THE UNIVERSITY *of* EDINBURGH

Revising Talmy's Typology of Motion Events in the Light of Chinese

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A thesis presented in partial fulfillment

of the requirements for the degree of

Doctor of Philosophy

University of Edinburgh

2014

Abstract

Talmy (1975, 1985, 1991 and 2000b) studies Motion events encoded by verbs from the perspective of lexicalisation$_{(T)}$. Talmy (2000b) proposes six basic semantic elements to describe Motion events; they are Figure, Motion, Path, Ground, Manner, and Cause. For example, in the sentence ***He entered the room, enter*** is the main verb and encodes Motion "move" and Path "into". So the main verb encodes the Path information. Such phenomena are very common in Spanish; however, in English and in Chinese Path is usually expressed by satellites, a category of surface element. ***Enter*** is exceptional in English. Although it is a word in English it was borrowed from French. The surface elements which encode the Path information determine a language's type. For example, if Path is encoded by main verbs in language A, then this language A is a verb-framed language; if Path is typically expressed by satellites in language B, then language B is a satellite-framed language. These are the two most widespread types of languages in this typology. According to Talmy, English is a satellite-framed language (S-framed language); Spanish a verb-framed language (V-framed language); and Chinese a satellite-framed language.

Slobin (1996, 1997, 2002, 2004 and 2006) argues that Chinese is an equipollent-framed language (E-framed language), a third language type he added to Talmy's typology. The evidence for this is the serial verb construction (SVC) in Chinese. SVCs can be briefly defined as a syntactic pattern where two or more verbs are used together to express a single conceptual event and there are no markers of subordination and coordination. Slobin uses ***feī chū*** (fly exit) as an example of the SVC and he insists that ***feī*** (fly) and ***chū*** (exit) share the same grammatical status and are equal to each other in that neither of them can be omitted for a complete expression of the event of flying out. The first verb encodes the Manner information and the latter one expresses the Path information. Omitting either part, the expression is ungrammatical.

Having briefly reviewed these two models of language typology, many questions have arisen. Is it necessary to have a third language type to account for Chinese? Or is Chinese an E-framed language or a S-framed language? What is the language typology of Chinese? This is the main research question I aim to answer in this thesis. The main question concerns the nature of Chinese SVCs. In my thesis, I discuss the features of Chinese SVCs as preparation for a working definition of SVC for my empirical work to collect the SVC data from the Lancaster Corpus of Mandarin Chinese (LCMC). I show that the components in Chinese SVCs are not equal in semantics. There are constraints on the positions for different semantic parameters. In addition, the surface forms of components for SVCs do not share equal status

for the asymmetrical SVCs. This further shows that components within Chinese SVCs are not in equal grammatical status.

My data shows that Path can be encoded by main verbs as well as by satellites in Chinese. Having illustrated that Chinese SVC is not evidence for Chinese to be an E-framed language, then, is Chinese a S-framed language similar to English or a V-framed language like Spanish?

Özçalışkan (2004) claims that Path verbs, verbs encoding [Motion + Path], is a closed class. How many Path verbs are there in Chinese and are these Path verbs comparable with those in English and in Spanish? I give a comprehensive list of Chinese Path verbs and then focus on some of them to track the process of the lexicalisation$_{(T)}$. I found that there are no significant differences in number for the 13 types of Path verbs in Chinese, English and Spanish and that the lexicalised$_{(T)}$ Path is comparable. These findings indicate that Chinese uses both main verbs and satellites to express the Path information in motion events. Additionally, the grammaticalization trend of Chinese Path verbs and the shift from independent Path verbs into Path satellites and grammatical relation markers also show that Chinese is not part of any of the parallel system, the split system, or the intermixed system for expressing motion events. Chinese is in the transferring period from a S-framed language to a V-framed language.

Declaration

This Thesis is my original research work. When others' contributions are involved, every effort is made to indicate this clearly, with due references to the literature and acknowledgement of collaborative research and discussion. None of this thesis has been submitted for another degree or professional qualification.

Signature

Acknowledgements

I would first like to thank Professor Nikolas Gisborne and Professor Ronnie Cann, my PhD supervisors, for their constant encouragement and for their time.

Nik offered me the chance to study in the University of Edinburgh four years ago. During the four years, he has taught me how to produce an essay in a good logical style rather than in the way of writing a detective novel with the main points/results uncovered in the end. If the thesis is a big story, Nik is patient enough to teach me how to be a good story-teller dealing with the whole frame of the story and at the same time focusing on the details of the story. He has trained me for the skills to walk the readers through my story and has showed me how to present a proper linguistic analysis and give linguistic evidence. He also encouraged me to go through the difficulties I experienced in studies. These training and skills I learned from Nik are treasures for the rest of my life.

Ronnie suggested I use the corpus method to collect data in my second year. Without these data, I could not continue to do the following analysis and this thesis would not have come into existence. The methodology and the data are the key to develop a topic and to give answers to research questions. Ronnie also gave me essential comments on each chapter of the thesis and guided me through insightful topics in chapters. Ronnie taught me how to manipulate the data through trial and error from scratch. He was always on hand to answer my questions and he also shared inspiring answers and ideas to my questions.

My appreciation also goes to Dr. Paula Cifuentes-Férez, Dr. Richard Xiao, and Dr. Claire Cowie. They helped me with the data collection in different ways. I used the corpus developed by Richard. Richard explained to me how the matching program cooperates with the corpus to search for some special strings such as two verbs going together. Richard was really patient in replying to each of my questions on the corpus. Paula was kind to allow me to use the English and Spanish data in her thesis for the comparison with Chinese. Claire is good at corpus and she has led me to Richard, the corpus builder, to find some solutions to my problems.

I am grateful to my PhD-mates for their support and friendship: Christoph Hesse, Ziming Lu, Xi Zhao, Yi Du, Qian Li, Kun Yang, Wojtek Gardela, Soundess Azzabou-Kacem, and Jing Han. In particular, I would like to thank Christoph, Ziming and Xi. Christoph has been with me from the very beginning and he has witnessed the ups and downs of my writing in pursuit of the degree. In addition, I am lucky to meet some native speakers of Mandarin in the same office. I met Ziming when I audited lectures in my first year. After she got the Master degree,

she continued to do a PhD. Thus, we got a chance to strengthen our friendship. Xi, a PhD student (now a doctor) in School of Informatics, is the kind of friend who will never let you down and her gentle temper always comforted my bad moods and she encouraged me so much as a peer.

I would also like to thank the research community in the University of Edinburgh, such as the Linguistic Circle, the Syntax and Semantic Research Group, and the LEL PG Conference. They provided great opportunity to listen to others' research and to present my own work and to get great feedback.

Thanks to Katie Keltie, Eddie Dubourg, Philip Cass, and Morag Brown, staff members of the PPLS. They were always ready to answer any inquires and solve technical problems in the four years.

I also thank the China Scholarship Council and the University of Edinburgh for their financial support. Without their support, I cannot afford to do a PhD in the UK.

Finally, I would like to give my special thanks to my family, especially to my parents and my husband. My Mum covered the dangerous fact that she had almost got cancer for more than one year. My boyfriend and now my husband took all the pressure of finishing and defending his PhD without me being around. I missed the last chance to see my grandma in my second year. I felt guilty to be ten-thousand miles away from them while they gave me never-ending support, emotionally, financially and in all the other perspectives.

Contents

Chapter 1 Introduction and Thesis Outline

1.1 The Debate between Talmy and Slobin

Motion is one of a human being's basic activities and so it is an essential part of human experience. Motion events are regarded as basic to conceptual structure in the localist hypothesis proposed by Gruber (1965) and developed in Jackendoff (1983). Talmy (1975, 1985, 1991, and 2000b) studies the lexicalisation$_{(T)}$ of motion events.[1] Talmy (2000b) proposes six basic semantic elements to describe motion events: Figure, Motion, Path, Ground, Manner, and Cause.[2] The surface elements which encode the Path information determine the typological classification of a given language. For example, in the sentence *He entered the room*, *enter* is the main verb and encodes Motion "move" and Path "into". So the main verb encodes the Path information. Such phenomena are very common in Romance languages such as Spanish. However, Path is usually expressed by satellites in English and in Chinese (satellite is a category of the surface elements following the main verb, such as the words in bold in *He went **below**, I climbed **on**,* and *He ran **by***(Talmy 2000b: 104)). The surface elements which encode the Path information determine a language's type. For example, the Path is encoded by main verbs in Spanish, then Spanish is a verb-framed language; and the Path is typically expressed by satellites in English, then English is a satellite-framed language. These are the two most widespread types of languages. According to Talmy, Chinese is also a satellite-framed language.

Since Talmy classified Chinese as a satellite-framed language, there have been lots of debates on the issue of the language type of Chinese (Slobin 2004; Chu 2006; Huang 2008; Luo 2008). Are Chinese and English, just as Talmy said, "entirely homologous"? (Talmy 1985: 106; 2000b: 109). I will show that they are not in respect of a historical account. Ancient classic Chinese is a verb-framed language. Modern Chinese is a satellite-framed

[1] The term "lexicalisation" will be used many times in my thesis. I am aware that "lexicalisation" is different in its diachronic sense and in its synchronic sense. Diachronically, lexicalisation refers to the process of new word formation. Synchronically, lexicalisation refers to Talmy's encoding of various semantic elements. In terms of my thesis, most of the cases of lexicalisation refer to the synchronic sense as I adopt Talmy's theoretical framework. Therefore, I mark out the diachronic sense of lexicalisation as lexicalisation$_{(D)}$ and the synchronic sense of lexicalisation, that is the one in Talmy's sense, as lexicalisation$_{(T)}$ throughout my thesis.

[2] In Talmy (2000b), the semantic components are marked with the first letter capitalized. In my work, I use the same format following Talmy to refer to semantic elements. For example, I use a captalized initial letter in "Path", "the Path information", "Path verb", "verb of Path', and "Path satellite". To distinguish from Talmy's semantic elememt of Path, I use different formats to represent the concepts I need. The term of "path" without initial capitalization stands for, not the semantic element, but the trajectories produced in motion events, that is, the various spatial relations between Figure and Ground in motion events. Please see Chapter 4 for more discussion on semantic elements of Path and Other Spatial Relation.

language. And the transforming from a verb-frame language to a satellite-framed language has not been completed. Thus, the current Chinese shows a mixed pattern between these two language types.

Slobin (1996, 1997, 2002, 2004, and 2006) has argued that languages with serial verb constructions (SVCs) actually belong to a third type, which he calls "equipollently-framed language". Slobin argues that Chinese is an equipollently-framed language because Chinese has serial verb constructions. In Slobin's analysis, ***feī chū*** (fly, exit; fly out) is an example of serial verb construction and he argues that ***feī*** (fly) and ***chū*** (exit) have "no division between finite and nonfinite forms as in 'standard' verb-framed languages" (Slobin 2004: 9) and that both parts share the same grammatical form or word category--verb. In the example, the first verb ***feī*** (fly) encodes the Manner information and the latter ***chū*** (exit) expresses the Path information. If either part is omitted, the expression cannot exactly describe the flying-out event. Therefore, Slobin adds the equipollently-framed language to Talmy's dichotomy model and uses SVCs as evidence for Chinese to be an equipollently-framed language.

I disagree with Slobin's typology of Chinese because: (1) the basic method Slobin used to illustrate his point is wrong. Slobin did not clearly investigate what a SVC is and it is not right to argue on the basis of just one SVC example (***feī chū***(fly, exit; fly out)). (2) In Slobin's example, the fact that neither the Manner information nor the Path information can be omitted in expressing the flying-out event does not automatically mean the equipollence of semantic elements encoded by verbs within SVCs. In most cases in my thesis, "equipollence" is used to refer to the semantically equal status of the elements and no syntactic equal status is to be attributed to the term "equipollence". This is different from Slobin's "equipollence", which also refers to the syntactic equal status of SVC components. (3) The surface categories of SVC components have a different status in the case of asymmetrical SVCs. Without a proper discussion of what a SVC is in Chinese, Slobin's equipollence is also unreliable.

On the first point, there are many different versions of the definition of SVCs (Aikhenvald 1999, 2006; Bisang 1995, 2009; Roberts 2009; Li & Thompson 1973, 1974, 1981; Ding et al 1961; Tao 2009; Yin 2007; Paul 2008 etc.). Across languages, a SVC is defined as "a sequence of verbs which act together as a single predicate, without any overt marker of coordination, subordination, or syntactic dependency of any sort" (Aikhenvald 2006:1). However, in a broader point of view (e.g., Tao 2009) Chinese SVCs include resultative compounds, descriptive clauses, co-verb constructions and even subordinating clauses. According to Aikhenvald's definition of SVCs, Tao's (2009) broader category of SVCs is

possible. But if Tao's SVCs are tested against Bisang's (2009) and Roberts' (2009) SVC criteria, such as single event, monoclausality, and non coreferential pronouns, not every sub-type of Tao's SVCs will fit into the category of SVCs.

Slobin (2004) does not give a clear definition of SVCs or clearly analyse Chinese SVCs and there is only the example of ***feī chū*** (fly, exit; fly out) with two "equipollent" verbs encoding Manner and Path. It is right that when used separately these two verbs are full verbs but when they are part of a SVC, there are arbitrary constraints on them to express a single complex event of flying out. For example, in Chinese SVCs, Manner always needs to be encoded by verbs occurring in the first verb place with Path (non-Deictic and Deictic in order) following. This Manner-Path string cannot be explained and is proved to be an arbitrary syntactic fact in my thesis. Thus, the SVC components are not equipollent and Slobin is wrong in Chinese language type.

On the second point, the necessity of involving two semantic elements to express an event does not automatically show that the SVC components share equal status.[3] Slobin (2004) notices that a single SVC can have a verb expressing Manner and a second verb expressing Path but this is not enough for equipollence because all it shows is that Chinese has Path encoded by verbs in SVCs. If the semantic elements encoded by SVC verbs share equal status, then the semantic elements should occur freely within SVCs. That is, verbs encoding various semantic elements should be able to occur either in the first slot or in the second slot within SVCs. My account of Chinese SVCs' semantic co-occurring patterns in Chapter 6 clearly shows that whether a semantic element can occur in a position in SVCs is an arbitrary syntactic fact and thus provides evidence to reject the free occurrence hypothesis and Slobin's equipollence analysis of semantic elements.

On the third point, Aikhenvald (2006) and Vittrant (2012) proposed that SVCs can be sub-divided into two main types: symmetrical SVCs and asymmetrical SVCs. The symmetrical SVCs are composed by verbs all from the open class of verbs while the asymmetrical SVCs have at least one component from a closed class of verbs. Please see detailed discussion and examples of symmetrical SVCs and asymmetrical SVCs in Section 6.6. There is the tendency for symmetrical SVCs to be lexicalised$_{(D)}$ as compounds while the component from

[3] In Slobin (2004), "equal grammatical status" is used regarding the equal surface categories. That is, the Path information and the Manner information are both encoded by verbs in Chinese SVCs. Other researchers (Baker 1989 & 1991) explored the syntactic relations between the elements in SVCs. In my thesis, I use "grammatical status" to specifically refer to the semantic relation between elements in SVCs. If I need "grammatical status" to refer to the syntactic relations between elements in SVCs, I will make it clear in the discussion. For example, in footnote 20 on page 158, I discuss the syntactic relations concerning elements in SVCs.

the closed class in asymmetrical SVCs tends to lose its original meaning and to be grammaticalized toindicateaspect of events.

SVCs are generally compositional structures, but they can become lexicalised$_{(D)}$, and their existence falls out of processes of grammaticalization. I will show that Slobin's example of *feī chū*(fly, exit; fly out) is an asymmetrical SVC with *chū* (fly) as a Path verb losing its property as a full verb. In a strict sense, *feī* (fly) comes from an open class of verbs while *chū*(exit) comes from the closed class of Path verbs.

Additionally, my data also shows that the serial verb construction has its own interpretive possibilities which coerce the particular meaning of its verb components. This further undermines Slobin's analysis because it should not be the case if verbs encoding various semantic elements can freely collocate in SVCs.

My thesis starts from the different opinions of Talmy and Slobin on the language type of Chinese and ends up with a historical account of modern Mandarin which argues that there is presently a mixed system of satellite-framed languages and verb-framed languages. Since Slobin's argument of Chinese being equipollently-framed relies on SVCs, I will discuss the SVCs in Chinese. The discussion of the thesis is thus concerned with SVCs and the language type of Chinese.

1.2 Thesis Outline

This thesis contains eight chapters. Chapter 1 is the introduction of the research background and the main arguments, and it also gives the outline of the thesis. Chapter 2 gives the literature review and raises the research questions. Chapter 3 presents the research methodology and the process of collecting data. Chapter 4 defines the semantic parameters I use in the following two chapters of data description (Chapter 5) and data analysis (Chapter 6). Chapter 7 is the analysis of the verbs of Path among Chinese, English and Spanish. Chapter 8 is the conclusion.

Chapter 2 Talmy's and Slobin's Typological Theory and Chinese SVCs

In Chapter 2, the typological theories proposed by Talmy and by Slobin are introduced in detail. The literature on SVCs is also discussed.

A lot of the literature (e.g. Chen 2007; Chen & Guo 2009, 2010; Guo & Chen 2009; Tai & Su 2013) follows Slobin to classify Chinese as an equipollently-framed language. Most of their research methods involve observing and calculating the frequency of semantic elements

such as Path and Manner expressed by verbs or by satellites in narrative novels, in spoken language or in sign languages.

The problem with this kind of research is that these scholars have not explored what "equipollent" must mean in the context of SVCs and then tested its analytical worth, especially for a language like Chinese which has Path verbs like *chū* (exit) and which has Path satellites such as *rù* (into) as well. On the one hand, verbs of Path in Chinese present the possibility of Chinese being a verb-framed language. If the source of Path verbs in Chinese cannot be explained, then Chinese might be a verb-framed language. Similar to English which has Path verbs originating from French such as *enter* and *exit*, Path verbs in Chinese result from a diachronic fact that ancient Chinese is a verb-framed language, which exclusively describes motion events with Path encoded by main verbs as illustrated by Li (1993) and Shi &Wu (2014). On the other hand, Path satellites provide another possibility for the Chinese typology.

Why does Talmy assert that Chinese is a satellite-framed language while Slobin proposes the equipollently-framed language to account for SVCs in Chinese? Do the semantic elements encoded by Chinese SVCs share equipollence?

As Slobin claims that Chinese SVCs are problematic for Talmy's typological model, in Chapter 2, I also present an analysis of Chinese SVCs so that we can explore Slobin's arguments and establish the issues involved in understanding the corpus studies of Chinese SVCs.

Chapter 3 Methodology and Data Collection

My research question follows from exploring Talmy's dichotomy in his language typology, and comparing it with Slobin's trichotomous approach. What kind of language type is Chinese? Since SVCs in Chinese are Slobin's evidence of Chinese being an equipollently-framed language and are the key point for the debate on Chinese language typology, I examine Chinese SVCs to see whether the semantic elements of SVCs really share equal grammatical status. To do this, firstly what is a SVC in Chinese? What are the semantic co-occurring patterns of Chinese SVCs? If the semantic elements encoded by SVC components are equal, they should be able to freely occur in either the first verb position or the second verb position of SVCs. To explore the semantic co-occurring patterns a number of Chinese SVCs and a set of semantic elements are needed so as to describe the co-occurring patterns. Thus, I used corpus methods to collect data in the third chapter and define a set of semantic parameters in Chapter 4 for the following analysis.

Chapter 4 Defining Semantic Parameters

This chapter begins the work of defining semantic parameters so as to provide the description in Chapter 5 and the analysis in Chapter 6 with primary basis.

Chapter 4 starts from lexical decomposition to illustrate that verbs can be decomposed into subevents in semantics. I also show that Talmy uses this method to analyse the complexity of verbs in motion events. Then following Talmy, I define 13 semantic parameters I use in my data analysis of both motion events and non-motion events. They are divided into two groups according to whether they are related to Talmy's semantic element of Path. The first group which is related to the notion of Path includes four parameters. They are Deictic, Direction, Location and Other Spatial Relation. The other nine parameters are in the second group. Examples of the 13 types of semantic parameters are given and the categories of parameters which can occur in event-1 and which can occur in event-2 and which can occur in both event-1 and event-2 are illustrated and summarised.

This chapter also discusses the relations between subevents within serial verb constructions. I found from the literature that there are two trends in defining the relations between events in SVCs. The first trend depends on the semantic relations between/ among events. The second one relies on the temporal relations between/ among events. In the literature, these two trends are mixed up with each other. In my analysis, there are various semantic co-occurring patterns composed by the 13 semantic parameters. And I agree with the temporal structure of Chinese SVCs thoroughly summarised by Hwang (2008). I found that the ordering of the events within SVCs follows the sequence of the real events in the actual world.

With the 13 semantic parameters, the semantic co-occurring patterns of Chinese SVCs are described and discussed in Chapter 5 and Chapter 6.

Chapter 5 Semantic Co-occurring Patterns of Chinese SVCs

This chapter presents my analysis of the data. In this chapter, by using the 13 semantic parameters defined and diagnosed in Chapter 4, the semantic co-occurring patterns are first presented in groups of motion events and non-motion events and then comparison is made between these two groups. Constraints on semantic parameters for example, which ones can be encoded in the position of verb-1 and which ones can be encoded in the position of verb-2 or which ones can be encoded in both verb-1 and verb-2 positions are discussed in detail.

