further specifies the affected part of the whole and so the partitive NP is optional.

(73) a. Ta ba nei wuge pingguo chi le liangge.
he BA that five apple eat Perf two
'He ate two of the five apples.'

b. Ta ba nei wuge pingguo chi le.
he BA that five apple eat Perf
'He ate the five apples.'

(74) a. Pijiu bei ta he le yikuo.
beer BEI he drink Perf a mouthful
'A mouthful of the beer was drunk by him.'

b. Pijiu bei ta he le.
beer BEI he drink Perf
'The beer was drunk by him.'

The verbs in (73-74) are Accomplishment verbs. When the partitive NP is present, the sentences (73a and 74a) have the interpretation that only part of some object is affected; when the partitive NP is absent the sentences (73b and 74b) have the interpretation that the entire object is affected. When the verb that follows *ba/bei* is [-telic] in nature, a partitive NP has to occur after the verb to close off the situation:

(75) a. Ta ba pingguo yao le yikou.
he BA apple bite Perf a mouthful
'He bit a mouthful of the apple.'

b. *Ta ba pingguo yao le.
he BA apple bite Perf
'He bit the apple.'

(76) a. Pingguo bei ta yao le yikou.
apple BEI he bite Perf a mouthful
'A mouthful of the apple was bitten by him.'

b. *Pingguo bei ta yao le.
apple BEI he bite Perf
'The apple was bitten by him.'

The verb *yao* 'bite' is [-telic] and the situation represented by the (75b) and (76b) are open ended and that violates the criterion for *ba/bei* constructions and so the sentences are out. (75a) and (76a) are grammatical because the partitive NPs delimit the situation and changed the situations into [+telic] ones. When the verb that comes after *ba/bei* is [-telic] in nature, the partitive NP has to be there to close off the situation.

3.5.2.5. Non-dynamic vs. dynamic situations

Finally, I want to remind the reader that the nature of arguments will not affect non-dynamic situations, namely, States. A State will always be a State whatever arguments it has. Look at the sentences in (77):

(77) a. Mary liked the beer for years.
b. Mary liked beer for years.
c. Soldiers liked the beer for years.

3.5.2.6. Representations of situation aspect composition processes at the

subcategorization level

I use the binary feature [±count] for NPs. Definite and count nouns have the [+] value and bare plurals and mass nouns will have the [-] value. I use α to denote value match, whatever value the first α takes, the second α takes the same value:

(78) a. $\text{NP}_{[\alpha count]} + \text{Verb}_{[+telic]} + \text{NP} = \text{Situation}_{[\alpha telic]}$

b. $\text{NP} + \text{Verb}_{[+telic]} + \text{NP}_{[\alpha count]} = \text{Situation}_{[\alpha telic]}$

c. $\text{NP} + \text{Verb}_{[-telic]} + \text{PP}_{[goal]}$ or $\text{NP}_{[path]} = \text{Situation}_{[+telic]}$

d. $\text{NP} + \text{Verb}_{[-telic]} + \text{NP}_{(added\text{-}arguments)} = \text{Situation}_{[+telic/+bounded]}$

The unspecified NPs are held as [+count] constants. (78a) specifies the effect of NP subjects when the objects are held as [+count] constants. When it is [+count] it produces a [+telic] situation out of a [+telic] verb, if it is [-count], it produces a [-telic] situation out of a [+telic] verb. (78b) specifies the effect of NP objects when the subjects are held as [+count] constants. When the object is [+count], a [+telic] situation will be produced, when the object is [-count], a [-telic] situation will be produced. (78c) specifies the effect of goal PPs and path NP. Both may serve to produce [+telic] situations out of [-telic] verbs. (78d) states that added arguments may produce either [+telic] or [+bounded] situations out of [-telic] verb.

3.5.3 The post-subcategorizational level

At this level, we are looking at some elements that are not arguments of verbs but they delimit situations in various ways. These elements may function to change [-telic] core sentences (basic sentence with the verb and its arguments) into [+bounded] or [+telic] expanded sentences:

(79) $\text{Core Sentence}_{[-telic]} + \text{Elements}_{[+delimiting]}$

= Expended Sentence$_{[+bounded]or[+telic]}$

3.5.3.1. Delimiting elements in English

In English, delimiting elements take the form of temporal phrases *'for an hour'; 'from ... till ... '* and quantity phrases *once, three times*, which specify time frames for situations. Sentences (80-81) are taken from Depraetere (1995). Sentence (82) is my own.

(80) Judith played in the garden **for an hour.**

(81) Julian lived in Paris **from Feb. 1989 until May 1989.**

(82) Mary knocked at the door three times.

For temporal phrase has been used to show that the situation that is compatible with it lasts during the time specified by the *for* phrase and may still go on. However, after the addition of the *for* phrase, the sentence may have a bounded reading. (80) may mean that Judith played during an hour's time and then stopped. The *from ... till ...* phrase provides a more definite temporal frame. The situation was true in that time frame and was not true outside of that time frame. The quantity phrase *three times* also delimits the situation.

As discussed in (3.3.5.), tempor boundaries provided by temporal phrases are not very significant linguistically in English because the complex past tense + perfective morphology will provide temporal endpoints too (Smith's arbitrary endpoint). In Chinese, there is no tense (in a strict sense) and the simple perfective marker *le* does not provide temporal endpoint so whenever a single specific event is meant, endpoints, either spatial or temporal, have to be present (see discussion in 4.4.2.).

3.5.3.2. Delimiting elements in Chinese

Chinese abounds in delimiting elements. Besides the temporal phrases and quantity phrases that occur in English, there are the *de* resultative expressions. They all function to delimit situations so that the situations may be viewed in their totality. Let us look at the temporal and quantity NPs first. Again the perfective marker *le* is used as a test frame. The (a) sentences are ungrammatical in intended readings.

(83) a. *Lisi zai Beijing zhu le. (State)
Lisi at Beijing live Perf

b. Lisi zai Beijing zhu le san nian.
Lisi at Beijing live Perf three year

'Lisi lived in Beijing for three years.'

(84) a. *Lisi pao le. (Activity)
Lisi run Perf

b. Lisi pao le yige xiaoshi.
Lisi run Perf a hour

'Lisi ran for an hour.'

(85) a. *Lisi ke le. (Semelfactive)
Lisi cough Perf

b. Lisi ke le san xia.
Lisi cough Perf three times
'Lisi coughed three times.'

State verbs and Activity verbs are unbounded, Semelfactive verbs shift between bounded and unbounded, if they ever are to occur in the situations that refer to definite, terminated situations, extra delimiting mechanism has to be employed to provide endpoints. In (86-88), there are more sentences which are temporally bounded by temporal or quantity NPs. Unlike the verbs in (83-85), verbs in (86-88) are transitive verbs and so the temporal or quantity NP has to occur after the repeated

verb. Again the (a) sentences are ungrammatical in the intended readings.

(86)	a.	*Liming	ai	Xiaojuan	le.		(State)
		Liming	love	Xiaojuan	Perf		
	b.	Liming	ai	Xiaojuan	ai	le	san nian.
		Liming	love	Xiaojuan	love	Perf	three year

'Liming loved Xiaojuan for three years.'

(87)	a.	*Ta	tui	che	le.		(Activity)
		he	push	cart	Perf		
	b.	Ta	tui	che	tui	le	yige xiaoshi.
		he	push	cart	push	Perf	a hour

'He pushed the cart for an hour.'

(88)	a.	*Ta	qiao	men	le.		(Semelfactive)
		he	knock	door	Perf		
	b.	Ta	qiao	men	qiao	le	san xia.
		he	knock	door	knock	Perf	three times

'He knocked at the door three times.'

Sentences in (83-88) show how temporal boundaries are provided by temporal NPs and quantity NPs, so that situations with unbounded verbs will be able to refer to definite, terminated, or completed situations in the past.

In *ba/bei* constructions, the quantity NP also functions to delimit the situation.[14] There is a detailed discussion of the *ba/bei* constructions in Chapter 5. For present purposes, it is enough to mention that situations involved in *ba/bei* constructions are bounded or telic.

[14]The temporal NP is not very compatible with the *ba/bei* constructions, because with these constructions, it is always the results that have emphasis not the duration.

(89) a. *Men *bei* ta qiao le. (Semelfactive)
door BEI he knock Perf

b. Men *bei* ta qiao le liangxia. (Quantity NP)
door BEI he knock Perf twice

'The door was knocked twice by him.'

(90) a. *Ta ba men qiao le.
he BA door knock Perf

b. Ta ba men qiao le liangci.
he BA door knock Perf twice

'He knocked at the door twice.'

After the discussion of temporal and quantity NPs, we now turn to a discussion of the *de* phrase. The *de* expression is a special expression in Chinese. This expression may be descriptive or resultative. In Chapter 6 there is a detailed discussion of the *de* expression, for present purposes here, we only need to know that the *de* resultative expression may function to provide endpoints to situations. With the exception of Achievements, *de* resultative expression may occur with any kinds of situations. It makes atelic situations bounded or telic and enforces the completion reading of telic situations. We will only look at the ones that involve boundedness or telicity change here.

De resultative expression may either describe a resultant action or a resultant state. And the expression may be predicated of either the subject or the object. Again the perfective marker *le* is used as the temporal test frame. As will be discussed in 6.1.1., whenever the *de* resultative expression is added, the perfective marker has to occur with the verb in the *de* expression.

(91) a. Zijuan qi de ku le qilai. (State)
Zijuan angry DE cry Perf start
'Zijuan was so angry that she started to cry.'

b. *Zijuan qi le.

(92) a. Baoyu pao de chu le han. (Activity)
Baoyu run DE out Perf sweat
'Baoyu sweated from running.'

b. *Baoyu pao le.

(93) a. Ta xiu fangzi xiu de chu le ming. (Accomp.)
he build house build DE out Perf fame
'He became famous by building houses.'

b. ?Tamen xiu le fangzi.

(94) a. Ta ke de hong le lian. (Semel.)
he cough DE red Perf face
'His face became red by coughing.'

b. *Ta ke le.

The sentences (91b, 92b and 94b) are bad in intended readings. (They are good with inchoative readings, but in that case *le* is a sentence-final particle rather than a perfective marker. (93b) is bad if the NP object is understood as a bare plural and that it how it is understood in (a).[15] When a *de* resultative expression indicates a resultant state, there will be a change of state in space ('his face' in (94)), so the *de* resultative express will provide a spatial endpoint. When *de* resultative expression indicates a resultant action, the boundary provided by the expression is rather temporal than spatial *Zijuan's starting crying.*

[15]Chinese has no morphology to mark plurality or definiteness.

3.6 Situation types

Having seen how verbs have intrinsic features and how these intrinsic features interact with different elements at different levels, we are now in a position to have a general view of situation types that result from the aspect composition processes. The basic situation types are the same five as the basic verb types. And these basic situation types have the same features as the corresponding verb types. For example, a basic type State (situation) has the features as a State verb has, namely, [-dynamic, -telic, -bounded]. And there are some situation types which have a combination of features similar but different from those of the basic types. To avoid terminology confusion, no new terms will be created for these situation types. The same five terms will be used and the difference will be specified by using the binary features. For instance, a particular State may share the [-dynamic] and [-telic] features with a basic State, but differs from a basic State in that it is temporally bounded. The term Bounded State will be used to refer to this kind of State. One thing that needs emphasis is: situations are grouped according to the features they have after all the aspect composition process regardless of the types of the verbs that occur in the sentences. For example, the verb *walk* is [-telic, -bounded, +dynamic] and so it is an Activity verb, but the situation *He walked to school* has the features [+telic, +dynamic] and so it is an Accomplishment. Table 3.2. list some representative situation types. The Chinese and the English examples are paraphrases of each other. See Table 3.2.

In English the temporal endpoint may be provided by the perfective morphology, so the temporal phrases in the English sentences (ib), (iib) and (iiib) are optional. In Chinese, the perfective marker *le* only emphasizes the occurrence of an event as a

Table 3.2: Situation Types

i. a. **Basic State: [-dynamic, -bounded, -telic]**
English: John loves Mary.
Chinese: Xiaoming ai Zijuan
b. **+bounded State: [-dynamic, +bounded, -telic]**
English: John loved Mary (for a year).
Chinese: Xiaoming ai Zijuan ai le yinian.

ii. a. **Basic Activity: [+dynamic, -bounded, -telic]**
English: John walks everyday.
Chinese: Zhangsan meitian zoulu.
b. **Bounded Activity: [+dynamic, +bounded, -telic]**
English: John walked (for an hour).
Chinese: Zhangsan zoulu zou le yige xiaoshi.

iii. a. **Basic Semelfactive: [+dynamic, ±bounded, -telic]**
English: The light flashes all the time.
Chinese: Deng yizhi zai shan.
b. **Bounded Semelfactive: [+dynamic, +bounded, -telic]**
English: The light flashed (until noon).
Chinese: Dent yizhi shan dao zhongwu.

iv. a. **Basic Accomplishment:[+dynamic, +telic, -result]**
English: They built a house.
Chinese: Tamen zao le yizuo fangzi.
b. **Atelic, Bounded Accomplishment:**
[+dynamic, -telic, +bounded, -result]
English: They built houses for a year.
Chinese: Tamen zao fangzi zao le yinian.

v. a. **Basic Achievement:[+dynamic, +telic, +result]**
English: She won a race.
Chinese: Ta ying le yichang paobu.
b. **Atelic, bounded Achievement:**
[+dynamic, -telic, +bounded, +result]
English: She won races one after another.
Chinese: Ta yichang jie yichang de ying le hen duo saipao.

whole, it does not provide an endpoint and consequently the temporal phrases in the Chinese (ib), (iib) and (iiib) sentences are needed to provided temporal boundedness. In (ivb), the object of the verb is a bare plural that is spatially unspecified. That is to say the situation has no spatial natural endpoint. However the situation may still involve results because it is possible that some houses are built. In (vb), the object again is a bare plural and that again takes away the spatial endpoint and makes the situation [-telic].

Table 3.2. is not an exhaustive listing. It presents only some representative situation types.

3.7 Conclusion

The durative/instantaneous distinction does not seem to be linguistically significant. If we take away this distinction as one of the criteria of situation classification, and if we still want to distinguish Semelfactives from Activities and Accomplishments from Achievements, we need some new criteria. In this Chapter, two new criteria are proposed, i. the [±result] feature to tell Accomplishment verbs from Achievement verbs and ii. the [±bounded] feature to tell Activity verbs from Semelfactives. More importantly, a three-level model is developed to account for the compositional nature of situation aspect. As discussed in Chapter 2, linguists have been aware of the facts that lexical items, arguments, and adjuncts may all trigger aspectual change. Some linguists have talked about lexical or phrasal processes that account for aspectual change, but what is new here is a clear division of levels that gives a unified account of the compositional nature of aspect.

To start with, Verbs have intrinsic telicity or boundedness features. These in-

trinsic features determine to which of the five verb classes a verb belongs. To the basic verbs, some lexical processes may apply to derived complex verbs that have features different from the verbs from which they are derived. So at the lexical level, we decide to what class a verb belongs and find out what processes that happen at this level may derive new verbs. The derived verbs do not need to be listed, because the derivation of them is governed by lexical rules.

At the subcategorization level, we look at the interaction of verbs and the argument of verbs. NP arguments, Goal PPs and Path NPs have their own features too. Mass nouns and bare plurals are [-count], definite and count nouns are [+count]. Goal PPs have the feature [goal], Path NPs have the feature [path] and the directional PPs have the feature [dir]. Added arguments will also have the [+count] feature (his/her way, reflexive, cognate). The features of the all these arguments interact with the telicity features of the verb to form the telicity features of core sentences.

Finally, at the post-subcategorization level, some adjuncts may interact with the core sentences to change the telicity of the core sentences. These adjuncts include, temporal phrase that specifies a temporal frame, quantity NP that specifies the number of times a particular situation is repeated and the Chinese *de* resultative expression that indicates the resultative state or resultative action of a particular situation.

The new distinguishing criteria and the three-level model together delineate a clear picture of *division of labor* among elements that may play a part in the situation aspect composition process. The three-level model has a few advantages. First, it enables us to talk in clear terms of verb types and situation types. Verb types are determined by the basic meanings of the verbs and situation types are

determined by the composition processes at different levels. Secondly, the model simplifies the grammar: basic verb types become closed sets, derived verbs and situation types do not have to be listed because they are rule-governed. And thirdly the double or even triple categorizations of the same verb, like *walk in the park* as an Activity and *walk to school* as an Accomplishment, is avoided.

Chapter 4

The Aspectual System of Mandarin Chinese

After a review of the literature on aspectual theory, and a presentation of my new theoretical assumptions, I am now ready to consider the complexity of the Chinese aspectual system in light of the aspect theory laid out in Chapter 2 and my new assumptions developed in Chapter 3.

This chapter divides into five major sections. Section 1 sketches out the major typological characteristics of the Chinese language and argues that these special characteristics say a lot about the extremely complex and rich aspectual system in Chinese. Section 2 is a general view of morphemes that have been considered as aspect markers by linguists. Section 3 and 4 provide a detailed study of each of the traditionally assumed aspect markers. Guided by the theoretical assumptions I have adopted and assumed and enlightened by certain empirical tests (entailment test, compatibility test, ...) and the discussion of the interaction between each of the aspect markers and different situation types, I argue that only some of the traditionally assumed aspect markers are true aspect markers. And these true aspect markers express two aspectual viewpoints in all. The other markers are considered

to be either underdeveloped tense markers, super-lexical categories or delimiting mechanisms. Finally, there is a short summary of the main arguments of this chapter.

4.1 Some typological characteristics of Chinese

Linguists unanimously agree that Chinese is very different from the European languages. When one asks the question 'how is it different', the most prompt answers will be:

i. Chinese is discourse-oriented or topic-oriented while most European languages are sentence-oriented or subject oriented; (Li & Thompson, 1981; Chao, 1968; Y-H.A. Li, 1990)

ii. Chinese has no inflectional morphology (in a strict sense) while inflectional morphology is typical of most of the European languages; (Li & Thompson; Chao; Wang, 1985)

iii. Chinese does not grammaticalize tense. It only grammaticalizes aspect. Whereas in most European languages both aspect and tense are grammaticalized. (Gong; Wang; Lǚ, 1982; Zhu, 1985)

These differences have been talked about by many linguists in different frameworks and these linguists have given insightful discussions in different ways. What I will argue here is how these typologically special characteristics correlate with each other. I will also give evidence to show that Chinese grammaticalizes tense too. However, tense in Chinese is relative and underdeveloped.

4.1.1 Poor morphology and discourse-orientedness

In sentence-oriented languages, the head verb is the core around which a sentence is organized. This is the spirit caught by the Projection Principle in GB, (Chomsky, 1981) the Head Principle in HPSG (Pollard & Sag, 1987, 1994) and the $\uparrow = \downarrow$ functions of heads in LFG (Bresnan, 1981). These principles or functions basically assume that the lexical head, the verb in the case of a sentence, decides the syntactic structure and semantic interpretation of the sentence. And indeed the head verb in sentence-oriented languages usually carries a lot of information by means of inflectional morphology. It may have agreement features that show the reference of its subject and object. It may take tense morphology that denotes the temporal location of the event described by the verb. And aspectual viewpoint may also be encoded by the verbal morphology.

In contrast, in a discourse-oriented language like Chinese, the verb does not carry as much information as the verb in sentence-oriented languages. It has no tense nor agreement inflections. The scantiness of the verbal content shifts the burden of providing information to discourse. Hence the importance of the discourse. On the other hand, once the importance of discourse is established, a language may get away from developing the verb morphology.

4.1.2 Discourse-orientedness and the rich aspectual system

A discourse consists of "continuous stretch of LANGUAGE larger than a sentence" (Crystal 1985, p. 96). This continuous stretch of LANGUAGE may talk about a series of events. We know that events take place in space and time. As the discourse

proceeds from one event to another, a relative temporal coordinate will be established, so special mentioning of a temporal location is needed only when necessary. That is why Chinese may get away from developing a tense system. Usually temporal location is specified lexically by temporal phrases *zuotian* 'yesterday', *qulian* 'last year' and so on. As I will show later, there are a couple of morphemes which function like relative tense markers, however these tense markers are not pure tense markers. They convey other meanings as well as denoting temporal location. However when a series of events is organized in a discourse, how each event is viewed (complete or incomplete) in a past or a future sequence is very important. That is where viewpoint aspect comes into play. As a discourse-oriented language, Chinese specially and prominently marks viewpoint aspect. To better understand the point I argue for here, let us have a look at the following mini discourse and its English translations:

(1) wo chi **le** fan qu kan Lisi.
I eat Perf meal go visit Lisi.

(2) a. I went to visit Lisi after I had finished my meal.
b. I will go to visit Lisi after I have finished my meal.

As the English translations show the Chinese sentence in (1) is ambiguous. It may have two readings, either past or future. But one thing unambiguous about the sentence is that the event of 'eating the meal' is completed before the event of 'going to visit Lisi'. And it is the aspect marker **le** that makes this clear.

4.2 A general view of the Chinese Aspectual System

There is voluminous literature on the Chinese aspectual system. And the discrepancy among linguists concerning the number of aspectual viewpoints and the functions of the aspect markers is astonishingly great. And it is equally astonishing that many linguists just list what they think are the aspect markers together with some distributional evidence without arguing why a certain marker is an aspect marker rather than a marker of some other sort. As such is the case, we may find one linguist claiming that *laizhe* is a recent tense marker (Lin, 1979) and another linguist saying that it is an recent perfective marker (Wang 1985, Gong 1994). And none of them bother to argue why it is so.

There are at least three factors contributing to the confusion over the number of aspect viewpoints in Chinese.

The first factor concerns a long-term confusion in aspect theory in general. This confusion is two-fold: i. the confusion over tense and aspect and ii. the confusion over situation aspect and viewpoint aspect. Both tense and aspect are time related. When tense is not clearly distinguished from aspect, a tense marker may be mistaken as an aspect marker or vice versa. As we have spelled out in 2.5., tense indicates the temporal location of a situation while aspect concerns the temporal structure of a situation and the way to look at this temporal structure. As we will see soon, the Chinese relative past tense marker *laizhe* indicates a situation that is past in relation to some other situation either in a past sequence or in a future sequence. Mere semantic interpretations of the sentences with markers of this kind may cause people to think that the marker is a perfective marker. Only with a clear definition

of tense and aspect, which we have spelled out in 2.1 and 2.5, and also with some reliable aspectual viewpoint tests, (the entailment test is adopted from Smith 1991, the compatibility test is developed by myself) can we clearly tell tense markers from aspect markers. Then in theories where situation aspect and viewpoint aspect are not separated, markers that contribute to situation aspect may be confused with markers that contribute to viewpoint aspect. In the discussion that follows I will keep elements that contribute to situational structure distinct from elements that contribute to viewpoint aspectual meaning. The former will be called *delimiting elements* and only the latter will be called *aspect markers.*

The second factor concerns the poor morphology of Chinese. As noted above, Chinese has no inflectional morphology. Expressions of aspect are primarily lexical. These lexical markers have evolved over time from verbs and only in more recent times have their grammatical functions been recognized by grammarians. The true nature of their grammatical functions has not been fully studied yet.

Finally, these grammatical categories in Chinese always convey complex meanings as I will show in the following subsections.

These three factors interweave to make a comprehensive study of the Chinese aspectual system difficult. However, better equipped with new developments in aspect theory and the new assumptions I have made in Chapter 3, and also with the help of empirical tests, especially the aspectual tests, I will set out to work away the confusion.

4.2.1 Aspect markers in Chinese

How many aspectual viewpoints are there in Mandarin Chinese? Different linguists give different answers to this question. Traditional Chinese linguists usually list

Table 4.1: List of Assumed Aspect Markers

(3)		
	i. jiuyao	impending
	ii. qilai	starting
	iii. zhe	durative, continuing
	iv. zai	durative, continuing
	v. xiaqu	going-on
	vi. le	perfective
	vii. guo	experiential, perfective
	viii. laizhe	recent perfective
	ix. reduplicated verb	tentative, delimitative

what they think are aspect markers and assume that each represents an aspectual viewpoint. Some linguists, like Li & Thompson, admit four aspectual viewpoints: Perfective (*le*), Durative (*zhe, zai*), Experiential (*guo*), Delimitative (verb reduplication). Other linguists like, Wang (1985) and Gong (1994), take different positions. Wang admits seven viewpoints (ordinary, durative, perfective, recent perfective, incipient, continuing, tentative) and Gong admits eight viewpoints (incipient, impending, starting, on-going, going-on, perfective, recent perfective, experiential). Lǚ (1984) divides Wang's tentative (Li & Thompson's delimitative) further down into three kinds of aspect and so he will have more than ten aspectual viewpoints. Smith (1991, 1994), trying to fit the Chinese aspectual system into her universal schemata, recognizes only five aspect markers that represent three aspect viewpoints (perfective, imperfective and neutral). Let's first look at the markers that are considered as aspect markers by the above mentioned linguists as listed in table (4.1).