Slobin (2004) says that serial verb constructions in Chinese such as *fēi chū* (fly exit; fly out) include two verbs. Both verbs are necessary to express a holistic meaning of 'fly out', that is, both verbs are equally important in encoding the 'Manner + Path'.[4] And in this sense, Chinese is an equipollently-framed language. If Slobin is right, the two semantic elements within SVCs should be able to exchange their occurring positions without affecting the meaning of SVCs. Or more exactly, a symmetrical semantic co-occurring pattern is expected to be found in Chinese SVCs. Take 'Manner + Path' as an example; its symmetrical pattern is 'Path + Manner'. However, I have not found any pattern of 'Path + Manner' in my data. I found other constraints which do not allow certain semantic components to occur in either the first verb position or the second verb position.

Chapter 6 Discussion of the Non-occurring Patterns

This chapter focuses on the explanation of the data discussed in Chapter 5, especially of the semantic patterns of SVCs which are not found in my data. The Principle of Temporal Sequence (PTS) accounts for 70 non-occurring semantic patterns. But there are patterns of arbitrary restrictions which cannot be accounted for by the PTS.

The 47 unrealised semantic patterns left are composed of shared elements observed in Chapter 5. That is, semantic elements of the 47 semantic patterns have the ability to occur in either verb-1 or verb-2 in SVCs. Theoretically, they should be found but as a matter of fact I did not find any.

For the 47 unexplained patterns, I try to explain everything as far as possible so that if anything is left unexplained, this provides strong evidence that Slobin is wrong. I first assume that Slobin's point of view is right and that each semantic element has equal status and can freely occur in any position within SVCs. And then on the basis of equal semantic elements, the semantic co-occurring patterns should be able to be paired as in the matching semantic patterns of 'X + Y' and 'Y + X', such as 'Manner + Path' and 'Path + Manner'. I found 30 paired patterns of 'Y + X' do not occur due to the PTS and 4 patterns; that is two pairs of 'X + Y' and 'Y + X', are not realised by SVCs. These 34 'X + Y' patterns do not undermine Slobin's argument but I also found 6 split pairs with 'Y + X' realised by Chinese SVCs while 'X + Y' is not and 7 patterns which cannot be explained. The pair of 'Manner + Path (Deictic and Other Spatial Relation)' and the 'Path (Deictic and Other Spatial Relation)

[4] Semantic co-occurring patterns are ordered. For example, 'Manner + Path' means that the first verb encoding event-1 expressing the Manner information and that the second verb encoding event-2 expressing Path.

+ Manner' is one of the 7 examples. This overturns the equipollence assumption and further undermines Slobin's typological classification of Chinese.

By introducing the concept of the subtypes of SVCs—the symmetrical SVCs and the asymmetrical SVCs, I also illustrate that the SVC components do not enjoy an equal status in a strict sense of the same class of verbs.

Chapter 7 Path Verbs in Chinese

In Chapter 6, when investigating the asymmetrical SVCs in Chinese, semantic elements such as Deictic and Other Spatial Relation show a tendency to be grammaticalized. According to the behaviour of Path verbs in Turkish (a verb-framed language), Özçalişkan (2004) argues that Path verbs (including verbs of Deictic, verbs of Other Spatial Relation, verbs of Direction, and verbs of Location) are a closed class. I discuss whether Chinese verbs encoding Path and Motion form a small closed class and conclude that they do.

Returning to Talmy, Path is the core schema of a motion event but it is the surface element encoding Path which decides whether a language is a verb-framed language or a satellite-framed language. If Path is encoded by a main verb, then this kind of language is a verb-framed language; if Path is encoded by a satellite, then this kind of language is a satellite-framed language. As I observe in Chinese SVCs, the Path information is indeed encoded by a verb. What does the mismatch here mean?

In addition, the following chapters will show that Slobin is not right in his claim that Chinese is an equipollently-framed language. Then the question arises whether Talmy is right in his claim that Chinese, like English, is a satellite-framed language. Since Talmy classifies them under the same language type, what are the differences and similarities between Chinese and English, especially in the encoders of the core schema of motion events—Path verbs? Or does Chinese share more properties with verb-framed languages? Thus, a comparison of English Path verbs and Chinese Path verbs is needed for a clear picture of the differences and similarities between these two languages. Verbs encoding the semantic element of Path and Motion in English and in Chinese are discussed in this chapter.

Using former researchers' classification standards of Path, I go back to Talmy's study of motion events and apply Talmy's method of decomposing verb roots onto the identification of Chinese Path verbs. As a result, this chapter presents a comprehensive list of Path verbs in Chinese and then I compare these Path verbs with those in English and in Spanish.

Despite the number discrepancy, the subtypes of Path encoded by verbs are the same among these languages. No significant difference in the distribution of Chinese Path verbs, English Path verbs, and Spanish Path verbs in the 13 subtypes of Path is indicated.

Chapter 8 Conclusion

Having looked at the properties of Chinese SVCs, the semantic co-occurring patterns of Chinese SVCs, and the comparison of Path verbs in Chinese, in English and in Spanish, I claim that it is not necessary to add a third language typology particularly for Chinese. English and modern Chinese belong to the same language type with Chinese showing some verb-framed language features inherited from ancient classic Chinese.

In the diachronic study of Chinese verbs, Li (1993), Shi & Wu (2014), and Huang (2008) conclude that ancient Chinese is a verb-framed language and that modern Chinese is in a transition period from a verb-framed language to a satellite-framed language. I support this opinion rather than studies carried out in the way of Slobin's (e.g. Berman & Slobin 1994; Ibarretxe-Antuñano 2003, 2004a, 2004b, 2006; Brown & Chen 2013). Even though Chinese has Path verbs which can be a main verb of a sentence, modern Chinese is not a verb-framed language any more. Asymmetrical SVCs in Chinese show that the second verbs within SVCs are in the process of being grammaticalized. These closed sets of verbs are gradually losing their properties as full verbs. Even though the language habit of using Path verbs as main verbs or more exactly, the phenomenon of some Path verbs acting as independent full verbs in particular contexts can linger on for quite a long time, the phenomenon of Path encoded by satellites in SVCs also co-exists. This illustrates that Chinese is in the transition from the verb-framed language to a satellite-framed language.

Chapter 2 Talmy's and Slobin's Typological Theory and Chinese SVCs

2.1 Introduction

Within a typological approach to verb meaning, three main classes of language have been identified: verb-framed languages, satellite-framed languages, and equipollently-framed languages. The first two categories were initially introduced by Talmy (1975, 1985, 1991, and 2000b) with the category of equipollently-framed languages introduced by Slobin (1996, 1997, 2002, 2004, and 2006). These classes of language relate to how language expresses motion events, especially how they express the Path. The research finding is that there is a typological dimension to the analysis of lexical semantics. Although human beings must have essentially the same embodied experiences, different languages chop up these experiences in different ways.

This chapter has two main parts, the first being Section 2.2 to 2.5, and the second Section 2.6.

In Section 2.2 to Section 2.4, I briefly introduce Talmy's binary model of language typology and Slobin's three-part model. The three different language categories are also compared and evaluated. Based on the advantages and disadvantages of each language typological classification, questions are posed.More specifically, Section 2.2 shows how Talmy builds his typology from the observation of lexicalisation$_{(T)}$ of verb roots in motion events. Section 2.3 introduces Slobin's argument on the equipollently-framed typology. Section 2.4 identifies the problems in these two sets of language typologies. Section 2.5 is the summary of Section 2.2 - 2.4.

Section 2.6 firstly introduces the probable earliest study of SVCs in Mandarin by Li and Thompson (1981)and then discusses the definition, design features and diagnostics of "real"/ true SVCs according to Bisang's and Roberts' summaries of the properties of SVCs. I tested the four types of SVCs identified by Li and Thompson against Bisang's and Roberts' more restrictive criteria and found that only Type 1.1 and Type 3 are true SVCs. The two sets of SVC criteria gave me the same set of data. In Section 2.6.3, I compare the SVCs with English control constructions and found that control construction in English is not SVC. I also examine the SVCs found by Roberts in this section and found that there are two problems with these SVCs.

2.2 Talmy's Typology Model

Talmy proposes that there are different semantic elements which map with different surface elements in a many-to-many meaning and form mapping. The basic semantic elements in

motion events are Motion, Path, Figure, Ground, Manner, and Cause. The surface elements are verb, adposition, subordinate clause, and what Talmy calls "satellite" (Talmy 2000b: 21). Instead of a one-to-one mapping relationship, Talmy finds that one surface element usually encodes more than one semantic element and one semantic element tends to be expressed by different surface elements in different languages. The difference between a verb-framed language and a satellite-framed language is caused by Path being encoded by different surface elements in different languages. When Path is encoded characteristically by main verbs in sentences expressing motion events in a language, then these kinds of languages are verb-framed languages. If most of the Path information is encoded by satellites in another language, then this kind of language is a satellite-framed language.

The possible semantic combinations are determined by word meanings. Take English motion events as an example. In motion events, the semantic combinations, or conflations in Talmy's term, are Motion and Path in ***enter***, Motion and Figure in ***rain***, Motion and Manner in ***run***, Motion and Cause in ***blow*** as in example (2.5), Motion and Enablement as in ***grab*** in example (2.4), Path and Ground lexicalised$_{(T)}$ by ***home*** in ***she drove home*** and so on. There are also semantic combinations lexicalising$_{(T)}$ three semantic elements. For example, the verb ***box*** in English lexicalises$_{(T)}$ Motion, Path, and Ground (Talmy 2000b: 62), and Motion, Manner, and Path are lexicalised$_{(T)}$ in intermediate verbs in Spanish and in Chinese as illustrated in Section 7.3.3.

2.2.1 Path and Satellite

Before talking about the three main typological categories of motion verbs, some core terms are explained. The object at issue in the motion is Figure, whether it is moving or keeps static. Meanwhile, the object or environment which is treated as the reference background is defined as Ground. The motion event itself will involve Motion; being located statically is also included. In addition, Path refers to both the trace of motion and the location of staying static. Path is the core schema of motion events because any kind of motion event involves different types of paths/trajectories.

According to Talmy (2000b), there are three major components of Path. They are Vector, Conformation, and Deictic. "The Vector comprises the basic types of arrival, traversal, and departure that a Figural schema can execute with respect to a Ground schema"(Talmy 2000b: 53). According to Talmy (2000b: 53), the fundamental Figural schema always refers to a point; the fundamental Ground schema refers to a member of a very small set that follows the Vector. These Vectors can be expressed in the form of Motion-aspect formulas, such as "A point BE_{LOC} AT a point, for a bounded extent of time" for the sentence***the napkin lay on***

the bed for three hours(Talmy 2000b: 53). In the formula, AT represents the Vector which in Talmy's list includes: AT, TO, FROM, VIA, ALONG, TOWARD, AWAY-FROM, ALENGTH, FROM-TO, ALONG-TO, MOVE FROM-ALONG.

"The Conformation component of the Path is a geometric complex that relates the fundamental Ground schematic within a Motion-aspect formula to the schema for a full Ground object" (Talmy 2000b: 54). Talmy concentrates on two kinds of Conformation—inside and surface. To illustrate this point, several examples with the fundamental Ground (a point) are given.

(2.1) a. AT a point which is of the inside of [an enclosure] = in [an enclosure]
AT a point which is of the surface of [a volume] = on [a volume]
b. TO a point which is of the inside of [an enclosure] = in (to) [an enclosure]
TO a point which is of the surface of [a volume] = on (to) [a volume]
c. FROM a point which is of the inside of [an enclosure] = out of [an enclosure]
FROM a point which is of the surface of [a volume] = off (of) [a volume]
(Talmy 2000b: 55 (32))

In examples (2.1), the full Ground is indicated within brackets such as "an enclosure" and "a volume". An example for an enclosure is a box and an example for a volume is a bed. Combined with Vectors such as AT, TO and From, Conformations such as surface and inside, the full Ground objects are given.

Specificexamples on the combination of Conformation and Vector are shown below. They are examples from Talmy's (2000b: 55 example (33)).

(2.2) a. Conformation 'inside' with Vectors AT, TO and FROM
i. A point BE_{LOC} AT a point which is of the inside of an enclosure for a bounded extent of time.
The ball was in the box for three hours.
ii. A point MOVE TO a point which is of the inside of an enclosure at a point of time.
The ball rolled into the box at exactly 3:05.
iii. A point MOVE FROM a point which is of the inside of an enclosure at a point of time.
The ball rolled out of the box at exactly 3:05.
b. Conformation 'surface' with Vectors AT, TO and FROM
i. A point BE_{LOC} AT a point which is of the surface of a volume for a bounded extent of time.

The napkin lay on the bed for three hours.

ii. A point MOVE TO a point which is of the surface of a volume at a point of time.

The napkin blew onto the bed at exactly 3:05.

iii. A point MOVE FROM a point which is of the surface of a volume at a point of time.

The napkin blew off the bed at exactly 3:05.

As for the Deictic component, it usually has "two member notions 'toward the speaker' and 'in a direction other than toward the speaker'" (Talmy 2000b: 56). The Deictic component can be seen in Path verbs, such as *come* and *go*.

Having reviewed components of Path, we can get the basic concept of Path verb—a type of motion verb expressing the information of Path in addition to Motion. For example, verbs incorporate Fact-of-Motion, Vector, andConformation information, such as the English verb *enter*. In English, *enter the classroom* can be alternativelyexpressed as *go into the classroom*. This decomposition of *enter the classroom* clearly shows that the English verb *enter* conflates two semantic elements—the Motion expressed by *go* and the Path expressed by *into* in *go into the classroom*. Therefore, verbs that encode any Path component or any combination of Path belong to the category of Path verbs.

Another new term used by Talmy is satellite and I discuss it here.The definition of satellite given by Talmy is that "it is the grammatical category of any constituent other than a noun-phrase or preposition-phrase complement that is in a sister relation to the verb root. It relates to the verb root as a dependent to a head"(Talmy 2000b: 102). Then Talmy lists the usual forms of satellite. It can be a bound affix or a free word. It can be English verb particles, German separable and inseparable verb prefixes, Latin or Russian verb prefixes, Chinese verb complements, and so on. In English, satellites mostly overlap with prepositions. In Chinese, satellites largely overlap with verb complements. For example, *zǒu* (away) in *fēi zǒu* (fly away (from…) is a satellite. When used independently *zǒu* (walk) is a verb but when used with another verb such as in *fēi zǒu* (fly away (from…), *zǒu* (walk) loses its meaning of walking but functions as a complement in meaning to further indicate the direction of the flying. There are more examples of satellites which expresses Path in Chinese given by Talmy (2000b: 109) and I discuss them in Section 7.5.3.

2.2.2 Three Typological Types for Motion Verbs

On the basis of the many-to-many mapping relations between semantic elements and surface elements, Talmy summarises three main typological categories for motion events according

to which semantic elements are encoded by verb roots.[5] Verb roots usually lexicalise$_{(T)}$ three types of semantic combination and they are [Motion + Co-event], [Motion + Path], and [Motion + Figure].[6] They are exemplified below and summarised in Table 2.1. I also show how Talmy develops his dichotomy based on the observations of verb root lexicalisation$_{(T)}$ patterns and semantic elements encoded by satellites across languages.

[Motion + Co-event]

The first typological pattern uses verb roots to encode a motion event and a co-event. There are various relations between the motion event and the co-event such as Precursion relation, Enablement relation, Cause relation, Manner relation, Concomitance relation, Subsequence relation and so on. The examples below illustrate the various relations. Examples (2.3) – (2.9) come from Talmy (2000b: 42-49) with small changes and I draw on Talmy's explanation in my summaries of what the different categories and relations mean.

The Precursion relation refers to the situation where the co-event precedes the motion event but does not cause or assist its occurrence. Example (2.3) shows the Precursion relation. It is not necessary for the glass to become splintered so as to fall onto the carpet. So the motion of moving onto the carpet is not caused by the splintering of the glass. The Precursion co-event must happen before the moving event and the two events become an integrated whole, because in understanding the example in (2.3), the glass must be splintered first and then is moved onto the carpet as pieces, not that one deliberately breaks the glass into pieces first and then scatters the pieces onto the carpet. Naturally, a/the co-event is "conceptually associated with it (the motion event) as part of a single activity" (Talmy 2000: 43).

(2.3) Precursion

Glass splintered onto the carpet.

[glass MOVED onto the carpet] WITH-THE-PRECURSION-OF [the glass splintered][7](Talmy 2000b: 42 (27a))

In the Enablement relation, the co-event happens just before the motion event and enables the occurrence of another event which causes the main motion event to happen. In example

[5] Talmy uses 'verb roots' to refer to verbs without affixes.

[6] Talmy uses the term of 'conflate' and 'conflation' as an alternative term for 'lexicalise' and 'lexicalisation' with subtle differences. I use them as equivalent terms in this thesis. I also use brackets [X + Y] to show the lexicalisation$_{(T)}$ patterns of verbs and single quotation marks 'X + Y' to present the semantic co-occurring patterns of SVCs. Note that [X + Y] has no order while 'X + Y' are ranked in order.

[7] Following Talmy's rule, capitalization is used to denote concepts of motion like MOVE and the relation between motion event and co-event such as WITH THE PRECURSION OF.

(2.4), the reaching or the grabbing of that bottle is the precondition for the motion event of moving the bottle down off the shelf.

(2.4) Enablement

Could you reach/grab that bottle down off the shelf?

[could you MOVE that bottle down off the shelf] WITH-THE-ENABLEMENT-OF [you reach to/ grab the bottle] (Talmy 2000b: 44 (27b))

It is obvious that the Cause relation deals with co-events which cause the motion event. And it is further divided into two types according to the temporal relation between the motion event and the co-event. If the co-event happens before the main motion event then it is the case of onset causation; if the co-event co-occurs with the motion event then it belongs to the extended causation.In example (2.5a), there is a clear temporal sequence of the wind blowing first and then the tent being blown down. So (2.5a) encodes an onset causation co-event. Compared with (2.5a), the motion event and the co-event happen simultaneously in (2.5b) so it belongs to the extended causation relation type.

(2.5) Cause

a. onset causation

Our tent blew down into the gully from a gust of wind.

[our tent MOVED down into the gully] WITH-THE-ONSET-CAUSE-OF [a gust of wind blew on the tent].

b. extended causation

I squeezed the toothpaste out of the tube.

[I MOVED the toothpaste out of the tube] WITH-THE-EXTENDED-CAUSE-OF [I squeezed on the toothpaste/tube] (Talmy 2000b: 45 (27d))

The co-event of Manner describes in details the motion that the Figure of the motion event exhibits. The co-event in Manner relation co-occurs and pertains to the motion event but is also different from it. Example (2.6a) shows that the co-event of a self-contained motion (bouncing) combines with the Figure's translational motion (rolling down the hall) to describe a complex motion while in (2.6b) the co-event of crawling cannot be separated from the transformational motion event of the Figure.

(2.6) Manner

a. The ball rolled down a hall.

[the ball MOVED down a hall] WITH-THE-MANNER-OF [the ball rolled]

b. The baby crawled across the floor.

[the baby MOVED across the floor] WITH-THE-MANNER-OF [the baby crawled] (Talmy 2000b: 45)

The Concomitance relation is similar to the Manner one in two points. Both types of relationshave co-events co-occurring with the motion event and both types of relationshave co-events which are the additional activities of the Figure. However, co-events of Concomitance relation do not pertain to the main motion event and they can occur independently. In example (2.7), the Figure could wear another dress rather than the green one to go to the party.

(2.7) Concomitance

She wore a green dress to the party.

[she WENT to the party] WITH-THE-CONCOMITANCE-OF [she wore a green dress] (Talmy 2000b: 46 (27f))

Finally, there is the Subsequence relation. This Subsequent co-event takes place after the motion event. The Subsequence relation includes the Consequence and the Purpose subtypes. Example (2.8) refers to the Purpose subtype.

(2.8) Subsequence/Purpose

I'll look in at the stew cooking on the stove.

[I will GO in (to the kitchen)] WITH-THE-SUBSEQUENCE-OF [I will look at the stew cooking on the stove] (Talmy 2000b: 47 (27h))

Except for singlerelations between motion events and co-events, there are also examples with co-eventswhich are linked by multiple relations. Like in (2.9) below, this sentence contains a triple-activity event.

(2.9) The prisoner tapped out a message along the water pipes to his confederate.

[the prisoner SENT a message to his confederate] WITH-THE-MANNER-OF [the prisoner MOVED the message along the water pipes] WITH-THE-ENABLEMENT-OF [the prisoner FORMED the message (out)] WITH-THE-CAUSE-OF [the prisoner tapped on the water pipes] (Talmy 2000b: 48 (28b))

Figure 2.1 gives a summary of the relations between motion event and co-event. The specific relation type depends on the semantic meaning encoded by verbs and the temporal sequence between the two events. In Figure 2.1, the first pair of brackets in the first line includes the basic semantic elements constructing a motion event and the second pair of brackets stands

for the co-event. Under the label of "Relation", the various relations connecting the motion event and the co-event are listed. The straight lines connecting the motion event and the co-event stand for the lexicalisation$_{(T)}$ patterns of verb roots. One end of these lines is verb root and the other end is the component lexicalised$_{(T)}$/encoded by the verb root. In the case of Figure 2.1, it shows a verb root encoding Motion and Co-event which are connected by the relation of Precursion, Enablement, Cause, Manner, Concomitance, Subsequence, and so on.

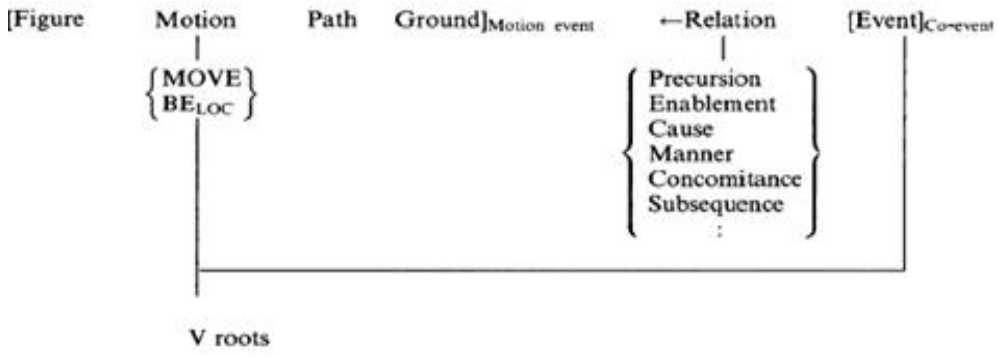


Figure 2.1 Co-event Conflated in the Motion Verb(Talmy 2000b: 28)

As we will see below, the conflation pattern of [Motion + Co-event] encoded by verbs always goes with satellites encoding Path in a satellite-framed language. And the [Motion + Path] pattern encoded by verbs, which I am going to discuss, clearly defines the verb-framed languages.

[Motion + Path]

The second typological pattern for expressing motion events is verb root encoding Motion and Path (that is, Path verbs). If Manner, Cause and other semantic elements also need to be expressed with Path verbs in the same sentence, they have to be expressed bygerundives or adverbial constituents. The languages and language families of this type include Romance, Semitic, Japanese, Korean, Turkish, Tamil, Polynesian, Nec Perce, and Caddo (Talmy 2000b: 49). Of them, Spanish is the typical example. Spanish sentences are compared with English ones as below.

(2.10) Spanish expressions of Motion (nonagentive) with conflation of Path

La botella	entró	a	la	cueva (flatando).
the bottle	MOVED-in	to	the	cave (floating)

'The bottle floated into the cave.' (Talmy 2000b: 50 Example (29))

In the example, the Spanish verb *entró* conflates the [Motion (move) + Path (in)] while the Manner information is expressed by the gerundive—*flotando*. By contrast, English follows the pattern of [Motion + Co-event]. The verb ***float***in the English glossing encodes [Motion (move) + Manner (buoyancy)]'. Therefore, English does not appear in the list of "Motion + Path" in Table 2.1 below. In fact, English has a series of Path verbs, such as *enter*, *exit*, *ascend*, *descend*, *cross*, *pass*, *circle*, *advance*, *proceed*, *approach*, *arrive*, *depart*, *return* and so on, but they are a small type in number and many of the verbs have originated from Romance languages. So English is not one of the [Motion + Path] languages, that is, it is not a verb-framed language.

The process of analysing verb roots encoding Motion and Path is shown in Figure 2.2 where co-events in various relations with the motion event are encoded by other surface elements rather than verb roots. Difference from those in Figure 2.1, verb roots in Figure 2.2 encode Motion and Path rather than Motion and Co-event.

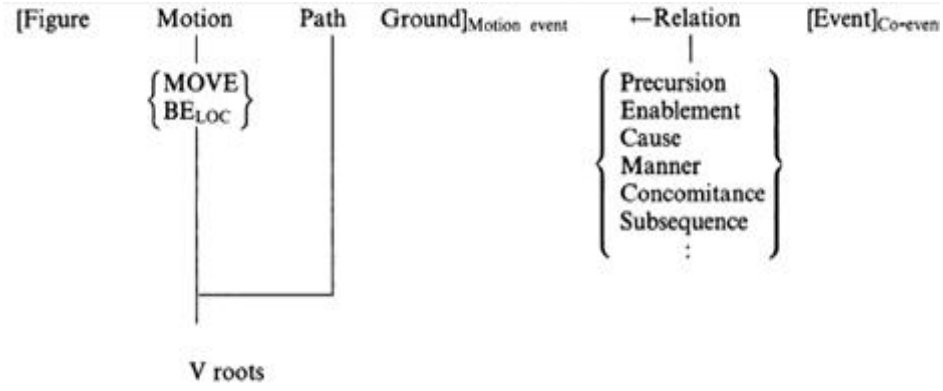


Figure 2.2 Path Conflated in the Motion Verb(Talmy 2000b: 49)

[Motion + Figure]

The third major type of expressing motion events is verb root encoding[Motion + Figure]. Obviously, the verb root of this type conflates the Motion information and the Figure information. Languages in this category usually have a considerable number of verbs that describe various Figures as moving or being located. Such as in Atsugewi, a Hokan language of northern California, *-lup-* is a verb root. It means "for a small shiny spherical object (e.g., a round candy, an eyeball, a hailstone) to move/be-located" (Talmy 2000b: 58 (35)). So Motion and Figure are encoded by the verb root ***-lup-*** in Atsugewi.

Figure 2.3 shows verb roots encoding Motion and Figure. Talmy illustrates that other semantic elements such as Path, Ground and Cause can be encoded by satellites in Atsugewi

when he talks about satellites (2000b: 110 – 111 (108)). Different from Figure 2.1 and 2.2, the verb root in this figure encodes Figure and Motion.

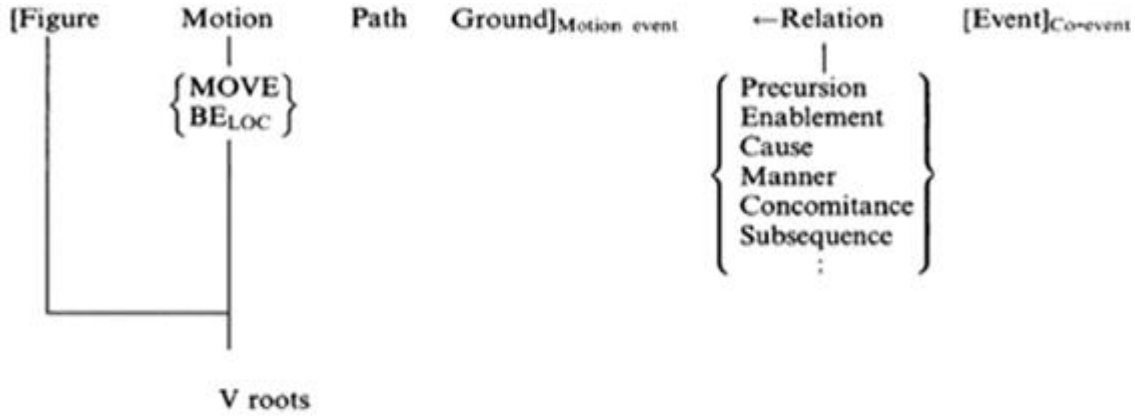


Figure 2.3 Figure Conflated in the Motion Verb(Talmy 2000b: 57)

So motion verbs can encode Motion with Co-event, or Path, or Figure separately and according to different encoding models of verb roots, Talmy classifies languages under three groups as summarised in Table 2.1. Note that there are other encoding patterns. It is possible for every semantic element to combine with another one or more. The upper limit on the combination number may be different in different languages. But the other conflation patterns are not as commonly / characteristically-represented as the three types of [Motion + Path], [Motion + Co-event], and [Motion + Figure] in Talmy's sense.That is, "in most cases, a language uses only one of these types for the verb in its most characteristic expression of Motion. Here, 'characteristic' means that (1) it is colloquial in style, rather than literary, stilted, and so on; (2) it is frequent in occurrence in speech, rather than only occasional; (3) it is pervasive, rather than limited—that is, a wider range of semantic notions are expressed in this type" (Talmy 2000b: 27).

Table 2.1 Three Main Typological Categories for Motion Verbs(Talmy 2000b: 60)

Language/language family	The particular components of a Motion event characteristically represented in the verb root
Romance Semitic Polynesian Nez Perce Caddo Japanese Korean	Motion + Path
Indo-European (not Romance) Chinese Finno-Ugric Ojibwa Warlpiri	Motion + Co-event
Atsugewi (and apparently most northern Hokan) Navaho	Motion + Figure

In Table 2.1, languages are divided into three major groups according to which semantic elements are particularly and characteristically encoded by the verb roots. Table 2.1 shows that English (Indo-European not Romance) and Chinese have their verbs encoding Motion and Co-event and that verb roots in Romance have the lexicalisation$_{(T)}$ pattern of [Motion + Path] and that verbs encoding [Motion + Figure] have relatively few examples of languages.

Then Talmy extends his studies from verb roots to satellites whose syntactic slot isaround (either before or after) the main verb in sentences. He finds that there is no satellite in the [Motion + Path] verb root type.Or satellites usually encode other semantic components such as Manner or Ground in languages with this type of verb roots. Based on the observation of these points, the first language group identified in Table 2.1 is further divided into three sub-groups labelled as A. B. and C. in Table 2.2. Talmy also finds that in languages where[Motion + Co-event]is encoded by main verbs, satellites usually encode the Path information such as in *he ran across the road*. The main verb *run* encodesMotion and the co-event of Manner.And satellite *across*encodes the Path. For languages with verb roots mainly encoding [Motion + Figure], satellites are observed to usually encode Path and Ground and Cause.

After observing what is encoded by verb roots and by satellites in different languages, a complementary observation based on how selected components of motion events can be

encoded by surface elements is also done by Talmy. And Talmy (2000b: 117) finds that "Path is the typologically most diagnostic component to follow". Thus, languages in Table 2.2 are summarised into two major groups, according to which surface element encodes Path. If the verb root encodes Path then this kind of language is a verb-framed language. If Path is encoded by satellites, then this kind of language is a satellite-framed language. Therefore, languages marked as A, B, C of the first language group in Table 2.2 are verb-framed languages while the other two groups are satellite-framed languages. This is Talmy's dichotomy of languages. According to this, English and Chinese are satellite-framed languages.

Table 2.2 Typology of Motion Verbs and their Satellites(Talmy 2000b: 117)

	The particular components of a Motion event characteristically represented in the:	
Language/language family	Verb root	Satellite
A. Romance Semitic Polynesian	Motion + Path	A. ∅
B. Nez Perce		B. Manner
C. Caddo		C. (Figure/)Ground [Patient]
Indo-European (not Romance) Chinese	Motion + Co-event	Path
Atsugewi (most northern Hokan)	Motion + Figure	Path + Ground and Cause

In summary,from the mapping between surface elements and semantic elements, Talmy observes first how selected surface elements (verb root) can encode semantic elements and finds that verb roots usually encode three types of semantic combinations; and then in the observation of how selected semantic elements can be encoded by surface elements, Talmy finds that following which surface element encodes Path, languages can be further divided into two major types of verb-framed languages and satellite-framed languages. A verb-framed language is the sort of language where the Path information tends to be expressed by the main verb in a sentence while other semantic information like Manner, Figure or Ground is expressed by other surface elements either before or after the main verb or is not expressed at all. Across languages, Spanish is identified as a typical verb-framed language. Satellite-framed languagesare such kind of languages in which the Path information is packaged in satellite and the main verb in the sentence encodes Motion plus other semantic meaning such

as Figure in Atsugewi or Co-event (Manner, Cause, etc.) in Chinese. The typical example of a satellite-framed language is English.

2.3 Slobin's Typology Model

Slobin introduces the additional category of an equipollently-framed language. According to Slobin, this kind of language has the following properties: the Path and the Manner are expressed by equivalent grammatical forms, such as in ***feī chū***(fly, exit; fly out) in Chinese where both Manner and Path are expressed by verbs (serial verb construction). The typical languages with SVCs are Mandarin Chinese and Thai.

The idea of the equipollently-framed language model comes from Slobin's observation of the linguistic data in an experiment of searching for a frog (Mayer 1969). In the experiment, there are a series of pictures containing several event episodes. Subjects are then required to describe the pictures. Slobin finds that in the Chinese group subjects frequently used the two-verb construction to describe the motion-involved scenes in the story. The verbal data casts light on Slobin's typological classification of languages. By analysing the data in detail, Slobin gets to the conclusion that serial verb languages, such as Chinese and Thai, should be classified into an independent group rather than being a sub-branch of the satellite-framed languages.

Slobin & Hoiting (1994) put languages which have serial verb constructions into the category of "complex verb-framed languages". "'Verb-framed' because Path is encoded by an independent verb ***chū***, and 'complex' because the serialverb construction functions as a sort of compound main verb in a clause with no division between finite and nonfinite forms as 'standard' verb-framed languages do, which require constructions such as 'exit flying'" (Slobin 2004: 9). However, Slobin (2004) rejects his early analysis and points out that serialverb languages cannot be put into the complex verb-framed category, either, because in verb-framed languages Manner verbs cannot occur freely within boundary-crossing events. In a verb-framed language, a Manner verb cannot be part of the main verb which is supposed to express Path unless the Path event does not cross the boundary. However, in motion events, changes of state are boundary-crossing. So it is obvious that ***feī chū*** involves a boundary-crossing state, which eliminates the possibility of Chinese belonging to the verb-framed language type. Thus, a serial-verb language cannot be said to pattern fully with verb-framed languages. The above reasons make Slobin classify Chinese as a new category, the equipollently-framed language. Under this language category, there are also three sub-categories. The revised language typology is shown as below.

- **Verb-framed language:** The preferred means of expressing path is a verb, with subordinate expression of manner. The typical construction type is PATH VERB + SUBORDINATE MANNER VERB: Romance, Semitic, Turkic, Basque, Japanese, Korean
- **Equipollently-framed language:** Path and manner are expressed by equivalent grammatical forms. The typical construction types, depending on language, are:
  - MANNER VERB + PATH VERB: serial-verb languages (Niger-Congo, Hmong- Mien, Sino-Tibetan, Tai-Kadai, Mon-Khmer, Austronesian)
  - [MANNER + PATH]$_{VERB}$: bipartite verb languages (Algonquian, Athabaskan, Hokan, Klamath-Takelman)
  - MANNER PREVERB + PATH PREVERB + VERB: Jaminjungan languages
- **Satellite framed-language:** The preferred means of expressing path is a nonverbal element associated with a verb. The typical construction type is MANNER VERB + PATH SATELLITE: Germanic, Slavic, Finno-Ugric

(Slobin 2004: 25)

This is Slobin's revised language typology. He proposes to include serial verb languages and "other types of languages in which both manner and path are expressed by 'equipollent' elements—that is, elements that are equal in formal linguistic terms, and appear to be equal in force or significance" (Slobin 2004: 9).

Slobin (2004) also refers to Zlatev& Yangklang (2004)and comments that the idea of a third typological category is their proposal. Zlatev & Yangklang (2004) use a constructional approach to observe the SVCs in Thai. They first classify several verb types such as Path verbs, Manner verbs, and MP verbs (Manner + Path verbs). Then the experiments designed by them are based on the observation of how these different types of verbs behave: a. how different verb types collocate with one another; b. how many Ground elements are there for different types of verbs. They argue that Thai is not a verb-framed language because Thai has properties of both a verb-framed language,because verb-framed languages are predicted to have fewer Ground elements expressed than satellite-framed languages according to Slobin (1997) and Thai has lower Ground specification than satellite-framed languages, and a satellite-framed language, because satellite-framed languages do not have the boundary-crossing constraint and Thai does not have this constraint. They conclude that Thai should be classified as a thirdtype of language.

I am not doing a quantitative or experimental study and more research is needed to answer whether Chinese has more Ground elements expressed in motion events than other satellite-framed languages. My data and Slobin's example of *fēi chū* (fly, exit; fly out) confirm that Chinese has the collocation of Manner verbs with boundary-crossing Path. Chinese has Path verbs but this is a property shared by many languages,includingEnglish. These facts cannot show that there is any reason not to regard Chinese as a satellite-framed language.

Zlatev & Yangklang (2004) support me on one of my observations of sequence constraint on SVCs. They conclude that verbs of motion in Thai occur following this sequence of Manner verb and then Non-Deictic-Path verb and finally optionally Deictic-Path verb. This constraint of occurring slots of semantic element is illustrated as arbitrary syntactic facts in Chapter 6, which provides evidence against the equipollence of SVC components.

2.4 The Core of the Debate

Section 2.2 gives Talmy's dichotomy of language typology and Section 2.3 shows Slobin's revised version of language typology. However, some problems exist in both Talmy's model and Slobin's model. Talmy classifies languages into two large categories by judging where the Path information is encoded while Slobin focuses more on the "equipollence" of surface elements: where the Path and the Manner information (and even the Ground information as shown in Slobin (1997) and Zlatev & Yangklang (2004)) are encoded.

The core of the debate is on the surface forms of the SVC example *feī chūlái* (fly, exit, come; fly out towards the speaker). In Talmy(2000b: 103 & 109),*chū* 'out' and *laí* 'hither' are both viewed as typical satellites in Chinese. However, in Slobin's analysis *feī chūlái*(fly, exit, come; fly out towards the speaker) is a serial-verb construction, and the Path information is expressed by verbs of *chū* and *lái*, which he asserts arefull verbs as they can occur as main verbs in clauses. What are the word classes of *chū* and *lái*? If it is what Talmy says (2000b: 103 & 109), a satellite, then Mandarin is a satellite-framed language; if it is what Slobin argues, a full lexical verb, then is Mandarin a verb-framed language or is it an equipollently-framed language with SVCs?

I agree with Talmy's view. My data discussed in chapters5 and 6 suggest that although some Chinese Path verbs exhibit the properties of full lexical verbs there is a tendency for Chinese Path verbs to become grammaticalized, such as *chū* (exit), *lái* (come), *qù* (go), and *qǐlái* (get up or start to do something).

Take*chū*as an example. It is no longer a full verb meaning ‘exit’ as it used to be in classic Chinese. It rarely occurs alone in a clause in moden Chinese and its occurrenceis usually accompanied by other words such as in the format of ‘verb + verb/satellite (+ verb/satellite)’ exemplified by *chū lái*(exit, come towards the speaker; come out towards the speaker), *feī chū* (fly, exit/out; fly out), *feī chū laí*(fly, exit/out, come/towards the speaker; fly out towards the speaker), and in the format of ‘verb + noun’ exemplified by *chū mén*(exit door), *chū yuàn*(exit hospital), *chū jiā*(exit home). Of the examples,the meaning of *chū mén*, *chū yuàn*, and *chū jiā*, has been entrenched to mean something metaphorical. *Chū mén* means leaving the home; *chū yuàn* leaving the hospital and getting healthy again; *chū jiā* becoming a nun or a monk. Therefore, as we can see *chū* is losing some of its verbal property and is in the process of becoming a satellite expressing Path. The change of *chū* implies that other Path verbs in Chinese like *laí* (come) and *qù* (go) may go under the same process. Then if some verbs are losing their verbal property and becoming satellites, this indicates that Mandarin Chinese is possibly at a certain stage of a diachronic changing from a verb-framed language to a satellite-framed language.

2.5 Summary

This section reviews core concepts in Talmy’s typology and compares the dichotomy model of language typology with Slobin’s revised model. Some questions are brought forward. These questions are centred on whether serial verb constructions exist in Chinese and whether the specific example of *feī chū*(fly, exit; fly out) Slobin uses to do his analysis isa serial verb construction. What makes the word class of *chū* (exit) and *laí* (come) so complex? In my work below, I discuss the criteria of SVCs and establish diagnostics for SVCs in Chinese. Through investigating the historical development of *chū* (exit) and *laí* (come), I identify the original word class of these two words and observe the diachronic changes of these words. The final word on the word class of similar words is determined by their lexicalisation$_{(D)}$ process. The lexicalisation$_{(D)}$ process of these words also shows the typological shift of Chinese.

Before investigating the details of SVCs, in the following sections, I discuss what a SVC is and what features it has in Chinese so as to collect the Chinese SVC data from a corpus and carry out further analysis.

2.6 Chinese Serial Verb Constructions

This section begins from a general definition of serial verb constructions and continues with a discussion of the criteria for defining SVCs. Then the criteria proposed by Bisang (2009)

and Roberts (2009) are used to test the four types of SVCs identified by Li and Thompson in Chinese. During the process, the two sets of criteria are refined and evaluated.

Section 2.6.1 introduces Li and Thompson's original analysis of Mandarin serial verb constructions. Section 2.6.2 consists of two sub-parts which test Li and Thompson's four types of SVCs first against Bisang's criteria and then against Roberts' criteria. In this way, (i) I establish whether the two sets of criteria identify the same data and (ii) I robustly identify a set of examples which are clearly SVCs. The final section shows that English control constructions are not SVCs and there are SVCs in English.

2.6.1 Li and Thompson's Original Analysis of SVCs in Mandarin

Li & Thompson (1973, 1974, and 1981) identify four types of SVCs in Chinese. Their research is one of the earliest focusing on the phenomenon of SVCs in Mandarin Chinese; however, further studies on SVCs show thatthere is literature which gives alternative and better analysis for some of the constructions Li and Thompson identify as SVCs. Both Bisang (2009) and Roberts (2009) have a more restrictive set of diagnostics for SVCs. In Section 2.6.2, Bisang's criteria are used to test the four types identified by Li and Thompson and in Section 2.6.3, Roberts' criteria are applied to do the test on the same data. I have found that not every type of serial verb construction identified by Li and Thompson istrue SVCs given Roberts' diagnostics.

The four types of SVCs proposed by Li and Thompson are listed and described below in this section.I quote examples from Li and Thompson (1981) and some examples are slightly revised for the sake of my native speaker's intuition.

Li & Thompson (1981: 594) describes SVC as referring to "a sentence that contains two or more verb phrases or clauses juxtaposed without any marker indicating what the relationship is between them". As we see below, this definition gives a basic description of SVCs and fails to show the other features of a SVC such as monoclausality, single event, shared argument, shared grammatical categories and so on. The four types are described one by one.

Type one

The first type is "two or more separate events… may be understood to be related in one or more of the following four ways" (Li & Thompson 1981: 595): consecutive, purpose, alternating, and circumstance; these four subtypes are analysed through the following examples and the possible readings are listed after each example marked with the relation label.