Are the items listed in Table 4.1. all aspect markers? If they are, do they each represent an individual viewpoint? If some of them are not, then what are those? These are the questions I have to answer before I go on.

4.2.2 Dual categorial properties of the markers

The poor morphology of Chinese determines that we distinguish grammatical categories from non-grammatical categories by looking at their syntactic distribution and their semantics.

Traditional Chinese linguists divide the lexicon into two major groups according to semantic criteria: semantically contentful 'solid' words and semantically 'empty' words. 'Solid' words include nouns, numerals, verbs (including model verbs) and adjectives. 'Empty' words include conjunctions, certain markers and attitudinal particles. In between there are some half 'solid' and half 'empty' words, including adverbs and pronouns. (Refer to Wang 1980a for a more detailed discussion of 'solid' and 'empty' words.) It is usually quite easy to distinguish categories among 'solid' word, because they occur in certain positions syntactically and they have concrete meanings. For the half 'solid' words, it is not as easy but still not really hard. The real problem is with the 'empty' words, especially with grammatical markers because distributionally they may appear before or after the verbs, or at the end of the sentence, (when the verb is intransitive the verb-final position is mixed up with the sentence-final position) and functionally they may convey complex meanings.

Most of the markers listed in Table 4.1. were developed historically from 'solid' words and now they still show dual categorial properties, as verbs or as markers of some sort. And there is evidence to show that some of them are still in the process of developing their marker functions. Faced with the fact that we do not have any morphological evidence to look at, we will rely on distributional patterns, semantics and discourse functions to gain an understanding of the nature of the markers.

First, a comparison of the verbal vs. marker usages of the items will help us

to know in what way the meanings of the markers are related to the meanings of the verbs from which the former have developed. For convenience, I will use MARK to refer to the marker usage of the items temporarily. In each of the (a) sentences the item in bold face is used as the main verb of the sentence. In each of the (b) sentences, the corresponding item (in bold face too) is used as a marker. Semantically, the marker does not provide any concrete meaning, syntactically, it is a mere dependent of the verb it marks.

The first marker *yao* means 'want' when it is used as a verb. When it is used as a marker, it denotes that the action named by the main verb is going to happen soon.

(4) a. Wo **yao** naben shu.
I want that book
'I want that book.'

b. **Yao** xia yu le.
MARK down rain Part
'It is going to rain.'

The verb *yao* expresses a desire. And a desire always concerns the future. That is how the verbal *yao* and the marker *yao* are related.

Verbal *qilai* means 'get up'. When it is used as a marker it denotes that the action named by the main verb gets started:

(5) a. Lisi meitian liudian **qilai.**
Lisi everyday 6 o'clock get up
'Lisi get up at 6 everyday.'

b. Daiyu ku le **qilai.**
Daiyu cry MARK MARK
'Daiyu started to cry.'

Zhe is a weakened phonetic form of the verb *zhao*. *Zhao* means 'touch'. *Zhe*

provides a stative view of the action named by the verb to which *zhe* is suffixed, or denotes subordination of a backgrounding situation.

(6) a. Rang jiaogen **zhao** di.
let heel touch ground
'Let heel touch the ground.'

b. Menkou zan **zhe** yige ren.
doorway stand MARK a person
'Someone is standing in the doorway.'

Zai is a locative verb or a locative preposition. When it is used as a marker, it denotes that the action named by the verb to which it is affixed is in progress.

(7) a. Lisi **zai** bangongshi li.
Lisi (be)in/at office inside
'Lisi is in the office.'

b. Lisi **zai** dushu.
Lisi MARK read
'Lisi is reading.'

Xiaqu means 'go down'. It is always attached to a movement verb to denote the downward direction of the movement. When it is used as a marker, it just denotes that the action described by the main verb goes on after an interruption.

(8) a. Lisi tiao le **xiaqu**.
Lisi jump MARK downward
'Lisi jumped down.'

b. Ta zhiguan nian **xiaqu**,
he only read MARK

ye buguan renjia ting bu ting.
and no care others listen not listen

'He read on not caring if others are listening or not.'

(Wang 1985, p. 157)

Le is the weakened form of *liao*. *Liao* is a verb meaning 'finish', 'complete'. *Le* is attached to a verb to denote that the action named by the verb is completed or terminated in a past or a future sequence:

(9) a. Ta zongsuan **liao** le yizhang xinyuan.
he eventually achieve MARK a wish
'He eventually had his wish come true.'

b. Ta xie **le** yifeng xin.
he write MARK a letter
'He wrote a letter.'

Guo means 'pass', 'cross' when it is used as a verb. As a marker it denotes a past experience:

(10) a. Gaogaoxingxing **guo** chun jie.
happily pass spring festival
'Pass the spring festival happily.'

b. Wo du **guo** naben shu.
I read MARK that book
'I read that book before.'
'I had the experience of reading that book.'

Laizhe is composed of the morphemes *lai* and *zhe*. *Lai* means 'come'. *Zhe* is a weakened form of *zhao* 'touch'. *Laizhe* as a whole does not have any verbal usage now. So it is a pure marker which denotes that the action named by the main verb

takes place before or shortly before some reference time:

(11) Wo qu yiyuan kan ta **laizhe.**
I go hospital visit he MARK
'I went to the hospital to visit him just now.'

Finally verb reduplication is employed to mean that a little bit of some action takes place:

(12) Lisi cang le cang neipan cai.
Lisi taste MARK taste that dish
'Lisi had a taste of that dish.'

Judging by their semantic 'solidness' and 'emptiness' (in the term of the traditional linguists) and also by the syntactic roles they play (main verb or mere dependent of the main verb), we may be certain that all items listed in Table 4.1. can function as markers in addition to their verbal usages. Now the question is: are they all aspect markers? My answer is no. Only some of the markers are aspect markers. The others are either relative tense markers or delimiting elements, as I argue in the following sections.

4.3 The non-aspect markers

The point I will make in this part is that some of the markers listed in Table 4.1. are not aspect markers. My argument for this point is based on the definition of viewpoint aspect as we have spelled it out in 2.1. Viewpoint aspect is, by the definition we adopt, a means for providing the different ways of looking at particular situations. Some of the markers listed in Table 4.1. do provide a point of view for looking at situations but others do not. The marker *le* and *guo* are used to denote that a particular situation is viewed in its totality. *Zai* and *zhe* are used to show

that only part of a situation is in concern. These are real aspect markers according to our definition of viewpoint aspect. And I will give a detailed discussion of these markers in 4.4. In the present section I will look at the other markers and argue that they are not aspect markers.

In the following discussion of non-aspect markers, some markers that I leave for discussion in 4.4. may occur, especially *le* and *zai*. In such cases, I use Perf (perfective) for *le* and *guo* to denote their perfective meaning and Prog (progressive) for *zai* and Impf for *zhe* to denote their imperfective meanings. I use MARK for all other markers.

I argue that the non-aspect markers may contribute to aspectual meanings but they are basically markers of some other sort. Let us look at them in detail one by one.

4.3.1 The marker *yao*

Yao is used before a main verb and it is there to denote that the action named by the main verb is going to happen soon. Let us look at more sentences with *yao*:

(13) Wo **yao** duwan zheben shu le.
I MARK read-finish this book PART
'I am going to finish this book soon.'

(14) Tian **yao** hei le.
sky MARK dark PART
'It is getting dark.'

In both sentences *yao* locates situations *finish reading the book* and *get dark* in near future. It says nothing about how these situations are viewed. So it is rather a tense marker than an aspect marker (see 2.5. for the definition of tense adopted). For years, Chinese linguists have been avoiding calling markers like this one tense

markers. The reasons may be i. these markers are not 'fully developed' (in the sense I explain later) as the aspect markers have been and ii. these markers express relative temporal location rather than absolute temporal location.

That the marker *yao* is not a fully developed tense marker may be seen in two facts. The first is that whenever agency is possible, a sentence with *yao* may be ambiguous with two readings, the verbal reading and the marker reading:

(15) Liming **yao** he shui le.
Liming drink water PART
'Liming wants to drink water now.'
'Liming is going drink water now.'

Unlike the action in (14), the action of 'drinking water' is an controllable action, and the animate subject may be the controller of the action. In such a case, *yao* may get a verbal reading as well as a marker reading.[1] The other fact is that *yao* does not stand by itself as a tense marker. It will have a marker reading only when the sentence-final particle *le* is present. Without the sentence-final particle *le*, it will only have the verbal reading as the translations of the following sentences indicate:

(16) a. Ta **yao** chi fan.
he want eat rice
'He wants to eat rice.'

b. Ta **yao** chi fan le.
he MARK eat rice PART
'He is going to eat rice now.'

The sentence-final particle *le* is used to signal current relevance (see 4.4.2.1.). The sentence-final particle *le* is compatible with both the verbal *yao* or the relative future tense marker *yao*. Sentence (15) implies a change in Liming's attitude about

[1]When the emphatic adverb *jiu* is added to *yao*, it is less easy to get a verbal reading of *yao*.

drinking – *He did not want to drink water before, but he wants to drink water now.* The marker *yao* together with the sentence-final particle *le* conveys current relevance of some future situation. Sentence (14) is said when the speaker is relating some present state or present necessity to the darkness. The sentence in (17) illustrates this kind of relations:

(17) *Kuai dianr zou, tian yao hei le .*

'Let's hurry, it is getting dark.'

Judging from these facts, we may safely assume that *yao* is a future tense marker, but it is not a fully developed tense marker. It is used with the sentence-final particle *le* to express current relevance of some future situation. And we should also note the fact that the future tense *yao* conveys is relative future rather than absolute future. That is the other factor that may hinder people from realizing its true nature.

(18)	Women	dao	nali de	shihou,	
	we	arrive	there	time,	
	fangzi	yijing	**yao**	jian-hao	le.
	house	already	MARK	build-finish	PART

'When we got there, the house was soon to be finished.'
'By the time we get there, the house is going to be finished soon.'

As the translations show sentences in (18) may talk about some past sequence or future sequence. In a past sequence, *yao* expresses future in relation to the other past event. In a future sequence, *yao* expresses future in relation to the other future event.

4.3.2 The marker *laizhe*

Laizhe is a relative past tense marker rather than an aspect marker. It locates time

rather than providing a way to look at a situation. One piece of evidence that strongly supports this argument is the fact that *laizhe* is compatible with both the imperfective marker *zai* to have an imperfective reading and the perfective marker *le* to have a perfective reading.

(19) Tamen gangcai hai zai chaojia **laizhe.**
they just now still Prog quarrel MARK
'They were still quarreling just now.'

(20) Wo xie le yifeng xin gei ta **laizhe.**
I write Perf a letter to he MARK
'I just wrote him a letter.'

In (19), we have a past situation with imperfective viewpoint and the imperfective meaning is provided by the progressive marker *zai.* In (20), we have a past situation with perfective viewpoint and the perfective meaning is conveyed by the perfective marker *le.* In both sentences, *laizhe* only functions to locate time for the situations. It is the other markers *zai* and *le* that provide ways to look at the situations. This test of compatibility with *le* or *zai* is quite revealing about the true nature of *laizhe*, because a marker may co-occur with a marker that expresses the same viewpoint but it can not co-occur with a marker that expresses the opposite viewpoint.

Laizhe locates a relative past. In (21) it anchors a situation in a past sequence and in (22) it anchors a situation in a future sequence:

(21) Wo jin men de shihou,
I enter door DE time

ta gang chi-wan fan **laizhe**
he just finish meal Mark

'When I entered the door, he just finished his meal.'

(22) Wo gan shuo mingtian feiji lai de shihou,
I dare say tomorrow plane come DE time

ta hai mei qichuang **laizhe**
he still not get up MARK

'I bet when the plane comes tomorrow, he has not got up.'

Yet *laizhe* is not a pure past tense marker. It is always used to express current relevance too. Sentence (19) may express surprise to see 'their present intimacy'. Sentence (20) may be an answer to someone's request to write to 'him', implying *I do not need to write him now.*

4.3.3 The markers *qilai* and *xiaqu*

These two items are used to mark the starting or restarting points of situations. Semantically they function like verbal items 'begin, start, restart'. Smith (1991) classifies lexical items like 'begin, start, stop' as super-lexical morphemes. These items shift the focus of a situation. They do not provide a viewpoint to look at the situation. Following her I will call these markers *super-lexical markers.* These markers do not change situation types, they just mark the focused point of a situation, the starting point or the restarting point. The fact that this focused point of situations may be viewed either with the perfective viewpoint or the imperfective viewpoint strongly suggests that they themselves are not aspect markers.

The starting point or restarting point is usually instantaneous conceptually, so it is easier to get a perfective view of this point. But this starting point or restarting point may plausibly be considered as have duration and take an imperfective viewpoint. In the following we have one sentence with perfective viewpoint and one with imperfective viewpoint for each of the super-lexical markers:

(23) a. Daiyu ku le **qilai.**
Daiyu cry Perf MARK
'Daiyu started to cry.'

b. Liming zeng zai manmandi dui
Liming right Prog slowly to

new huanjing shiying **qilai.**
new environment used MARK

'Slowly Liming is beginning to get used to the new environment.'

(24) a. Shuo wan, ta you ku le **qilai.**
Talk finish he again cry Perf MARK
'Having said that, he started to cry again.'

b. Bei danxing, nide gongzuo
not worry your work

women zeng zai zuo **xiaqu.**
we right Prog do Mark

'Don't worry, we are carrying on your work.'

Sentences (23a) and (24a) have the perfective viewpoint and sentences in (23b) and (24b) have the imperfective viewpoint. The compatibility of *qilai* and *xiaqu* with both the perfective viewpoint and the imperfective viewpoint show that *qilai* and *xiaqu* are not aspect markers themselves. We may see from the sentences that viewpoints are expressed by *zai* and *le* respectively rather than by *xiaqu* or *qilai.* In

other words, viewpoints are separated from situation types no matter these situation types have normal or marked focus.

4.3.4 Verb reduplication

Verb reduplication has been mentioned as delimiting mechanism in 3.5.1. More evidence will be provided here for the argument.[2] Verb reduplication provides temporal endpoints to situations so that specific single-event readings of these situations will become possible.

To argue for my point here, I want to point out first that the reduplication process is good with Activities and Semelfatives but bad with Accomplishments and Achievements.

(25) Verb reduplication:

a. Activities:

tiao tiao suen	*zou zou*
'skip skip rope'	'walk walk'

b. Semelfactives:

qiao qiao men	*zha zha yan*
'knock knock door'	'blink blink eye'

c. Accomplishments:

**zao zao yizuo fangzi*	**shao shao nafeng xin*
'build build a house'	'burn burn that letter'

d. Achievements:

**ying ying nachang bisai*	**si si*
'win win that match'	'die die'

[2]Li & Thompson (1981) assume that verb reduplications with *yi* 'one' occurring in between the base verb and the reduplicated verb function to delimit events, but verb reduplications without *yi* represents a delimitative viewpoint.

The contrast between Activities and Semelfactives on the one hand and Accomplishments and Achievements on the other may be accounted for if we assume that the reduplication process provides temporal boundedness. Accomplishments and Achievements both have natural final endpoints and so this reduplication process is unnecessary for them. Activities do not have natural temporal boundaries. Single-event Semelfactives have natural temporal boundaries, but multi-event Semelfactives do not have natural temporal boundaries. As discussed in 3.3.4., Semelfactives easily have repetitive readings, so they have both the [+] and the [-] value for the feature of [bound]. Except for their likelihood of having repetitive readings, they behave the same as Activities in real language usages. In English the complex tense and aspect morphology may provide an endpoint, so *He coughed* may refer to a fact as a single whole. It does not matter if there was only one cough or several coughs. What is crucial is that there was an endpoint to the event of coughing. The same thing is true with the Activity *He walked.* The verb *walk* is unbounded but the complex tense and aspect morphology provides an endpoint to the event, so that it may refer to some situation as a single whole. In Chinese, the perfective marker *le* does not emphasize the termination or completion of situations, it only emphasizes the occurrence of an event as a whole. (This I will discuss in detail in 4.4.2.2.) So delimiting mechanisms have to be employed to provide endpoints to Activities and Semelfactives, if the totality view of them is meant.

The sentences in (26) show the contrast of unbounded and bounded Activities:

(26) a. *Ta zou le.
he walk Perf
'He walked.'

b. Ta zou le zou.
he walk Perf walk

'He walked.'

(26a) is ungrammatical in the intended reading[3] because the situation is unbounded and it can not take the perfective *le* to have a totality reading. (26b) is good with a perfective reading, because the activity of walking is bounded by the reduplicated verb.

Let us turn now to Semelfactives:

(27) a. *Lisi qiao le men.
Lisi knock Perf door

b. Lisi qiao le qiao men.
Lisi knock Perf knock door

'Lisi knocked at the door.'

(27a) is out because the Semelfactive is not definitely [+bounded]. Like an Activity, it needs a delimiting element to become definitely [+bounded]. Temporal NPs and quantity NPs may serve as delimiting elements as I show in 3.5.2.6. And verb reduplication is another way to delimit situations.

4.3.5 Summary

We have seen how a clear definition of viewpoint aspect and some empirical tests, especially the tests of compatibility of some markers with the generally accepted

[3]The sentence may have the reading that *He has left.* In that case the verb has a different meaning and is telic in nature.

perfective marker *le* and the imperfective marker *zhe*, have resolved matters. Five markers have been excluded from the category of aspect per se, although they may contribute to aspectual meaning (change the focus of a situation, delimit a situation and so on). We have argued, against traditional assumptions, that *yao* is a relative future tense marker and *laizhe* is a relative past tense marker, though they are not fully developed tense markers. They signal current relevance in addition to temporally locating situations. *Qilai* and *xiaqu* are super-lexical markers, to borrow Smith's idea here. And contrary to common opinion, I argue that verb reduplication does not present a viewpoint, it is only a process which changes situation types. It surely contributes to aspectual meaning, yet in a system in which situation aspect is separated from viewpoint aspect, it may be clearly defined as a delimiting process that delimits the situation rather than provide a way to look at the situation, i.e. a viewpoint.

4.4 The real viewpoint aspect markers and their interaction with situation types

After this purging process, the picture we have now is no longer that messy. There are only four markers left for us to deal with. They are *le, zai, guo*, and *zhe*. I will argue that these are the real aspect markers in Chinese.

4.4.1 Grammaticality and tense or aspect markers

Before I talk about each of the true aspect markers in detail, I will make some general remarks concerning the interaction of aspect markers with situation types.

As I have shown in (3.4.), situation types in Mandarin Chinese conform to the

general classification pattern modified from Smith's (1991) quintipartition. First there is the stative and non-stative split. This split is very important. In a strict sense Chinese has no tense, (except for the limited tense marker usages of *yao* and *laizhe*). The same sentence can always refer to either a past event, a present event or a future event depending on the context in which it occurs. However, verbs are usually aspectually marked if they name any particular event. With respect to aspectual marking, states are very different from non-states. A stative sentence need not be marked to have a specific reading, while a non-stative sentence has to be marked to have a specific reading. Look at the following sentence:

(28) Liming xihuan youhua.
Liming like oil-painting
'Liming likes oil-painting.'
'Liming liked oil-painting.'

The State verb in (28) is not marked. It may refer to a particular open-ended situation either in the past or in the present. Its imperfectivity is not marked, or, we may say, marked by a zero marker.

Unlike stative situations, non-stative sentences in Chinese have to be marked to refer to any particular situations. In English present tense perfective non-stative sentences only have habitual readings. A sentence like *Mary cleans the window* cannot refer to a particular event, it has to have a habitual, multi-event interpretation. In Chinese non-marked finite non-stative verbs are like the English present tense perfective verbs, they will have habitual or generic interpretations only.

(29) Xiao mao he niunai.
small cat drink milk
'A small cat drinks milk.'

Unlike the stative sentence in (28), this sentence can not refer to a particular situa-

tion. It can only have a habitual or generic interpretation. To refer to a particular situation, a non-stative situation may be marked either by the very few and underdeveloped tense markers or by aspectual markers. In (30) and (31) the verbs are marked by tense markers *laizhe* and *yao* respectively:

(30) Ta gang tiaowu **laizhe.**
he just dance PT
'He just danced.'

(31) Ta **yao** tiaowu le.
he FT dance PART
'He is going to dance.'

In sentences (32) - (33) the verbs are marked by aspect markers:

(32) Ta **zai** tiaowu.
he Prog dance
'He is dancing.'

(33) Ta tiao **le** yihuir wu.
he dance Perf a little while dance
'He danced for a while.'

Sentences from (30) to (33) are grammatical sentences, because they are either marked by the complex tense markers or aspect markers.[4]

4.4.2 The marker *le*

4.4.2.1. Particle *le* and the perfective marker *le*

[4]Aspect markers may be deleted for discourse reasons. See 4.4.6. for a discussion of this.

First, I want to make it clear that the verb suffix *le* should be distinguished from the sentence-final *le*. Sentence-final *le* is called the *sentence-final particle* (Lin 1979, Chang 1986) or the *attitudinal particle* (Li, Thompson & Thompson 1982). Chao (1968, 246-47) says "This suffix -le, which is a weakened form of the verb *liao* ... should be distinguished from a homophonous particle *le*, probably a weak form of *lai* 'come', with various meanings such as 'new situation', 'progress in the story', and so on." Chang (1986, p. 34) argues that the several meanings Chao ascribes to the sentence-final particle *le* "can be grouped under one semantic category: 'change of state/status'. " In their footnote (9) Li, Thompron & Thompson also say "Of the ten uses isolated by Chao, this 'change of state' function, which, as Chao's discussion makes amply clear, is actually just one of the uses of *le*, has been taken as its only function by most grammarians, " 'Change of state' is one of the common ways in which a situation is relevant to the current situation as Li, Thompson & Thompson observe (1982, p. 22) " The basic communicative function of the particle *le* is to signal a 'Currently Relevant State' (=CRS). That is, *le* claims that *a state of affairs* has special current relevance to some particular Reference Time."[5] I agree with the above mentioned linguists in assuming that the particle *le* specifies the current relevance of a new state of affairs.

Let us look at a sentence to see the basic usage of particle *le*:

(34) ta qu mai dongxi le.
he go buy thing PART
'He has gone shopping.'

(From Li, Thompson & Thompson 1982, p. 25)

[5]This Reference Time is not necessarily the speech time, it may be some deictic point in the past or in the future.

This sentence does not state a simple fact, instead it is talking about the current state of his not being in. The basic function of the particle *le* is one of the hallmarks of the Perfect. The Perfect is different from the perfective. The former refers to a construction that presents a prior situation as having some current relevance to the Reference time, the latter refers to a totality aspectual viewpoint.

The Perfect has a certain temporal and aspectual meaning, but as ter Meulen points out "perfect states are atemporal in the sense that once they have begun, they never end." (ter Meulen 1995, p.5.) As a marker to convey perfect meaning, the particle *le* does not have a temporal schema.

The sentence-final particle *le* may occur with any situation type, because any situation type may have some current relevance to some reference time.

4.4.2.2. The perfective marker *le*

Now I turn to the discussion of the verb suffix *le*. For convenience, if not otherwise specified, *le* refers to the verb suffix *le* in the following discussion.

Le developed from the verb *liao*, as discussed in Wang 1980b. *Liao* means 'complete' and 'finish'. The first usage of this verb is found as early as in the Han dynasty. In the Tang dynasty, while still maintaining its verbal usage, it came to be used after the main verb signaling the completion of the action named by the main verb. During that period of time, *le* was used after the minimal VP, that is, after the object if there was one. In the Song dynasty, *le* began to occur right after the verb even if there was an object. Since the Yuan dynasty, *le* has become a pure suffix that occurs only after the main verb.

When we look at the present usage of *le*, we will find that it no longer emphasizes

so much the finishing or completion of some act, it rather signals that the situation named by the main verb is looked at as a homogeneous whole in itself.

As linguists have observed (Vendler 1967, Dowty 1979, Smith 1991 among others), the simple present tense of non-stative situations will only have habitual readings. In Chinese, non-stative situations only have habitual or generic readings if they are not marked by either tense or aspect markers. In discourse, aspect markers, especially *le* may be omitted, if the context makes it clear that the situation in concern ended or ends in either a past sequence or a future sequence. But when a sentence stands by itself, and it is meant to refer to some specific situation, then it has to be marked. In the following sentences we may see how the addition of *le* creates a specific totality reading.

(35) a. Ta chouyan.
he smoke
'He smokes.'

b. Ta chou **le** yizhi yan.
he smoke Perf a cigarette
'He smoked a cigarette.'

(35a) only has a habitual reading, while (35b) presents a definite event in totality. Without *le* (b) will be ungrammatical:

(36) *Ta chou yizhi yan.
he smoke a cigarette
'He smoked a cigarette.'

(36) cannot refer to a specific occurrence of an event. It is hard for (36) to have a habitual reading either, because of the specific object NP.

That *le* conveys perfective meaning can be seen from another fact, that is, a

situation with *le* can not be used to refer to a backgrounding on-going situation, even if the situation itself may be durative in nature.

(37) *Dang tamen zhao **le** yizuo fangzi de shihou,
when they build Perf a house DE time

Liming lai le.
Liming come Perf

'*They built a house when Liming came.'

The reason for the ungrammaticality of (37) is that since the perfective marker *le* gathers the situation as a whole, the internal structure of the situation is no longer visible and so the situation can not serve as backgrounding information with on-going stages.[6]

Smith argues that in Chinese termination and completion are expressed separately. The perfective markers *le* and *guo* convey termination and the notion of completion is conveyed by the resultative or completive components of the Resultative Compounds (see 3.2.3.2. for a discussion of Resultative Compounds). It is true that the resultative and completive components of the Resultative Compounds indicate completion. And I agree with Smith that the marker *guo* conveys termination. But contrary to Smith's assumption I will argue that *le* only emphasizes the

[6]When testing perfectivity and imperfectivity, Smith (1991) uses the contradiction test. *They built a house* entails that the house is built to completion and **They built a house, and they did not finishing building it* will produce a contradiction, while *They were building a house and they did not finish building it.* will not produce a contradiction. This test is reliable with imperfectivity but not totally reliable with perfectivity. As I will discuss soon, perfectivity may or may not emphasize the completion of a situation. Its defining feature is that it presents a situation as a single whole. And the backgrounding test I provide here seems to be more reliable, because perfectivity gathers a situation as a single whole, or in other words, it presents a situation as punctual whether or not the situation has internal structure or not.

occurrence of an event as a whole, it does not convey termination nor completion. Both termination and completion have to be expresses by endpoint included in the situation.

On the one hand, *le* does not convey any sense of termination nor completion; on the other hand its basic function is to present the occurrence of an event as a whole. The restriction of not providing an endpoint and the requirement of presenting a situation in entirety together decide that *le* occurs only with situations that are [+bounded] or [+telic]. And this is true as shown clearly by the interaction of *le* with different kinds of situation types.

4.4.2.3.The interaction of *le* with situation types

As discussed in 2.3., Smith's two component theory regards situation aspect and viewpoint aspect as two separate domains. And aspectual meanings are conveyed by the interaction of these two domains. First, let us consider how *le* interact with different situation types.

The *-le* perfective is close to the general sense of perfective found across languages. Yet *-le* has some special properties of its own. In languages like English and French, perfectivity applies to all situation types. In these languages, the perfective morphology not only indicates the view of a situation as a single whole, it also seems to provides an arbitrary and non-specific end point to atelic situations. Or in Smith's own word, perfective may emphasize termination and completion. A sentence *He walked* is presented as a single whole. The perfective aspect employed here makes us understand that this act is completed at some particular temporal point, though this endpoint is not made specific. An endpoint like this is actually

provided by the perfective aspect. However, as Comrie (1976) stresses the emphasis of perfectivity is the representation of a situation as a single whole. Comrie argues that perfectivity does not necessarily indicate a completed situation. He says "The use of 'completed', however, puts too much emphasis on the termination of the situation, whereas the use of the perfective puts no more emphasis, necessarily, on the end of a situation than on any other part of the situation, rather all parts of the situation are presented as a single whole" (Comrie 1976, p 18). Later in the same paragraph he says "since the perfective indicates a situation which has an end, the only new semantic element introduced by the perfective is that of the termination of the situation." (p. 19) Comrie seems to think that the emphasis of perfectivity is to present a situation as a single whole, but perfectivity does denote the termination of a situation. Yet in Chinese *le* seems to only indicate a totality viewpoint, it will not provide any endpoint to situations. And so it has to occur with situations that have endpoints. This is a very important factor about *le*. And the way in which *le* interacts with different types of situations is determined by this specific property.

Le with States

In many languages, the perfective morphology applies to stative as well as non-stative situations, because a State may be viewed as a single whole too. In Chinese, however, *le* can not be used with States, unless endpoints are provided by some delimiting mechanism. In (38) and (39) we have stative sentences, they may refer to past or present stative situations depending on the context in which they are spoken. However these States can not take the perfective marker *le*. The addition of *le* will render the sentences ungrammatical. The reason is: States are open-ended and have no endpoints.

(38) Liming ai Xiaojuan.
Liming love Xiaojuan
'Liming loves Xiaojuan.'
'Liming loved Xiaojuan.'

b. *Liming ai **le** Xiaojuan.
Liming love Perf Xiaojuan

(39) a. Lisi zai Beijing zhu.
Lisi at Beijing live
'Lisi lives in Beijing.'
'Lisi lived in Beijing.'

b. *Lisi zai Beijing zhu **le**.
Lisi at Beijing live Perf

However if endpoints are added by temporal phrases, these sentences will be grammatical sentences with simple single-event readings:

(40) Liming ai **le** Xiaojuan san nian.
Liming love Perf Xiaojuan three year
'Liming loved Xiaojuan for three years.'

(41) Lisi zai Beijing zhu **le** wu nian.
Lisi at Beijing live Perf five year
'Lisi lived in Beijing for three years.'

(40) expresses a fact that for three years, Liming loved Xiaojuan. And (41) refers to the fact that for five years, Lisi lived in Beijing.

Le with Activities

Activities are not bounded nor telic. So they do not have final endpoint either. Therefore, they are not compatible with *le* either, unless some delimiting device is employed to provide endpoint. As I have discussed (4.4.2.2) non-statives in Chinese have to be marked (by aspect or tense markers) to refer to specific situations. In

discourse, aspect markers, especially *le* may be omitted. But when a sentence stands by itself, aspect markers are obligatory. However, mere addition of aspect markers will not guarantee grammatical readings, as the following sentences show:

(42) *Lisi tui **le** che.
Lisi push Perf cart
'Lisi pushed the cart.'

(43) *Zhangsan zou le.
Zhangsan walk Perf
'Zhangsan walked.'

Both sentences are bad in the intended reading. Sentence (43) may have a reading that *Zhangsan has left*, but with that interpretation *zou* is no longer an activity verb. It is a directional movement verb.

If we add endpoints to Activities, *le* will be good with them. I denote the delimiting mechanism in brackets.

(44) Lisi zou **le** zou. (reduplication)
Lisi walk PERF walk
'Lisi walked a little bit.'

(45) Lisi tiaowu tiao **le** yige xiaoshi. (temporal NP)
Lisi dance dance Perf one hour
'Lisi danced for a hour.'

Sentences in (44-45) have entirety readings of specific events.

Le with Semelfactives

Semelfactives are a special class. They are atelic, but they are both [+bounded] and [-bounded] in nature (see 3.3.4.). As they are indefinite in their boundedness

feature they behave like Activities, that is, they need extra delimiting mechanism to refer to specific closed events. The contrast of the (a) and (b) sentences in (46) to (48) illustrates this. Again I specify the delimiting mechanism in brackets.

(46) a. *Lisi qiao **le** men.
Lisi knock Perf door

Lisi qiao **le** qiao men. (Reduplication)
Lisi knock Perf knock door

'Lisi knocked at the door.'

(47) a. * Lisi kesou **le**.
Lisi cough Perf

b. Lisi kesou **le** yisheng. (Quantity NP)
Lisi cough Perf one time

'Lisi coughed.'

(48) a. *Deng shan **le**
light flash Perf

b. Deng shan **le** san fenzhong. (Temporal NP)
light flash Perf three minute
'The light flashed for three minutes.'

From the above sentences we may see that delimiting mechanisms have to be employed to produce specific closed readings out of Semelfactives.[7]

Le with Accomplishments and Achievements.

Accomplishments and Achievements are telic situations. They have both temporal and spatial endpoints. So the mere addition of *le* to these two kinds of situations will render specific single act readings. The following are some Accomplishments:

[7](a) and (a) may have current relevance readings, in that case *le* is a sentence-final particle.

(49) Ta xie **le** yifeng xin.
he write Perf a letter
'He wrote a letter.'

(50) Lisi shao **le** yizhang zhuozi.
Lisi burn Perf a table
'Lisi burned a table.'

(51) Zijuan feng **le** yijian yifu.
Zijuan sew Perf a dress
'Zijuan sewed a dress.'

In (52) to (54), we have some Achievement sentences:

(52) Lisi de zufu si **le**.
Lisi 's grandpa die Perf
'Lisi's grandpa died.'

(53) Xiao didi da-po **le** yizhi hauping.
little brother hit-broken Perf a vase
'Little brother broke a vase.'

(54) Lily ba guitai cai-gan **le**.
Lily BA counter wipe-dry Perf
'Lily wiped the counter dry.'

4.4.2.4. Smith's termination vs. completion assumption

Smith argues in great detail how *-le* denotes termination only and completion is denoted by completive morphemes. If her assumption is true, *-le* should be compatible with Semelfactives and Activities without the help of delimiting mechanisms. We have seen from the above data that *-le* does not provide any endpoint, so it will not denote termination, nor completion. It only provides a totality view of a particular situation. Endpoints are expressed by elements that contribute to the meaning of the situation, usually by verbs, the arguments of the verbs and delimiting elements.

Smith has two kinds of Accomplishments. One is just the regular kind like *zao yizuo fangzi* 'build a house,' the other is what she calls a Resultative Verb Complement like *zao-hao yizuo fangzi*, 'build-finish a house'. The second kind is, by our new criterion, an Achievement. Smith employs the contradiction test (see 3.2.3.2) to show how the first kind (Accomplishments by our definition) behaves differently from the second kind (Achievements by our definition):

(55) a. Wo zuotian xie **le** yifeng xin,
I yesterday write -le a letter

keshi mei xie-wan.
but not write finish

'I wrote a letter yesterday but I didn't finish it.'

b. *Wo zuotian xie-wan **-le** yifeng xin,
I yesterday write-finish -le a letter,

keshi mei xie-wan.
but not write-finish

Lit. 'Yesterday I wrote-finish a letter, but I didn't finish it.'

Adapted from Smith 1991, p. 345

(55a) does not present a contradiction, but (55b) does. Smith explains the contrast by saying that in Chinese termination is separated from completion. Termination is provided by *le* and completion is provided by the completive morphemes in the Resultative Verb Compounds. In (55a) the situation of *writing a letter* is terminated and the letter is not completed and so the second part of the sentence is possible. In (55b) the completive morpheme signals completion, the letter has to be completed and so the second part of the sentence is impossible. This seems to be quite a plausible explanation if we only look at sentences like the ones in (55).

However, the explanation does not account for the data we have discussed, this explanation is not quite explanatory. The data in concern are those that show the incompatibility of *-le* with [-bounded & -telic] States, Activities and Semelfactives. If *-le* denotes termination like the perfective in English, there should not be the obligatory requirement of delimiting mechanisms for perfective readings of Activities, States and Semelfactives.

In my new analysis here, the explanation for the contrast shown in (55) goes like this: Accomplishment verbs imply results but Achievement verbs encode results (See 3.2.2.-3.2.3.). When *-le* is used with an Achievement, a completion reading will be the only reading. However, with an Accomplishment, the result is implied and so a total view of the situation usually includes the result. And a completion reading is the most natural one for the first part of (55a). But in some circumstances, a forced reading that does not include the result may obtain like whole sentence (55) shows.

4.4.2.5. Temporal schema for *le*

Smith provides a general perfective schema as the one in (56):

(56) I F
//////////// (viewpoint that cover the whole event)

This schema emphasizes that the span of the perfective viewpoint includes both the initial and the final endpoints. It does not really say anything about situation type. And it is not clear which (the situation or the viewpoint) is responsible for the final endpoint. In the temporal schemata I am going to provide in the following discussion I will specify situation types and make it clear what is responsible for the

final endpoint.

As (56) shows, sentences with a perfective viewpoint present a situation in its totality, including both the initial endpoint or the final endpoint. Yet as both Smith (1991) and Comrie (1976) note, perfectives vary considerably across languages. Some perfectives emphasize completion and termination, some perfectives emphasize the occurrence of an event as a whole. I further assume that some perfectives may provide final endpoints while some others may not. The Chinese *le* is a representative of the latter kind. That is, it emphasizes the occurrence of an event as a whole and does not provide any final endpoint. Accordingly I propose here two different specific schemata for the English perfective and the Chinese perfective *le* respectively:

(57) The Temporal Shema of the English Perfective:

I (F) //////////F	(a situation with or without a final endpoint) (viewpoint that covers the whole event and specifies a final endpoint)

The situation may be of any type, with or without final temporal or spatial endpoint. The perfective viewpoint not only gather the situation as a whole but also indicates that the situation is either terminated (if the situation is [-bounded]) or completed (if the situation is [+telic]).

(58) The Temporal Schema of the Chinese Perfective:

I F //////////	(an event that is either [+bounded] or [+telic]) (viewpoint that covers the whole event)

In Chinese the perfective marker *le* only provides a totality view of a situation, this situation itself has to have an final endpoint, that, is the situation has to be either [+bounded] or [+telic].

4.4.3 The marker *zai*

4.4.3.1. General view of *zai*

The morpheme *zai* was originally a locative verb as discussed by Li & Thompson (1981) and Chen (1978) Then it started to function as a preposition signaling spatial or temporal location. The following sentences illustrate its verbal and prepositional usages respectively:

(59) Lisi zai bangongshi li.
Lisi be-at office inside
'Lisi is in the office.'

(60) Lisi zai bangonshi li kanshu.
Lisi at office in read
'Lisi is reading in the office.'

(61) Lisi zai ba sui de shihou qu le Beijing.
Lisi at eight year 's time go Perf Beijing.
'Lisi went to Beijing when he was eight.'

Zai in (59) is a locative verb. It is a preposition in (60) and (61), introducing a locative phrase and a temporal phrase respectively. In Chinese, all adverbials occur in preverbal position. And *zai* locative or temporal phrases are no exception. *Zai* locative phrase may convey progressive meaning too when there is no other aspect marker present: Chen (1978) provides a minimal pair that will illustrate this:

(62) a. *Ta zai chufang li si.
he at kitchen in die
'He is dying in the kitchen.'

b. Ta zai chufang li ku.
he at kitchen in cry
'He is crying in the kitchen.'

(62a) is bad because *zai* , although a preposition here, also conveys a progressive meaning and the Achievement verb *si* 'die' usually is not compatible with the progressive form. If another aspect marker is present in the sentence that has a prepositional phrase, the head of the prepositional phrase *zai* will function only as a preposition without any progressive indication.

(63) Lisi zai yuanzi li zhong le yike shu.
Lisi at garden in plant Perf a tree
Lisi planted a tree in the garden.'

When *zai* occurs right before the verb without any NP complement, it is a pure aspect marker. It denotes that the action is going on. It functions to focus on the progress of a certain situation just like the English progressive. So it provides an imperfective view of a situation. The progressive usage of *zai* is the topic of the next subsection.

4.4.3.2 The progressive nature of *zai*

As Vendler (1967) Dowty (1979) and Smith (1991) among others observe, the progressive form focuses on the internal stages of situations. This property of the progressive leads to two inferences: i. the progressive is imperfective in nature; and ii. it differs from the general imperfective in that it usually applies only to situations that contain processes while the general imperfective applies to all situation types.

The Chinese *zai* fits right in with the description of the general progressive form.

First *zai* makes the internal stages of a situation visible so a situation marked by *zai* can always provide on-going background information, which contrasts with the perfective marker *le* (see 4.2.2.2.).

(64) Lisi lai de shihou, ta zai xie baogao.
Lisi come DE time he Prog write report
'He was writing a report when Lisi came.'

Secondly, a situation marked by *zai* does not provide information about the final endpoint. *Ta zai xie baogao* 'He is writing a report' does not entail that the report was completed, that is why sentence (64) can be conjoined with an assertion that the event of writing a report is not completed:[8] *Lisi lai de shihou, ta zai xie baogao; dao xianzai ta hai mei xie-wan.* 'He was writing a report when Lisi came and he still has not finished it yet.'

And thirdly, *zai* occurs only with situations that contain processes: Activities, [-bounded] Semelfactives and Accomplishments. It occurs with States only when there is a shift of meaning. The Chinese Achievements usually do not encode process, so *zai* does not occur with Achievements, unless the achieving of the result itself is considered as a process. The interaction of *zai* with different situation types will illustrate all this.

4.4.3.3. The interaction of *zai* with situation types

Zai with States

Generally speaking, *zai* is not used with States. As Galton (1984) points out: 'state-verbs lack continuous tenses because their meaning is already necessarily continuous

[8]This contradiction test has been employed by Tai (1984) and Smith (1991) among others.

in nature, so a continuous tense would be superfluous...' (Galton, 1984, p. 71) But as in English, when a certain State is presented as a temporary experience, *zai* is used to actualize the ephemeral nature.

(65) Ni huai **zai** hen wo ma?
you still Prog hate I QM
'Are you still hating me?'

In this sentence, the addresser is asking about the temporary feeling of the addressee. So *zai* is compatible with States only when there is a shift of meaning.

Zai with Activities and Accomplishments

Like the Progressive Form in English, *zai* is quite often used with Activities and Accomplishments to present a partial view of them.

(66) Ta **zai** tiaowu.
he Prog dance
'He is dancing.'

(67) Tamen **zai** zao yizuo qiao.
they Prog build a bridge
'They are building a bridge.'

Zai with Semelfactives

Semelfactives are temporally [-bounded] or [+bounded]. When *zai* is used with Semelfactives, only repetitive readings obtain (see 3.3.4).

(68) Daiyu **zai** kesou.
Daiyu Prog cough
'Daiyu is coughing.'

(69) Lisi **zai** qiao men.
Lisi Prog knock door
'Lisi is knocking at the door.'

Zai with Achievements

Achievements usually do not take *zai*, because as I have discussed, in Chinese, Achievements either profile results only: *si, yin* 'die, win' or pack process and result as a whole lump like: *da-po,* 'hit-broken', *xi-ganjing* 'wash-clean'. In the former case, there is no process encoded and in the latter case, the process and result are an inseparable whole. As the achievement of a result is punctual Achievements in Chinese almost never take the progressive form:

(70) *Lisi **zai** ying paobu.
Lisi Prog win race
Lisi is winning the race.'

(71) *Lisi **zai** xi-ganjin yifu.
Lisi Prog wash-clean cloth
Lisi is washing the clothes clean.'

On some special occasions, the achievement of a result may be considered as a sort of process that takes time. When such is the case, the Achievement in concern may take the progressive marker *zai.* This is illustrated by sentence (72):

(72) Women zeng zai da-ying zhechang zhanzhen.
we right Prog fight-win this war
'We are winning this war.'

4.4.3.4. The temporal schema of *zai*

A general survey of the basic functions of *zai* tells us that it is a progressive marker. It focuses the internal stages of situations. Therefore its temporal schema may be represented by the imperfective schema in (73). This schema is modified from Smith's general schema for the imperfective. I put the final endpoint F into parentheses, because situations that take the imperfective *zai* may be either closed or open-ended.

(73) I (F) (an event with or without a final endpoint)
///// (viewpoint that covers part of the event)

In contrast with *le*, *zai* is not sensitive to endpoints of situations. It does not require that the situation it marks be [+bounded] or [+telic].

4.4.4 The marker *zhe*

Zhe also provides partial views of situations. Its imperfective nature may be seen through two facts.

First, it may pass the contradiction test. When it is used to mark a [+telic] situation, no completion reading of the situation will be entailed. *Ne* is an attitudinal particle. It usually has some current relevance implication.

(74) Tamen zheng gai zhe fangzi ne.
they right build Imp house Part
'They are building the house right now.'

The above sentence does not entail that the house was built to completion.

Secondly, the situation marked by *zhe* can always provide on-going background information:

(75) Zijuan ku **zhe** pao le chu qu.
Zijuan cry Imp run Perf out go
'Zijuan ran out, crying.'

The event of *running out* here is the foreground information and the event of *crying* that is marked by *zhe* only provides background information.

However, unlike the progressive *zai*, *zhe* does not focus on the progress. It provides a stative view of situations. A minimal pair provided by Li & Thompson (1981) will illustrate this:

(76) a. Ta **zai** chuan pi xie.
he Prog put-on leather shoe
'He is putting on his leather shoes.'

b. Ta chuan **zhe** pi xie.
he wear Imp leather shoe
'He wears leather shoes.'

(Li & Thompson, p. 221)

The verb *chuan* in Chinese may refer to the action of *putting on* or refer to the situation of *wearing*. And what reading is will have, an action or a stative situation, is decided by which of the imperfective aspects markers is used. When *zai* is used, the verb indicates an active process. When *zhe* is used, the verb indicates the static property of a situation. The difference between *zai* and *zhe* explains the fact that *zai* is used with non-stative verbs while *zhe* is used with both the non-stative and the stative verbs.

4.4.4.1. General View

Zhe has five basic usages: i. to indicate a static situation resulting from an action; ii. to lay emphasis on the continuance of a state, iii. to describe a homogeneous on-going process; iv. to indicate backgrounding information and v. to indicate existential status. In (77-81) I will give examples for each of these usages without detailed discussion. Some of the usages I will discuss in detail later. I refer the reader to Lin (1979), Li & Thompson (1981), Smith (1991), Chu (1987) and Chen (1987a, 1987b, 1986) for more discussion of these usages of *zhe*. My focus will be on how *zhe* interacts with different situation types.

(77) Static situation related to a previous action
Neiwei lao taitai dai **zhe** yiding bai maozi.
that old lady put-on (wear) IMP a white hat
'That old lady is wearing a white hat.'

(Lin, p. 100)

(78) Emphasized State
Liming sheng ai **zhe** Xiaojuan.
Liming deeply love IMP Xiaojuan.
'Liming loves Xiaojuan deeply.'

(79) Stative view of an on-going process
Waimian gua **zhe** da feng.
Outside blow IMP big wind
'A big wind is blowing outside.'

(Lin, p. 102)

(80) Backgrounding information
Ta ku **zhe** zuo zuoye.
he cry IMP do homework
'He did his homework, crying.'

(81) Existential Construciton
Tian shang fei **zhe** yizhi niao.
sky upon fly IMP a bird
'A bird is flying in the sky.'

4.4.4.2. The interaction of *zhe* with different situation types

Zhe with States

I will now look at how *zhe* interacts with different situation types. *Zhe* usually does not occur with States, because States are stative in nature and a marker that emphasizes stativity will be superfluous. *Zhe* is used with stative verbs only when certain implication or emphasis is intended:

(82) a. ?Liming ai **zhe** Xiaojuan.
Liming love IMP Xiaojuan

b. Liming sheng ai **zhe** Xiaojuan.
Liming deeply love IMP Xiaojuan.
'Liming loves Xiaojuan deeply.'

(83) a. ?Tang re **zhe.**
soup hot IMP

b. Tang re **zhe** ne.
soup hot IMP PART

'The soup is hot. (Drink it before it gets cold.)

In (82b) *sheng* denotes the great degree of love. And in (83b) the sentence final particle is what traditional linguists call 'attitudinal' particle (Li & Thompson, 1981), *zhe* together with this *ne* produces an implication as denoted by the sentence in brackets.

The static nature of *zhe* makes it especially compatible with activity verbs that involve little dynamism:

(84) Ta zai deng **zhe** ni.
he Prog wait IMP you
'He is waiting for you.'

(85) Ta na **zhe** liangben shu.
he hold IMP two book
'He is holding two books.'

(86) Wo yizhi zuo **zhe.**
I all time sit IMP
'I have been sitting all this time.'

(Lin, p. 101)

With activity verbs that involve a lot of dynamism, *zhe* can either denote back-

grounding information or convey some emphatic implication.

(87) Tamen chao **zhe** jia ne.
they quarrel IMP quarrel PART
'They are quarreling now. (So don't try to talk to them.')

(88) Ta ku **zhe** zuo zuoye.
he cry IMP do homework
'He did his homework, crying.'