(2.11) Wǒmen kāi huì tǎolùn nèi -ge wèntí.
1PL hold meeting discuss that-CL problem
'We'll hold a meeting to discuss that problem.' (purpose)
'We'll discuss that problem holding a meeting.' (circumstance)

(2.12) Tā tiāntiān chàng gē xiě xìn.
3SG everyday sing song write letter
'Every day she sings songs and writes letters.' (consecutive/alternating)
(Li & Thompson 1981: 596-597)

Type two

The second type is "one verb phrase or clause is the subject or direct object of another verb" (Li & Thompson 1981: 598).

(2.13) Tā fǒurèn tā zuò cuò -le. (direct object)
3SG deny 3SG do wrongly -PERF
'He/she denies that he/she was wrong.'(Li & Thompson 1981: 598)

(2.14) Dàshēng niàn kèwén kěyǐ bāngzhù fāyīn. (subject)
Loud read lesson can help pronunciation
'Reading the lesson aloud can help one's pronunciation.' (Li & Thompson 1981: 603)

Type three

The third type is the so-called pivotal construction where "a noun phrase… is simultaneously the subject of the second verb and the direct object of the first verb" (Li & Thompson 1981: 607).

(2.15) Wǒ quàn tā xué yīxué.
1SG advise 3SG study medicine
'I advise him/her to study medicine.' (Li & Thompson 1981: 607)

Type four

The last type is the so-called descriptive clause construction which "which involves a transitive verb whose object is 'described' by a following clause" (Li & Thompson 1981: 611).

(2.16) Wǒ pèngdào-le yī-gè wàiguórén huì shuō zhōngguóhuà.
1SG meet -PERF 1-CL foreigner can speak Chinese
'I met a foreigner who can speak Chinese.'(Li & Thompson 1981: 611)

Summary

The four types are very self-evident in the format of "(NP) V (NP) (NP) V (NP)"but they are also very complex. In Type one, there are four ways to connect the meanings of verbs. But the example in (2.17) can be understood in all the four ways mentioned above and even one more relation can be added on.

(2.17) Tā guì xià lai qiú wǒ. (Li & Thompson 1973: 98)
3SG kneel down come beg 1SG
There are five possible readings of (2.17):
(i) 'He knelt down in order to beg me.' (purpose)
(ii) 'He knelt down and then begged me.' (consecutive actions)
(iii) 'He knelt down begging me.' (simultaneous actions)
(iv) 'He knelt down and he begged me.' (alternating actions)
(v) 'He begged me (by) kneeling down.' (circumstance)

The five readings appear in different contexts. It is necessary to further classify Type one under sub-classes following the semantic relations of the subevents. The added simultaneous reading proposed by Paul (2008: 394) can be classified together with the circumstance and the purpose reading because the circumstance and the purpose reading requires the two events to happen simultaneously or in a temporal overlap while the consecutive actions reading, the alternating actions reading have the sequence order in a different temporal frame. Thus, I further break down Li and Thompson's Type one into two subtypes. One includes examples of the purpose, circumstance and simultaneous reading. The other includes the consecutive and the alternating reading.

Type two and Type three are easy to understand since there are similar constructions in English, such as subordinate clauses and control constructions. Type two involves two clauses and two predicates which exclude them as true SVCs according to Aikhenvald (2006), Bisang (2009), and Roberts (2009). Type three shows at least the argument sharing property of true SVCs. In the case of Type three, the noun phrase which is the subject of the second verb and the direct object of the first verb is the shared argument, though it is not a typical shared argument. According to Akihenvald (2006: 12), Chao (1968), and Roberts

(2009: 7), "a prototypical SVC contains only one grammatical subject". SVCs in Type four is similar to a non-standard relative clause without being prenominal and being headed by ***de***.

Whether the four types of SVCs are true SVCs is determined by their grammatical properties. If they fit in the criteria discussed by Bisang (2009) and Roberts (2009), they are true SVCs and the main concern of my inquiry; if they do not fit, they are not my target data.

2.6.2 Criteria of Defining SVCs

2.6.2.1 Design Features of SVCs in Bisang's Model and its Application in Chinese

Design Features of SVCs in Bisang's Model

I take Li and Thompson's informal description and use standard criteria for structure to establish a class of serial verb constructions which share their grammatical properties and which are not amenable to an analysis as some other construction. There are various descriptions of SVCs (to name a few: Aikhenvald 1999, 2006; Li & Thompson 1981; Bisang 1995, 2009; Roberts 2009). SVCs are common linguistic phenomena in languages in West Africa, Southeast Asia and some tribes in Australia. Despite the varieties of SVCs, Aikhenvald (2006: 1) summarises a widely accepted definition of SVC.

> A serial verb construction (SVC) is a sequence of verbs which act together as a single predicate, without any overt marker of coordination, subordination, or syntactic dependency of any sort. Serial verb constructions describe what is conceptualized as a single event. They are monoclausal; their intonational properties are the same as those of a monoverbal clause, and they have just one tense, aspect, and polarity value. SVCs may also share core and other arguments. Each component of an SVC must be able to occur on its own. Within an SVC, the individual verbs may have same, or different transitivity values.

In this definition, the properties of SVCs such as single predicate, a single conceptual event, monoclausality, intonational properties, shared grammatical categories, and shared arguments are summarised. Moreover, Aikhenvald (2006) gives a list of four parameters which are used for the cross-linguisticclassification of SVCs. Bisang (2009: 795) resummarises the four parameters as composition, contiguity of verbal components of SVCs, wordhood of SVCs, and marking of grammatical categories. They are the same as Aikhenvald (2006: 3) and I will explain them below. The only difference is that Bisang (2009) further connects these properties under the concept of single eventhood—the overall property of SVCs which "might well be the only property that holds through all the languages that have SVCs" (Bisang 2009: 805). The factors affecting the single eventhood can be viewed as the iconic reflection of this overall property. The iconic reflections which are the specific criteria to diagnose the single eventhood are listed below.

a. Shared grammatical categories
b. Shared arguments
c. Monoclausality
d. Intonational properties
e. Contiguity
f. Wordhood
g. Marking of grammatical categories

The criteria are explained one by one. Grammatical categories in (a) refer to tense, aspect, mood, modality, illocutionary force and polarity values. According to Bisang, these grammatical categories such as aspect, mood, modality, etc. between/ among the verb components of a SVChave to be the same. The same grammatical categories, such as aspect, should be consistent in a SVC. And grammatical categories can be marked either on a single verb of the SVC or on every verb component. This is the point of property (g) marking of grammatical categories. As for property (c), according to Akihenvald (2006: 12), argument sharing is a prototypical property of SVCs and the most commonly shared argument is the subject. Monoclausality in (c) means that SVCs are in a single clause and there is no marker of syntactic dependency on any component/ verb which tells SVCs apart from structural coordination or subordination. The intonational property in (d) means that there is no intonational pause among the verb components and the SVCs have the same intonational properties as the monoverbal clauses. As for property (e), contiguity, in some languages, the verbcomponents of a SVC have to be next to each other while they can be interrupted by other constituents in other languages (Bisang 2009: 800). This involves the morphosyntactic structure of the construction—whether it is 'NP V NP V NP (V NP)' or 'NP V V (V) NP'. As for property (f), wordhood, "in some languages, SVCs as a whole form one single grammatical word. In other languages, individual components of the SVC have their own status as individual words" (Bisang 2009: 801).

As composition mentioned above is not included in the property set, I introduce it here. Composition talks about the subtypes of SVCs. That is, "symmetrical serial verb constructions consist of two or more verbs each chosen from a semantically and grammatically unrestricted class. Asymmetrical serial verb constructions include a verb from a grammatically or semantically restricted class (e.g. a motion, or a posture verb)" (Akihenvald 2006: 3). I agree with Akihenvald and Bisang on this classification and use it as evidence against Slobin's equipollence of SVCs in Section 6.6. They are also relevant to the

lexicalisation$_{(D)}$ of SVCs which I also discuss in Section 6.6. Please see examples there. I will leave the topic of symmetrical and asymmetrical SVCs for now.

Of the seven criteria, the first three and property (g) are most closely connected with grammar and so they are the most important criteria. I mark them as the main test criteria. Property (g) is related to property (a); thus, these are altogether three linguistic diagnostics. The remaining properties can be observed by native intuition such as intonational property and surface forms of SVCs such as contiguity.

As for wordhood, as it is a terribly fraught theoretical problem (Giegerich 2006, 2011; Brinton & Traugott 2005), without language-particular diagnostics of wordhood or agreed criteria for word which work crosslinguistically, I will not include it in my diagnostics for SVCs in Chinese. Taking a historical view of SVCs indicates that compounds, SVCs (symmetrical and asymmetrical SVCs), and markers tend to appear in order on a cline of lexicalisation$_{(D)}$ as shown in Section 6.6.Consequently, I leave the issue open whether a SVC is a word or not. But as shown in Section 3.5, I take some authoritative dictionaries as indicating whether the lexicalisation$_{(D)}$ is completed. That is, if the examples of SVC I get from the corpus are included as single entry in dictionaries, I will not include them in my data set. In addition, I think the wordhood property contradicts the definition given by Akihenvald (2006) in that if SVCs as a whole form one single grammatical word, then the question arises as to where the sequence of verbsis and where the description that each component of an SVC must be able to occur on its own is. Anyway, Iwill not include the wordhood as a test for SVCs.

Returning to the three main test criteria, I can test aspect by using *le* (perfect marker). Sharedargument is relatively easy to analyse. As for monoclausality, it is not easy to judge if a syntactic dependency exists among component verbs. Therefore, I define a feasible linguistic diagnostic for the monoclausality of SVCs, using different temporal modifiers to modify different verbs and observe the grammaticality of the example added with the modifiers and testing the grammaticality of the output.

Diagnostic for Monoclausality

Goldberg and Jackendoff (2004: 545) point out that “resultatives are syntactically monoclausal, and the verbal subevent functions semantically like a means expression”. Example (2.18) is what they use to illustrate their point. According to them, example in (2.18c) is monoclausal while example in (2.18a) is not. They use (2.18b) to show the test of the monoclausality to sentence in (2.18a); and (2.18d) to show the test of monoclausality of

(2.18c). They simply add two different temporal modifiers to examples (2.18a) and (2.18c). Then, they observe that example (2.18b) is acceptable while the expression in (2.18d) is ungrammatical. The example in (2.18c) is monoclausal with a single event of killing by poisoning which happens in the same temporal frame and poisoning is the means of killing. Only one temporal modifier is allowed to modify this event. By contrast, the sentence in (2.18a) is biclausal because it is grammatical to have a temporal modifier for each clause and there are two separate events in (2.18a) the causing to die and the poisoning event. Thus, for an expression, if it can be modified by two separate temporal specifications and it is still grammatical, then it is not monoclausal; if the sentence becomes ungrammatical with two different temporal specifications, the sentence is proven to be monoclausal.

(2.18) a. Sue made Bill die by poisoning his breakfast.
b. Sue made Bill die on Thursday by poisoning his breakfast on Wednesday.
c. Sue killed Bill by poisoning his breakfast.
d. *Sue killed Bill on Thursday by poisoning his breakfast on Wednesday.

Similarly, following Miller (2002), Gisborne (2011) gives a more specific analysis on this issue. The example is shown below.

(2.19) a. Maria decided to visit John.
b. Maria decided at Christmas to visit John on his birthday.
c. Maria tried to visit John.
d. *Maria tried at Christmas to visit John on his birthday. (This example is grammatical if andonly if John's birthday is on Christmas day.)

Example (2.19) is similar to (2.18) in that both of them use two separate temporal specifications to tell apart monoclausalfrom biclausal sentences. The grammaticality of (2.19b) shows that (2.19a) is biclausal and the ungrammaticality of (2.19d) shows that (2.19c) is monoclausal. The "temporal overlap" from Roberts (2009) is appropriate to describe (2.19d) because (2.19d) is grammatical if and only if the two temporal adverbial phrases overlap, that is, Christmas happens to be John's birthday.

This method of testing monoclausality seems applicable to Chinese as well as English. Similar to the examples above, a SVC has more than one verb component and more than one subevent and it is hard to test whether these subevents are conceptually connected, that is, denoting a single event and being monoclausal or denoting separate events and being biclausal or multiclausal. By observing whether the two or more verbs can take different

temporal modifiers or can be only modified by one temporal specification is a simple way to test the monoclausality and the single event property of potential SVCs.

Now the abstract concept "monoclausality" can be simplified by putting it into the test of adding temporal specifications to each verb in the SVCs. If each verb can be modified separately, then the sentence is not monoclausal.

2.6.2.2 Application of the Seven Criteria to Chinese

In this section, the four types of SVCs identified by Li and Thompson are examined one by one following the criteria of shared grammatical categories, shared arguments, and monoclausality.And I use the intonational property and the contiguity property as secondary supportive tests. I do this type by type. Firstly, I give the discussion on the diagnostics of shared grammatical categories.

Mandarin is an isolating language and there are no markers and no obvious distinction between finite verbs and non-finite ones. Mandarin has nomarkers to indicate tense and aspect but there are a few aspect markers such as *le* (marking the completeness of doing something).And I use them to do the test of shared grammatical categories.

In Chinese, the aspect marker usually occurs after the verbs as shown by examples in (2.20).

(2.20) a. wǒ chī le.
1SG eat PERF
'I have eaten something.'
b. Wǒ chī le fàn.
1SG eat PERF rice
'I have had rice.'

In SVCs, the aspect marker *le* can go after each verb component or the last verb component to give a consistent aspect. As we see in examples (2.21a) and (2.21b), the *le* can go after the first verb or the second verb scoping over both verbs. Or the *le* can go after both verbs as shown in (2.21c). Wherever the aspect marker *le* occurs, either after the first verb, after the second/last verb or after each verb, it scopes over the whole SVC for the same aspect.

(2.21) a. Wǒmen kāi huì le, tǎolùn nèi -ge wèntí.
1PL hold meeting PERF discuss that-CL problem
'We held a meeting to discuss that problem.' (purpose)
b. Wǒmen kāi huì tǎolùn le nèi -ge wèntí.
1PL hold meeting discuss PERF that-CL problem

'We held a meeting and discussed that problem.'

c. Wǒmen kāi huì le, tǎolùn le nèi -ge wèntí.
1PL hold meeting PERF discuss PERF that-CL problem
'We held a meeting and discussed that problem.'

d. *fēi le chū shùdòng
fly PERF exit tree hollow

e. *fēi le chū le shùdòng
fly PERF exit PERF tree hollow

f. fēi chū le shùdòng
fly exit PERF tree hollow
fly out of the hollow in the tree

However, a problem occurs when the *le* is marked after the first verb or after each verb within SVCs. That is the intonational pause, marked by a comma in the examples. In example (2.21a) and (2.21c), the pause after *le* does not follow Bisang's description of a SVC. Similarly, in Slobin's *fēi chū* (fly, exit; fly out), *le* cannot follow the first verb or intervene between the two verbs as shown by examples (2.21d) and (2.21e). Thus, in Chinese SVCs, the aspect marker *le* is only marked on the last verb component not on every verb component. I test the grammatical category in Chinese SVCs by observing whether the aspect marker *le* after the last verb component covers the whole SVC because in some examples *le* is not required.

Analysis of Li and Thompson's Type One

Type one in Li and Thompson describes two or more separate events related by one or more relations listed as consecutive, purpose, alternating, or circumstance. I classify the purpose reading, the circumstance reading and the simultaneous reading added by Paul (2008) as Type 1.1 and the alternative and consecutive reading as Type 1.2, according to whether the events happens in the same temporal frame.

Regarding the purpose, the circumstance, and the simultaneous reading, I have shown above that examples (2.21a), (2.21b) and (2.21c) are grammatical and (2.21a) and (2.21c) have a pause in intonation while *le* in (2.21b) scopes over the two verbs. That is, in (2.21b) the two events *kāihuì* (holding a meeting) and *tǎolùn* (discussing) share the same aspect and are closely connected to each other as a single complex event.

I repeated the example quoted in (2.12) to do the grammatical category test so that we can see whether the events in consecutive reading or in alternative reading in Type 1.2 share grammatical categories.

(2.22) a. Tā tiāntiān chàng gē le, xiě xìn.
3SG everyday sing song PERF write letter
'Every day she sings songs and then writes letters.' (consecutive/alternating)

b.*Tā tiāntiān chàng gē xiě xìn le.
3SG everyday sing song write letter PERF

c. *Tā tiāntiān chàng gē le (,) xiě xìn le.
3SG everyday sing song PERF write letter PERF

d. Tā chàng gē xiě xìn le.
3SG sing song write letter PERF
'She sang songs and wrote letters.'

In examples (2.22a), (2.22b) and (2.22c), when ***le*** is added to the sentences, only example (2.22a) is grammatical because the temporal adverb ***tiāntiān*** (every day) is in conflict with the aspect marker ***le*** in examples (2.22b) and (2.22c). Examples (2.22b) and (2.22c) become grammatical by deleting either one of the time markers. There is no conflict in example (2.22a) because ***le*** following the first verb indicates the sequence of the two events of singing and writing letters. By this I mean, example (2.22a) expresses that every day when the singing event is finished she will continue to do the writing. The ***le*** in example (2.22d) covers both events of singing and writing letters;thus, the example (2.12) of Type 1.2 passes the test of shared grammatical categories.

The shared argument in (2.21b) and (2.22d) is the subject.

Then the property of monoclausality in Type one was examined. For the convenience of comparison, I deleted***tiāntiān*** in (2.22a), added***zhoū yī*** (on Monday) and ***zhoū èr*** (on Tuesday) to (2.21b) and (2.22a) and got examples (2.23) and (2.24).

(2.23) a. Wǒmen ***zhoū yī*** kāi huì, ***zhoū èr*** tǎolùn nèi -ge wèntí.
1PL on Monday hold meeting on Tuesday discuss that-CL problem
'We held a meeting on Monday and discussed that problem on Tuesday.'

b. Wǒmen ***zhoū yī*** tǎolùn nèi -ge wèntí, ***zhoū èr*** kāi huì.
1PL on Monday discuss that-CL problem on Tuesday holdmeeting
'We discussed that problem on Monday and had meeting on Tuesday.'

c. Wǒmen ***zhoū yī*** kāi huì tǎolùn nèi -ge wèntí.

1PL on Monday hold meeting discuss that-CL problem
'We held a meeting to discuss that problem on Monday.'
(purpose, circumstance, or simultaneous)

In (2.23a) holding a meeting and discussing are classified as two separate events; so they can be modified by separate temporal expressions. But I have to point out here the meaning which Li & Thompson (1981) discuss is the situation of these two events connected with the relation of purpose or circumstance and what is in (2.23a) is more similar to the meaning of alternative reading and consecutive reading. For example, in Mandarin there are expressions showing daily arrangements: we usually have meetings on Monday, studies on Tuesday, examinations on Wednesday, discussions on Thursday, summaries on Friday, and have fun on weekends. Example (2.23b) shows that the two events are not relevant to each other in that they are encoded by two clauses and can exchange their positions. The discussing event and the holding meeting event are two separate events in two clauses in (2.23a) and (2.23b).

In Li and Thompson's Type 1.1, example (2.23c) is the correct example with the purpose reading. The difference can be also seen from the English glossing in (2.23c). In the purpose, circumstance and simultaneity reading, the two component events are in temporal overlap. So (2.23c) encodes a complex single event consisting of two subevents which are modified by one temporal adverb. Example (2.23c) satisfies the monoclausality criterion.

In addition, compared with examples in (2.23a) and (2.23b), example (2.23c) has no intonational pause and the two component verbs are next to each other. Thus, it satisfies the more restrictive diagnostics proposed by Bisang and is a "real" example of SVC.

(2.24) a. Tā *zhoū yī* chàng gē *zhoū èr* xiě xìn.
3SG on Monday sing song on Tuesday write letter
'On Monday she sings songs and on Tuesday writes letters.'
b. Tā chàng gē xiě xìn.
3SG sing song write letter
'She sings songs and writes letters.'
c. Tā xiě xìn chàng gē.
3SG write letter sing song
'She writes letters and sings songs.'

Example (2.24a) shows that the original Type 1.2 in Li and Thompson's analysisdoes not pass the monoclausality diagnostic. Additionally, sentences in (2.24b) and (2.24c) illustrate that the original example of (2.24) has a coordinate structure because the verbs and the

events can exchange their position without affecting the meaning. Example (2.24) under the reading of alternating and consecution denotes two separate events in sequence, which makes it not a real SVC. Thus, Type 1.2 in Li and Thompson's are not monoclausal and so are not true SVCs.

To summarise, not all the first type of SVCs identified by Li and Thompson meet the restrictive diagnostics for serial verb constructions. For Type one if the component verbs encode events happening at the same time, that is to say, the semantic relationship between the subevents is purpose, circumstance, or simultaneity, then it is a true SVC; otherwise, it is not.

Analysis of Li and Thompson's Type Two

Type two in Li and Thompson's analysis refers to the case that one verb phrase or clause is the subject or direct object of another verb. In this part, I showed the test of the shared aspect, the shared argument, and the monoclausality for Type two and found that Type two are not true SVCs according to Bisang's restrictive standards.

(2.25)a. Tā fǒurèn, tā zuò cuò -le. (direct object)
3SG deny 3SG do wrongly -PERF
'He/she denied that he/she was wrong.'

b. Tā *zhoū èr* fǒurèn, tā *zhoū yī* zuò cuò -le.(direct object)
3SG on Tuesday deny 3SG on Monday do wrongly -PERF
'He/she denied on Tuesday that he/she did something wrong on Monday.'

In example (2.25a), the aspect marker ***le***is required and it covers the scope of the two verb components. So (2.25a) passes the shared aspect test. For the verb components, they share the same aspect. Moreover, the two verb components share the same argument, the subject *tā* (he/she).