Zhe with Accomplishments

Accomplishments involve outcomes, so they usually provide foregrounding information rather than backgrounding information. That is why *zhe* is not used with Accomplishments to provide backgrounding information:

(89) a. Ta ku **zhe** gei baba xie xing.
he cry IMP to father write letter
'While crying, he was writing a letter to him father.'

b. *Ta xie **zhe** gei baba de xing ku.
he write IMP to father 's letter cry
'While writing a letter to his father, he was crying.'

(89a) is good because an Activity is involved to provide backgrounding information, whereas (89b) is out because an Accomplishment is involved to give backgrounding information. Accompanied by the occurrence of *ne*, *zhe* may be affixed to an accomplishment verb to denote emphasis or some related implication:

(90) Tamen zheng jian **zhe** fangzi ne.
they rightnow build IMP house PART
'They are right now building a house. (so they are quite busy.)'

Zhe with Semelfactives

Semelfactives will only have repetitive readings when *zhe* is affixed. In sentence (91a), *zhe* occurs with *ne*. *Zhe* in sentence (91b) (from Cheng, 1987a) is affixed to

a verb providing backgrounding information.

(91) a. Ta zheng ke **zhe** ne.
he right now cough IMP PART
'He is coughing right now. (So do not ask him to talk.)

b. Ta pai **zhe** zhuozi ma ren.
he hit IMP table scold people
'He hit table while he was scolding other people. '

Zhe **with Achievements**

Zhe does not affix to any Achievement verbs. The reasons are obvious. With results encoded in them, Achievement verbs provide foregrounding information rather than backgrounding information. And the achieving of certain results is usually instantaneous and can not be viewed in any way as a stative situation.

Zhe **and Existential Construction**

Finally, *zhe* is very commonly used in existential constructions. This I will discuss in detail in Chapter Five.

4.4.4.3. The temporal schema of *zhe*

Like *zai*, *zhe* provides a partial view of a situation and is not sensitive to endpoints of situations, but unlike *zai* it also conveys a stative meaning. The following schema is modified from Smith (1991, p. 363):

(92) I (F) (an event with or without a final endpoint)
— (a stative view of part of the event)

4.4.5 The marker *guo*

Guo is the other perfective marker. It has two major usages. The first is to denote the termination of some situation prior to another situation. And the second is to indicate a past experience. In both cases, *guo* presents an situation as a whole.

When *guo* is used to denote the termination of some situation it always conveys a current relevance meaning and quite often co-occurs with the sentence-final particle *le*:

(93) Wo chi **guo** fan le.
I eat Perf meal PART
'I have had my meal.'

Here the event of *eating* is viewed as a whole completed event, so this sentence can not be contradicted by the sentence *keshi hai mai chi-wan* 'but I have not finished eating.'

And a situation marked by *guo* can not serve to provide background information:

(94) Ta chi guo fan de shihou, Lisi lai le.
he eat Perf meal DE time Lisi come Perf.
'*Lisi came when he ate his meal.'

When *guo* is used to express past experience, it also gathers the situation as a whole disregarding the internal temporal structure of the situation.

(95) Wo chi **guo** Zhongguo fan.
I eat Perf Chinese food
'I had the experience of eating Chinese food.'

Here the event of *eating Chinese food* is viewed as a single fact. The sentence is true even if I ate Chinese food several times before.

4.4.5.1 The difference between *guo* and *le*

When *guo* is used to indicate the anteriority of one situation to another, it is interchangeable with *le* in many cases. The *guo* in the above sentences may be replace by *le*

(96) Wo chi **le** fan le.
I eat Perf meal PART
'I have had my meal.'

(97) Wo gang shuo **le**, wo yao bangzhu.
I just now say Perf I want help
'I have said just now I want help.'

Yet, in some other cases, *guo* is good whereas *le* is bad:

(98) a. Wo gang qiao **guo** men.
I just now knock Perf door
'I have just knocked at the door.'

b. *Wo gang qiao **le** men.
I just now knock Perf door
'I have just knocked at the door.'

However, if we add a quantity NP to (98b), it becomes acceptable:

(99) *Wo gang qiao **le** yici men.
I just now knock Perf once door
'I have just knocked at the door once.'

We have argued that *le* does not provide endpoint. Sentence (98b) involves a Semelfactive verb. We have see how extra delimiting mechanism has to be employed to use *le* with Semelfactives. However, the contrast shown by (98a) and (98b) seem to suggest that *guo* provides an endpoint. That is just the new assumption I am going to argue for in this subsection.

If the assumption is true, two facts should be borne out. The first is: *guo* should be able to provide perfective viewpoint to stative situations as well as non-stative

situations. And the second is: when used with Activities and Semelfactives, no extra delimiting mechanisms should be required. The following data will show that both facts obtain.

4.4.5.2. The interaction of *guo* with situation types

Guo is able to provide perfective reading to States:

(100) Liming ai **guo** Xiaojuan.
Liming love Perf Xiaojuan
'Liming loved Xiaojuan.'

(101) Xiaojuan ye piaoliang **guo.**
Xiao also pretty Perf
'Xiao was also pretty.'

In both sentences the States obtain in the past. The perfective marker *guo* provides a temporal endpoint to the situation.

With Activities and Semelfactives, no extra delimiting mechanisms are needed:

(102) Ta zai nage gongyuan san **guo** bu.
he in that park stroll Perf stroll
'He once stolled in the park.'

(103) Ta qiao **guo** nashan men.
he knock Perf that door
'He once knocked at the door.'

With Accomplishments and Achievements, the object NP need not be [+count]:

(104) Tamen jian **guo** fangzi.
they build Perf house
'They had the experience of building (a) house(s).'

(105) Ta da-po **guo** beizi.
he break Perf glass
'He once broke (a) glass(es).'

The above data show that *guo* is more like the perfective aspect like English and French in that it provides an endpoint to situations. That is why it is less constrained than *le*. It is actually compatible with all situation types.

4.4.5.3. The temporal schema of *guo*

(106) I (F) (an event with or without a final endpoint)
//////////F (viewpoint covers the whole event and emphasizes the completion of the event)

4.4.5.4. Summary

Now we have argued that in Chinese there are four aspect markers. We have traced their historical development and sketched their primary functions. In light of their primary functions and their interaction with different situation types, we may fit them precisely into two viewpoint categories: perfective and imperfective. *Le* and *guo* are perfectives. *Zai* and *zhe* are imperfectives. These two viewpoints are just what are generally found across languages. So in numbers of viewpoints Chinese conforms to the general Universal Grammar schemata. These aspect markers, however, have some properties that are language specific. *Le* emphasizes the occurrence of a situation as a whole, it does not provide an endpoint to the situation, whereas the other perfective marker *guo* emphasizes the completion of a situation. The progressive marker *zai* focuses on the internal stages of a situation and so it is compatible with a situation that is considered to involve a process. Like the progressive

in English, *zai* conveys an imperfective meaning that fits in the general imperfective schema Smith (1991) provides. *Zhe* is also an imperfective marker. It differs from *zai* in that it provides a stative view of a situation, while *zai* provides a progressive view of a situation.

4.4.6 Sentences without aspect markers

In talking about sentences without aspect markers, we have to, first of all, separate non-States from States. A stative sentence need not be marked to have a specific reading, while a non-stative sentence has to be marked either by a underdeveloped tense marker or an aspect marker to have a specific reading. However, in discourse, we will find many sentences that do not have aspect markers. The sentences that lack aspect markers are "either interpreted as 'irrealis' (e.g. future, habitual or conditional) or as having a perfective aspect deleted for discourse reasons." (Chu, 1987a, p. 4)

(107) Sentences with unmarked or deleted aspect:

a. haizimen meitian shangxue.
children everyday go to school
'The children go to school every day.'

b. Jiaru ta lai zheli wo hui gaosu ta zhengxiang.
if he come here I will tell him fact
'If he comes here, I will tell him the facts.'

c. ta dakai meng, zoujin fangjian, zai shafashang zuo le xialai.
he open door enter room at sofa on sit Perf down
'He opened the door, entered the room and sat down on the sofa.'

(107a) describes a habitually repeated event. And the subordinate clause in (107b) is a conditional clause. These 'irrealis' sentences or clauses actually have the im-

perfective viewpoint, because they are not presented as entire situations. (107c) provides a sort of discourse in which a sequence of events is described and only the last event takes an aspect marker. Events before the last one can also take the perfective aspect markers if the speaker regards them as separate events or wants any of them to stand out as separate events. So these events are not regarded as aspectually unmarked events. They are aspectually marked, but their aspect markers are dropped for discoursal reasons.[9]

4.5 Conclusion

Chinese is a language that is very different from the European languages and it has a very complex aspectual system. And this system has some special properties. These special properties are fully recognized in this chapter and at the same time it is shown that however different it is the Chinese aspectual system still fits in the larger picture of universal grammar.

First of all, the traditionally assumed 5-9 or more viewpoints represented respectively by 5-9 or more aspect markers are reanalyzed in light of the new developments in aspect theories, and the new assumptions I made in the previous chapters. Assumptions and proposals that are crucial to my discussion in this chapter include the different functions of tense and aspect (2.1. and 2.5.) the distinction of situation aspect and viewpoint aspect (2.4.); the distinction of boundedness (3.3.3.) and telicity and the three-level model of situation aspect composition (3.5.). Only four of the nine traditionally assumed aspect markers are proven to be true aspect markers, the others are shown to be either tense markers or delimiting elements.

[9]The question of when an aspect marker may be deleted is in itself a dissertation topic. And I will not go into a detailed discussion of it.

Yao is an underdeveloped relative future tense marker; *laizhe* is an underdeveloped relative past tense marker; *xiaqu* and *qilai* are super-lexical markers that change the focus of situations; verb reduplication is a delimiting process that functions to close off situations. In arguing for their non-aspect marker status, I draw upon empirical evidence, like the very revealing tests of (in)compatibility with *le, zai* and so on. Tense markers, super-lexical markers and delimiting process all contribute to aspectual meanings, but in a system where tense is clearly distinguished from aspect and situation aspect is clearly distinguished from viewpoint aspect, the true nature of their contribution to the aspectual system is clearly defined as different from true viewpoint aspects.

The four true aspect markers are shown to belong to two aspectual categories: perfective *le, guo* and imperfective *zai, zhe*. In proving their aspectual marker status, I have employed the contradiction test (Smith 1991) and the backgrounding information test (my own). And through a discussion of the interaction of these four markers with different situation types, these four markers are compared and contrasted with one another and also with the general aspect pattern in universal grammar. *Le* is shown to emphasize the occurrence of a situation as a whole but provides no endpoint. *Guo* not only gathers a situation as a whole but also provides final endpoint. *Zai* is a progressive marker and *zhe* provides an imperfective view by emphasizing the stativity of a situation. All special features of these markers are recognized and temporal schemata are provided to illustrate their true nature.

Chapter 5

The Special Semantic Requirements of the ba/bei Constructions

In the previous chapter, we look at the aspect markers in Mandarin Chinese and their interaction with different situation types. In this and the next chapter we are going to look at some special constructions in Mandarin Chinese.[1]. These constructions all display some special aspectual properties. A discussion of these constructions is necessary because their aspectual properties throw light on the study of the aspectual system of Mandarin Chinese.

The constructions I am going discuss in this chapter are the *ba/bei* constructions. There two constructions have aroused a lot of controversy in linguistic literature. My purpose in discussing them is twofold: first, I want to show that an aspectual approach will give a clearer and unified account of the constructions; and secondly, the special aspectual properties of the constructions will give further evidence for

[1]This chapter is a revised version of one of my course papers for my supervisor Dr. Hukari. Another version of it is going to appear in the 1995 October issue of the *Journal of the Chinese Language Teachers Association*. I'd like to thank Dr. Hukari and the anonymous reviewer of the journal for their valuable comments.

the assumptions I make in Chapter 3 and Chapter 4. The assumptions in concern include: i. temporal NPs and quantity NPs are delimiting elements (3.5.3.); ii. verb reduplication is a delimiting process (3.5.1.2.); Accomplishments should be distinguished from Achievements by the criterion of (non)encoding of result (3.2.2.-3) and so on.

5.1 Introduction

Ba and *bei* constructions are always discussed together because they share a lot of similarities. They both seem to involve the fronting of objects to preverbal positions:

(1) a. Wo pian le ta.
I cheat Perf he

b. Wo *ba* ta pian le.
I BA he cheat Perf

'I cheated him'

(2) a. Wo pian le ta.

b. Ta *bei* wo pian le.
he BEI I cheat Perf

'He was cheated by me.'

In contrast to non-*ba*/non-*bei* sentences in (1a-2a), sentences in (1b-2b) have the logical objects in preverbal position. They have the form:

(3) a. NP *ba* NP_O V_F

b. NP_O *bei* (NP) V_F

For convenience, I will use NP_O to refer to the NP that is supposed to be a fronted object, and V_F to refer to the verb phrase that follows *ba* and *bei*. In many cases,

a phrase, and NP, a PP, or a phrase of some other type, may occur after V_F. I will use XP to refer to a phrase in this position. *Ba/bei* constructions with XPs after V_Fs will have the form:

(4) a. NP *ba* N_O V_F XP

b. NP_O *bei* (NP) V_F XP

Data like those in (1-2) may easily lead to analyses analogous to those of European language structures. The *bei* construction has been assumed to be a passive structure involving the movement of the object NP to the subject position. And *bei* is assumed to be the counterpart of the English 'by'. (Huang, 1982; Li & Thompson, 1981; and Y-H. A. Li, 1990) The *ba* construction, though it does not have a real equivalent in European languages, is analyzed similarly as involving object NP movement too. And *ba* is suggested to be an object marker. (Huang, 1982; Li & Thompson, 1981)[2]

As opposed to the movement analysis, I will argue for an alternative analysis of the *ba/bei* constructions. This alternative analysis differs significantly from the traditional movement analysis in its non-movement assumption and more importantly, in its employment of aspectual notions.[3] It will be shown that some relevant semantic notions will provide a new perspective on the *ba/bei* constructions. And this new perspective enables us to give a unified account for the various kinds of

[2]Y-H. A. Li assumes a movement analysis only for passive structures. She argues that NP_O in the *ba* construction is base generated in the preverbal position. In her analysis *ba* is also a sort of object marker.

[3]In recent literature, some linguists have touched upon the aspectual requirements of the *ba* construction (See Ren 1991 and Zhou 1994). Yet my analysis is significantly different from theirs in a few ways. Firstly, their aspectual requirements seem to be limited to situation aspect or viewpoint aspect only, while my aspectual requirements cover both the situation aspect and the viewpoint aspect. Secondly, my treatment of XPs as delimiting elements is novel.

ba/bei sentences.

In the following subsections I will work towards a new analysis with the following questions in mind:

- What kinds of [V_F + (XP)]s can occur in *ba* and *bei* sentences?
- What category do *ba* and *bei* belong to?
- What are the properties of the NP_Os?
- What are the properties of the XPs?
- What is the proper way to represent the *ba* and *bei* constructions?

5.2 A classification of the *ba* and *bei* sentences

Before I go on to build up my new analysis I will give a classification of *ba* and *bei* constructions. I divide the most commonly found *ba* and *bei* sentences into six major types according to different types of [V_F + (XP)]s.

5.2.1 Simplex verb

By *simple verb type* I mean the kind of sentences where V_F is a morphologically simplex verb as opposed to a morphologically complex verb like a compound:

(5) Zhangsan *ba* Lisi sha le.
Zhangsan BA Lisi kill Perf
'Zhangsan killed Lisi.'

(6) Lisi *bei* Zhangsan sha le.
Lisi BEI Zhangsan kill Perf
'Lisi was killed by Zhangsan.'

Only transitive verbs appear in this type of simplex verb *ba* or *bei* sentence. Yet not all transitive verbs are possible. Psych verbs like *ai, hen,* 'love, hate,' and action verbs like *pa* 'climb' cannot appear in this kind of sentences:

(7) a. Zhangsan ai Lisi.
Zhangsan love Lisi
Zhangsan loves Lisi.'

b. *Lisi *bei* Zhangsan ai.
Lisi BEI Zhangsan love
Lisi is loved by Zhangsan.'

c. * Zhangsan *ba* Lisi ai.
Zhangsan BA Lisi love

(8) a. Ta zai pa shu.
he Prog climb tree
He is climbing the tree.'

b. *Shu zai *bei* ta pa.
tree Perf BEI he climb
The tree is being climbed by him.'

c. *Ta zai *ba* shu pa.
he Perf BA tree climb

5.2.2 Compound verbs

In this type, V_Fs are compounds:

(9) Xiao didi *ba* yifu chuan-hao le.
little brother BA clothes put-good Perf
'Little brother succeeded in putting on his clothes.'

(10) Chawan *bei* xiao didi da-po le.
Tea cup BEI little brother hit-broken Perf
'The teacup was broken by little brother.'
(Adapted from Wang, 1985)

The compound in (9) is an achievement compound, with the first component describing an action and the second component denoting the success of the action. The one in (10) is a resultative compound, with the first component naming an action and the second component denoting the result of the action. Both types of compounds can appear freely in *ba* and *bei* constructions.

5.2.3 V_F + De Expression

De in Chinese can introduce phrases or clauses which are either descriptive or resultative. It is the resultative kind that can occur freely in *ba* and *bei* constructions:

(11) Zhangsan *ba* gou da de wangwang jiao.
Zhangsan BA dog beat DE woofwoof bark
'Zhangsan beat the dog so that the dog started to bark.'

(12) Gou *bei* da de wangwang jiao
dog BEI beat DE woofwoof bark
'The dog was beaten so that it started to bark.'

De wangwang jiao 'DE woofwoof bark' in (11)-(12) describes an event that results from the action of *da* 'beat'.

The verb preceding *de* can be intransitive. In such cases, the performer of V_F is the subject NP in *ba* sentence and the *bei* agent NP in *bei* sentence. And it is NP_Os that get involved in the resultant event or state described by *de* phrases:

(13) a. Zijuan *ba* yanjing ku de zhongcheng yitiaofeng.
Zijuan BA eye cry DE swell to a narrow opening.
'Zijuan cried so much that her eyes were swollen shut.'

b. Zijuan de yanjing *bei* ta ku de zhongcheng yitiaofeng.
Zijuan 's eyes BEI her cry DE swell to a narrow opening.
* 'Zijuan's eyes were cried by Zijuan to become swollen shut.'

Here the performer of 'cry' *ku* is Zijuan and the thing that gets swollen as a result

of Zijuan's crying is her eyes.

5.2.4 V_F + NP

The position after V_F is open for NPs, but not all NPs are possible. Generally speaking there are four kinds of NPs, partitive (possessive), quantitative, resultant and the goal argument NP in double object constructions that can occur in the position after V_F. Most of these NPs are called "retained objects' by linguists who advocate movement analysis for *ba/bei* constructions. For convenience, I will use NP_R to refer to these NPs. The following illustrate the first three kinds. The fourth kind will be discussed in the next subsection.

(14) a. Juzi *bei* ta bo le pi.
Orange BEI he peel Perf skin
'He peeled the skin of the orange.'

b. Ta *ba* juzi bo le pi.
he BA orange peel Perf skin
'He peeled the skin of the orange.'
(Huang, 1982)

(15) a. Men *bei* ta ti le liangjiao.
door BEI he kick Perf two feet
'The door was kicked twice by him .'

b. Ta *ba* men ti le liangjiao.
he BA door kick Perf two feet
'He kicked the door twice.'

(16) a. Baba **ba** shengxiade mukuai
father BA leftover wood

da le yijian gouwu.
build Perf a doghouse

'Father has built a doghouse out of the leftover wood.'

b. Shengxiade mukuai **bei** baba
leftover wood BEI baba

da le yijian gouwu.
build Perf a doghouse

'The leftover wood has been used by Father to build a doghouse.'

(Adapted from Ding, 1993)

NP_R in (14) is partitive, because it denotes part of the NP_O. NP_R in (15) quantity NP. Finally NP_R in (16) refers to a resultant form the NP_O changes into as a result of the action denoted by V_F.

5.2.5 Double objects

As in English, some verbs in Chinese can take double objects:

(17) Zhangsan gei Lisi yiben shu.
Zhangsan give Lisi a book
'Zhangsan gave Lisi a book.'

(18) Zhangsan gaosu Lisi yige hao xiaoxi.
Zhangsan tell Lisi a good news
'Zhangsan told Lisi a piece of good news.'

When we express the same meanings with *ba* and *bei* constructions, it is the theme arguments that occur before V_F as NP_O and the goal arguments have to stay in the postverbal position as NP_R.

(19) a. Naiben shu *bei* Zhangsan gei le Lisi.
that book BEI Zhangsan give Perf Lisi
'That book was given to Lisi by Zhangsan .'

b. *Lisi *bei* Zhangsan gei le neiben shu.
Lisi BEI Zhangsan give Perf that book
'Lisi was given the book by Zhangsan.'

(20) a. Zhangsasn *ba* shu gei le Lisi.
Zhangsan BA book give Perf Lisi
'Zhangsan gave Lisi the book.'

b. *Zhangsan *ba* Lisi gei le neiben shu.
Zhangsan BA Lisi give Perf that book

The (a) sentences have the theme arguments as NP_Os and the goal arguments as NP_Rs, and they are grammatical. The (b) sentences have the goal argument as NP_Os and the theme arguments as NP_Rs, and they are ungrammatical.[4]

5.2.6 V_F + Locative Phrases

Some verbs may take optional goal arguments:

[4]As the anonymous reviewer of the original paper from which this part of my thesis has developed points out *ba* and *bei* constructions are not quite the same with respect to double-object structures. First, the *ba* sentence in (i) seems to be better than the *bei* sentence in (ii):

i. Zhangsan *ba* neige hao xiaoxi gaosu le Lisi.
Zhangsan BA that good news tell Perf Lisi

ii. ?Neige hao xiaoxi *bei* Zhangsan gaosu le Lisi.
that good news BEI Zhangsan tell Perf Lisi

Second, a double object construction with the indirect object bearing the source instead of the goal theta role does not allow a *ba* counterpart, while it allows a *bei* counterpart with the source argument as NP_O.

(21) Ta xie le jige zi zai heiban shang.
he write Perf a few characters at blackboard on
'He wrote a few words on the blackboard.'

The meaning of (21) may be roughly expressed by *ba/bei* sentences in two ways. First, the goal phrases occur after V_F:

(22) Ta *ba* zi xie zai heiban shang.
He BA word write at blackboard on
'He wrote the words on the blackboard.'

(23) Zi *bei* ta xie zai heiban shang.
words BEI he write at blackboard on
'The words were written onto the blackboard by him.'

(Adapted from Tang, 1986)

And secondly, the goal phrase occurs as NP_O. Sentences (22-23) can be switched around to produce sentences (24-25):

---

i. Wo wen le ta henduo wenti.
I ask Perf he many question
I asked him many questions.'

ii. Ta *bei* wo wen le henduo wenti.
he BEI I ask Perf many question

The reason for this may have something to do with the different thematic relations held between the arguments of the double object constructions.

(24) Ta *ba* heiban xie man le zi.
He BA blackboard write full Perf word
'*He wrote the blackboard full of words.'

(25) Heiban *bei* ta xie man le zi.
blackboard BEI he write full Perf word
'The words were written onto the blackboard by him.'

(Adapted from Tang, 1986)

There are two things worth noticing here. First, when the locative occurs before V_F in the NP_O position, it has to be an NP instead of a PP. Second, when the locative is NP_O, V_F has to take a resultative morpheme like *man* 'full' that denotes a resultant state of the locative NP.

5.3 Properties of [V_F + (XP)]s and the [[+Telic] + [+Perfective]] criterion

As we have seen, as many as six major kinds of verb constellations may occur as [V_F + (XP)]s in *ba/bei* constructions. Structurally these six kinds of constellations are very different. However if we look at them in terms of situation types and aspectual viewpoints we will find that they form a natural group aspectually. That is: they all describe telic events as far as situation aspect is concerned and furthermore, the telic events are all expressed in their totality (with the perfective viewpoint) as far as the viewpoint aspect is concerned.

5.3.1 The criterion and the six kinds of *ba/bei* sentences

In this part I will check the six kinds of *ba/bei* sentences and argue that they all comply with the [[+Telic] + Perfective] criterion.

5.3.1.1. Simplex verb type

Let's look at the contrast shown by a and b sentences in (26) and (27):

(26) a. *Lisi *ba* Zhangsan sha.
Lisi BA Zhangsan kill

b. Lisi *ba* Zhangsan sha le.
Lisi BA Zhangsan kill Perf

'Lisi killed Zhangsan.'

(27) a. * Zhangsan *bei* Lisi sha.
Zhangsan BEI Lisi kill

b. Zhangsan *bei* Lisi sha le.
Zhangsan BEI Lisi kill Perf

'Zhangsan was killed by Lisi.'

It seems that the addition of the perfect aspect marker *le* is crucial here. And some linguists associate the ungrammaticality of the a sentences with the monosyllabicity of the verb. But that is a very superficial observation. What is really crucial here is the intrinsic nature of the verb. The verb in (26)-(27) *sha* 'kill' is intrinsically a [+telic] verb, because the result of someone being dead is implied in the verb itself. In terms of space there is a specific change of someone named by NP_O from being alive to being dead caused by the action actualized by the initial NP of the *ba* sentence and the NP after the *bei* in *bei* sentence. Thus the initial NP or the *bei* NP is the object of actualization and NP_O is the object of completion, to partially borrow Van Voorst's (1988) terms. As I have argued in the previous chapter, the perfective marker *le* provides viewpoint only, it will not provide an endpoint. When it is added to a

[+telic] situation it will give a completion interpretation, because [+telic] situations have natural endpoints in themselves. But if *le* is added to situations that have no natural endpoint, ungrammatical sentences will be produced:

(28) a. *Lisi *bei* Zhangsan ai le.
Lisi BEI Zhangsan love Perf
'Lisi is loved by Zhangsan.'

b. * Zhangsan *ba* Lisi ai le.
Zhangsan BA Lisi love Perf

(29) a. *Shu *bei* ta pa le.
tree BEI he climb Perf
The tree has being climbed by him.'

b. *Ta *ba* shu pa le.
he BA tree climb Perf

In (28) we have a State and in (29) we have an Activity, in neither case the *ba/bei* sentences are grammatical, because the these situations do not have final endpoints thus violating the [[+Telic] + [Perfective]] criterion.

One thing that is interesting is Accomplishments in *ba/bei* sentences. Accomplishments are telic as we have shown in (3.4.). Yet some Accomplishments will not produce grammatical *ba/bei* sentences:

(30) a. *Tamen *ba* fangzi zao le.
They BA house build Perf

'They built a house.'

b. *Fangzi *bei* tamen zao le.
House BEI tamen build Perf
'The house was built by them .'

As we will discuss later the subject NP and the NP after *ba* are necessarily definite

or specific, so the situation involved in (30) is for sure an Accomplishment. And the ungrammaticality of the sentences shows that this kind of Accomplishment will not work in *ba/bei* constructions, whereas some other Accomplishments do occur in *ba/bei* sentences:

(31) a. ta *ba* fan chi le.
he BA fan eat Perf
'He finished the meal.'

b. fan *bei* ta chi le.
rice BEI he eat Perf
'The rice has been finished by him.'

The event involved in (31) is an Accomplishment like the one in (30). Then why are sentences in (31) good and the ones in (30) out. The reason may involve the nature of two types of Accomplishment verbs. As discussed in (3.2.2.), construction and consumption (or destruction) are the two basic types of Accomplishment verbs. The construction type includes verbs that bring something into being, like 'build', 'make', 'bake' and so on. The consumption or destruction type includes verbs that bring something out of being, like 'eat', 'drink,' 'wipe out', and so on. The consumption or destruction type of verbs may occur freely in *ba/bei* sentences while the production type of verbs always make unacceptable *ba/bei* sentences:

(32) a. Ta *ba* cha he le.
he BA tea drink Perf
He drunk the tea."
b. Cha *bei* ta he le.
tea BEI he drink Perf
The tea was drunk by him.'

(33) a. Ta *ba* xin shao le.
he BA letter burn Perf
He burned the letter.'

b. Xin *bei* ta shao le.
letter BEI he burn Perf
The letter was burned by him.'

(34) a. *Ta *ba* cha qi le.
he BA tea make Perf
He made the tea."

b. *Cha *bei* ta qi le.
tea BEI he make Perf
The tea was made by him.'

(35) a. *Ta *ba* xin xie le.
he BA letter write Perf
He wrote the letter."

b. *Xin *bei* ta xie le.
letter BEI he write Perf
The letter was written by him.

Sentences in (32-33) have consumption or destruction type of verbs and they are all good. Sentences in (34-35) have construction type of verbs and they are all bad. Why does the construction type of Accomplishment verbs contrast with the consumption or destruction type of verbs? Before I provide an answer to the question I need to point out that the Chinese *ba/bei* sentences can not be translated into English exactly. The above translations are just close to the meanings of the original sentences. As I will discuss later, the *ba* construction expresses a 'causing' relation and the *bei* construction expresses a 'being caused' relation. In both cases the object that is caused to undergo some event has to have definite existence. With consumption or destruction type of verbs, the objects that are caused to be brought

out of being have definite existence, while with the construction type of verbs, the object that are caused to be brought into being do not have definite existence until the construction processes have been completed. This assumption is supported by the fact that the addition of an achievement morpheme to the construction type of verb *zao* 'build' will salvage the sentences in (30):

(36) a. Tamen *ba* fangzi zao-**hao** le.
They BA house build-finish Perf

'They built a house.'

b. Fangzi *bei* tamen zao-**hao** le.
House BEI tamen build-finish Perf
'The house was built by them .'

In such a case, as we have discussed in (3.2.3.), the addition of the achievement morpheme actually changed the Accomplishment verb into an Achievement verb. As opposed to Accomplishment verbs, where the result or outcome is only implied by the verb, Achievement verbs encode results. Therefore, when an Achievement is viewed in totality, a completion reading will surely obtain and the existence of the constructed object is certain. The different behaviour of Accomplishments and Achievements with respect to *ba/bei* constructions provide further evidence for my argument that Accomplishment verbs should be distinguished from the Achievement verbs by the (non)encoding of result criterion.

5.3.1.2. V_F + Compound verb

As I mentioned in the last section it is the resultative and achievement compounds that can appear in *ba* and *bei* constructions. The reason is quite straight forward.

These compounds, with resultative/achievement morphemes attached, unmistakably describe closed events with definite final points. With results or achievements encoded they are all derived [+result] Achievement verbs and behave like Achievement verbs. My discussion here pertains to my discussion in (3.2.3.).

One thing that needs special notice is the fact the resultative/achievement compounding process is extremely productive in Chinese. Resultative/achievement morphemes can be attached to almost all verbs (except Achievement verbs), as long as the semantics allow, to form resultative/achievements compounds. Even Stative verbs participate in the formation process. Let us look at sentences in 7b, 7c, 8b, 8c repeated as (37a,b) and (38a,b) here:

(37) a. *Lisi *bei* Zhangsan ai.
Lisi BEI Zhangsan love
'Lisi is loved by Zhangsan.

b. *Zhangsan *ba* Lisi ai.
Zhangsan BA Lisi love

(38) a. *Shu *bei* ta pa.
tree BEI he climb
'The tree is climbed by him.'

b. *Ta *ba* shu pa.
he BA tree climb

V_F in (37) is a Stative verb and the one in (38) is an Activity verb. The sentences are all ungrammatical because the situations are not [+telic].[5] Yet with the help of resultative morphemes these sentences will become grammatical as sentences in (39) and (40) here show:

[5]The addition of *le* will not improve the sentences.

(39) Dajia *ba* ta hen tou le.
all people BA he hate through Perf
'All people hated him to a great extent.'

(Li & Thompson, p. 469)

(40) Neike shu *bei* ta pa duan le.
that tree BEI he climb break Perf
'That tree was broken because of his climbing it.'

The resultative morpheme *tou* 'through' in (39) describes the resultant state of NP_O caused by the Stative verb *hen* thus providing a final endpoint and making NP_O an object of completion. The resultative morpheme *duan* in (40) does the same thing to an Activity verb *pa*. Sentences (37) and (39) show that Stative verbs also take part in the telicity change process and so the [±telic] feature is relevant for Stative verbs too. This gives further support to my argument in (3.5.1.1.).[6]

Resultative/achievement compounds and some other kinds of telic or bounded verb constellations can appear in imperative *ba* sentences:[7]

(41) *Ba* shui shao-kai.
BA water heat-boil
'Heat the water till it boils.'

(42) *Ba* ge chang-wan.
BA song sing-finish
'Sing till you finish the song .'

Although the events described by sentences in (41-42) have not happened with ref-

[6]Smith (1991) does not assign telicity feature to States, because she thinks that the telicity feature is irrelevant to States.

[7]*Bei* does not appear in imperative sentences, because as I will discuss later *bei* construction describes a relation of 'being caused', so semantically it is incompatible with the imperative that requires agentivity.

erence to speech time, the events themselves are closed in the sense that their final endpoints are profiled by the resultative morphemes *kai* 'boil' and *wan* 'finish'. And they are looked at as homogeneous events from a perfective viewpoint. So these sentences do not constitute counterexamples to our criterion.

5.3.1.3. V_F + *de* expression

De structure is a special structure in Chinese. It is the resultative kind of *de* expressions that can occur freely in *ba* and *bei* constructions. These *de* expressions function as delimiting elements like the resultative/achievement morphemes, as discussed in (3.5.3.2.) They describe the result of the event named by V_F thus closing off the event. The result may be a resultant state or a resultant action, and it is NP_O that gets involved in the result:

(43) a. Lisi *ba* yifu xi *de* hen ganjing.
Lisi BA cloth wash DE very clean
'He washed the clothes very clean.'

b. yifu *bei* Lisi xi *de* hen ganjing.
cloth BEI Lisi wash DE very clean

(44) a. Lisi *ba* meimei da *de* ku le qilai.
Lisi BA sister beat DE cry Perf start
'Lisi beat his sister and his sister started to cry.'

b. meimei *bei* da *de* ku le qilai.
sister BEI beat DE cry Perf start
'Sister was beaten and started to cry.'

The *de* expression in (43) describes the resultant state of *yifu* and the one in (44) describes the resultant action of *meimei*. In Chapter 6, I will show that in some

cases the *de* resultative expression does not provide an endpoint. But one thing is sure that in *ba/bei* structures, it has to provide an endpoint, because NP_Os in *ba/bei* constructions are definite in reference.

5.3.1.4. $V_F + NP_R$:

For this type, NPs that may function as NP_Rs actually set limits to events, so that the events described by the verbs will be telic. In all, there are four kinds of NPs that may help close off an event. They are partitive NPs, quantified NPs, resultant NPs and recipient NPs in double object structures. Partitive NPs delimit events by demarcating the scope of an affected entity:

(45) a. Juzi *bei* ta bo le pi.
Orange BEI he peel Perf skin
'He peeled the orange.'

b. Ta *ba* juzi bo le pi.
he BA orange peel Perf skin
'He peeled the orange.'
(Huang, 1982)

In case of (45), the partitive NP *pi* is optional, because the verb involved is an Accomplishment verb. The situation is [+telic] without the addition of the partitive NP. Sentences (46a)and (46b) are as good as (45a,b):

(46) a. Juzi *bei* ta bo le.
orange BEI he peel Perf
The orange was peeled by him.'

b. Ta *ba* juzi bo le.
he BA orange peel Perf
He peeled the orange.'

The reason for this is that the verb *bo* 'peel' means 'to take the skin off'. It is [+telic] in nature. The partitive NP only further circumscribes the affected area. With a different verb, a partitive NP has to be there to close off the event to make the *ba/bei* sentences grammatical:

(47) a. *Ta *ba* dangao yao le.
he BA egg-cake bite Perf
'He bit the egg-cake.'

b. Ta *ba* dangao yao le yikuai.
he BA egg-cake bite Perf a piece
'He bit a piece of the egg-cake.'

Here the verb *yao* 'bite' is an Activity verb. It is not [+telic] in nature. So the partitive NP has to be added to make the situation [+telic].

Quantified NPs delimit events by setting limits to repetitive V_Fs:

(48) a. Men *bei* ta ti le liangjiao.
door BEI he kick Perf two feet
'The door was kicked twice by him .'

b. Ta *ba* men ti le liangjiao.
he BA door kick Perf two feet
'He kicked the door twice.'

Resultant NPs denote the resultant forms NP_Os turn into, so they delimit events as well.

(49) a.

Baba	**ba**	shengxiade	mukuai
father	BA	leftover	wood
da	le	yijian	gouwu.
build	Perf	a	doghouse

'Father has built a doghouse out of the leftover wood.'

b.

Shengxiade	mukuai	**bei**	baba
leftover	wood	BEI	father
da	le	yijian	gouwu.
build	Perf	a	doghouse

'The leftover wood has been used by Father
to build a doghouse.'

(Adapted from Ding, 1993)

Sentences (45-49) show that the so-called 'retained object NPs' are all delimiting elements that change a [-telic] scenario to a [+telic] scenario. (Delimiting NPs are also discussed in (3.5.3.).)

5.3.1.4. Double Objects

Verbs that take double objects show the same thing. When they occur in *ba* and *bei* sentences, the *goal* argument has to be in the postverbal position. This profiles an endpoint to the transaction and so is compatible with the perfective interpretation. (See 17, 18)

5.3.1.5. Locative phrase

Locative phrases that follow V_Fs like the ones in (22-23) also denote endpoint of an

event by locating the object of completion at the end of the event. We have show that locative phrases can switch with the NP_Os and appear in the NP_O position. In such a case the NP that follows the V_F does not denote an endpoint and so an element that describes the resultant state of the object of completion (locative NP_O) has to be added. (See 24-25)

5.3.2 Summary

We have seen that the [[+telic] + Perfective]] criterion works for all kinds of *ba/bei* sentences. I have shown how delimiting elements function to close off events. The delimiting elements may take various forms: resultative morphemes (resultative compounds), *de* phrases, four kinds of NPs (retained objects and recipient NPs) and goal PPs (locative phrases). All these delimiting elements provide endpoints to situations. And how these delimiting elements interact with verbs and the arguments of the verbs are governed by rules given in (3.5.).

5.4 The properties of NP_Os

'What are the properties of NP_Os? One thing uncontroversial is the fact that NP_Os are definite in reference. I have denied the movement analysis of NP_Os, but NP_Os are certainly involved in the events described by [V_F + (XP)]s.

Some linguists argue that NP_Os in *ba* and *bei* constructions are 'affected' themes, things entailed to move or undergo a change of state. But that is not quite true if we consider the following sentences.

(50) *Zhangsan *ba* zheliang che tui le.
Zhangsan BA this cart push Perf Lisi
'Zhangsan pushed the cart.'

In (50) *zheliang che* is an affected object but the sentence is out. The sentence will be salvaged if we add a resultant state to the event described by the verb:

(51) Zhangsan *ba* zhelian che tui-zou le.
Zhangsan BA this cart push-away Perf Lisi
'Zhangsan pushed the cart away.'

In (51) the cart (*che*) has not only been pushed (*tui*) but been pushed away (*tuizou*). If an object undergoes an indefinite movement or change it can not appear in *ba* and *bei* constructions. The change or movement has to be specific with natural final point. In talking about objects undergoing definite changes, we may think of Dowty's (1991) **Incremental Themes**. But NP_Os in *ba* and *bei* constructions are not what Dowty describes as **Incremental Themes** either. According to Dowty the subject of a sentence like 'John entered the icy water' is an **Incremental Theme**, but this argument can not be NP_Os in *ba* or *bei* construction:

(52) **Ba* Lisi zoujin le bingshui li.
BA Lisi enter Perf icy water in
'Lisi entered the icy water.'

(53) *Lisi *bei* zoujin le bingshui li.
Lisi BEI enter Perf icy water in
Lisi was entered the icy water.'

In (52-53) the theme moved of it own. And the sentences are out. If the movement of the theme is caused by some other force then the moved object is perfect as an NP_O.

(54) Zhangsan *bei* ren-jin le bingshui li le.
Zhangsan BEI throw-in Perf icy water
'Zhangsan was thrown into the icy water.'

(55) Lisi *ba* Zhangsan renjin le bingshui li.
Lisi BA Zhangsan throw-in Perf icy water in
'Lisi threw Zhangsan into the icy water.'

So causation has to be involved. In other words, an NP_O have to be caused to undergo a definite change or a definite movement.

To sum up, NP_Os have to be passive undergoers of closed events, passive in the sense that their involvement in the events named by V_Fs are caused by some other force.

5.5 The categorial status of *ba/bei*

Having decided the properties of V_Fs and NP_Os, we are in a position now to discuss the categorial status of *ba/bei* respectively. Unlike non-*ba*/non-*bei* sentences, *ba/bei* constructions are subject to more restrictions. NP_Os have to be definite, V_Fs have to describe closed events and the involvement of NP_Os in the events named by V_Fs have to be caused by some outside force. All these requirements stem from *ba/bei*, so it seems plausible to conclude that rather than being grammatical markers, *ba/bei* are verbs.

Some discussion of the origin and development of the *ba/bei* constructions is necessary here. Originally *ba* meant 'hold', 'take' and *bei* meant 'suffer'. The following sentences are from Late Archaic Chinese (5th-3rd centuries B.C.):

(56) Zhu *bei* wu xing.
finally suffer five punishment
'(He) finally suffered the five punishments.'
(Peyraube 1989, p. 348)

(57) *Ba* jing kan.
take mirror look
'He took the mirror and looked (at himself).
-Not 'he looked at the mirror.'
(Bennett 1981, p. 64)

In (56) *bei* is the sole verb in the sentence and it is followed by a NP object. It could be followed by a verb complement too. But the agent of V_F could not appear then. So *bei* had these two forms: NP+V_{1bei}+NP or NP+V_{1bei} +V_2. In (57) *ba* is V_1 of a serial verb construction with the form: NP+V_{1ba}+NP+V_2+(NP). Here the object of V_2 is not the object of V_{1ba}.

In the Medieval Chinese period (206 B.C. - 220 A.D.), the agent of V_2 in *bei* sentence started to appear after *bei*:

(58) Zixu *bei* fu renshi.
Zixu BEI wife recognize
'Zixu was recognized by his wife.'
(Peyraube 1989, p. 355)

The possibility of inserting the agent NP has been the main argument for the assumption that *bei* has undergone grammaticalization (Peyraube, Bennett, among others) and become a preposition introducing the agent. But this assumption suffers two drawbacks. First: the agent NP is optional, while Chinese never allows preposition stranding otherwise. Second: the assumption can not explain the semantic requirements on V_2s after *ba/bei*. For these reasons I will follow S. Huang (1978) in assuming that *bei* has always been a verb. It has just generalized the range of

phrases it can take as object, thereby allowing sentences to function as its object. And when *bei* takes a sentence as its object, the agent of V_F can appear after *bei*. *Bei* has lost some of its original meaning, but the basic meaning is still there. It still takes a NP subject that is a passive undergoer of a telic event. As an undergoer of the event, the NP subject is often identical or related to the object of the telic predicate. If it is identical to the object of V_2, the object of V_2 gets dropped. If the subject of *bei* is just related to the object of V_2, the related object remains, as in the Retained Object type of sentences. (See figure 5.2. for the structure sharing relation of *bei* and V_F.)

In the seventh and eighth centuries (Bennett), two *ba* constructions existed side by side. One is the kind we talked about in (57) where the object of V_2 is not identical to the object of V_1. The other is the kind where the object of V_2 is not overt and is identical to the object of V_1. The second is just the origin of *ba* construction in Modern Chinese. (See Figure 5.1. for the structure sharing relation of *ba* and V_F.) Some linguists argue that the second kind has undergone grammaticalization and *ba* in it has become a mere object marker (Bennett). Even if we ignore the historical fact that the second kind was evolved from (at least related to) the first kind, the mere object marker assumption can not explain the semantic requirements on V_2, nor the causation implication involved. So I assume that *ba* has been a verb all the time as *bei* has been. And it too has maintained its basic meaning *take, hold*. The *ba* structure has only undergone a deletion process. Like the *bei* construction, if the object of *ba* is totally identical with the object of V_F, the object of V_F gets deleted. If these two objects are just related, then no deletion can be done.

5.6 HPSG representation

In the last section I have argued that both *ba* and *bei* are verbs. *Ba* is a kind of causative verb. The subject of *ba* causes the object of *ba* to undergo a closed event and so *ba* construction involves causation in the active sense. *Bei* is just the reverse of *ba*. The *bei* construction describes a *being caused* relation in which the subject of *bei* is caused to undergo a closed event. So the *bei* construction involves causation too. That is how *ba* and *bei* are related and why they share so many syntactic and semantic similarities.

To make what I have said about the properties of *ba/bei* more concrete, I will provide highly articulated HPSG (Head-Driven Phrase Structure Grammar) feature structure representations for them. HPSG, developed by Pollard & Sag (1987, 1994) is an integrated theory of natural language syntax and semantics. What is really special and appealing about this theory is its sorted feature structure that naturally integrates semantics with syntax. A feature structure is an organized model that represents a linguistic expression by an attribute-value matrix. A linguistic expression, be it a sentence, a subsentential phrase or a word, is referred to in HPSG as a sign. All signs have at least two attributes: PHON (phonology) and SYNSEM (syntax-sementics). In addition to these two attributes, all phrasal signs have the attribute DTRS (daughters) as well. The attributes and their corresponding values of a sign are arranged in a feature structure according to principles of the theory.

The PHON attribute roughly corresponds to the PF level of the Government and Binding theory. It specifies the phonological shape of the sign. The DTRS attribute may be considered as an analog of the GB S-structure. What concerns us more is the SYNSEM attribute. SYNSEM itself is a structured object with LOC (LOCAL) and

Figure 5.1: The Feature Structure of *Ba*

$$\left[\begin{array}{ll} PHON|ba & \\ SYNSEM & \left[\begin{array}{ll} SUBJ:NP_{[1]} & \left[\begin{array}{l} subj:NP_{[1]} \\ sc<> \end{array}\right] \\ SC<NP_{[2]}, & VP_{+T\&Per}:[3]> \\ CONTENT & \left[\begin{array}{lll} RELATION & cause & \\ causer & NP_{[1]} & \\ causee & NP_{[2]} & \\ SOA-AGR: & [3] & \left[\begin{array}{ll} RELATION & R \\ R[er] & NP_{[1]} \\ R[ee] & NP_{[2]} \end{array}\right] \end{array}\right] \end{array}\right] \end{array}\right]$$

NONLOC (NONLOCAL) attributes. NONLOC features account for the unbounded dependency phenomena. LOC in turn divides into three attributes of its own: CAT (CATEGORY), CONT (CONTENT) and CONX (CONTEXT). CAT specifies the basic syntactic properties of the sign like its part of speech, its subcategorization and so on. CONT provides semantic information of the sign. Finally, CONX concerns some context-dependent information such as deictic status, conventional implicature and so on. (See Pollard & Sag 1987, 1994, Hukari 1994 and Nerbonne, Netter & Pollard 1995 for more on the the HPSG theory.)

As *ba/bei* lay semantic requirements on their complements, their properties can hardly be described by pure syntactic representations. The HPSG feature structure, however, provides a perfect model to couch the special properties of *ba/bei*. See figure 5.1. for the feature structure of *ba*.

As the feature structure matrix illustrates, the sign *ba* denotes a 'cause' relation,

Figure 5.2: The Feature Structure of of *Bei*

$$\begin{bmatrix} PHON|bei & \\ SYNSEM & \begin{bmatrix} SC < & VP_{+T\&Per} >: [3] > \\ SUBJ : NP_{[1]} & \begin{bmatrix} subj : (NP_{[2]}) \\ sc <> \end{bmatrix} \\ CONTENT & \begin{bmatrix} RELATION & cause \\ causer & (NP_{[2]}) \\ causee & NP_{[1]} \\ SOA-AGR: [3] & \begin{bmatrix} RELATION & R \\ R[er] & NP_{[2]} \\ R[ee] & NP_{[1]} \end{bmatrix} \end{bmatrix} \end{bmatrix} \end{bmatrix}$$

in which the subject $NP_{[1]}$ is the causer and the object $NP_{[2]}$ is the causee. And the event VP:[3] caused by *ba* describes another relation, in which the Rer shares the index with the subject of *ba* and the Ree shares the index with the object of *ba*. VP:[3] has to express a [+telic] event with the perfective viewpoint.

The feature structure of *bei* is presented in Figure 5.2.

The feature structure for *bei* shows that it also subcategorizes for a closed event. It also expresses a 'cause' relation, in which the subject $NP_{[1]}$ is the causee and the subject of $VP_{+T\&Per}$ is the causer. $VP_{+T\&Per}$ describes a relation, in which the Ree shares index with the subject of *bei*, and the Rer is the subject of $VP_{+T\&Per}$ which is optional and share index with the causer in the 'cause' relation.

One more thing that needs mentioning is the structure sharing of HPSG. We may see from the feature structure, the VP subcategorized by *ba/bei* expresses a relation that is related to the *ba/bei* relation by the coindexing of Rers and Rees.