However, in the property tests of monoclausality and intonation, example (2.25a) fails. It is very clear that (2.25a) is composed of two clauses and the second clause as a whole acts as the object of the main clause. I can easily add two time adverbials to separately modify the matrix verb and the second verb such as in example (2.25b). In addition, after the first verb *fǒurèn* (deny), there is an intonational stop. So examples of one verb acting as the direct object of another in Type two are not true SVCs.

(2.26) *Dàshēng niàn kèwén, kěyǐ bāngzhù le fāyīn. (subject)
Loud read lesson can help PERF pronunciation

As for examples in (2.26), they are the subset of Type two— one verb phrase or clause is the subject of another verb. There is a temporal sequence requirement for the two events; the reading event has to happen first and then the second event will be brought about as a following event. Without reading aloud the benefit of pronunciation improvement will not happen. So the two verb components cannot share the same aspect category. That is the reason for the ungrammaticality of (2.26). Furthermore, there is no argument shared by the two verbs in the traditional sense—NP as subject or object rather than verbal phrases as subject. As for the intonation of (2.26), between the two verbal clauses there is a stop and I marked it with a comma in (2.26). Thus, example in Type 2 does not have the property of shared argument, shared aspect, and a monoclausal intonation. I have not bothered to do the monoclausality test. So verbs acting as the subject type in Type two are not serial verb constructions, either.

Through the above analysis, we know that Type two in Li and Thompson's identification is not true serial verb construction. I testedType three below.

Analysis of Li and Thompson's Type Three

Type three is the pivotal construction where a noun phrase functions as the direct object of the first verb and the subject of the second verb. The noun phrase is the shared argument between both verbs.

(2.27) a. Wǒ quàn tā xué le yīxué.
1SG advise 3SG study PERF medicine
'I had advised him/her to study medicine (and he/she did learn medicine).'

b. *Wǒ quàn le tā xué yīxué.
1SG advise PERF 3SG study medicine
Intends to mean 'I advised him/her to study medicine'.

c. ?Wǒ *zhoū yī* quàn tā(,) *zhoū èr* xué yīxué.
1SG on Monday advise 3SG on Tuesday study medicine
'I advise him/her on Monday to study medicine on Tuesday.'
'I give him/her some suggestion on Monday and study medicine on Tuesday.'

d. *Zhoū yī* wǒ quàn tā xué yīxué.
on Monday 1SG advise 3SG study medicine
'On Monday I will advise him/her to study medicine.'

The structure of Type three is closely connected by the shared argument. In example (2.27), *tā* (he/she) is the grammatical object of the first verb and acts at the same time as the logical subject of the second verb.

As for the shared grammatical category, examples (2.27a) show that *le* is used after the second verb to show the whole process of an event has been completed. However, the aspect marker *le* is not required in (2.27a). Compared with the example in (2.27b), example (2.27a) shows that both the advising event and the studying event have been completed. In (2.27b),*le* only indicates that I have given the suggestion but whether the listener accepts it is unknown. When *le* appears after the first verb like *quàn* (advise), the following content is always omitted or *quàn* (advise) is repeated to take the remaining contents, or the result of advising is usually indicated, such as in *wǒ quàn le(quàn tā xué yīxué)* (I have advised (that he/she should study medicine)), and in *wǒ quàn le tā bù tīng* (I have advised but he/she did not agree). So (2.27b) is not grammatical in Mandarin. Example (2.27a) is grammatical and the aspect marker *le* in it modifies both of the two component verbs. This shows that the example in Type Threefollows the rules of the shared grammatical categories in SVCs.

Examples in (2.27c) and (2.27d)show the test of the monoclausality inType three. The example in (2.27c) is ambiguous. For the first reading, there is no stop between *tā* (him) and *zhoū èr* (Tuesday). The second reading has a stop between *tā* (him/her) and *zhoū èr* (Tuesday). The second reading of example (2.27c) omits the same subject *wǒ* (I) and has a coordinate structure for the two separate events of advising and studying medicine. The second reading means two things that I need to do are giving some advice to him/her on Monday and studying medicine on Tuesday. Note that in the second reading I do both things rather than I do the advising and he/she does the studying, while in the first reading the content of my advice is to suggest him/her to study medicine. The second temporal modification causes the intonational stop and creates the possibility for the second verb to be in coordinate relation with the first verb. And I prefer the second reading for the example in (2.27c). The ambiguity of example (2.27c) makes the original example in Type three potentially monoclausal. Moreover, when the temporal modifier modifies the higher level verb (the first verb in example (2.27d)), the sentence is grammatical. In this way, the whole event is modified by one temporal modifier. So Type three fits the criterion of monoclausality.

In addition, the two verbs in example (2.27) share the argument of *tā* (him/her); for V1 it is the object and for V2 it is the subject. This is different from the shared subject in examples

of Type 1.1. For the contiguity, the two verbs are separated from each other by the shared argument.

Based on the analysis above, the third type of SVCs identified by Li & Thompson is SVCs.

Analysis of Li and Thompson's Type Four

The fourth type is a descriptive clause which involves a transitive verb with its object being described by a following verb phrase.

(2.28) a. Wǒ pèngdào-le yī-gè wàiguórén(,) huì shuō zhōngguóhuà.
1SG meet -PERF 1-CL foreigner can speak Chinese
'I met a foreigner who can speak Chinese.'

b. *Wǒ pèngdào yī-gè wàiguórén huì shuō le zhōngguóhuà.
1SG meet 1-CL foreigner can speak PERF Chinese

c. *Wǒ *zhoūyī* pèngdào-le yī-gè wàiguórén *zhoū èr*huì shuō zhōngguóhuà.
1SG on Monday meet-PERF 1-CL foreigner on Tuesdaycan speak Chinese
Intended to mean 'On Monday I met a foreigner who can speak Chinese on Tuesday'.

For Type four, the second verbal clause functions as the modification/description of the object of the first verb. Since the clause is a description of the feature of something or somebody, the aspectuality of the second verb is a kind of state. It is ungrammatical to add a bounded aspect marker *le* to atelic properties/features being described as in (2.28b). So in this type the aspect marker is marked on the first verb which scopes over the meeting event but not the event of speaking Chinese as shown by example (2.28a). This is different from examples in the other types and this makes Type Four not fit the criterion of shared grammatical categories.

The shared argument is similar to Type Three. The object of the first verb is the logical subject of the second verb.

However, there is an obvious pause after the shared argument which makes the example in (2.28a) violate the intonation rule. I do not test the monoclausality now because of the unique feature of the second verb. More specifically, the ungrammaticality of (2.28c) can also be caused by the non-modifiability of the descriptive verb. Usually, the foreigner in (2.28c) cannot be able to speak Chinese on Tuesday for only one day. I will show this monoclausality test following Roberts' criteria of non-coreference discussed in Section 2.6.2.2, which illustrates that Type Four fits the monoclausality.

To sum up, Type Four is not SVC according to Bisang's criteria.

Summary of the Four Types

Having analysed all the four types, a table is helpful to have a clear view of the whole story.

Table 2.3 Summary of the Analysis of the Four Types Following Bisang's SVC Properties

Four Types		a. Shared grammatical category (aspect)	b. Shared argument	c. Monoclausality	SVCs
Type 1	1Purpose, circumstance, simultaneity	√	√	√	√
	2Alternation, consecution	√	√	×	×
Type 2	1Verb as object	√	√	×	×
	2Verb as subject	×	×		×
Type 3		√	√	√	√
Type 4		×	√		×

In Table 2.3, empty cells stands for properties not being tested because it is not necessary to do so. For example, criterion (a) and (b) in Table 2.3 are sufficient to exclude Type 2.2 from the scope of SVCs.We can see that only Type 1.1 and Type Three in Li and Thompson's classification are SVCs according to Bisang's restrictive criteria of SVCs.

In the following section, I use the additional criteria from Roberts (2009) to test the Type 1.1 andType 3 so as to get the criteria of SVCs in Chinese.

2.6.2.3 Roberts' Eight Criteria of SVCs and Application in Chinese

Roberts' Eight Criteria for SVCs

In Section 2.6.2.1, I took Bisang's criteria for SVCs and applied them to Li and Thompson's examples of Chinese SVCs. I showed that only some of Li and Thompson's set of SVCs were true examples of serial verb constructions. In this section, I take the subset of those examples that Bisang's criteria identified and test them against Roberts' alternative set of criteria to see whether the two sets of criteria give me the same data-set of Chinese SVCs.

Roberts (2009: 7) quotes the diagnostic features of SVCs from Kroeger (2004) to identify serial verb constructions in English. Roberts argues that the serial verb construction also exists in English"phase verbs". I quote the eight criteria from Roberts (2009: 7) as follows.

> a. A prototypical SVC contains two or more morphologically independent verbs within the same clause, neither of which is an auxiliary.

b. There are no conjunctions or other overt markers of subordination or coordination separating the two verbs.
c. The serial verbs belong to a single intonation contour, with no pause separating them.
d. The entire SVC refers to a single (possibly complex) event.
e. A true SVC may contain only one specification for tense, aspect, modality, negation, etc., though these features are sometimes redundantly marked on both verbs.
f. The two verbs in the SVC share at least one semantic argument.
g. Obligatory non-coreference: a true SVC will not contain two overt NPs which refer to the same argument.
h. A prototypical SVC contains only one grammatical subject.

Criteria (b), (c), (d), (e) and (f) are similar to Bisang's criteria. In Bisang's terminology, criterion (b) is the basic condition described in Aikhenvald's definition of SVCs which Bisang follows; criterion (c) expresses the intonational properties; criterion (e) covers two of Bisang's criteria—the shared grammatical categories and the marking of these grammatical categories; and criterion (f) refers to the shared arguments.

As for criterion (d), the single event does not appear as a separate criterion in Bisang's set of SVC criteria. This does not mean that Bisang views the single event criterion as of no importance. Instead, Bisang emphasises this concept so much that he marks it as the most crucial overall property of serial verb constructions. A single event in a SVC refers to subevents conceptually connected and how different actions can be closely connected and regarded as a single event depends on many factors including cultural factors. The closeness of subevents can be illustrated by the monoclausality, shared argument, shared grammatical categories, and so on. The seven criteria I listed in the Section 2.6.2.1are connected with eventhood (the single event property) through iconicity—they are the iconic reflection of eventhood (Bisang 2009: 805). As the most important criterion in Bisang's SVC property set, the single event property does not appear together with other criteria and its position is placed higher than the seven criteria. However, in Roberts' account, single event is listed paralleling with other properties. Since the property of being a single event is important for a SVC, I think that the eventhood property deserves a specific linguistic diagnostic in the judgment of SVCs rather than leaving it as an abstract concept higher than any other criteria in a hierarchical and iconicconnection. Section 2.6.2.2 discusses this criterion in specific

application and it shows that the diagnostic of a single event is closely linked with other SVC properties.

Next, I looked at the remaining criteria(a), (g), and (h). Criterion (a) describes the morphological features of SVCs, which is a prerequisite for a structure to be a SVC for it is very obvious that more than one lexical verb is needed in a SVC. All the Mandarin data in this thesis firstly need to satisfy this condition. So I briefly discuss criterion (a) in this section below.

Criteria (a) and (g) are relevant to Bisang's monoclausality. Criterion (a) emphasises more than one verb "within the same clause" and criterion (g) is a diagnostic for monoclausality by using the syntax of disjoint reference. For example, in ***she hurt him*** and ****she$_i$ hurt her$_i$***. If the pronouns are coreferential, then the sentence is ungrammatical as a monoclause. That is, monoclausality does not allow co-reference within the clause.

Criterion (h) clearly shows the test of being a prototypical SVC.

Roberts' criteria are more precise and more useful in the diagnostics of SVCs because he gives specific diagnostics for SVCs such as the test for monoclausality and the summary of the feature of prototypical SVCs.

Since most of the two sets of diagnostic criteria overlap and I do not want to repeat what I have already done in the previous section, only the different criteria of Roberts', that is, criteria (d) single event, (g) non-coreference, (h) one grammatical subject, are used in the following section to test the examples of SVCs already identified by Bisang's criteria.

Applications in Chinese

Type 1.1 andType3 of Li and Thompson's classification are identified as true SVCsaccording to Bisang's criteria. It is unnecessary to test the other examples of Type 1.2,Type 2, and Type 4 in Li and Thompson's classification against Roberts' criteria because they have been proved to be non-SVCs according to Bisang's similar criteria.

Criterion (d) Single Event

Roberts (2009) discusses the syntactic structure of SVCs in detail, using the role and reference grammar (Van Valin & LaPolla 1997). In his analysis, the verb components in SVCs share the same status or are in coordinate relation on the same layer. But the semantic analysis shows that there is a relation of modification among the component verbs of SVCs. Then a conflict appears. In syntax, the component verbs share the same status; however, in

semantic relations, one or more of the component verbs play the role of main verb—the modifiee(s) and the other verb or group of verbs act(s) as modifier(s). This is a mismatch between syntax and semantics. The modifiee denotes the main event and the modifier qualifies the main event by completing the meaning of it. Which verb can act as the modifier or the modifiee? This depends on the semantics of the verb and the judgment of the speaker and the hearer on the basis of the real world knowledge or cultural habits. In Mandarin, there are phrases such as *tǎng zhe shuì* (lie,aspect marker, sleep; sleep in the position of lying down), *pǎo chū lai* (run, exit, come; run out (towards the speaker) in which both the first verbs modify the following verbs.

For example (2.29) of Type 1.1, the modification relation exists in both the purpose and the circumstance reading. In the purpose reading, *kāi huì* (to hold a meeting) is the modifiee and *tǎolùn* (to discuss) is the modifier. Discussing that problem is the content of the meeting and the purpose of the meeting; that is, discussing that problem gives value to the meeting. In the circumstance/ simultaneity reading, it is the opposite. The discussing event is realised by the event of holding a meeting. In either reading the two subevents are closely related as a single event and the two sub-events happen in the same temporal frame.

(2.29) Wǒmen kāi huì tǎolùn nèi -ge wèntí. Type1.1
1PL hold meeting discuss that-CL problem
'We'll hold a meeting to discuss that problem.' (purpose)
'We'll discuss that problem by holding a meeting.' (circumstance/simultaneity)

For Type 3, it is very clear that the second verb modifying the object of the first verb, which, in an indirect way, modifies the first event and becomes part of the whole event.

(2.30) Wǒ quàn tā xué yīxué. Type 3
1SG advise 3SG study medicine
'I advise him/her to study medicine.' (Li & Thompson 1981)

Just like in example (2.30) of Type 3, the content of *quàn* (advise) is studying medicine but it is not the subject of the first verb, *wǒ* (I),who studies medicine; it is the first verb's object *tā* (he/she) who is supposed to do the study of medicine. *Xué yīxué* (study medicine) is needed because the first verb in *wǒquàn* (I advise…) does not provide enough information on its own while *I advise him/her to study medicine* does. Once again, through *tā* (him), the two verb components are connected to each other and the latter one modifies the first one by modifying the object of the first verb.

Criteria (g) Non-coreference and (h) One Grammatical Subject

Roberts (2009: 9) explains non-coreference like this, "In a typical SVC, each argument will be expressed by only one overt NP. Thus a non-reflexive pronoun within the SVC must be non-coreferential with all of the other arguments; that is, the pronoun cannot take some other argument within the SVC as its antecedent". As I mentioned before, this is a good diagnostic of monoclausality.

To further illustrate this non-coreference property, I use two of the examples from the already identified non-SVCs. In examples (2.31a) of Type 2.1, there are two third-person singular *tā* (he/she) and they can co-refer to the same person. By contrast, in example (2.31b) of Type 4, the second first-person singular cannot co-refer to the first one. Areflexive noun is needed to express what is intended as *I met myself who could speak Chinese*. Thus, Type 4 is monoclausal. But due to the intonational pause, Type 4 is not SVC.

(2.31) a. $Tā_i$ fǒurèn $tā_i$ zuò cuò -le. Type 2.1
3SG deny 3SG do wrongly -PERF
'He/she_i denies that he/she_i was wrong.'

b. Wǒ pèngdào-le *wǒ/ zìjǐ (,) huì shuō zhōngguóhuà.Type 4
1SG meet -PERF 1SG/ myself can speak Chinese
'I met myself who could speak Chinese.'

And for one grammatical subject, it is optional since it is a requirement of prototypical SVCs. Now I can examine Type 1.1 andType 3 under the criteria (g) and (h).

(2.32) Wǒmen kāihuì, wǒmen tǎolùn nèi-ge wèntí. Type1.1
1PL hold meeting 1PL discuss that-CL problem
'We'll hold a meeting and we will discuss that problem by ourselves.'

In Type 1.1, there is no syntactic slot for another nonreflexive and co-referring pronoun in the clause where SVC happens. Example (2.32) shows that Roberts is right in that SVCs do not allow any coreferential nouns. In the original example (2.32), the verb ***kāi*** (to hold) has the grammatical subject ***wǒmen*** (we) and the object ***huì*** (meeting) while the verb ***tǎolùn*** (to discuss) has an invisible subject which is also ***wǒmen*** (we) and its object—***nèi-ge wèntí*** (that problem) within the serial verb construction. In example (2.32), I make the invisible subject appear as ***wǒmen*** (we) in Chinese. And this change makes example (2.32) a non-SVC with intonational pause. Moreover, they are in conflict with Roberts' criterion (g) non-coreference and monoclausality required by SVCs. However, these facts shown by example (2.32)

illustrate that the original example in Type 1.1, which does not allow coreferential pronouns, is a true SVC.

Furthermore, example in Type 1.1 is a prototypical SVC because it has only one grammatical subject.

Having finished the analysis of Type 1.1, it is relatively easy to analyse Type 3. Type 3 is monoclausal and fits the criteria (g) of obligatory non-coreference.

(2.33) Wǒ quàn a.*wǒ/ b. zìjǐ xué yīxué. Type 3
1SG advise a. 1SG/ b. oneself study medicine
'I advise I/myself to study medicine.'

The expression with two first-person singular*wǒ* (I) in (2.33a) is ungrammatical. *Quàn* (to advise) can select both oneself and others to be its object but in the case of expressing 'advise oneself to do something' a reflective pronoun is needed. Example (2.33b) is grammatical and is the right way to express 'advise oneself to do something'. Example (2.33a) is ungrammatical and it is impossible for a non-reflexive pronoun to coindex with the antecedent subject in this sentence. Thus, the original example of Type 3 is a real SVC as it satisfies the obligatory non-coreference criterion discussed by Roberts.

As for the grammatical subject, examples in Type 3 have two subjects—one is the subject of the whole sentence and of the first verb; the other one is the logical subject of the second verb which is also the object of the first verb. So Type 3 is not prototypical SVCs when the object of the whole sentence is not the reflexive pronoun of the subject. In Roberts' term, the non-prototypical SVCs such asType 3are called "non-canonical serialization",which refers to SVCs which do not share the subject argument, the most commonly shared argument in SVCs.

Summary

From the above analysis, we can see that Type 1.1 and Type 3 follow the rules of obligatory non-coreference; therefore, they are diagnosed as true SVCs by Robert's criteria. And examples in Type 1.1 are prototypical SVCs while examples inType 3 are not because they have morethan one subject. Bisang and Roberts' sets of criteria give me the same set of SVCs while it is illustrated that some sets of Li and Thompson's SVC, such as Type 1.2, Type 2, and Type 4 are not true SVCs.

2.6.2.4The Common Properties of SVCs in Chinese

Having applied the two sets of criteria to analyse the Chinese data, I give a comprehensive summary of the properties of Chinese SVCs.

Table 2.4 Summary of the SVC Properties in Chinese

Four Types	Type 1		Type 2		Type 3	Type 4
	1Purpose, circumstance, simultaneity	2Alternation, consecution	1Verb as object	2Verb as subject		
a. Shared grammatical category (aspect)	√	√	√	×	√	×
b.Shared argument	√	√	√	×	√	√
c. Monoclausality	√	×	×		√	√
d. single event	√				√	
e. non-coreference pronoun	√				√	√
f. one grammatical subject	√				×	×
True SVCs	√	×	×	×	√	×
Prototypical SVCs	√	×	×	×	×	×

- Empty cells mean that the property is not tested in that type because they have been identified as non-SVCs before they come to the second test against Roberts' criteria. I use Type 2.1 as an example of (e) the non-coreference pronoun. So property (e) is tested in Type 2.1.

In Table 2.4, the SVCs I have identified share the properties such as shared grammatical category, shared argument, monoclausality, single event, and obligatory non-coreference. As for one grammatical subject, only the prototypical SVCs in Type 1.1 have this property. The aspect marker *le* as one of the shared grammatical categories in Chinese is usually marked on the last verb component within Chinese SVCs. The shared argumentof SVCs in Type 3 is realised by the object of the first verbs or the logical subject of the second verbs. The single event property, for Type 1.1 and Type 3, is realised by the modification relations between subevents. The monoclausality can be tested by the temporal overlap and by the obligatory non-coreference.

Before ending this section, I summarise the form of SVCs in Chinese. This point is the basic requirement of SVCs and in Chinese the lack of finiteness, overt connection markers between verbs such as *to*, makes this basic requirement relatively simple. Type 1.1and Type 3 share the form of NP_1 VP_1 VP_2 (VP_3 …VP_n), that is, NP_1 $V_1(NP_2)$ $V_2(NP_3)$ ($V_3(NP_4)$…$V_n(NP_n)$) in detail. Whether there are non-shared argument NPs is determined by the transitivity of each verb.

In all, for SVCs in Chinese, under the condition of sharing argument and grammatical categories, which is the basic requirement, the most important standard for Mandarin SVCs is the property of monoclausality and single event.

2.6.3 Control Pattern and SVCs in English

In Section 2.6.2, I have summarised the properties of SVCs. In this section I explore whether control patterns in English share similar features with SVCs.It turns out that control patterns are not SVCs. Furthermore, I show how Roberts argues that there are SVCs in English. I agree with his point but I further show that even as a language with SVCs English is not an equipollently-framed language.