5.7 Other problems

I have assumed that *ba* and *bei* are verbs. This assumption provides solutions to the problems of the movement assumption, yet this verbal assumption itself has other problems according to linguists like Tang (1986) and Bennett (1981). These linguists think that *ba* and *bei* in *ba* and *bei* constructions do not show some of the crucial verbal properties. Traditionally Chinese linguists (Tang, Li & Thompson) assume that the possibility of appearing in A-not-A form and the ability to take aspect markers are properties special to verbal items. So A-not-A form and aspect markers have been used as tests for verbs. Let us first look at the A-not-A test.[8] Tang give the following sentence to argue that *bei* is not a verb:

(59) ??Xueshen *bei*-bu-*bei* laoshi ma?
student BEI-not-BEI teacher criticize
'Are the students criticized by the teacher.'

(Tang 1986, p. 178)

Similarly we find a *ba* sentence in the above form unacceptable:

(60) *Laoshi *ba*-bu-*ba* xueshen ma?
teacher BA-not-BA student criticize
'Has the teacher criticized the student.'

(Adapted from Tang, p. 178)

Yet the problem here is that the negative particle Tang chooses is not compatible with the perfective viewpoint. Chinese has four negative forms in common use. They are: *bu, bie, mei, meiyou.* Among them *bu* and *mei* can appear in A-not-A form. *Bu* is used for simple negation or refusal, *mei* is used for denial of completion.

[8] A here stands for any verb and 'not' is any negative particle.

As *ba* and *bei* sentences in past tense necessarily involve completion of events, the incompatibility of *bu* with these structures is explained. If we use *mei* instead of *bu* in A-not-A form, *ba* and *bei* sentences can pass the test:

(61) Xueshen *bei*-mei-*bei* laoshi ma?
student BEI-not-BEI teacher criticize
'Have the students been criticized by the teacher.'

(Tang, p. 178)

(62) Laoshi *ba*-mei-*ba* men guan-shang.
teacher BA-not-BA door close-on
'Has the teacher closed the door.'

Then we notice that we can always get imperative *ba* sentences:

(63) Qing *ba* men guan-shang.
please BA door close-on
'Please close the door.'

A-*bu*-A can be used for questions like the one in (73):

(64) *ba*-bu-*ba* men guan-shang?
BA-not-BA door close-on
'Should I close the door?'

Because of the passive implication, *bei* sentences almost never appear in the imperative. When *bei* sentences describe possible future events, it is the future auxiliaries that get negated. That is why *bu* never occurs with *bei* alone.

Now let us look at the ability of taking aspect markers. It is true that *ba* and *bei* do not take aspect markers:

(65) *Xuesheng *bei* le laoshi ma.
student BEI Perf teacher criticize
'Has the teacher criticized the students.'

(Tang, p. 177)

(66) *Ta *ba* le men guan-shang.
he BA Perf door close-on
'He has closed the door.'

But if we look at two related structures, we can see that the possibility of taking aspect markers is not a proper test for *ba* and *bei* in *ba* and *bei* constructions. One of the related structures we are going to look at is the regular causative structure.

(67) a. Lisi rang wo zuo zuoye.
Lisi let me do homework
'Lisi let me do homework.'

The word *rang* 'let' here is unmistakably a verb, yet this verb cannot take an aspect marker either:

(68) *Lisi rang **le** wo zuo zuoye.
Lisi let Perf me do homework
'Lisi let me do homework.'

The following are more examples of causative sentences, where the causative verbs never take aspect markers:

(69) a. Lisi jiao wo chi fan.
Lisi ask me eat rice
b. *Lisi jiao **le** wo chi fan.
Lisi ask Perf me eat rice
'Lisi asked me to eat rice.'

(70) a. Lisi shi wo xiangxing le ta de hua.
Lisi make me believe Perf his word

b. *Lisi shi **le** wo xiangxing ta de hua.
Lisi make Perf me believe his word
'Lisi made me believe his words.'

(69b) and (70b) are out because of the aspect markers immediately following the

causative verbs. For all sentences (65-68), V_2s that are subcategorized by the causative verbs can take aspect markers but the causative verbs can not. It seems that the causative verb and its complement V_2 form a sort of event unit. And the aspect marker attaches to V_2 of the unit. We have argued that *ba* and *bei* structures involve causation too.[9] If causative verbs can not take aspect markers, we should not expect *ba* and *bei* to take them.

The other related structure we are going to look at is the verb copying structure. Verb copying refers to a grammatical process in which a verb is copied after its direct object. (Li & Thompson) This process applies to VPs that have, in addition to objects, descriptive, resultative or other phrases:

(71) Ta **nian** shu **nian** de hen kuai. (descriptive)
he read book read DE very fast
'S/He reads very fast.'

(72) Ta **xi** yifu **xi** de hen ganjing. (Resultative)
he wash clothes wash DE very clean
'He washed clothes very clean.'

(73) Ta **ti** men **ti** le sanci. (Quantitive)
he kick door kick Perf three times
'He kicked the door three times.'

The first occurrence of the verb in all these sentences cannot take aspect markers:

(74) *Ta **nian** **le** shu **nian** de hen kuai. (descriptive)
he read Perf book reac DE very fast
'S/He reads very fast.'

(75) *Ta **xi** **le** yifu **xi** de hen ganjing. (Resultative)
he wash Perf clothes wash DE very fast
'He washed clothes very fast.'

[9]In causative sentences like in (68-70) the causee is the doer or performer of the following event, while in *ba* and *bei* constructions the causee is the undergoer of the following event.

(76) *Ta **ti** **le** men **ti** le sanci. (Quantity)
he kick Perf door kick Perf three times
'He kicked the door three times.'

Now we have looked at both the A-not-A and the aspect taking possibilities. We have seen that *ba* and *bei* can pass the A-not-A test as long as the right negative particle is used. We have also shown that the aspect taking possibility is not a proper test for the verbal status of *ba* and *bei*.

5.8 Conclusion

The relation between the semantics and syntax of lexical items has been a very frustrating issue in generative linguistics. Although semantic criteria are always difficult to find, one has to admit that there are semantic correlates. In this section I have successfully made semantic correlates available for syntactic analysis by looking at event structures. Smith's two-component aspectual theory has been shown to have explanatory power for the semantics facts displayed by various kinds of *ba/bei* sentences. The [[+Telic] + [+Perfective]] criterion I propose in the chapter works well in producing acceptable *ba/bei* sentences and ruling out unacceptable ones. And more importantly, in discussing the various kinds of phrases that can appear after V_Fs, I have shown that situation may be closed in different ways. Resultative/achievement morphemes, certain NPs, locative phrases, *de* resultative phrases and verb reduplication can all function as delimiting elements to close off events. These delimiting elements are not necessarily arguments of the verbs, but they do participate in the telicity composition process. This provides strong evidence for the assumptions I make in (3.5.3.). My new analysis of *ba/bei* constructions not only provides a unified account for the otherwise perplexing data but also clearly defined the relation

holding i. XPs but also clearly outline the relation holding 1. between NP_Rs and V_Fs and ii. between NP_Os and NP_Rs.

Chapter 6

Some Other Special Constructions

In the analysis of the *ba/bei* constructions in the previous chapter it is argued that *ba* and *bei* are verbs and the special semantic and syntactic properties *ba/bei* constructions show are required by *ba* and *bei*. In this chapter several other special constructions in Chinese are considered: the *De* Descriptive Construction, the *De* Resultative Construction, the Concomitant Construction, and the Existential Construction. These constructions also show some special aspectual properties, but in their cases, the constructions themselves seem to convey some meaning independently of the verbs that occur in them. To show what I mean by construction meaning, I will discuss these constructions first and then argue that the form-meaning correspondences that exist independently of particular verbs can be explained by an approach which is both bottom-up and top-down developed in Construction Grammar by Fillmore 1985, 1987, 1990; Lakoff 1987; Fillmore, Kay & O'Connor 1988 and Goldberg 1992a and b, and in HPSG by Pollard & Sag (1987, 1994) and Sag (1995).

6.1 The Special Properties of the Constructions

6.1.1 Descriptive and resultative *De* sentences

6.1.1.1. General view

De is a morpheme that introduces either a descriptive phrase or a resultative clause:

(1) Lisi tiao de hen gao. (descriptive)
Lisi jump DE very high
'Lisi jumps (jumped) very high.'

(2) Lisi tiao de hen lei. (resultative)
Lisi jump DE very tired.
'Lisi got tired from jumping.'

The *de* expression in (1) is descriptive, describing the way the action named by the verb is carried out. The *de* expression in (2) is resultative indicating the result caused by the action named by the verb.

Both syntactically, and semantically, a descriptive *de* expression is considerably simpler than a resultative *de* expression. Descriptive *de* introduces an AP[1] describing how the action named by the verb is carried out, the manner, the degree and so on. Therefore the descriptive structure has the syntactic form of :

(3) NP V_1 DE AP

If V_1 is transitive (taking an object), then the verb has to be repeated to license the occurrence of the *de* phrase (see 3.2.3.2. and 3.5.3.2.) If such is the case the syntactic form of a *de* descriptive sentence will look like the one in (4):

(4) NP V_1 NP V_1 DE AP

[1]In Chinese, adjectives may always function as verbs and the AP in *de* descriptive structure shows some verbal properties as will be discussed soon, therefore, it is a tradition to use [+V] to refer to the AP in the *de* descriptive structure (Chao 1968).

(5) is a sentence of this type:

(5) Liming ai Xiaojuan ai **de** hen sheng.
Liming love Xiaojuan love DE very deep
'Liming loved Xiaojuan deeply'

Here the *de* expression specifies the degree of *ai* 'love'.

The resultative *de* structure is more complex. First, what follows *de* is not a phrase but a clause. Secondly, the resultative *de* expression may describe either a resultant state or a resultant action. Thirdly, the resultative clause introduced by *de* may have an expressed or an unexpressed subject. And fourthly, in the case of an unexpressed subject, the controller of the unexpressed subject may be either the subject or the object of V_1, in other words, the *de* resultative is predicated of either the subject or the object of V_1. These four points will be illustrated respectively.

Resultative *de* constructions roughly have the syntactic forms shown in (6a,b). (6b) involves a repeated V_1 because V_1 has a complement NP.

(6) a. NP V_1 DE S

b. NP V_1 NP V_1 DE S

Sentences in (7-8) illustrate (6a) and (6b) respectively:

(7) Lisi pao **de** hen lei.
Lisi run DE very tired
'Lisi got very tired from running.'

(8) Xiao didi chi xigua chi
small brother eat watermelon eat

de man shou dou shi shui.
DE full hand all is water.

'Small brother got water all over his hands from eating watermelon.'

In (7), V_1 is intransitive and *de* introduces a resultative clause with an unexpressed subject. V_1 in (8) is transitive and the *de* clause has an overt subject.

There is extensive literature on the syntactic structure of the descriptive or resultative *de* sentences. And the discussion has centered on whether the phrase or clause that follows *de* is the primary predicate or a subordinate predicate. The primary predicate assumption is supported by Chao 1968, C-R. Huang & Mangione 1985. And the subordinate predicate assumption is advocated by C-T. James Huang 1982 and Dai 1992. In this thesis, I follow C-T. James Huang and Dai in assuming that the phrase or the clause introduced by *de* is subordinate rather than primary. I refer the reader to C-T. James Huang and Dai for a detailed discussion of the assumption. Only a short introduction to their arguments will be given here.

The chief facts that have been used to argue for the primary predicate assumption include: i. it is V2 rather than V1 that can form A-not-A question, ii. negation applies to V2 only; and iii. only V2 can take aspect markers. The ability to form A-not-A question, to form negation and to take aspect markers have been used as tests for verbal status. (Li & Thompson 1981). However, C-T. James Huang (1988) refutes all of them as reliable tests. He points out that there are cases of A-not-A questions involving subordinate predicates and cases where matrix predicates cannot take aspect markers (also see 5.7. of this thesis). And drawing evidence from the negation scope, he argues that negation cannot serve as a reliable test to tell a primary predicate from a subordinate predicate. Dai (1992) considers the *de* descriptive and resultative constructions with respect to six cross-linguistic properties characterizing HEAD and argues that V1 instead of V2 is the matrix verb in the *de* descriptive and resultative constructions.

Now we have had a general view of the *de* descriptive and resultative construc-

tions. The subsections that immediately follow will focus on the semantic properties of these structures.

6.1.1.2. *De* descriptive construction

In the *De* Descriptive Construction, *de* introduces an AP. This AP may modify any kind of verb, so theoretically, any situation type may occur in the VP slot before the *de* descriptive expression. And this is true as shown by the following sentences:

(9) Liming ai Xiaojuan ai **de** hen sheng. (State)
Liming love Xiaojuan love DE very deep
'Liming loves (loved) Xiaojuan deeply.'

(10) Lisi pao **de** hen kuai. (Activity)
Lisi run DE very fast
'Lisi runs very fast.'
'Lisi used to run very fast.'

(11) Nayici ta ke **de** hen xiang. (Semelf.)
that time he cough DE very loud
'That time he coughed very loud.'

(12) Tamen zao nazuo fangzi zao **de** hen kuai. (Accomp.)
they build that house build DE very fast
'They are building that house very fast.'
'They built that house very fast.'

(13) Lisi ying nachang qi ying **de** hen rongyi (Achiev.)
Lisi win that chess win DE very easy
'Lisi won that chess game easily.'

Sentences in (9-13) show that all situation types may take the *de* descriptive expression.[2]

[2]In (13) we have a simplex achievement verb. This sentence is perfectly grammatical, but one little problem we have here is that it is very hard to use a disyllabic and even harder to use a trisyllabic Achievement compound like *da-po* 'hit-broken' and *xi-ganjing* 'wash clean' in the *de* descriptive construction. This may be accounted for by some constraints on verb reduplication.

In other words, there are no semantic constraints on the *de* descriptive construction. This construction is of interest here only for its relation to and contrast with the *de* resultative construction.

From the translations of sentences (9) to (13), we see that the *de* descriptive phrase may be used in two ways: to describe a generic, habitual situation or to describe some specific situation. How it is used depends on the situation type it occurs with or the context of the situation. The *de* descriptive phrase itself does not contribute to the aspectual meaning of the sentences. This is natural because adverbs of manner or degree do not contribute in any way to the viewpoint aspect or to the temporal structure of a situation.

6.1.1.3. *De* resultative construction

The *de* resultative structure is a more interesting case aspectually than the *de* descriptive construction.

As mentioned before, the major syntactic difference between the *de* descriptive construction and the *de* resultative construction is that *de* introduces an AP in the descriptive construction while it introduces a clause in the resultative construction. The clausal assumption for the *de* resultative expression is well accepted in the tradition of the Chinese Grammar. And this assumption is supported by the fact that V2 may take an overt subject, though a covert subject is not uncommon. The *de* expression in (7) indicates a resultative state, an overt subject may be added to it to specify clearly what is involved in the resultant state. Compare (7) (repeated as (14a) here) with (14b):

As this is beyond the scope of this dissertation, I will leave this as an open question.

(14) a. Lisi pao **de** hen lei.
Lisi run DE very tired
'Lisi got very tired from running.'

b. Lisi pao **de** **tui** hen lei.
Lisi run DE leg very tired
'Lisi's legs got very tired from running.'

The *de* clause in (14a) has an unexpressed subject that is controlled by the matrix subject and so the resultative clause is predicated of the matrix subject. The *de* clause in (14b) has an expressed subject and it is this expressed subject that is involved in the resultant state. This expressed subject may be related to the matrix subject (see 14b) or has the same reference as the matrix object like the one in (15a), or has its own reference like the one in (15b):

(15) a. Lisi da Zhangsan da **de** ta tiao le qilai.
Lisi beat Zhangsan beat DE he jump Perf up
'Lisi beat Zhangsan so hard that Zhangsan/he jumped up.'

b. Lisi ku **de** dajia dou hen shangxing.
Lisi cry DE people all very sad
'Lisi cried so hard that people all felt sad.'

Besides the syntactic differences, the *de* resultative clause differs semantically from the *de* descriptive phrase in that it indicates the result of a situation rather than describing the manner in which a situation takes place. We have seen (when discussing verb types) how the encoding of results may affect the aspectual nature of the verbs (3.2.), and it is natural for us to expect that the *de* resultative expression contributes to the aspectual nature of situations. This expectation is actually borne out as discussed below.

As mentioned above *de* may introduce a resultant action or a resultant state and the clause it introduces may or may not have an overt subject. First, let us look at

cases where *de* introduces a resultant action. Whenever a *de* clause of a resultant action has a covert subject, the controller of the covert subject has to be the subject of V1.

(16) Zijuna qi **de** ku le qilai.
Zijuan anger DE cry Perf start
'Zijuan was so angry that she started to cry.'

V1 in (16) is intransitive, and the only possible agent of the resultant action named by V2 *ku* 'cry' will be the matrix subject Zijuan. Let's look at a more complicated case where V1 is transitive and the performer of the resultant action named by V2 is the object of V1. Sentence (15) repeated as (17) here just describes such a situation.

(17) Lisi da Zhangsan da **de** Zhangsan tiao le qilai.
Lisi beat Zhangsan beat DE zhangsan jump Perf up
'Lisi beat Zhangsan so hard that Zhangsan jumped up.'

Zhangsan is the object of V1 and also the subject of V2. The same situation as expressed by (17) may be described by sentence (18) where the object of V1 is unexpressed and structure-shares reference with the subject of V2:

(18) Lisi da *e* **de** Zhangsan tiao le qilai.
Lisi beat DE zhangsan jump Perf up
'Lisi beat Zhangsan so hard that Zhangsan jumped up.'

Both (17) and (18) are grammatical sentences. However the same idea expressed by (17) and (18) cannot be expressed by (19) where it is the subject of V2 that is empty:

(19) Lisi da Zhangsan da **de** tiao le qilai.
Lisi beat Zhangsan beat DE jump Perf up
'Lisi beat Zhangsan and Lisi jumped up.'

V2 in (19) has an unexpressed subject and it can only have the reading that Lisi beat

Zhangsan and as a result Lisi jumped up. With this interpretation, the sentence sounds strange pragmatically but it is grammatical. The unexpressed subject of V2 cannot have the reference of the matrix object. In a word, V2 that expresses a resultant action has to have either an overt subject or an unexpressed subject that is controlled by the matrix subject. Both in the case of an overt subject and a covert subject, the performer of the resultant action is a definite NP because it occupies either the matrix or the lower subject position. In Chinese the subject position is reserved for definite NPs only. Indefinite NPs have to be introduced by the verb *you* to occur in the subject position (see Li & Thompson, 1981). As a result of the fact that the resultant action is predicated of a definite NP, the resultant action itself has to be specific. This specific resultant action puts a definite endpoint to the whole construction and so the entire situation is bounded. The boundedness of a sentence that contains a *de* clause denoting a resultant action can be seen both from the semantic interpretations and the presence of *le*[3].

Things are different when *de* introduces a resultative state. The resultative state may have two functions: to describe a potential result, (generic ability to gain the result) or to describe an actual result. In other words, the resultant state may not be a specific one. And this is explained by the fact that the empty subject of V2 that expresses a resultant state may be controlled either by the subject or the object of V1. It is true that in both cases the situations involve results, but in the former case, the result does not have a specific reference and so no final endpoint is defined for the situation. In the latter case, the result is an actual result and so the situation

[3]As discussed in 1.4.2.2., *le* only emphasizes the occurrence of a situation as a whole, it does not provide any final endpoint to the situation; as a result, it occurs only with situations that are either [+bounded] or [+telic].

has a final endpoint.

Let us look at some sentences with potential result readings first:

(20) Ta xi yifu xi **de** hen ganjing.
he wash cloth wash DE very clean
'He is capable of washing clothes very clean.'

(21) Tamen zao fangzi zao **de** hen piaoliang.
they build house build DE very beautiful.
'They are capable of building houses very beautiful.'

(22) Lisi xie wenzhang xie **de** hen shengdong.
Lisi write article write DE very vivid
'Lisi is capable of writing articles very vivid.'

In the sentences above, it is the object NPs of V_1 that control the resultative clauses. Chinese does not have determiners, yet the nouns that are predicated of by the resultative clauses in the above sentences have to have indefinite or non-specific interpretations for the sentences to get generic or habitual readings. In other words, the resultative states described by the *de* clauses do not have specific references because of the indefiniteness of the nouns they are predicated of.

In what cases, then, will *de* resultative state provide an actual endpoint and so the sentence can have an actual event reading? Let us look at the following sentences:

(23) Ta xi yifu xi **de** hen lei.
he wash cloth wash DE very tired
'He got very tired from washing clothes.'

(24) Tamen zao fangzi zao **de** hen lei.
they build house build DE very tired.
'They got very tired from building houses.'

(25) Lisi xie wenzhang xie **de** shou hen suan.
Lisi write article write DE hand very sore
'Lisi's hand got sore from writing.'

[V_1 (+NP)] in (23) to (25) are the same as the ones in (20) to (22). But here the resultative clauses are predicated of the subject NPs rather than the object NPs. And these sentences refer to specific events rather than generic or habitual situations. As mentioned before, only definite NPs may occur in the subject position in Chinese. The contrast shown by (20) - (22) and (23) -(25) may be accounted for if we assume that only when the *de* resultative state is predicated of a definite NP does it provide an endpoint to the situation named by V_1. Intuitively this assumption makes sense. Only definite things whatever they are, definite events, definite individuals, have definite boundaries. Actually, the definite/indefinite effect on actual vs. generic interpretations is a general fact observed across languages (Refer to Diesing 1992). What is specific about the *de* Resultative Construction is that only when the *de* clause denotes a specific result (resultant action or state) can it provide a final endpoint.

This assumption is further supported by the fact that (20) - (22) will have actual event readings too if we make sure that the objects of V_1s have definite interpretations:

(26) Ta ba yifu xi **de** hen ganjing.
he BA cloth wash DE very clean
'He washed the clothes very clean.'

(27) Tamen ba fangzi zao **de** hen piaoliang.
they BA house build DE very beautiful.
'They built the house very beautiful.'

(28) Lisi BA wenzhang xie **de** hen shengdong.
Lisi BA article write DE very vivid
'Lisi wrote the article very vivid.'

As discussed in the preceding chapter, NPs that follow *ba* in the *ba* construction have to be definite in interpretation. Now we see that once the objects are marked as definite the sentences will have actual event reading, because now the *de* resultative state is predicated of definite NPs.

One last thing to say about the resultative construction is that Achievement verbs cannot occur as V_1s in the resultative *de* construction.

(29) *ta ying **de** hen lei.
he win DE very tired
lit. 'He was tired from winning.'

(30) *ta da-po beizi da-po **de** hen sui.
he hit-broken cup hit-broken DE very shattered
'He broke the cup and so the cup was very shattered.'

This is natural, because Achievement verbs, by our definition, already encode results in themselves and so no other result is necessary. This is also discussed in 3.2.2.-3.2.3.

To sum up, the *De* Resultative Construction is more complicated than the *de* Descriptive Construction. Semantically its complexity is shown by three facts. First, the *de* resultative expression provides a result and so no [+result] verb constellation may occur in the first VP slot. Secondly, the resultative expression may be predi-

cated of either the external or the internal argument of the matrix clause whenever the resultative expression contains an unexpressed subject. And thirdly States may occur in the matrix VP slot.

The second and the third facts are quite unusual cross linguistically. As many linguists have observed the resultative in English can only be predicated of the internal argument or patient (Bresnan & Zaenen 1990, Van Valin 1990, Goldberg 1992a):

(31) He wiped the table clean.

(32) The river froze solid.

(33) *He ran tired.

But in Chinese the meaning meant by (31-33) can be perfectly expressed in the Resultative Construction:

(34) ta pao **de** hen lei.

(35) he run DE very tired

(36) He became tired from running.'

The fact that States occur in the Resultative Construction is very particular to the Chinese language too. In English, States never occur in the Resultative Construction (Smith 1991, Goldberg 1992a, also see discussion in 3.5.1.).

6.1.1.4. Summary

We have seen that the *De* Descriptive Construction provides a frame for describing how a situation is carried out, and we have also seen that the Resultative *De* Construction provides a frame for describing the result a situation may possibly lead

to or has actually led to. With the *de* descriptive construction, V1 may be any type of verb, while with the *de* resultative construction V1 has to be a verb that has the [-result] feature. The semantic constraint on the *de* resultative construction is natural because the *de* resultative expression provides a result to the situation. The result specified by the *de* resultative clause may serve as an final endpoint to a situation, if it is predicated of a definite NP. Whenever this is the case, the situation becomes [+result], namely an Achievement (also see discussion in 3.5.3.). When the resultative clause is predicated of an indefinite NP, the result will be non-specific and so there will be no definite final endpoint for the situation. The morpheme *de* itself is a typical empty word in traditional Chinese grammar. It does not carry any meaning of itself. In the Descriptive Construction it marks an adverbial of manner, degree and scope. In the Resultative *de* Construction it marks a potential or factual result.

6.1.2 Concomitant Construction

6.1.2.1 What is a Concomitant Construction

By a *Concomitant Construction* I mean a special kind of complex sentence structure, in which two predicates co-exist. The two actions named by the two predicates are carried out by the same agent. And the imperfective marker *zhe* has to be suffixed to the verb of the first predicate. Here I accept without argument the widely held view that the first predicate is in some sense subordinate to the second one (Chao 1986, Li & Thompson 1981, Chu 1987a, Chen 1987a and b). What I will elaborate are the semantic constraints governing the acceptability of this kind of sentence. It will be argued that these constraints result from the interaction of the imperfective marker *zhe* and the semantic requirements of the sentence construction. The syntactic form

of this structure is this:

(37) NP V_1 **ZHE** (NP) V_2 (NP)

This sentence frame is lexically filled only by the grammatical category *zhe*. The following sentences from Chen (1987b) are some examples of this sentence construction.

(38) Ta pai **zhe** zuozi ma ren.
he pound IMP table berate someone
He was pounding the table while berating someone.'

(Adapted from Chen 1987, p. 44)

(39) Ta cui **zhe** koushao xia lao.
he blow IMP whistle go down stairs
He walked down the stairs whistling.'

(Adapted from Chen 1987b, p. 44)

6.1.2.2. Chen's (1986) twofold constraint on the Concomitant Construction

Chen (1986) proposes a twofold constraint on the Concomitant Construction: i. "the two actions denoted are interrelated in certain ways (the interrelationship can be categorized as conventional, logical and physical)" and ii. "one of the actions is the predominant and the other is the subordinate; this relative weighting is reflected in the fixed order of the two verbs." In the following paragraphs, I will argue that Chen's first constraint is true of this construction but the second is only partially true.

The fact that the first constraint is true has been shown clearly by Chen herself:

(40) Ta pai *zhe* zhuozi ma ren.
he pound IMP table berate people
He was pounding the desk while berating someone.'

(41) *Ta cha **zhe** zhuozi ma ren.
he wipe IMP desk berate people
He was cleaning the table while berating someone.'

(Chen 1987, p. 44)

The situations described by both sentences are possible in the real world. But sentence (40) is good and sentence (41) is bad, because the two actions in (40) are conventionally and logically related (people are quite likely to pound the table to express anger while berating someone), while the two actions in (41) are not conventionally, nor logically, nor physically related and so the sentence is bad. To express a situation meant by (41) another sentence type should be used as Chen illustrates:

(42) Ta yibian cha zhuozi yibian ma ren.
he wipe table berate someone
While wiping the table, he was berating someone too.'

(Chen 1987, p. 45)

So the situation meant by (41) can be perfectly couched in the '....yibian .... yibian....' sentence type, which is used to describe two actions that are carried out by the same agent at the same time. This sentence type does not have the same semantic constraints as the Concomitant Construction has. It is less interesting aspectually, and so I will not discuss it here. The expression *yibian* has no equivalent in English.

Sentences in (38-41) clearly show that the Concomitant Construction is subject to the semantic constraint that the two actions have to be interrelated in certain

ways.

Chen's second constraint is true if weighting is taken in terms of pragmatic/discourse predominance. But Chen's weighting is defined in terms of physical/mental involvement on the part of the agent. This is true to a great extent because of the nature of *zhe* that is suffixed to the first verb (this will be talked about later), but it is not a true generalization. It fails to account for sentences like the one in (43):

(43) Xiaojuan yao **zhe** tou jujie le ta de yaoqiou.
Xiaojuan shake IMP head refuse Perf his request
Xiaojuan refused his request, shaking her head.'

In (43) the first predicate obviously involves more physical energy, however, the sentence is perfectly acceptable. It is true that in most cases the first predicate involves less physical energy or mental concentration, but the first predicate does not **necessarily** involve less physical energy or mental concentration. (See Chu 1987a, Mangione 1987 for more discussion regarding the problems of Chen's weighting schema.) In place of Chen's weighting schema I argue for two different constraints. One is the subordination constraint and the other is the compatibility constraint. The subordination constraint has been discussed by quite a few linguists (Chao 1986, Li & Thompson 1981 among others) whereas the compatibility constraint is something new in the linguistic literature. It will be argued that these two constraints and Chen's interrelation constraint interact with one another to determine the acceptability of the Concomitant Construction sentences. In the following two subsections I will discuss these two constraints respectively.

6.1.2.3. The subordinate constraint

By the subordinate constraint, Chen (1987) and the other linguists mean that the

first predicate of the Concomitant Construction has to be subordinate to the second predicate. In other words, the first predicate provides backgrouding information for the second predicate. This constraint is actually incurred by the presence of *zhe* in the construction. We have seen that the Concomitant Construction is lexically filled only by a grammatical category, the aspect marker *zhe*. *Zhe*, as shown in 4.4.4., is an imperfective marker that emphasizes the stativity of a situation. In the Concomitant Construction the imperfective marker has to be there to mark the first predicate while the second predicate is free in taking a range of aspectual viewpoints. When the second predicate denotes some mental desire for some future (relative) action, no aspect marker is needed:

(44) Ta nao **zhe** yao mai dayi.
he make a fuss Imp wanting buy coat
He made (is/making) a fuss about wanting to buy a coat.'

(Adapted from Chen 1987b, p. 50)

When the whole Concomitant Construction is providing backgrounding information for some other situations, the second predicate may take the imperfective marker:

(45) Ta lai de shihou,
he come De time

wo zheng qi **zhe** jiaotache **zai** gongyuan li wan.
I right ride IMP bike at/IMP park in play

When he came, I was playing in the park on my bike.'

The second predicate of (45) takes the imperfective aspect marker *zai*.[4] In this

[4] *Zai* in (45) is both an imperfective marker and a preposition. Chen (1978) has a detailed discussion of the dual function of *zai*, when the prepositional phrase it heads occurs in a preverbal position. Also see 4.4.3. for a general discussion of *zai*.

sentence, *zhe* marks the subordination of the first predicate to the second predicate and *zai* marks the subordination of the entire construction to some other situation, in this case, his arrival.

The second predicate of the Concomitant Construction can always take the perfective marker *le* too:

(46) Ta ku **zhe** tao **le** chu qu.
he cry IMP escape Perf out go
(Escaping from the room), she ran out crying.

(Adapted from Chen 1987, p.50)

In a past sequence the second predicate of the construction always takes the perfective marker. It is well accepted that the perfective functions to provide foregrounding information and the imperfective functions to provide backgrounding information. (Forsyth 1970, Hopper 1979) The interpretations of the above sentences also prove that *zhe* marks the subordinate status of the first predicate to the second predicate. The second predicate may be subordinate in nature but only in relation to some other situations in discourse. In terms of its relation to the first predicate, it is always more salient and predominant.

To sum up, the the subordinate constraint of the Concomitant Construction seems to come from the nature of the aspect marker *zhe*. As argued in 4.4.4., *zhe* is an imperfective marker and it is natural for it to indicate subordination in discourse.

6.1.2.4. The compatibility constraint

By the *compatibility constraint* I mean the compatibility of *zhe* and the verb it is affixed to. In the Concomitant Construction, the verb of the first predicate has to be suffixed by *zhe* and this accounts for the fact that there is constraint on the types

of verbs that may occur in the first verb slot.

For the reason that States are already stative, *zhe* is not compatible with stative verbs unless some emphasis or ephemeral attribute is meant (see 4.4.4.). In the Concomitant Structure, the first predicate cannot be a State, unless this State is meant to express some ephemeral physical quality or property that may be observed at the moment when the primary action is carried out. And the use of Stative verbs in this construction is very limited because of the two construction constraints plus the incompatibility of *zhe* with Stative verbs.

(47) Ta hong **zhe** lian zhan le qilai.
he red IMP face stand Perf up
He stood up, his face red.'

(48) Ta mang **zhe** dao cha.
he busy IMP pour tea
He hurried to make tea.'

In both sentences the adjectives are used to describe some ephemeral quality the agent possess at the moment the other action is carried out. The first predicate of (47) does not mean *He is a red faced guy* and the first predicate of (48) does not mean *He is busy all the time.* In the following sentence the stative verb in the first predicate is related to the activity verb. And also the first predicate may be considered as subordinate to the second predicate, yet the sentence is unacceptable, because *hen* 'hate' is a mental state that is hard to conceived of as temporary.

(49) *Lisi hen **zhe** da Zhangsan.
Lisi hate IMP beat Zhangsan
Lisi was beating Zhangsan, hating him.'

The types of states that may or may not occur in the first predicate slot of the Concomitant Construction match Carlson's (1977) two types of predicates, what

he calls the *stage-level* predicates and the *individual-level* predicates. The former corresponds to temporary states such as "busy", and "available" and so on, while the latter corresponds to some more or less permanent states such as "intelligent", "hate" and so on. It is the *stage-level* state that may occur as the first predicate in a Concomitant Construction. (Also see Diesing (1992) and Smith (1991) for discussions of the *stage-level/individual-level* predicates.)

When Semelfactives occur in the first predicate slot, they have to have repetitive readings, because *zhe* focuses on the stative duration of some action.

(50) Ta ke **zhe** zou jinlai.
he cough IMP walk in
He walked in coughing.

The Semelfactive verb *cough* in (50) has only the multi-event reading, because only this reading is compatible with the aspectual meaning of *zhe*.

4.4.4. also discusses how *zhe* is most compatible with verbs that involve no or little physical energy. These verbs are just the ones that occur the most often in the Concomitant Construction:[5]

(51) Ta tang **zhe** kan shu.
he lie IMP read book
He read while lying.'

(52) Ta zuo **zhe** xi yifu.
he sit IMP wash clothes
He washed clothes while sitting."

Here the verbs that appear in the first predicate slot are Activity verbs that involve no or little physical energy. It is hard to find exact translations for these sentences. Anyway, the verbs *tang* and *zuo* denote the body posture while the agent is doing

[5]This explains why Chen's weighting schema is partially true.

something. These verbs of posture are Activity verbs, but they involve no or little physical energy.

Other activity verbs may occur in the first predicate slot too, if they are capable of being looked at from a stative point of view, which is also required by the aspect marker *zhe* (see 4.4.4.).

(53) Xiaojuan ku **zhe** li kai le fangjian.
Xiaojuan cry IMP leave away Perf room
Xiaojuan left the room crying.'

(54) Xiaojuan yao **zhe** tou jujie le ta de yaoqiou.
Xiaojuan shake IMP head refuse Perf his request
Xiaojuan refused his request, shaking her head.'

As discussed in 4.4.4., *zhe* is affixed to an Accomplishment verb only when the attitudinal sentence-final particle is present to signal some implied meaning or emphasis. An Accomplishment verb does not occur in the first predicate of a Concomitant Construction. The reasons are obvious. First, no emphasis can be laid on the first predicate due to its subordinate nature in the construction. Secondly, no sentence-final particle may be added to the first predicate of the construction, because it is not a sentence-final position.

We have also seen that Achievements never take the aspect marker *zhe*, because Achievements either focus on the achieving of results only or package the results and the processes to achieve the results as an inseparable whole. In either case, it is impossible to have a stative view of Achievement situations (see 4.4.4.).

6.1.2.5. Summary

There are three semantic constraints in total on the the Concomitant construction:
i. the interrelation constraint that says that the two situations in the construction

have to be 'related' in certain ways, conventional, logical or physical; ii. the subordinate constraint that says that the first predicate in the construction has to bear a subordinate relationship to the second predicate; and iii. the compatibility constraint that says that the verb that *zhe* is suffixed to has to be compatible with the aspectual nature of *zhe*. As discussed above the second and the third constraints may be accounted for by the imperfective and stative nature of the aspect marker *zhe*. The first constraint (interrelation constraint) however, does not stem from the nature of *zhe*. Let us look at sentence (41) repeated as (55) here:

(55) *Ta cha **zhe** zhuozi ma ren.
he wipe IMP desk berate people
He was cleaning the table while berating someone.'

(Chen 1987a, p. 44)

Sentence (55) has nothing wrong with the imperfective and stative requirements of *zhe*. The situation named by the first predicate *wiping the table* may perfectly serve as a backgrounding information to the situation named by the second predicate. That is to say the subordination requirement of the imperfective is satisfied by this sentence. And the compatibility constraint is not violated either, because the verb *cha* 'wipe' is an Activity verb and it is capable of being looked at from a stative point of view. The following sentence shows that *cha* 'wipe' may co-occur with *zhe*:

(56) Tamen cha zhe zuozi ne.
they wipe Imp table Part
'They are wiping the table now (so we may get clean tables soon).'

Therefore, sentence (55) is out for reasons that do not pertain to the requirements of *zhe*. It is unacceptable only because the two situations that are named by the two predicates are not interrelated logically or conventionally, namely it is out because

of the interrelation constraint. For reasons just discussed, this constraint cannot stem out of the marker *zhe*. Nor can it be imposed by the verbs that occur in the construction. Then the only possibility is that it is required by the construction as a whole.

To sum up, the acceptability of the Concomitant Construction sentences are decided by three constraints, two of them stem out of the nature of the marker *zhe* and the other one is imposed by the construction meanings.

6.1.3 Existential Structure

Existential Structure also involves the aspect marker *zhe*. As discussed in 4.4.4. *zhe* imposes a stative view on situations, so it is compatible with the meaning of existence.

According to linguists like Y-H.A. Li (1990), Teng (1978) and C-T. Huang (1987) existential sentences involve verbs of three kinds:

i. verbs of existence and presence like *you* 'have or exist', *zhan*, 'stand', *gua* 'hang',

fang 'place;

ii. verbs of appearance like *lai* 'come', *dao* 'arrive', *jin* 'enter';

iii. verbs of disappearance like *qu* 'go', *tao* 'escape'.

For the present purposes, only the existential sentences with the first type of verbs (the verbs of existence and presence) will be considered, because existential sentences of this type are more interesting aspectually. For convenience, the term *Existential Structure* will be employed to refer only to sentences with the first type of verbs.

The verbs that Y-H. A. Li lists as verbs of existence/presence actually divide

into three subclasses: true existence verbs like *you* 'have, exist', posture verbs like *zhan* 'stand', and placement verbs like *fang* 'place, *gua* 'hung'. It will be argued that in addition to these three subclasses, there is another subclass of verbs that also appear in the Existential Construction. This subclass includes manner movement verbs like *fei* 'fly', *zou* 'walk', *you* 'swim' and so on. Sentences with these verbs will be discussed and it will be argued that they belong to the Existential Construction, for the reasons that they strictly observe the syntactic constraints of the construction and that they basically indicate existence by describing the generic manner of movement of some objects.

6.1.3.1. Existential sentences with *you*

In this part, we consider existential sentences with the true existence verb *you*. These sentences are basic existential sentences.

In Chinese the verb *you* literally means 'to have' or 'to exist'. The following sentences illustrate the basic usages of the verb:

(57) wo **you** yiben shu.
I have a book
I have a book.'

(58) Zhuozi shang **you** yiben shu.
table on exist a book
There is a book on the table."

(59) ***You** yiben shu.
exist a book
There is a book.

You in (57) means "to have" or to "possess". The subject of the sentence is the possessor and the object is the possessee. When *you* is used to mean *exist*, a locative

phrase has to occur in the subject position as the contrast of (58) and (59) shows.[6] A sentence like (58) will be conceived of as a basic existential sentence because the verb used in the sentence denotes existence, and existence only. Accordingly the basic form for an existential sentence will be:

(60) $NP_{locative}$ **you** NP

Existential sentences with *you* as the main verb provide the proto-form for all other existential sentences. And into this frame, other kinds of verbs may fit in to express the basic idea of existence. Before we go on to talk about the other verbs, we need to point out that *you* is a stative verb, while all other subclasses of verbs included in the existence/presence verb group and the additional movement verbs are non-stative verbs. That explains why a basic existential sentence with *you* as the verb does not need the imperfective marker *zhe*, whereas all other subclasses of verbs have to be suffixed with *zhe* to occur in the Existential Structure. The imperfective marker *zhe* is needed to stativize the non-stative verbs so that the verbs will be compatible with the stative nature of existence.

When *zhe* is present, the syntactic frame for the Existential Construction will be:

(61) $NP_{locative}$ VERB **zhe** NP

[6]The lexical item *shang* is called a localizer by Chinese linguists. Other localizers are *xia* 'under, and *li* 'in'. Some linguists hold that these localizers are postpositions, and accordingly, the locative phrase like the one in (58) *zhuozi shang* 'table upon' will be a postpositional phrase. (Li & Thompson 1981, among others). However, Y-H. A. Li argues that these localizers are nominal expressions and so the phrase *zhuozi shang* 'table upon' is an NP. Her evidence is that locative phrases of the form NP + localizers have the same distribution as NPs. And if a locative phrase occurs in a non-NP position, the preposition *zai* is obligatory. In this thesis, I assume with Y-H. A. Li that a locative phrase like the one in (58) is an NP.

(61) is derived from (60) through the addition of *zhe* in cases where the verbs are non-stative themselves. In the following I will show how this frame is strictly observed with all subclasses of existence/presence verbs and the movement verbs.

6.1.3.2. Posture verbs

All posture verbs may occur in the existential frame. Sentences (62) is from Y-H. A. Li (1990), sentence (63) is from Li & Thompson (1981), and the other sentence is mine:

(62) Chuang shang tang **zhe** yige ren.
bed upon lie IMP a person
'There is someone lying in the bed.'

(63) Men wai dun **zhe** yige xiaohai.
door outside squat IMP a child
There is a child squatting outside the door.

(64) Miao li gui **zhe** henduo ren.
temple in kneel IMP many people
'There are many people kneeling in the temple.'

All these sentences have the meaning that a certain person exists at a certain place in a certain posture. The posture verbs themselves do not convey any existence meaning, nor does the aspect marker *zhe*. The existential meaning seems to pertain to the whole construction. The structure of the construction has to be strictly observed to produce grammatical existential sentences. This is illustrated by sentences in (65-67).

(65)	*Chuang	shang	tang	yige	ren.
	bed	upon	lie	a	person

(66)	*tang	zhe	yige	ren.
	lie	Imp	a	person

(67)	*Chuang	shang	zhe	yige	ren.
	bed	upon	Imp	a	person

In (65) the imperfective marker *zhe* is missing. In (66) the locative NP is absent and in (67) the verb *tang* is not there, all three sentences are nonsensical sentences. This seems to prove the fact that the structures in (60) and (61) are set frames for existential sentences.

6.1.3.3. Placement verbs

Any verbs that may cause something to be positioned at a certain place or verbs that may cause something to exist at a certain place fall into this subclass. They all may occur in the existential sentence, and as they are all Activity verbs, the imperfective marker *zhe* has to be used to provide a stative meaning.

(68)	Fangjian	li	fang	**zhe**	yizhang	zhuozi.
	room	in	place	IMP	a	table
	'There is table in the room.'					

(69)	men	shang	xie	**zhe**	sige	zi.
	door	upon	write	IMP	four	letter
	'There were four letters written on the door.'					

(70) Qiang shang gua **zhe** yifu hua.
wall upon hang IMP a picture
'A picture hung on the wall.'

(71) Tiao li zhong **zhe** xiaomai.
field in plant IMP wheat
In the field there is wheat planted.'

Basically these sentences express existence of something at some place too. But in addition to the basic meaning of existence, they also indicate the action that has caused the present existence of a certain object at a certain place. Like the posture verb existential sentences, all these sentences observe the structure in (61) too.

6.1.3.4. Movement verbs

Movement verbs that may occur in the existential frame to indicate existence are manner movement verbs. Direction movement verbs like *lai* 'come' *qu* 'go' will not occur in this construction, because these verbs are telic and emphasizes some end-point and so they are not compatible with the existential meaning. All manner movement verbs may occur in the Existential Construction as long as they describe some generic manner of movement.

(72) Tian shang fei **zhe** yizhi niao.
sky upon fly IMP a bird
'There is a bird flying in the sky.'

(73) Caoyun shang pao **zhe** yipi ma.
prairie upon run IMP a horse
'There is a horse running on the prairie.'

(74) Hu li you **zhe** henduo jingyu.
lake in swim IMP a lot goldfise
There are a lot of goldfish swimming in the lake. '

The above sentences basically express existence too. They are different from the ba-

sic *you* existential sentences in that they indicate the manner of existence too. Again like the sentences with posture verbs, existential sentences with manner movement verbs have to strictly observe the structure in (61).

6.1.3.5. Summary

We have seen how each of the subclasses of existence/presence verbs are used in the existential frame. This frame has to be strictly observed whatever category the verb involved belongs to. This frame has two forms, the basic (60) and the derived (61). (60) includes a verb *you* 'have, exist' that indicates existence itself. (61) also conveys the existence meaning, although the verb itself does not indicate existence. The existence meaning of the derived existential sentence is provided by the Existential Structure. Verbs occurring in the derived Existential Structure are those that may describe a posture of existence, a manner of existence, or a action that causes something to stay in a certain manner at a certain place. All these verbs are non-stative in nature, and so the imperfective marker *zhe* is required for this derived Existential Structure.

More sentences are given in (75)-(77) to further show that the construction frame is strictly observed to express the existential meaning, whatever subclass of the existence/presence type the verb belongs to.

First, the stative imperfective marker *zhe* has to be present (except when *you* is used):

(75) a. Menkou zhan **zhe** yige ren. (posture verb)
doorway stand IMP a person
'There is someone standing in the doorway.'

b. *Menkou zhan yige ren.
doorway stand a person

(76) a. Fangjianli fang **zhe** yizhang zhuozi. (placement verb)
room in place IMP a table
'There is table in the room.'

b. *Fangjian li fang yizhang zhuozi.
room in place a table

(77) a. Tianshang fei **zhe** yizhi niao. (movement verb)
sky upon fly IMP a bird
'There is a bird flying in the sky.'

b. *Tian shang fei yizhi niao.
sky upon fly a bird

And secondly, the locative phrase has to be there:

(78) a. Menkou zhan **zhe** yige ren. (posture verb)
doorway stand IMP a person
'There is someone standing in the doorway.'

b. *zhan **zhe** yige ren.
stand IMP a person

(79) a. Fangjianli fang **zhe** yizhang zhuozi. (placement verb)
room in place IMP a table

b. *fang **zhe** yizhang zhuozi.
place IMP a table

(80) a. Tianshang fei **zhe** yizhi niao. (movement verb)
sky upon fly IMP a bird
'There is a bird flying in the sky.'

b. *fei **zhe** yizhi niao.
fly **zhe** a bird

The contrast shown by the above (a) and (b) sentences show that the construction frame has to be strictly observed. And there are only four types of verbs that may occur in this construction, the true existence verb *you*, the posture verbs, the placement verbs and the movement verbs. When verbs rather than *you* occur in this construction, the imperfective marker has to be present.

6.2 Theoretical framework that may account for the special constructions

6.2.1 General remarks

In the last section I discuss four kinds of constructions. All these constructions display some syntactic or semantic constraints. These constraints are not in any way tied to the verbs that occur in the constructions. Actually these constructions have non-lexically filled frames except for certain semantically empty or non-substantive morphemes[7] (*de* in Descriptive and Resultative Constructions, and *zhe* in the Concomitant Construction and the Existential Construction). The constraints seem to be imposed by the constructions, or in some cases, by the interaction of the

[7]According to Pollard & Sag (1994), substantive words have semantic content while non-substantive words, including "functional" and "grammatical" items, are logical in nature or even vacuous. The distinction between substantive and non-substantive words roughly corresponds to the solid/empty word distinction in the tradition of Chinese linguistics.

grammatical morpheme (like *zhe* in the Concomitant Construction) required by the construction and the semantics of the construction.

6.2.2 Construction Grammar and the multiple inheritance hierarchy in HPSG

How shall we account for the facts displayed by the four kinds of constructions? We have seen that some of the constraints on these constructions pertain to the empty or grammatical morphemes (the subordination constraint and the compatibility constraint imposed by *zhe* in the Concomitant Construction); some others have to be satisfied compositionally by the entire construction (the [-result] constraint on V1 of the Resultative Construction, the interrelation constraint of the Concomitant Construction and the structural constraint of the Existential Construction). The facts discussed above seem to suggest that these constructions should be approached constructionwise. And this is just the approach advocated by the Construction Grammar and adopted by the Head-driven Phrase Structure Grammar (HPSG).