In English control patterns, especially in the object control patterns, it seems that there are two lexical verbs and the argument is shared by both finite and the non-finite verbs. It is tempting to classify them as SVCs. However, when I examined them closely, I found that English control patterns are not SVC because they are not monoclausal and there are two separate events, one expressed by each verb. The two events happen in different temporal frame as show in examples (2.34b) and (2.35b). The grammaticality of (2.34b) and (2.35b) shows that control patterns in English do not express single events. Thus, they are not SVCs.

(2.34) Subject control:

a. The children agreed to dance.

b. The children agreed on Sunday to dance next weekend.

(2.35) Object control:

a. We persuaded the children to dance.

b.We persuaded the children on Sunday to dance next weekend.

Roberts (2009) argues that phase verbs in English have the same properties of SVCs and thus concludes that English has SVCs.The verbal construction of phase has the structure of a linked sequence of events talking about "two actions or states which are closely linked" (Roberts 2009: 27). He summarises the comparison between SVCs and English phase verb constructions in Table 2.5.

Table 2.5 Properties of English Phase Verbs Compared to SVCs'(Roberts 2009: 34 Table 1)

SVC properties	English phase verb properties
A prototypical SVC contains two or more morphologically independent verbs within the same clause, neither of which is an auxiliary.	Phase verbs are a combination of fully lexical verbs; none of which is an auxiliary. The first verb in the series is finite and the second nonfinite. There are different types of non-finite forms.

There are no conjunctions or other overt markers of subordination or coordination separating the two verbs.	The second non-finite verb is not subordinate to the first verb. The*to* in the to-infinitive form and the *from* in the from-participle form do not indicate a subordinate or coordinate relationship. Instead the presence of *to* and *from* indicate no temporal overlap between the events described by the first and second verbs. Additionally, *from*indicates that the event described by the *from*participle verb did not occur.
The serial verbs belong to a single intonation contour, with no pause separating them.	Phase verbs belong to a single intonation pattern.
The entire SVC refers to a single (possibly complex) event.	Phase verbs describe two actions or states which are closely linked. The non-finite verb may describe the main event and be modified by the preceding finite verb. Vice versa, the finite verb may describe the main event and be modified by the following non-finite verb.
A true SVC may contain only one specification for tense, aspect, modality, negation, etc., though these features are sometimes redundantly marked on both verbs.	Phase verbs comprise finite verb + non-finite verb. The non-finite form may be the infinitive or a past or present participle. Only the finite verb is marked for tense.
The two verbs in the SVC share at least one semantic argument.	Phase verbs may have a single subject argument shared byboth verbs, or an object of the first verb interpreted as subject of the second verb.
Obligatory non-coreference: a true SVC will not contain two overt NPs which refer to the same argument.	Where a non-reflexive pronoun occurs in a phase verb construction it cannot becoreferential with anyother argument in theconstruction. E.g. in *he stopped teasing him, he* and *him* cannot be coreferential.
A prototypical SVC contains only one grammatical subject.	Phase verb constructions may only contain one grammatical subject.

The examples of phase verbs are given in (2.36) and (2.37). They are quoted from Roberts (2009) and the italics are marked by Roberts. The italicized phase verb examples are composed by a first finite verb and a second non-finite verb. Roberts shows that verbs in phase verbs are lexical verbs not auxiliary verbs as they require *do*-support to express a yes-no question.The non-finite verb forms include five types and they are the bare present participle in (2.36a) and (2.37a), the *from*-present participle in (2.36b) and (2.37b), the *to*-infinitives in (2.36c) and (2.37c), the bare infinitive in (2.36d) and (2.37d), and the past participle in (2.36e) and (2.37e).

(2.36) Phase verbs with same participant:

a. Mary *stopped crying*.

b. Sheila was *prevented from going* to work.

c. James *wants to see* a movie.

d. Coffee *helped keep* him alert.

e. Those very close to the blast *risk being burned*. (Roberts 2009: 28 example (63))

(2.37) Phase verbs with different participants:
a. The attendant *stopped him falling*.
b. The new law *prevents people fromsmoking* in public places.
c. The government *encourages people to stop smoking*.
d. He *watched her play tennis*.
e. Those people *got burned by the blast*. (Roberts 2009: 28 example (64))

Roberts finds that the phase verb properties fit the properties of SVCs as listed in Table 2.4 (please refer to his article for the specific demonstration). He knows the SVC properties well and shows how to find SVCs in English and he gives evidence that the phase verbs are not linked in a subordinate syntactic relationship. That is, "*that*-clauses and gerunds are canonical examples of subordination because they can occur as the subject of a passive and can be clefted, the same as simple NP complements" (Roberts 2009: 29). Therefore, since non-finite verb forms, such as the *to*-infinitives, the bare present participle, the *from*-present participle, the bare infinitive, and the past participle, do not behave this way syntactically, they cannot be subordinate. Roberts follows Van Valin & LaPolla (1997) in this point. This is different from the traditional analysis in Minimalism (e.g. Hornstein & Grohmann 2005) and in the traditional view non-finite verbs usually follow main verbs.

I am not going to argue against Roberts and Van Valin and LaPolla on the syntactic structure of the *to*-infinitives, the bare present participle, the *from*-present participle, the bare infinitive, and the past participle being subordinate or not. However, there are two issues I am concerned with.

Firstly, Bisang's and Roberts' criterion on the grammatical categories is slightly different. Roberts and Aikhenvald observe that the specification for tense, aspect, modality, negation, etc, is unique in SVCs and can be marked on one component or redundantly on each component. Bisang proposes that the categories are shared by components of SVCs. A SVC having only one specification for tense, aspect, modality, negation does not mean that this grammatical category e.g. tense scopes over all verb components. Specific examples need to be examined whether each grammatical category covers all verb components if the grammatical categories are not required. Roberts (2009: 32-33) gives examples where tense covers all SVC components while aspect and modality only scope over the first component of a SVC in English. That is, some English phase verb examples given by Roberts do not share their grammatical categories according to Bisang's criteria.

Secondly, many examples identified by Roberts do not involve motion events. The few examples involving motion events such as *the girls came running out* and *Billentered the room skipping* may not be frequent in occurrence in English. But this point needs statistical support. By this, I mean these English SVCs expressing motion events get the Manner and Path expressed by verbs but whether these SVCs are the characteristic expressions of motion events in English by Talmy's standard of colloquial, frequent, and pervasive (Talmy 2000b: 27) is unknown (see Section 2.2.2). In addition, in each example, the surface elements of verbs are different and not equipollent. One is finite verb marked with tense, and the other one is non-finite verb in the form of the bare present participle. This feature is similar to the Chinese asymmetrical SVCs (see Section 6.6) in that the two surface elements do not fit Slobin's description of "equivalentgrammatical forms' in the equipollently-framed languages.

Although there may be quite few, not pervasive examples of SVCs in English, this point is of great importance. English has SVCs and it is not necessary for Slobin to revise the language typology by adding the equipollently-framed language particularly for languages with SVCs because both English and Chinese, which are satellite-framed languages, turn out to have SVCs. Even if a third language type is needed, it is not the equipollently-framed language because both Chinese asymmetrical SVCs and English phase verb SVCs do not have equivalent grammatical forms.

2.6.4 Summary

Only two of Li and Thompson's four-type SVCs pass the more restrictive diagnostics forSVCs that I have taken from Bisang and Roberts. The two types are Li and Thompson's Type 1.1 andType 3. For Type 1.1, when verbs are connected within the relation of purpose, simultaneity and circumstance, the examples are serial verb constructions such as examples in (2.11), (2.17i), (2.17iii), and (2.17v). Moreover, only this type is the prototype SVC because it has only one grammatical subject. Example of Type 3 is (2.15) which seems to be similar to control patterns in English but I show in Section 2.6.3 that control patterns do not fit the monoclausality and single event of SVCs. For Type 1.2, Type 2, and Type3 which are not SVCs, most of them cannot pass the test of monoclausality and single event.

I also illustrate that there are few SVCs identified in English which express both motion events and non-motion events. Thus, I do not think it is particularly necessary for Slobin to add the equipollently-framed language for the SVC languages such as Chinese and English.

Furthermore, in this chapter, I have defined the criteria of Chinese SVCs which provide me with the criteria to judge whether a construction is a SVC. Then in the following chapters, I

use these criteria to identify the SVC data from a corpus and further look at the SVC semantic co-occurring patterns.

Chapter 3 Methodology and Data Collection

3.1 Introduction

To thoroughly explore Slobin's trivalent typology of verb modification, I carried out a corpus study of the Chinese SVCs which I discuss in this chapter. Section 3.2 explains why I used a corpus to collect my data. Section 3.3 reflects on the properties of Chinese serializing structures and summarises a plausible description of SVCs for a corpus searching. Section 3.4 introduces the source of the data—the Lancaster Corpus of Mandarin Chinese (LCMC). Section 3.5 shows the manipulation of the data collected by the searching query of the LCMC. Six kinds of wrong data collected by the searching query are excluded from my final set of Chinese SVCs because the searching string of the corpus gives verb chains and some of them are not SVCs according to the criteria I showed in Section 2.6. Section 3.6 discusses the classification of the SVCs. Not every SVC has to express a motion event and so my set of data is divided into two groups—the motion group of Chinese SVCs and the non-motion group of SVCs. The rules and reasons for the group division are also given in this section. Section 3.7 is the summary of this chapter.

3.2 Slobin's Argument

Before I go on to explain how I gathered my data, Slobin's argument needs to be briefly reintroduced here for a better understanding of the research method.

Slobin (1996, 1997, 2002, 2004,& 2006) argues that Chinese belongs to the category of the equipollent-framed languages, a third language type he added to Talmy's two-category typology. Slobin's evidence is the serial verb construction in Chinese. As for the specific definition of SVCs, please refer to Section 2.6.In Slobin's analysis, he uses ***fēi chū*** (fly, exit; fly out) as an example of SVC and he argues that ***fēi*** (fly) and ***chū*** (exit) share the same grammatical form.

Assuming that Slobin is right on the equal status of the two verbs in serial verb constructions, then verbs encoding various semantic elements should be able to occur freely in any position within a SVC. Given the ***fēichū*** (fly exit) example which encodes the semantic co-occurring patterns of 'Manner + Path', the reverse co-occurring pattern might also be expected in a serial verb construction. That is, you might expect to find 'Path + Manner' in the data of SVCs if Slobin is right in that the component verbs in serial verb constructions are equal in grammatical status and that Chinese is an equipollently-framed language. If there are no pairs of freely-occurring semantic combination patterns, Slobin is wrong to claim that the

verb components within Chinese SVCs have an equal status and so he is wrong in classifying Chinese as an equipollently-framed language.

I used a corpus and collected examples of SVCs with the purpose of identifying various kinds of semantic co-occurring patterns of SVCs. I explored whether there are examples of SVCs showing the semantic co-occurring pattern of 'Path + Manner'. Furthermore, as we will see from the semantic parameters defined in Chapter 4, there are lots of examples of serial verb constructions presenting various semantic co-occurring patterns. This research question arises: whether there are other pairs of corresponding semantic co-occurring patterns in addition to the pair of 'Path + Manner' and 'Manner + Path'. However, this kind of free occurrence within SVCs was not found in my data. I will present this result step by step in the following three chapters.

3.3 Common Properties of SVCs in Search Engine

A clear definition or a clear set of features of Chinese SVCs are needed which can be used in targeting SVCs in a corpus. I resummarised the design features of SVCs in this section to establish a working definition of SVCs for the convenience of building a search query in a corpus.

As we have seen in the discussion in Section 2.6, it is difficult to give an exact definition of SVCs. However, various studies agree on a set of common properties or design features of SVCs. I have repeated the set of properties summarised by Roberts (2009) here for the convenience of readers.

(3.1) a. A prototypical SVC contains two or more morphologically independent verbs within the same clause, neither of which is an auxiliary.
b. There are no conjunctions or other overt markers of subordination or coordination separating the two verbs.
c. The serial verbs belong to a single intonation contour, with no pause separating them.
d. The entire SVC refers to a single (possibly complex) event.
e. A true SVC may contain only one specification for tense, aspect, modality, negation, etc., though these features are sometimes redundantly marked on both verbs.
f. The two verbs in the SVC share at least one semantic argument.
g. Obligatory non-coreference: a true SVC will not contain two overt NPs which refer to the same argument.
h. A prototypical SVC contains only one grammatical subject.

As discussed in Section 2.6, these features are quite clear but how to collect a set of data satisfying these properties from a corpus is a challenge. In other words, it is difficult to operate a program to select SVCs satisfying all these requirements from millions of examples. A plausible searching code is needed so as to target the satisfying set of data in a corpus.

Looking at these 8 common properties, I found most of the features need to be judged on an instance-by-instance basis. There is no corpus of Mandarin Chinese with marked arguments for property (f) or with marked intonational properties for property (c) in (3.1). The lack of the inflections or markers in Chinese makes it hard in a corpus to show thegrammatical features required by a SVC such as property (e) in (3.1). The simple method to reflect property (c) onto the SVC examples is to observe punctuation in Chinese. If there is a comma or a period (a full stop in intonation), then the sentence must have intonational pause and cannot be monoclausal. The basic requirement of a SVC is to have two or more than two lexical verbs (property (a) in (3.1)) and this basic requirement can be fulfilled by searching for a juxtaposition of two or more verbs in a corpus.

To satisfy the basic features of SVCs and to get as comprehensive a sample of Chinese SVCs as possible, the Chinese SVC in a corpus is targeted as two verbs or verbal phrases which appear next to each other in one clause without punctuation or intonational pause and there is no obvious marker of subordination (such as *dē* (of)) or coordination (such as *hé* (and)) or any kind of syntactic dependence. The corpus I used has the word classes marked and the searching inquiry secures that the construction is composed of two verbs. The corpus I usedalso provides a program which can build complex searching queries. Thus, I was able to search for the string with two verbs or verbal phrases going together. In addition, I used native-speaker's intuition to go through examples comparing them against the other properties listed in (3.1) to diagnose whether the verbal components share arguments (subject or object), whether they occur in one clause, whether they express a single event, or whether they share the same grammatical categories.

3.4 The Lancaster Corpus of Mandarin Chinese

There are lots of corpora of modern Chinese, such as the Lancaster Corpus of Mandarin Chinese (LCMC), the Corpus Query System developed by the State Language Commission of the Chinese government, Sinica Corpus developed by Taiwan Academia Sinica, and the CCL corpus developed by the Centre for Chinese Linguistics (CCL) of the University of Peking.

However, many of the corpora do not have word classes marked. The LCMC, the Corpus Query System and the Sinica Corpus have tagged word classes. Between them, the special requirement of two verbs or verb phrases going together helped me to choose the LCMC. The other two corpora cannot operate the searching enquiry of 'V (NP) + V (NP)'—two juxtaposed verbs or verb phrases. The Sinica Corpus even distinguishes between transitive verbs (vt.) and intransitive ones (vi.) I do not need a constraint on the transitivity of verbs as described by the SVC form NP_1 $V_1(NP_2)$ $V_2(NP_3)$ $(V_3(NP_4)\ldots V_n(NP_n)$ whereNP is optional for each verb. Andall types of SVCs in the sense of verb transitivity either in the pattern of 'vt. + vi.', or 'vi. + vt.', or 'vi. + vi.', or 'vt. + vt.'are my data. If the transitivity of verbs is set to be one type, the semantic co-occurring patterns of SVCs may be affected.In addition, the Sinica Corpus has no matched program for searching complex query and I had to choose the LCMC.

The LCMC was developed by Richard Xiao and Tony McEnery. It is a balanced Chinese corpus which contains one million words (Xu 2007). It contains a diverse range of text-types from the year of 1991 (±2 years). Following the model of the FLOB corpus (Freiburg-LOB Corpus of British English), it "seeks to enable in-depth monolinguistic studies by making a diverse range of text-types publicly available to academic researchers" (quoted fromLCMC basic information). Moreover, the unique advantage of the LCMC corpus is the Xaira, a matched program to the LCMC corpus, which can realise complex searching such as the string of 'verb (NP) verb (NP)'.

Indexing the corpus with Xaira (version 1.26), I used the query builder of Xaira to define the two query nodes to search for any words tagged as a verb in the corpus. The link type between the two verbs was defined as "next" so that the position of the two verbs is juxtaposed to each other, which is possible in one clause. This query is supposed to give me two verbs or verb phrases occurring together. However, some verb chains identified by the searching query are not SVCs. For example, in the results, I got examples with two verbs separated by a comma. In case there are other wrong SVC examples given by the query in the data set, I hand-sorted its final results to ensure accuracy of my data. The process of sorting is discussed in the following section.

3.5 Data of Chinese SVCs

The "V (NP) + V (NP)" searching string gaveme 32418 results. To make the data analysis possible, I took the first 500 results and hand-sorted them. This left me 218 examples of SVCs which have relevant properties. The point of the corpus work is to move away from

native-speaker intuition to real data. As this is not a quantitative thesis, 218 examples provided me with enough data for my analysis.

In the process of sorting the data, I deleted wrong examples and chose the true SVCs from the sentence. The deleted examples include six main types.

A. 'Auxiliary verb + verb', 'copular verb (be) + verb', 'negative marker + verb'

The pattern of an auxiliary verb followed by another lexical verb is deleted.

According to the definition and the properties of SVCs, the verb components of SVCs have to be lexical verbs rather than auxiliaries. The small set of auxiliaries in Chinese shares similar distributional properties and are called "auxiliary verbs". They include ***yīnggāi, yīngdāng, gāi*** (ought to, should), ***néng, nénggòu, huì, kěyi*** (be able to), ***néng, kěyi*** (has permission to), ***gǎn*** (dare), ***kěn*** (be willing to), ***děi, bìxū*** (must, ought to), and ***huì*** (will, know how).

Auxiliary verbs behave differently from lexical verbs in Chinese. They are usually followed by another lexical verb but unlike lexical verbs they cannot take direct objects and aspect markers as shown by examples (3.2a) and (3.2b). Therefore, I do not take 'auxiliary verb + verb' as a SVC.

(3.2) a. *tā néng nèi jiàn shì
3SG can that –CL job
b. *tā néng le chàng gē
3SG can PERF sing song (Li and Thompson 1981: 173, 174)

As for the copular verb (be), the examples I got from the LCMC are in the sentence pattern of "shì…de". According to Li and Thompson (1981), this sentence pattern is a nominalization. The example in (3.3) is from the LCMC.

(3.3) tā shì rènzuì de
3SG be confess de/NOM
'He confessed. /He made the confession.'

Follow Li and Thompson, the word ***rènzuì*** (confess) in (3.3) is nominalized and not a verb component, which can form a SVC with ***shì***. For me, "shì…de" is a special sentence pattern to emphasize the sentence meaning. ***Shì***does not contribute to the event meaning of confessing and there is only one event of confessing. Like verbs, adjectives can occur after

shì but "shì…de" is the sentence pattern rather than *shì*.*Shì*and the word following it cannot construct a SVC.

In addition, similar to auxiliary verbs, copular verbs cannot take direct objects and aspect markers, either. They are not lexical verbs which are required to form SVCs.

In LCMC, there is no tag for negative markers and from the data I found that the negative marker is tagged as a verb.[8]I do not agree with this classification for my SVC studies. Instead, I agree with Li and Thompson (1981) in classifying them as particles or markers because Chinese negation markers such as *bù*, *meí*, *meí(yoǔ)*, *bié* (does/do not) cannot behave like lexical verbs and do not take aspect markers or direct objects. Further, negation changes the meaning of the verb following but does not denote an additional co-event. For example, in *méihūn* (not faint) from the LCMC query result, there is only one event of fainting and there are no other actions which compose with fainting as a single complex event in the example. A SVC usually contains several actions/events which are closely linked as a single complex event. Thus, examples such as *méihūn* (not faint) are not included in my data of SVCs.

B. Repeated examples

The same examples appear in different contexts, such as *táo chū* (run, exit; run away) and *zāo dào* (suffer, arrive; suffer from). Each of these examples appears two or more times in the data. The repeated examples are kept once and the same repetitive ones are deleted because my study is a qualitative not a quantitative one so I am interested only in the examples themselves and not in their frequency.

C. Wrong classification of verb serializing: markers of subordination

There are not many grammatical markers in Chinese, which indicate the grammatical relations within a construction but some markers are helpful in the SVC diagnostic, such as *dē* (的). There are three "dē"s in Chinese (they share the same pronunciation but are different words). They are *dē*1(的), *dē*2 (得), and *dē*3 (地). The first *dē* (的) is used to link a possessor and a possessee, such as,*zhāngsān dē (的) huā* (Zhangsan's flower). And it can also link the modifier to the modifiee such as in example (3.4a).

[8] The LCMC has its texts tagged. For example, "a" represents adjective; "ad" represents adjective as adverbial; "v" verb; "vd" verb as adverbial. Please refer to the LCMC tag set on http://ling.cass.cn/dangdai/LCMC/Manual/LCMC_tagset.htm visited on 12 Feb 2013).

(3.4) a. chūntiān dē (的) shíhoù
spring de time
'time of spring'
b. *chūntiān shíhoù
spring time

Without *dē* (的), the phrase is ungrammatical as shown in (3.4b). The common point is that after this *dē* (的) the modifiee must be a noun or a pronoun. Traditionally, the noun or the pronoun following *dē* (的) is regarded as head. However, Lu (2003) analyses *dē* (的) as head according to Chomsky's head theory (1957). I do not further discuss which word is head within phrases with *dē* (的) but I directly take the conclusion that there is a head for phrases with *dē* (的). Thus, *dē* (的) indicates a constituent with modification/subordination relation, and *dē* (的) usually indicates a noun or a pronoun phrase, or the process of nominalization as in "shì…de" mentioned above.