In Construction Grammar, recently developed by Fillmore (1985b, 1987, 1990), Lakoff (1987), Fillmore, Kay & O'Connor (1988), and Goldberg (1992a), it is argued that an entirely lexically-based or bottom-up approach is not adequate to account for the full range of language data. The above mentioned linguists show that there are some semantic constructions with their associated syntactic expressions that carry meaning independently of the lexical items which instantiate them. These constructions are defined in Construction Grammar as form-meaning correspondences that are not strictly predictable from knowledge of the rest of grammar.

There is no question that the lexicon plays the most important role in providing semantic and syntactic information. However we must also admit that subcatego-

rization requirements of lexical items do not account for all language facts. Zaenan (1991) provides a very revealing example to show that there are contentful constructions. The example comes from the Dutch impersonal passive. There is a constraint on the impersonal passive that the described situation be atelic:

(81) *Er werd opgestegen.
'There was ascended.'

(82) a. Er werd gelopen.
'There was run.'

b. *?Er werd naar huis gelopen.
'There was run home.'

Zaenan observes that when certain adverbs are added to change the situation types, the acceptability of the sentences may be changed:

(83) Van Schiphol wordt er de hele dag opgestegen.
'From Schiphol there is ascending the whole day.'

(84) Er werd voordurend naar huis gelopen.
'There was constantly run home.

The verbs used in (81) and (82) are the same as the ones in (83) and (84). (81) and (82b) are ungrammatical because the situations described are telic. When adverbs of duration are added, the situations become atelic with multi-event readings. The contrast displayed by these sentences show that the constraint is not on the verb but on the entire construction. In other words, the construction is not lexically governed, the constraint has to be associated with the construction as a whole. Confronted with constructions like this, a supplementary approach must be incorporated into the bottom-up approach. And Construction Grammar just provides the supplementary approach to the bottom-up approach. Contrary to the bottom-

up approach, this supplementary approach works from top-down by looking at the meaning imposed by constructions upon unsuspecting verbs.

The top-down approach advocated by linguists who work in the framework of Construction Grammar is also embodied in the multiple inheritance hierarchy method developed in HPSG (Pollard & Sag 1994 and Sag 1995) In his 1995 unpublished paper, Sag employed the mutiple inheritance hierarchy to analyze clause constructions in a top-down manner. The "multiple inheritance hierarchy" is "a method of cross-classfying linguistic objects to factor out common properties and minimize construction-specific stipulations". This method, which has been widely "employed in the analysis of complex lexicons in constraint-based lexicalist theories" has "a significant untapped potential for the treatment of grammatical constructions as well" (Sag 1995, p. 1).

First let us see how the multiple inheritance hierarchy works to cross classify lexical items so that it is possible to "express cross-cutting generalizations about words in an elegant, deductive fashion." (85) is Sag's sortal classification of English verbs:

(85)

SORT	CONSTRAINTS	ISA
verb	$\begin{bmatrix} Head & verb \\ SUBJ & < NP > \end{bmatrix}$	word
trans-verb	[COMPS $< NP, \ldots >$]	verb
subj-raising	$\begin{bmatrix} SUBJ & < [1] > \\ COMPS & < XP[SUBJ < [1] >], \ldots > \end{bmatrix}$	verb
strict-intran-verb	[COMPS <>]	verb
obj-raising-verb	[COMPS $< [1], XP[SUBJ < [1] >] >$	tran-verb
strict-tran-verb	[COMPS $< X >$]	tran-verb
finite-verb	$\begin{bmatrix} HEAD & [VFORM_{fin} \\ SUBJ & < NP_{[nom]} > \end{bmatrix}$	verb
3rd-person-verb	[SUBJ $< NP_{3sg} >$]	finite-verb
base-verb	[HEAD [VFORM$_{base}$]]	verb
passive-verb	[HEAD [VFORM $_{pass}$]]	verb

"The sort names at the end of each line in (85) specify 'is a' relations among the sorts, i.e. they indicate sort's immediately superordinate sort(s)" (Sag 1995, p 6-7). This sortal classification establishes the hierarchical relations among sorts. An individual verb like *chases* will have all properties of the sorts: *stric-tran-verb* and *3rd-person-verb* and also the properties of all supersorts of these two sorts. As a result, *chases* will have a feature structure that roughly looks like the one in (86):

(86) chases

$$\begin{bmatrix} HEAD & verb[fin] \\ SUBJ & < [1]NP_{[nom]3s} > \\ COMPS & < [2]NP > \end{bmatrix}$$

The feature structure says that *chases* is a finite transitive verb and it requires a third person singler NP as its subject and another NP as its object.

In HPSG, phrases are treated in essentially the same way as words. According to Sag, the sign-based approach developed in HPSG makes it possible to "express generalizations about phrasal signs using the same multiple inheritance techniques that have proven so useful in the analysis of lexical signs" (Sag 1995, p. 9). It

is in the spirit of the multiple inheritance hierarchy that Sag analyzes the English relative clause constructions. The multiple inheritance hierarchy for phrases is a very complicated system. For our present purposes, it suffices to give an example to illustrate how this works. Interested readers may refer to Sag for a detailed discussion.

A relative clause *rel-cl* is an instance of a common sort, namely the *head-subj-phrase* (subject + VP) and also an an instance of a more general sort *clause*. Then the sort rel-cl has two subsorts: *wh-rel-cl* (a relative clause that contains a *wh* word) and *non-wh-rel-cl* (a relative clause that does not contain a *wh* word) and the two subsorts may further branch into *subj-wh-rel-cl* (the *wh* word is the subject) *non-subj-wh-rel-cl* (the *wh* word is not the subject) sorts and so on. The constraints on *wh*-relative clauses are shown in (87):

(87)

SORT	CONSTRAINTS	ISA
wh-rel-cl	$\begin{bmatrix} HEAD\|MOD & N'_{[1]} \\ HEAD-DTR & [BIND\|REL\{[1]\}] \end{bmatrix}$	*rel-cl*

(87) says a *wh-rel-cl* has the head feature of MOD and it modifies a nominal phrase with a referential index. The head daughter binds off a REL(ATIVE) value that contains a referential index too. "Since the REL value will always originate from a *wh*-relative word embedded somewhere within the subject phrase, ... the effect of this constraint is simply to identify the index of the *wh*-relative word (however deeply within the subject phrase it might be embedded) with the index of the nominal phrase the relative clause modifies.

Then let us consider the first elementary subsort of the *wh-rel-cl*. This subsort has constraints as shown in (88):

(88)

SORT	CONSTRAINTS	ISA
subj-wh-rel-cl	$SUBJ-DTR \quad <[INH\|REL[1]]>$ $HEAD-DTR \quad [BIND\|REL\{[1]\}]$	*wh-rel-cl & fin-hd-subj-ph*

This sort inherits constraints from its two supersorts and also from all sorts higher than these two supersorts. As a result of the inheritance from the *wh-rel-cl*, there will be a *wh* word that binds off a REL value. And the specific constraint concerning the SUBJ-DTR specifies that it is the subject that inherits the REL value. Thus the relative clause has a wh-subject which is coindexed with the noun modified by the relative clause. As a result of the inheritance from the super sort *fin-hd-subj-ph*, only finite *wh*-subject relative clauses are permitted.

Having discussed the chief ideas of the Construction Grammar and the multiple inheritance hierarchy method developed in HPSG, we are going to see if the top-down approach, especially the multiple inheritance hierarchy may shed any light on the analysis of the Chinese special constructions.

6.2.3 A multiple inheritance hierarchy treatment of the constructions

In Chinese, there are many contentful constructions, among which I have discussed six kinds. These six kinds have been chosen because of their aspectual interest. Here I will reconsider these constructions in light of Construction Grammar and HPSG theories.

Ba and *bei* constructions discussed in Chapter 5 display some strict semantic constraints: the situation involved has to be bounded and take the perfective view-

point. I have argued that *ba* and *bei* are verbs and if such is the case, the constraints may be stated as lexically triggered as is done in 5.6.

The five kinds of constructions discussed in this chapter also display some semantic or syntactic constraints. However, these constraints can not be said to be governed by any verbal heads, because they do not pertain to any particular verbs that instantiate the constructional sentences. The constructions are actually non-lexically filled (except for the semantically empty morpheme *de* in the Descriptive and Resultative Constructions, and the grammatical marker *zhe* in the Concomitant Construction and the Existential Construction). As shown in the previous section, it is the construction meaning and sometimes the interaction of the construction meaning and the requirements of the non-substantive (as opposed to substantive in Pollard & Sag's (1994) term) morphemes (*de, zhe*) that determine the constraints on constructions. In the following subsections, each of these constructions will be considered in the spirit in which relative clause constructions are treated in Sag (1995). It will be shown that the multiple inheritance hierarchy works perfectly well for the constructions discussed in the previous section.

6.2.2.1. The *De* Descriptive and Resultative Constructions

As mentioned above, *De* Descriptive Construction is both semantically and syntactically simple and all of the five classes of verb constellations may occur in this construction. In other words, the *de* descriptive phrase does not impose any semantic constraints on the construction. Actually the *de* phrase is just an adjunct that is marked by *de*. *De* is an empty word in traditional Chinese grammar (see 4.2.2.) in the sense that its semantic content is vacuous in nature. The nature of *de* fits in the category of *marker* in the HPSG theory (Pollard & Sag 1994). According to Pollard

& Sag, a marker "formally marks the constituent in which it occurs, combines with another element that heads that constituent." (Pollard & Sag 1994, p. 45) In the *De* Descriptive Construction, *de* marks an adverbial phrase and combines with the main verb that heads the entire sentence to constitute the construction.

The *De* Descriptive Constructions is an instance of the more common sort which I will call *general clause* (*gener-cl*). The sort *gener-cl* represents the structure of a most common clause type: a head-subject-structure that contains a head-complement-structure. (89) is a very much simplified feature structure of the sort *gener-cl*:

(89)

$$\left[\begin{array}{l} S \\ SUBJ-DTR : NP_{[1]} \\ HEAD-DTR : [2]VP \;\; < \left[\begin{array}{ll} HEAD-DTR : & [4]verb \\ COMP-DTR : & (NP_{[3]}) \end{array}\right] > \end{array}\right]$$

The attribute-value matrix (AVM) in (89) represents the structure of the sort *gener-cl*. This sort has a subject daughter $NP_{[1]}$, a head daughter [2]VP which in turn has a head daughter [4]verb and an optional complement daughter $NP_{[3]}$. The *De* Descriptive Constructions is a subsort of the *gener-cl* sort because it inherits the basic structure of the *gener-cl* with one more constraint: the HEAD-DTR contains a modifier daughter that is marked by *de*. This modifier daughter is realized as an AP and it modifies [2]VP. (90) is a simplified feature structure of the *De* Descriptive Constructions. For convenience, I will call it *de-des-cl*.

(90)

$$\left[\begin{array}{l} HEAD-DTR : [2]VP \\ MOD-DTR_{MARK\,de} :< \left[\begin{array}{l} HEAD|MOD : [[2]VP] \\ HEAD-DTR : [AP] \end{array}\right] > \end{array}\right]$$

This structure says that the HEAD-DTR contains a MOD-DTR marked by *de*. This MOD-DTR has the head feature MOD which has the value of [2]VP and is realized as an AP. In other words, the MOD-DTR, namely the AP, is a modifier of [2]VP.

The *De* Resultative Construction is a also a subsort of the *gener-cl* with the constraints: i. the HEAD-DTR contains a RESTR-DTR (restrictor daughter) which bears a resultative relation to [2]VP, ii. no [+result] situation may occur as [2]VP, iii. the marked RESTR-DTR may have either a saturated or an unsaturated structure and iv. when it has an unsaturated structure, the controller of the unexpressed subject may be either the subject or the object of [2]VP. These constraints are presented by the feature structure in (91):

(91)

$$\left[\begin{array}{l} HEAD-DTR : [2]VP_{[-result]} \left[\begin{array}{l} SUBJ < NP_{[1]} > \\ COMP-DTRs < (NP_{[3]}) > \end{array}\right] \\ \\ RESTR-DTR : [4]VP_{[mark]de}[SUBJ :< (anaphor_{[1/3]}) >] \\ \\ CONTENT : \left[\begin{array}{ll} RELATION & cause-result \\ causer & [2]VP \\ result & [4]VP \end{array}\right] \end{array}\right]$$

(91) says that the *de-resul* contains a RESTR-DTR, namely [4]VP, that specifies a result caused by [2]VP. The RESTR-DTR may have expressed or unexpressed subject. When the RESTR-DTR has no SUBJ specification it is a saturated structure with an expressed subject and no binding constraint is needed. When the RESTR-DTR has an unsaturated structure with an unexpressed subject, the unexpressed subject is an anaphor that is bound by either $NP_{[1]}$ or $NP_{[3]}$.

To give a clearer picture of the relation between the *gener-cl* and the *de-des-cl*/ *de-resul-cl*, a sortal representation is given in (92)

(92)

SORT	CONSTRAINTS	ISA
gene-cl	SUBJ-DTR: $NP_{[1]}$ HEAD-DTR: $VP_{[2]}$ $\begin{bmatrix} HEAD-DTR : V_{[4]} \\ COMP : (NP_{[3]})\text{..} \end{bmatrix}$	
de-des-cl	MOD-DTR$_{[MARK\,de]}$ $\begin{bmatrix} HEAD\|MOD : VP_{[2]} \\ HEAD-DTR : [AP] \end{bmatrix}$	gener-cl
de-res-cl	HEAD-DTR: [2]$VP_{[-result]}$ RESTR-DTR: [4]$VP_{[MARK\,de]}$ [SUBJ(anaphor$_{[1/3]}$) CONTENT: $\begin{bmatrix} RELATION : cause-result \\ causer : [2]VP \\ result : [4]VP \end{bmatrix}$	gener-cl

The Construction that contains a constituent marked by *de*, including both the *De* Descriptive and the *De* resultative Construction, has the general clausal structure plus the constituent marked by *de* and some constraints imposed by the *de* constituent or the construction meaning. And this hierarchical relation is captured by the sortal representation in (92). A general clause has a subject daughter $NP_{[1]}$ and a head daughter $VP_{[2]}$. And the head daughter $VP_{[2]}$ has its head daughter V and its complement daughters ($NP_{[3]}$...). Both the *de-des-cl* and the *de-resul-cl* are subsorts of the *gener-cl* structure. The sort names in the third column "specify 'is a' "relations among the sorts, i.e. they indicate each sort's immediately superordinate sort(s)" (Sag 1995, p. 7). The immediate supersort of both the *de* descriptive clause and the *de* resultative clause is the general clause. In other words, both subsort clauses inherit the properties of the general clause and on top of these properties they have their own particular constraints.

6.2.2.3. The Concomitant Construction

I have shown that the constraints on the Concomitant Construction result from the

interaction of the constructional meaning and the grammatical category *zhe*. *Zhe* is also a marker. It is suffixed to a verb to mark it aspectually and its aspectual meaning imposes constraints on the verb constellation it marks. The Concomitant Construction may be considered as a subsort of the serial verb construction, which is very common in Chinese. The relation between a serial verb construction (*ser-v-cl*) and a Concomitant construction (*conc-cl*) is presented in (93):

(93)

SORT	CONSTRAINTS	ISA
ser-v-con	$VP_{[2]}$ [$VP_{[3]}$ $VP_{[4]}$]	gene-cl
conc-con	[3]$VP_{[-telic]\&[markzhe]}$ CONTENT: [*RELATION* : *subordinate* − *primary*; *subordinate* : [3]*VP*; *primary* : [4]*VP*]	ser-v-con

Figure (93) says that a serial verb construction is a subsort of a general clause structure. It differs from the general clause structure only in that the head daughter [2]VP is composed of two VPs: [3]VP and [4]VP. The Concomitant Structure is a subsort of the serial verb structure and its specific constraints are: i. [3]VP and [4]VP are related in certain ways; ii. [3]VP has to be marked by *zhe* and has the feature [-telic]. (94) is a feature structure for the Concomitant Construction:

(94)

$$\left[HEAD-DTR \left[\begin{array}{l} [3]VP_{[-telic]\&[MARKzhe]} \\ VP \\ CONTENT \left[\begin{array}{l} RELATION : secondary - primary \\ secondary : [3]VP \\ primary : [4]VP \end{array} \right] \end{array} \right] \right]$$

This structure says that the HEAD-DTR of the concomitant structure contains

two head daughters [3]VP and [4]VP. [3]VP is marked by the marker *zhe* and so has to have the [-telic] feature. [3]VP and [4]VP are related in the sense that [3]VP provides backgrounding information to the situation named by [4]VP.

6.2.2.4. The Existential Construction

The Existential Construction is another subsort of the general sentence structure. This Construction has two subsorts: one is headed by the existential verb *you*, the other is headed by any verb that may serve to denote manner of existence (movement, posture, placement verbs). Only the second subsort needs the marker *zhe*. The constraints particular to the Existential Construction include: the subject has to be a locative NP, the verb has to be the existence/present/manner movement type and object NP names the thing that exists. The feature structure for an Existential Construction with the verb *you* (*exis-you-cl*) will look like (95):

(95)

$$\begin{bmatrix} SUBJ-DTR: & NP_{[1]}[loc.] \\ HEAD-DTR & VP_{[2]}\begin{bmatrix} HEAD-DTR: you \\ COMP-DTR: NP_{[3]} \end{bmatrix} \end{bmatrix}$$

The feature structure for an Existential Construction with a verb other than *you* (movement or posture or placement verb) – (*exis-non-you-cl*) will be something like the one in (96):

(96)

$$\left[\begin{array}{ll} SUBJ-DTR: & NP_{[1]}[loc.] \\ HEAD-DTR & [VP_{[2]}]\left[\begin{array}{l} HEAD-DTR: [V[post/place/move]_{[MARK:zhe]} \\ COMP-DTR: NP_{[3]} \end{array}\right] \end{array}\right]$$

(96) is the feature structure for existential sentences that are headed by verbs of the posture/placement/movement type. The feature structure says that an Existential Construction contains a locative NP subject, a verb that is marked by *zhe* and the NP object that names the thing that exists. The verb has to be one that indicates certain manner of existence (posture, movement, or placement verb).

6.3 Summary

In this chapter, some special sentence structures in Chinese are discussed in light of Construction Grammar and HPSG theories. All these structures are shown to have some semantic or aspectual properties. As these properties pertain either to the meaning of constructions or to the markers that occur in the constructions rather than to particular verbal heads that occur in the constructions, they are treated in a top-down manner. The multiple inheritance hierarchy treatment of constructions developed in Sag (1995) is shown to have explanatory power over the special structures discussed in this chapter.

Chapter 7

Conclusion

Aspect has been a very important topic for the last few decades among linguists who work on the Chinese language. This dissertation approaches the old topic from a new perspective, a modified version of Smith's (1991) two-component theory. This new approach provides solutions to problems left unsolved by previous analyses and delineate a clearer picture of the Mandarin Chinese aspectual system.

7.1 Significance of the modifications

The theoretical framework I work in is basically Smith's (1991) two-component theory, yet modifications are made in light of other aspect theories and data from both English and Chinese. These modifications are interrelated and they together increase the explanatory power of the two component theory.

7.1.1 Three-level model for situation aspect composition

Following Verkuyl (1972, 1989); Dowty (1979) and Smith (1991), I assume that situation aspect is compositional in nature. And I further propose a three-level model to account for the nature of the composition. At the lexical level, some lexical

processes (Resultative Compound formation in Chinese, the Resultative Structure formation in English, the addition of particle to some verbs in English, and verb reduplication in Chinese) may change verb types. At the subcategorization level, the interaction of the verb and the arguments of the verb determines what situation type the core sentence will be. Finally at the post-subcategorization level, certain constituents may change the situation type of the core sentence.

This model has several advantages. First, it defines clearly what plays what role in the situation aspect composition processes. Secondly, this model makes it possible to talk in clear terms of verb types and situation types. Verb types are determined by the basic meanings of the verbs per se, while situation types are determined by the composition processes at different levels. Actually this three-level model replaces Smith's situation shifting with situation formation. This greatly simplifies the grammar: basic verb types become closed sets, derived verb types and situation types do not have to be listed because they are determined by rule-governed composition processes. Double or triple categorizations of the same verb are thus avoided.

7.1.2 Two new criteria for verb classifications

Punctuality has been employed as a criterion to distinguish verb or situation types (Vendler 1967, and Smith 1991), but punctuality is not a reliable criterion. In place of this criterion, I propose two new criteria: the presence or absence of natural temporal boundedness to distinguish Semelfactive terms from the Activity terms, and the (non)encoding of result to distinguish Accomplishments from Achievements. The first criterion explains not only the multi-event reading of the sentence *He was coughing* but also the single-event reading of the sentence *He coughed.* The sec-

ond criterion explains the contrasts shown by Accomplishments and Achievements that do not pertain to punctuality, such as the contrast concerning the intransitive usages of Achievement verbs and Accomplishment verbs (*He won* is telic and *He ate* is not), and the Chinese fact concerning the possibility of taking resultative expressions (All situation types may take the resultative *de* expression except for the Achievement) and the contradiction test (the completion reading of an Accomplishment may be contradicted, while the completion reading of an Achievement cannot be contradicted).

7.1.3 Boundedness vs. telicity

The distinction between boundedness and telicity clarifies a confusion in terminology. The former refers to temporal boundaries and the latter refers to spatial boundaries. This distinction is especially important in a language like Chinese, in which all the [+telic] verbs do not need extra delimiting elements to be able to take the perfective marker *le*, while all the [-telic] verbs have to have extra delimiting elements to make them either [+telic] or [+bounded] to occur with the perfective marker *le*.

7.2 Verb classes

In the three-level model, we may talk about verb classes as closed sets and at the same time admit the compositional nature of situation aspect. The semantics of the verbs determine that they have different temporal features. Some are static, others are dynamic and so on. In the modified system, four binary features divide verbs into five basic verb types. The four features are: [±dynamic], [±telic], [±bounded]

and [±result]. Although the five basic verb types determined by these features correspond to Smith's five situation types and the same category names are assumed, there is approach difference (Her basic types are situation types and my basic types are verb types) and membership differences (*wrinkle a dress* is an Accomplishment in her system, while the verb *wrinkle* is an Achievement verb in the revised system).

Although there has been controversy over the criteria for distinguishing classes and the number of classes, the generally accepted idea seems to be that the same verb classification should apply to all natural languages. In my dissertation, the five verb classes distinguished by four binary features are proposed as a general pattern cross linguistically. And verbs in Mandarin Chinese fit this pattern as predicated.

7.3 Viewpoints in Mandarin Chinese

This dissertation carefully considers each of the nine markers that have been assumed to be aspect markers by other linguists. In light of the two-component theory and with the help of tests (the compatibility test, the backgrounding test and the contradiction test), I argue that only four of the nine markers are aspect markers. They are perfective *le* and *guo*, and imperfective *zai* and *zhe*.

The perfective and the imperfective are just the two basic viewpoints found across languages. In other words, the Mandarin Chinese viewpoints fit in the big picture of universal grammar. However, the Mandarin Chinese viewpoints have some special properties. The most outstanding special properties are displayed by *le*. Unlike the perfective in languages like English, Russian and French, the perfective marker *le* does not provide a final endpoint. It only emphasizes the occurrence of a situation as a whole. Consequently, it requires that the situation it marks have a

final endpoint. That explains why *Ta tiao le* is not a legitimate sentence in Chinese while its corresponding sentence in English *He jumped* is. To account for this fact, I modified Smith's general temporal schema for the perfective, so that both English type of perfective and the Chinese type of perfective may be accounted for. *Guo* provides an endpoint to situations and so it is compatible with any situation type either open-ended or closed. *Zai* emphasizes the progress of a situation, it is not sensitive to endpoint at all. Its function is close to the English progressive form and like the English progressive form, it fits in the general imperfective schema. *Zhe* imposes a static view to situations, and because of this property, *zhe* is selective about situation types. In spite of this, *zhe* fits in the general imperfective schema too.

7.4 Some general remarks

In the course of modifying Smith's two component theory and analyzing the special properties of the Mandarin Chinese aspectual system, this dissertation provides solutions to problems left unsolved by the previous analyses. And with the solution of the problems, we gradually delineate a clearer picture of the Mandarin Chinese aspectual system. Although this picture contains many properties specific to the language, we have shown that this picture fits in the context of the universal grammar. And the specific properties are explained by our modified two-component theory developed from Smith (1991).

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