The second *dē* (得) usually follows a verb and is placed before an adverb expressing the impact of the verb or complementing the result or the action caused by the verb. For example, *wándē (得)kāixīn* (play, de, happily; play happily). The third *dē* (地) is used after an adjective or an adverb and before a verb. The adjective or adverb together with *dē* (地) forms an adverbial adjunct and modifiesthe following verb, such as in *nǔlìdē (地)xúexí* (hard, de, study; study hard). For these two *dē* (得) and *dē* (地), the verbs within the structure are the head. Therefore, the three 'dē'sall indicate subordinate relations within a structure.

In the query searching for SVCs, the first *dē* (的) is useful in diagnosing the subordinate relations among verbs. Or more directly, *dē* (的) is the marker for subordination. The query could not spot it and I had to hand-sort verb series with *dē* (的) and delete them.

(3.5) **huí** **dào** **lí** xiào hěnjìn dē (的) jiālǐ
V1 V2 V3 N1 adv adj de N2
return arrive depart school very close de home inside
'get back to the home which is very close to the school'

The structure of example (3.5) is [[[V1] [V2]] [[V3 N1 [adv adj] de] N2]]. Here, 'adv' and 'adj' refer to adverb and adjective. The *dē* (的) is helpful in analysing the relation between V1, V2 and V3. This example has three verbs V1, V2 and V3 but the corpus marks V1, V2

as one verb and treats V1 and V2 as a whole and puts them together with V3 as a serializing construction, which is not correct.

Firstly, V1 and V2 are wrongly regarded as one verb instead of two in the LCMC. But V1 and V2 can be used independently as shown in (3.6).

(3.6) a. Zhāngsān huí xuéxiào le.
Zhangsan return school PERF
'Zhangsan went back to school.'
b. Zhāngsān dào Běijīng le.
Zhangsan arrive Bejing PERF
'Zhangsan arrived in Beijing.'

In example (3.5), V1 and V2 form a SVC. Although in example (3.5) V1 ***huí*** (return) and V2 ***dào*** (arrive) share the same argument ***jiālǐ*** (theinside of the house), V1 and V2 are two verbs and cannot be treated as oneword. In the Chinese dictionary of ***Xīnhuá zìdiǎn*** and ***Xiàndaì hànyǔ cídiǎn***, there is no entry of ***huídào*** (return, arrive; go back to) and there are separate entries for ***huí*** (return) and ***dào*** (arrive).[9]More on this point is discussed in the sixth set of wrong data: (F) solid/fossilized words in the dictionary.

Secondly, the appearance of ***dē*** (的) shows that V3, N1, the adverb, and the adjective act as the modifier of the noun phrase ***jiālǐ*** (home inside).And V3, N1, the adverb, the adjective, ***dē*** (的), andN2 form a constituent. ***Jiālǐ*** (home inside) indicates a place and acts as the modifiee (head) of V3 phrase(V3 N1).The adverb ***hěn*** (very) modifies the adjective ***jìn*** (close) and together the adverb phrase ***hěn jìn*** (very close) modifies the VP phrase composed by V3 and N1. N1 is the object of V3 while N2 is the object of V1 and V2.

In this case, I manipulated the data and kept the ***huídào*** (return, arrive; return) as the SVC example and deleted the example of ****huí dàolí…*** (return, arrive, depart).

D. Examples separated by punctuation

(3.7) Tā	zìjúe	nánkān	dē (地)	yī**xiào,**	**xiào**	dē (得)	hěnkǔ.
[N1	[[V1	adj	de]	V2]	[V3	[de	adv adj]]]
He	feel	embarrassed	de	smile	smile	de	very bitterly

'He felt embarrassed and smiled. The smile was bitter.'

[9]***Xīnhuá zìdiǎn*** (***Xinhua Dictionary)*** and ***Xiàndaì hànyǔ cídiǎn(Modern Chinese Dictionary)*** are the two authorities in Chinese dictionaries. Their status is similar to the Oxford English Dictionary in the UK.

In the above example, V2 *xiào* (laugh) and V3 *xiào* (laugh) are marked as the result of my searching query. It is obvious that '**xiào, xiào**' is not a real SVC. The comma is the interruption of the intonation and indicates the violation of the property of monoclausality. In fact, just like the English translation, the sentence in example (3.7) has two clauses. The second clause is a complement description to the first clause. With the two 'dē's explained before, it is easy to understand the structure of this sentence. The first clause is structured by a pronoun (subject) plus a main verb (V2). V1, the adjective, and the *dē* (地) form a constituent which modifies V2. The second clause shares the same subject with the first clause—the pronoun but has its own main verb—V3. The adverb and adjective form an adverbial which together with *dē*(得) modifies V3. Although the two verbs in each clause are "next" to each other, they are separated by a comma and examples like (3.7) are obviously not a real SVC.

Examples of two verbs separated by a comma are excluded from my data. Even without a comma, examples containing the overlapping of the same verb are also deleted. Chinese has this kind of overlapping words and phrases. It is a form of repeating the word and the meaning of the word. I use the capital letter A to represent this word. The meaning of the overlapping form of AA has no difference from A, except that AA emphasizes the meaning and doubles the use of A, such as in *xiào* (laugh) and *xiàoxiào* (laugh). This overlapping is not my research concern and such examples are disregarded.

E. The wrongly tagged part of speech

When I examined the data selected by the searching query, I found that some of the word categories are marked wrong.

(3.8) qí jiàn fēn chéng
different opinion all appear
Ag v v (tagging in LCMC)
Adj N adv V (my revised tag)
'Different opinions all appear.'

The third line of glossing in (3.8) shows the tagging of word classes in LCMC. *Qí* (different) is marked by 'ag' which represents adjective morpheme in LCMC. *Jiàn* (opinion; see) is tagged as a verb. *Fēn* (all) and *chéng* (appear) are regarded as one word and tagged as a verb. However, the tagging of word class in example (3.8) is wrong. *Jiàn* (see; opinion) can refer to looking or seeing something as a verb but *jiàn*also has another type of part of speech as a

noun. Here in example (3.8) *jiàn* refers to a noun *yìjiàn* (opinion). It is impossible for an adjective to modify a verb as in the tagging in LCMC. In addition, *fēn chéng*can be further broken down as a phrase with the adverb *fēn* (all, one after another) modifying the head verb *chéng* (appear). I correct the wrong tags of the latter three words in example (3.8) and put the right tag on the fourth line in example (3.8).

Through the analysis, we can see that there is only one verb *chéng* (show, present, appear) in this four-word structure with *jiàn* (opinion) as its argument. With only one verb in this example, it is absolutely not an example of SVC. Similar examples due to the wrong tagging of word classes are excluded from my set of data as well.

F. Solid/fossilized words in the dictionary

There are 11 special examples which are composed by two verbs and are compiled in the dictionary. They are deleted from my SVC data because most of the Chinese SVC examples are not compiled in a dictionary. In actual uses these constructions compiled in dictionaries are regarded as one word, or more precisely, a compound.

In the example of *guān yā* (shut, escort; jail), both *guān* (shut) and *yā* (escort) can be used as independent verbs as shown in example (3.9).

(3.9) a. Zhāngsān guān le diànshì.
Zhangsan shut PERF TV
'Zhangsan turned off the TV.'
b. Zhāngsān yā chē qù Běijīng.
Zhangsan escort van go Beijing
'Zhangsan will secure the van and go to Beijing.'

*Guān*means to shut or close the entry to a container and *yā*means to escort or more exactly to enclose so as to prohibit escape. The two verbs have similar meanings in keeping things/ people closed in some container. But they cannot exchange their positions in *guān yā* (shut, escort; jail) and **yāguān* (escort, shut) is ungrammatical because*guān yā* (shut, escort; jail)has been lexicalised$_{(D)}$ as one word in the sense of lexicalised$_{(D)}$ SVCs (Durie 1997: 321). By this, I mean *guān yā* (shut, escort; jail) has experienced the process from being a symmetrical SVC and then to a lexicalised$_{(D)}$ word. Vittrant (2012) illustrates that it is possible for symmetrical SVCs (introduced in Section 2.6.2) to develop into lexicalised$_{(D)}$

SVCs and the final step of lexicalisation$_{(D)}$ is the birth of a new word.[10] This point will be discussed in detail in Section 6.6.

As described by property (f) summarised by Bisang in Section 2.6.2, "in some languages, SVCs as a whole form one single grammatical word. In other languages, individual components of the SVC have their own status as individual words" (Bisang 2009: 801). In Chinese, the first case can refer to those lexicalised$_{(D)}$ SVCs in the dictionary and the second case describes what Slobin argues for the Chinese SVCs—independent verbs and equal grammatical forms. In another perspective, Bisang's description can be linked to the distinction of subtypes of SVCs—the symmetrical and asymmetrical SVCs in that the symmetrical SVCs are possible to produce new words with SVC properties, such as *guān yā* (shut, escort; jail). And asymmetrical SVCs contain one word which can be used independently and another one word which functions as an individual marker. Taking into consideration the two possible situations, I focused on the Chinese SVCs whose individual components have their own status as individual words, the second case summarised above by Bisang, and ignored the 11 lexicalised$_{(D)}$ SVCs compiled in dictionaries, which is the first case summarised above by Bisang.

Moreover, to rebut Slobin's argument of the equal components in SVCs, I need a set of SVC examples including ones similar to *fēichū* (fly exit)given by Slobin. Thus, the standard serial verb constructions, rather than already lexicalised$_{(D)}$-SVCs compiled in the dictionary, are more relevant to my research. I found 11 examples compiled in the dictionary among the 500 examples. They are *guān yā* (shut, escort; jail), *hūn sǐ* (faint, die; faint), *zhàn yòng* (take, use; use), *jí yā* (accumulate, store up; overstock), *xīng qǐ* (become prosperous, get up; start to be prosperous), *chōu qì* (suck, cry; sob), *sòng gěi* (send, give; give), *diē luò* (fall, drop; fall down), *xià diē*(descend, fall; go down), *huí laí* (return, come; come back), and *lí kaī* (leave, get apart; depart from). I excluded them from my data.

In this section, I discussed how I obtained 500 examples selected by the searching query of LCMC. The query gave me structures with two verbs going together and to satisfy other SVC criteria I tested for the monoclausality, the intonational property, the single event, the argument sharing of these examples. After hand-sorting of the data, incorrect examples (auxiliary/copular verb constructions, the construction with subordinate markers, with wrong word class, and examples separated by punctuation), repeated examples and examples

[10] There is a contrast type named asymmetrical SVCs. As the concepts of symmetrical and asymmetrical SVCs are involved in the analysis of the non-motion group data, the definitions of symmetrical and asymmetrical SVCs will be given later in Section 6.6.

compiled in the dictionary are excluded from my set of Chinese SVCs. I obtained 218 examples of Chinese SVCs and I will discuss these examples in the following Section of 3.6 and in the following chapters 5 and 6.

3.6 Not Every SVCExpresses a Motion Event

After a further examination of the SVC selected by the searching query, I got 218 Chinese SVC examples. But I found that not every SVC expresses a motion event, such as in*măi dào* (buy, arrive; finish buying), in *kāishǐ chéngxiàn* (start, present; start to present), and so on. In the above examples, no Path or Motion is involved. In this section, I review what the motion event is and return to my data to classify it under a motionevent group of SVCs and a non-motionevent group of SVCs.

3.6.1 Motion Event Types and Event Types

Motion is one of the most basic experiences in daily life. Everyone is moving on foot or by vehicle. Dogs are running happily. Kids enjoy kicking balls. I bend down to pick up a pen. Through the above sentences, I illustrate that animate life can move by its volition or it can be moved by external force; people can also cause other things to be moved by them; human beings can perceive motion carried out by others through visual ability.

In the real world, motion is part of life and the localist hypothesis regards motion as central for conceptualizing other events. Talmy has shown that in different languages motion is expressed by various linguistic structures. Motion conceptualized and construed by languages covers a wide range of situations that reflect different scenarios in the actual world. The prototypical type of motion is those scenarios involving changes of locations. Chu (2004: 6) describes it as "a change of location of an object with respect to other object(s) successively from one point to another along a spatial extent over a period of time". This type of motion involves clear trajectories and is called 'translational motion' by Talmy (1985, 2000b).

In contrast, there is another type of motion namely 'self-contained motion' (Talmy 2000a; Chu 2004). This type of motion exhibits "dynamic spatial properties in the entity itself, but without displacement of its whole body" (Chu 2004: 7), such as *xuánzhuàn* (rotate), *yáobǎi* (sway), *péngzhàng* (oscillation) and so on. Compared with translational motion, self-contained motion does not have the distinctive feature of the change of location. For example, without the displacement of the moving entity/Figure, self-contained motion has no natural starting point of the motion, no path or trajectory of the motion, or no intended end point of

the motion. The starting point and the end point refer to spatial points not points in temporal line.

There are other peripheral cases of motion in addition to translational motion and self-contained motion, such as bodily internal movements (e.g. *wānyāo* (stoop), *xiào* (smile)), and change of posture (e.g. *zhàn qǐlái* (stand up), *tǎng xià* (lie down)) (Chu 2004: 7).

Moreover, there are fictive motions in Talmy's term (1996; 2000a) or abstract motions (Langacker 1987) or subjective motions (Matsumoto 1996). Chu (2004: 7) explains the reasons for the appearance of fictive motions like this:

> Due to its pervasiveness in human experience and its well-understood spatio-directional structure, the way in which we perceive translational motion plays an especially prominent role in our conceptualization of the world. It is not only a fundamental domain of human basic cognition, but also a basis for understanding other conceptual domains, especially abstract domains. Our ways of talking about translational motion play an important role in imaginative representation and are mapped onto expressions representing other, more abstract situations, such as purpose, time, possession, change of state, love and marriage, life, and argumentation (see, for example, Jackendoff 1978, 1990; Lakoff and Johnson 1980, 1999; Johnson 1987; Lakoff 1987, 1993; Langacker 1990; Talmy 1996b, also 2000a ch.5; Matsumoto 1996).

To summarise the quoted paragraph, motion is the basic human experience and it can be regarded as the source to understand more abstract things through the link of mapping. This coding method is a conceptual metaphor and is relevant to embodiment theory in cognitive linguistics (see also Rohrer 2007; Fauconnier 1997; Fauconnier & Turner 2002). For example, in 'life is a journey' and 'Christmas is on the way', Life is construed as a journey and Christmas/time is personalized as an animated life that is approaching in space to the place where the speaker is. In Chinese, similar expressions are common.

(3.10) Xīnnián lái le.
New year come PERF
'The New Year is coming.'

(3.11) Zhōngguó zhèngzài zhúbù zǒuxiàng fǎzhì.
China now gradually move toward ruled by law(NOM)
'China is now gradually moving toward (a society) ruled by law.'

Examples (3.10) and (3.11) are quoted from Chu (2004: 8) with changes. Example (3.10) represents a mapping from the common translational motion to the abstract target of time and example (3.11) uses motion verbs to indicate a change of state.

In addition to various subtypes of motion events, prototypical or peripheral, translational or self-contained, or fictive, there are other event types. I quoted the example from Chu (2004: 140) with small changes.

(3.12) a. Háizi pǎo jìn le wūzi lǐ
Kid run enter PERF room inside
'The kid ran into the room.'
b. Háizi zài wūzi lǐ pǎo
Kid in room inside run
'The kid was running in the room.'
c. Háizi zài wūzi lǐ chànggē.
Kid in room inside sing
'The kid was singing in the room.'

Chu (2004) argues that only (3.12a) presents a motion event while (3.12b) does not even though (3.12b) uses motion verbs *pǎo* (ran). As we know, motion is composed of many elements such as Figure, Manner, Motion and Path. Examples in (3.12a) and (3.12b) have the same Figure encoded by 'the kid', and Motion and Manner encoded by 'run', but (3.12a) encodes a motion event and (3.12b) does not. Although the scenario in (3.12b) "may seem to be a motion event in the real world, we may not process it as such, and language may not express it as a motion event" (Chu 2004: 141). That is, the core schema of motion event, Path, is not selected by human cognition to be encoded and expressed in languages. To further illustrate his idea, Chu gives the example in (3.12c) and shows that (3.12b) and (3.12c) have similar syntactic structure and convey similar meaning of "somebody does something at some place" instead of "some entity moves through space". The detail of change of location in (3.12b) is "left unspecified in the speaker's conceptualization and the motion is only conceived as an action in general" (Chu 2004: 141). Thus, sometimes, even though motion verbs are used in an expression, the expression may not convey a motion event.

In fact, what Chu is arguing can be summarised in general—language, rather than facts in reality decides whether a motion event in reality is described as a motion event in context. The action in example (3.12b) is more like the concept of activity/process in Vendler's eventualities (1967) and example (3.12a) is more like the accomplishment in that system. For example, *run* and *walk*encode activity but when these activities are added with boundedness/telicity or an end point such as *run a mile*, *walk two miles*, the event type encoded by the expression changes into an accomplishment. The serialization of verbs

avoids most of the cases like example (3.12b), but this causes me to note that there may be SVCs expressing not any type of motion events. I examined examples in my data and classifiedthemunder the motion event group and the non-motion event group.

In summary, motion events include subtypes such as Talmy's translational motion, self-contained motion, and fictive motion and Chu's peripheral motion cases. And there are other event types. Given these classifications, I divide my data into two groups—a motion group of SVCs and a non-motion group of SVCs. The motion group of SVCs includes the serial verb constructions encoding only translational motion events and the non-motion group includes SVC examples of self-contained motion, Chu's peripheral motion cases, fictive motion and other event types. Thereafter, I use 'motion events' to exclusively refer to translational motion.

3.6.2 The Motion Group and the Non-motion Group

I divided my set of data into two groups because:

Firstly, the linking point of the Talmy's research and Slobin's argumentation is SVCs expressing translational motion events. Talmy's dichotomy is based on research of motion events. Talmy (2000b: 8, 25) defines motion event "as an event of motion or location" or "a situation containing motion and the continuation of a stationary location alike". Slobin uses the concept of SVC but does not give a clear description of what SVCsare. There is only the Chinese SVC example of *fēi chū* (fly, exit; fly out). Obviously, the example involves change of location and expresses a translational motion event. Therefore, I collecteda group of SVCs encoding translational motion events so as to investigate their semantic co-occurring patterns and further to illustrate that there is no freeoccurring semantic patterns. At the same time, the framework of this thesis is based on Talmy's research. And Talmy (2000a: 103& b: 25/35) defines and discusses translational motion, self-contained motion and fictive motion. Thus, I also followed Talmy's range of motion events to get a deep exploration on SVCs encoding other types of motion events and other events. The non-motion group of SVCs is also a complement to Slobin's SVCs.

Secondly, like the relation between the semantic elements and the surface elements defined by Talmy (2000b), it is not a one-to-one mapping relation between motion events and SVCs. For example, Path can be encoded by a verb or a satellite and a verb can express either Path or Manner. Similarly, motion events can be encoded by serial verb constructions or by other structures and SVCs can express not only motion events but also other types of events. There

are translational motion SVCs similar to *fēi chū* (fly exit; fly out) in my data and there are also:

self-contained motion SVCs such as *dǎ yūn* (beat, faint; beat down), *zhǎng chū* (grow, exit; grow out), *zá zhǒng* (pound, swollen; pound swollen);

peripheral motion SVCs such as *zùoxià dǎgèdǔn* (sit, sleep; sit down to have a nap), *hūnsǐ gùoqù* (faint, pass; faint), *huó xiàqù* (live, go on; continue to live), *biē sǐ* (suffocate, die; suffocate to death);

fictive motion SVCs such as *fān gùoqù* (turn, pass; turn over), *jiànlì qǐlái* (build, start; build up), *mǎi dào* (buy, arrive; finish buying), *hūnsǐ gùoqù* (faint, pass; faint);

SVCs encoding other event types such as *xiàlìng dǎibǔ* (order, arrest; order to arrest), *xiàn chǎn* (limit, produce; control production), *kāishǐ chéngxiàn* (start, present; start to present).

All these examples of SVCs are provided by LCMC. Compared with deleting most of them and keeping only the translational motion SVCs, I am more interested where my data of various SVCs can lead me.

Thirdly, both motion SVCs and non-motion SVCs are worthy of exploration. A Motion event is a complex concept and SVC is also complex. Compared with the concept of motion events, in addition to the complicated process of mapping between conceptualization and reality, SVC also involves more than one subevent which makesit complex.

As we can see from the various SVCs above, examples such as *dǎ yūn* (beat, faint; beat down) and *zá zhǒng* (pound, swollen; pound swollen), encode no change of location between the two subevents but there are the transition of force from one event to another (Talmy 2000a: Chapter 7). And when this transition of force happens, the force coming from the first subevent causes the second one to happen. This type of motion event is also called a caused motion event (Talmy 1972, 1975; Croft 1990; Dowty 1979; Jackendoff 1990) or resultative verb structure (RVC in short) in the Chinese linguistic research tradition (Li 1990, 1995; Li 2008).

Moreover, the temporal relations (please seeSection 4.6) among the same self-contained motion SVCs are different.

(3.13) a. zhǎng chū (grow, exit; grow out)

b. dǎ yūn (beat, faint; beat down)

c. zá zhǒng (pound, swollen; pound (something) swollen)

In example (3.13a) and (3.13b), E1 of growing/beating and E2 of coming-out/falling-down do not overlap in time whereas example (3.13c) shows that E1 of pounding and E2 of becoming swollen have a partial overlap in the temporal line. In (3.13a) and (3.13b), E1 causes E2 but have a clear temporal edge. In (3.13a), the growing event expressed by ***zhǎng*** (grow) is cumulated till the plant is out of the earth (***chū*** (exit)). There is no overlapping between the two events. Similarly, in (3.13b), E1 ***dǎ*** (beat) and E2 ***yūn*** (faint) happen in sequence not simultaneously. In (3.13c), although E1 ***zá*** (pound) happens before E2 and brings about E2 ***zhǒng*** (swollen), the time line for E1 and E2 has a partial overlap, especially in the case of repetitive pounding.

Some SVCs of the self-contained motion also belong to the category of "caused motion events", or "RVCs" and different examples of self-contained motion have different temporal patterns. There are also fictive motion events, peripheral motion events, and other event types. What kind of story will non-motion and motion SVCs tell us? Do the various types of SVCs differ in their semantic co-occurring patterns? These will be discussed in the following chapters.

3.7 Summary

Slobin argues that components within SVCs share equal status. If the components are equal in a SVC, there must be pairs of semantic co-occurringpatterns of SVCs, such as 'Manner + Path' and 'Path + Manner'. This requires me to collect a set of Chinese SVC data so as to examine the semantic co-occurring patterns of Chinese SVCs. LCMC has word class tagged and a query builder for complex string searching. With the help of query searching, I got a set of data from the LCMC. However, not every feature in the set of SVCcriteria is satisfied by the searching query. In addition, there are some mistakenly tagged words of classes. Then, as a native speaker, I carefully examined the first 500 solutions given by the searching query. Of them, 218 examples were SVCs. I also found that not every SVC expresses a motion event. Thus, I further divided my data of SVCs into two groups according to whether each example encoded a translational motion event or other types of events. Of the 218 SVCs, 52 of them presented translational motion events and 166 described other types of events. That is, the motion group has 52SVC examples and the non-motion group has 166 SVC examples. These processes helped me to systematically group my data and the discussion of these data will be presentedin the next chapters.

Chapter 4 Defining Semantic Parameters

4.1 Introduction

This chapter defines semantic parameters and includes six sections. Section 4.1 is the introduction of this chapter and outlines the content of each section.

Section 4.2 discusses the diagnostics for subevents. This section presents the theoretical framework of this chapter. It presents the methods I used in data analysis. I support the theory of lexical decomposition and review the evidence of why a verb's meaning is decomposable and in what way a verb's meaning can be decomposed. Four diagnostic tests were presented. The four test methods are adverb modification, entailment and collocation, Levin's verb behaviour theory, and Talmy's decomposition of verb roots. The first three tests are discussed in this section and Talmy's decomposition of verb roots is discussed in Section 4.3. The three tests illustrate that a verb sometimes expresses a complex event that is composed by subevents and the semantic complexity of verbs can be analysed.

Section 4.3 compares Talmy's verb root decomposition in motion events with Levin's theory of verb behaviours. The comparison shows that Levin (1993) supports Talmy's classification of Path and Manner. Thesalient semantic elements in verbs' lexicalisation$_{(T)}$ patterns make it possible to mark the meaning types of verbs and the lexicalisation$_{(T)}$ patterns of verbs also indicate a method to analyse the semantic co-occurring patterns of SVCs. I chose to use Talmy's approach because of these two advantages. In order to give a comprehensive description of the semantic structure of serial verb constructions, I also defined13 semantic parameters which can also be used beyond the limit of motion events.

Section 4.4 serves as a transition linking up the theory and the application. It discusses the semantic structure of SVCs and introduces the list of semantic parameters. There are 13 semantic parameters including: Action, Aspect, Cause, Condition, Deictic, Direction, Manner, Method, Location, Other Spatial Relation, Perception, Purpose, and State. They were divided into two groups according to whether they are related to Talmy's Path. The first group which is related to the notion of Path includes four parameters. They are Deictic, Direction, Location and Other Spatial Relation. The other nine parameters are in the second group.

Section 4.5 defines the 13 semantic parameters introduced in Section 4.4. Section 4.5.1 first discusses the Path concept in Talmy's theory and then defines the four relevant semantic parameters in the first group. Section 4.5.2 defines the 9 parameters in group 2 divided in Section 4.4. Examples of the 13 types of semantic parameters are given and the categories of

parameters which can occur in verb-1 and which can occur in verb-2 and which can occur in both verb-1 and verb-2 are illustrated and summarised.

Section 4.6 discusses the relations between subevents within serial verb constructions. I found there are two trends in defining the relations between events in SVCs. The first trend depends on the semantic relations between / among events. The second one relies on the temporal relations between / among events. There are various semantic co-occurring patterns following my 13 semantic parameters,which will be discussed in the next two chapters. The temporal structure of Chinese SVCs has been thoroughly analysed by Hwang (2008). The finding is that the ordering of the events within SVCs follows ordinary sequential ordering when event-1 is the first event.

4.2 Diagnostic for Subevents

Verbs can express complex events. Serial verb constructions arguably denote complex events. It is necessary to discuss event complexity so as to analyse the semantic structure of serial verb constructions. The first step to analyse a complex verb is to illustrate that verbs can be decomposed.

4.2.1 Evidence for Lexical Decomposition

Sometimes verbs express complex events and the semantic complexity of verbs can be analysed. When verbs express complex events, there are many diagnostics for the different subevents. Just to name a few: adverbial modification, entailment and collocation, and verb behaviour. I illustrate the diagnostics below.

4.2.1.1 Adverbial Modification

(4.1) The submarine immediately sank for three minutes. (Gisborne 2010: 32)

In example (4.1), verb *sink* is modified by two different temporal modifiers, *immediately* and *for three hours*. The two modifiers are not compatible with each other; however, example (4.1) is not incoherent. It is because "there are two elements in the meaning of *sank*: a 'going (under)' element, and a 'being under' element" (Gisborne 2010: 32) and *immediately* and *for three minutes* each modify just one part of the semantic structure of *sink*. That is, *immediately* modifies the going-under event and *for three minutes* modifies the being-under event.

The meaning of *sink* is decomposable and denotes two subevents. Other verbs like *sink* include*leave* and *stop* as in examples (4.2) and (4.3).

(4.2) a. Bill immediately left the room for three hours.

b. Bill immediately left the room.

c. Bill left the room for three hours.

(4.3) a. Jane immediately stopped for three hours.

b. Jane immediately stopped.

c. Jane stopped for three hours.

These verbs such as ***sink***, ***leave*** and ***stop*** are "change of state" verbs, with an action and its result built into their meanings.

4.2.1.2 Entailment and Collocation

But not every verb's complexity can be diagnosed by adding two contradictory time modifiers. Note that the two time modifiers of ***immediately*** and ***for three minutes/ hours*** are incompatible in the nature of duration. Thus, normally speaking, this feature can cause incoherence when these two modifiers occur in one sentence, such as in example (4.4b) or when the duration of the modifiers is not compatible with that of the verbs, such as in example (4.4e). Example (4.4d) with ***immediately*** is acceptable but example (4.4e) is not grammatical because ***send*** and ***for three hours*** are not compatible in the duration. ***Send*** is punctual and ***for three hours*** is durative. Thus, this adverbial modification test is restrictive. It cannot be used to test verbs like ***send*** in the double object constructions. As we will see below, the verb ***send*** in example (4.4a) denotes a complex event and the adverbial modification test fails to tell us so in (4.4b).

(4.4) a. Jane sent Peter flowers.

b. *Jane immediately sent Peter flowers for three hours.

c. Jane sent flowers to Peter.

d. Jane immediately sent Peter flowers.

e. *Jane sent Peter flowers for three hours.

It is possible to use entailment (Cruse 2000) to test for event complexity in double object constructions. When comparing examples in (4.4a) and (4.4c), I noted that one of the differences is that example (4.4a) entails that Peter receives/has the flowers whereas (4.4c) does not. From this, we infer that the meaning of ***send*** in (4.4a) and (4.4c) differs. ***Send*** in (4.4a) has two subevents: one is the giving event and the other one is the having event. And ***send*** in (4.4c) only entails the event of giving and we do not know whether Peter receives the flowers or not. The two different meanings of ***send*** vary in terms of what the result of giving/sending is.

The two subevents denoted by *sent* in (4.4a) can both collocate with *immediately* but both subevents cannot occur with *for three hours*.

(4.5) a. Jane immediately gave Peter flowers.

b. *Jane gave Peter flowers for three hours.

c. Peter immediately received/had flowers.

d. *Peter received/had flowers for three hours.

Examples in (4.5) show that the subevents of *send* in double object construction can occur with *immediately* but not with *for three hours*. This is the reason why example (4.4b) is ungrammatical. This also points out the limitation of the adverbial-modification test. Verbs such as*send* denote complex events but cannot be diagnosed by adverbial-modification test.Though the adverbial modification and the entailment and collocation illustrate the decomposition of verbs'meanings, I continued to explore verb behaviours and Talmy's semantic analysis so as to look for more widely applicable methods to decompose verbs'meanings and analyse event complexity.

4.2.2 Behaviour of Verbs

Levin (1993) uses the middle construction, the conative construction and the body-part possessor ascension alternation (BPA) to test the behaviours of verbs and she uses this method to classify types of verbs. The three alternative constructions identify subtle semantic meanings of verbs. The subtle meanings represent subevents of the complex event. In this sense, Levin's theory of verb behaviour also provides the method to analyse event complexity.

Various constructions require certain semantic features which represent types of subevents. For example, the conative construction requires verbs that can occur in the construction to have the moving feature; the BPA construction requires verbs to have the touching feature; and the middle construction requires verbs to have the feature of state changes.

The middle construction sounds familiar but not everyone knows what the conative construction and the body-part possessor ascension construction are. To make this point clear, examples from Levin (1993: 5-10) are discussed below.

(4.6) Conative

a. Jane hit Peter.

Jane hit at Peter.

b. Jane broke the window.

*Jane broke at the window.

c. Jane cut the bread.

Jane cut at the bread.

d. Jane touched the painting.

*Jane touched at the painting.

The Conative construction has *at* following the verb. The meaning of *at* involves an agent which travels along the path defined by *at*. Therefore, the conative construction diagnoses for a 'moving' element in the meaning of the verb.Example (4.6) shows that *hit* and *cut* have the meaning of moving whereas *break* and *touch* do not. In another word, *hit* and *cut* have the subevent of movement while *break* and *touch* do not.

The Body Part Ascension construction (BPA) has *on* following the verb. The body part ascension construction requires there to be a 'touching' element in the meaning of verbs that can occur in the construction because the meaning of the preposition *on* involves direct contact.

(4.7) BPA (body-part possessor ascension)

a. Jane hit Peter.

Jane hit Peter on the nose.

b. Jane broke Bill's finger / the window.

*Jane broke Bill on the finger / the window on the centre.

c. Jane cut Bill's arm / the bread.

Jane cut Bill on the arm / the bread on the edge.

d. Jane touched Bill's shoulder / the painting.

Jane touched Bill on the shoulder / the painting on the frame.

Example (4.7) shows that verbs like *hit*, *cut* and *touch* denote the meaning of touching between the agent and the patient while verbs like *break* do not. The verbs *hit*, *cut* and *touch* denote a subevent of touching.

The middle construction requires there to be a change of state in the meaning of verbs that can occur in the construction.[11] Example (4.8) shows that verbs like *break* and *cut* fit in the middle construction for the changes of state they involved. Vase becomes broken and bread

[11] This is not quite true. As pointed by Gisborne (2010: 76), "it is not necessarily the case that only change-of-state verbs can undergo the middle alternation. As Rosta (1995) and Ackema & Schoorlemmer (2005) point out, at least some transitive activity verbs can also undergo middle formation", such as in *The page photocopied too low* or in *this car steers poorly.*

is cut into half or slices. Changes happen to the vase and the bread. However, no changes of state take place in (4.8a) and (4.8d). Thus, verbs like *hit* and *touch* cannot be used in the middle construction and verbs such as *break* and *cut* denote a subevent of state changing.

(4.8) Middle

a. Jane hit the nail / Peter.
   *The nail / Peter hits easily.

b. Jane broke the vase / the window.
   The vase / the window breaks easily.

c. Jane cut the bread.
   The bread cuts easily.

d. Jane touched the dog / the painting.
   *The dog / the painting touches easily.

In examples (4.7) and (4.8), I used the same sentences to do the alternation between the BPA and the middle construction. By doing so, I controlled the influence of context and illustrated that it is the semantic features of verbs that decide whether a verb can occur in a certain construction.

With respect to these three constructions, each verb shows a distinct pattern of behaviour. The pattern of verb behaviour is summarised in Table 4.1.

Table 4.1 Distinct Patterns of Behaviour of hit, break, cut and touch (Levin 1993: 7)

	Hit	Break	Cut	Touch
Conative construction	Yes	No	Yes	No
BPA construction	Yes	No	Yes	Yes
Middle construction	No	Yes	Yes	No

On the basis of the semantic features required by the constructions, Table 4.1 shows us that verbs like *hit* encode two subevents: one is the moving event and the other one is the touching event. Verbs like *cut* encode three subevents: the moving event, the touching event and the event of state changes. But verbs like *break* and *touch* only encode one event.

The theory of verb behaviour further shows that the meanings of verbs are decomposable and there are subevents for verbs. Then, for a SVC, which has at least two verbs, if the two verbs both express complex meanings, that is have subevents, what will be the semantic structure of the SVC?

However, the tests of entailment and collocation, conative construction, BPA construction, and the middle construction are hard to apply to Chinese SVCs. Thus, I exploredTalmy's approach to analysing SVCs and found it is applicable.

4.3 Talmy's Analysis of Motion Events

4.3.1 Talmy's Decomposition of the Meanings of Verbs

I have presented how Levin diagnoses verbs' meanings and how the meaning of verbs indicates subevents. This method of decomposing verbs' meanings and of identifying subevents is compatible with Talmy's analysis of verbs in motion events.

Talmy's semantic elements and his analysis of the relations between the subevents of a verb meaning provide an easy method to analyse complex verbs. See Section 2.2.2. Here I quote an example (4.9) from Talmy (2000b) to show how Talmy breaks down verbs' meanings into subevents.

(4.9) The rock rolled down the hill.
= [the rock MOVED down the hill] WITH-THE-MANNER-OF [the rock rolled]
(Talmy 2000b: 30)

In example (4.9), the verb *roll* encodes the information of Motion and Manner. Thus, for verb *roll* it denotes two subevents: one is the Motion event and the other one is a co-event which denotes the particular manner of the motion event. Similarly, the verb *walk* in examples (4.10b) and (4.11a) denotes a Motion event and a Manner event. And *enter* in examples (4.10a) and (4.11b) denotes a Motion event and a Path event. The following tests follow Talmy's approach and illustrate that verbs like *enter* and verbs like *walk* behave differently.

(4.10) a. enter the classroom =
move into the classroom
[Motion + Path] [Ground]
b. *walk the classroom
[Motion + Manner] [Ground]

(4.11) a. walk into the classroom =
move into the classroom with the manner of walking
[Motion + Manner] [Path] [Ground]
b. *enter into the classroom
[Motion + Path] [Path] [Ground]

In examples (4.10) and (4.11), the phrases are glossed following Talmy's lexicalisation$_{(T)}$ patterns which are in the brackets. Example (4.10) shows that the verb ***enter*** can be followed directly by a noun referring to a place but it is ungrammatical for the verb ***walk*** to appear with a noun of place without a Path preposition. Example (4.11) shows that it is ungrammatical for a verb like ***enter*** [Motion + Path] to collocate with a preposition expressing Path, which is a perfect situation for verbs like ***walk*** [Motion + Manner].

The different behaviours of ***enter*** and ***walk*** can be explained by the transitive/intransitive property of verbs. In the meanwhile, example (4.11b) shows a repeat of the same semantic element.[12]In example (4.11b), the semantic element Path encoded by the verb ***enter*** overlaps with the Path information encoded by the preposition***into***, which leads the sentence to be ungrammatical. On the other hand, the ungrammaticality of (4.11b) further supports that verbs like ***enter*** denote Path and include two subevents, one of which is the Path event.

Similar tests can also be used in Chinese. The Chinese examples are given below.

(4.12) a. jìn jiàoshì
enter classroom
[Motion + Path] [Ground]
'enter the classroom'

b. *zǒu jiàoshì
walk classroom
[Motion + Manner] [Ground]

(4.13) a. zǒu jìn jiàoshì
walk enter classroom
[Motion + Manner] [Motion + Path] [Ground]
'walk into the classroom (enter the classroom in the manner of walking)'

b. *jìn jìn jiàoshì
enter enter classroom
[Motion + Path] [Motion + Path] [Ground]

In the Chinese examples above, the Ground information encoded by the noun cannot go directly after Manner verbs but can follow a Path verb.[13] The only difference between the

[12] Surface element is one of Talmy's terms and it refers to the word categories such as verb, preposition, noun, and so on. Here the surface element refers to verb and preposition.
[13] Manner verbs here refer to verbs with the lexicalisation$_{(T)}$ pattern of [Motion + Manner]. Similarly, Path verbs refer to verbs with the lexicalisation$_{(T)}$ pattern of [Motion + Path].

English and the Chinese examples is that in example (4.13b), instead of a preposition, the Chinese verb *jìn* (enter) expresses the Path information. Examples in (4.12) and (4.13) follow the transitive and intransitive properties of verbs.

In addition, a method to diagnose semantic elements was also shown by Talmy's analysis of the lexicalisation$_{(T)}$ patterns of verbs. Explanation will be given below on how to diagnose semantic elements in Chinese SVCs through the decomposition of verbs'meanings, such as 'With the manner of…'.

4.3.2 Semantic Elements and Lexicalisation Patterns

Compared with Levin's method of verb behaviour, Talmy's semantic elements come from observation of lexicalisation$_{(T)}$ patterns of verb roots in motion events. Talmy's observation of lexicalisation$_{(T)}$ patterns has two advantages. One is that it provides a method to identify compositional meanings of verbs and the semantic elements describe what semantic meanings are encoded by verbs. The other one is that the lexicalisation$_{(T)}$ patterns of verb roots shed light on semantic co-occurring patterns of SVCs.

4.3.2.1 Semantic Elements and Salience

As I have illustrated, verbs can denote complex events. In Talmy's terms, a verb can encode more than one type of semantic element. The six basic semantic elements summarised by Talmy are Motion, Path, Figure, Ground, Manner and Cause. Take the element of Motion as an example, Talmy observes that Motion is able to co-occur with Path, Manner, Figure and Cause and the lexicalisation$_{(T)}$ patterns are [Motion + Manner], [Motion + Path], [Motion + Figure] and [Motion + Cause]. In the lexicalisation$_{(T)}$ patterns, the semantic elements of Manner, Path, Figure and Cause, rather than Motion, make the meaning of the verbs distinct. The complex events represented by these verbs are co-events of Manner,Path, Figure, and Cause. Therefore, to make things simple, the more salient semanticmeanings/elements in SVCs determine the event type of a verb.

Verbs can encode different semantic elements at the same time. For example, in motion verb ***run*** [Motion + Manner],it encodes two semantic elements, Motion and Manner, and Manner is the more salient one because ***run*** is a hyponym of ***move***. In SVCs, I have examples such as *dǎ sǐ* (beat, die; beat to death), where *dǎ* (beat) is a causalaction and *sǐ* (die) encodes a resultative state. I label their semantic co-occurring pattern as 'Cause + State' because in *dǎ*(beat) [Action + Cause], Cause is the more salient meaning compared with Action andCause is the more salient subevent in the macro-event of 'beating causes becoming dead'. Similarly, in *sǐ* (die) [Action + State], State is the more salient semantic element and denotes

the event of State. Result is not directly included in my semantic parameters but it is included as a subtype of State.

In addition, similar to Talmy's example in (4.9), I use the alternating sentence patterns to help identify the compositional meaning of verbs and the subevents they denote. This point will be further illustrated in defining the semantic parameters in Section 4.5.

4.3.2.2 Patterns

Another advantage of Talmy's semantic observation is that Talmy not only analyses the semantic elements but also presents the lexicalisation$_{(T)}$ patterns. The description of the lexicalisation$_{(T)}$ patterns provides a method to analyse the semantic structure of serial verb constructions and summarise them by using salient semantic elements of verbs in SVCs.

Slobin asserts that the SVCs in Chinese share equivalent grammatical forms (see Section 2.3). Does grammatical form or the surface element play such an important role in determining a language's type? Is the semantic status of verbs in the serializing equal? If the answer is negative, Slobin's classification of Chinese is wrong.

As for the semantic structure of SVCs, it is possible to summarise the semantic co-occurring patterns by identifying the single verb's event type and combining each verb's event type together. In addition, I have shown that Talmy's observation of lexicalisation$_{(T)}$ patterns supports thetheoryof lexicaldecomposition. Therefore, I will follow Talmy's method of observation to analyse the semantic elements of verb components in the SVCs. I need more semantic elements to comprehensively describe the semantic structure of SVCs, especially when SVCsof the non-motion events are involved.

4.3.3 Summary

As we have seen above, the meaning of verbs is decomposable. Complex verbs have subevents. Serial verb constructions are a problem because they involve two verbs, which arguably express a single complex event (Aikhenvald 2006; Foley 2010). Thus, it is necessary to analyse the semantic structure of SVCs. And it is possible to use the same tools—Talmy's decomposition of semantic elements as for complex ordinary verbs in SVCs.

4.4 Semantic Structure of SVCs

Before I go on to define the semantic parameters used in my data analysis, I drew a picture of the semantic structure of SVCs and showed whatneeds to be done to complete the whole picture.

SVCs include at least two subevents and I showedhow to analyse those events and the relation between them. I use event-1 (E1) to represent the event encoded by verb-1 (V1) and event-2 (E2) to represent the event encoded by verb-2 (V2). Verb-1 refers to verbs occurring in the first verb slot in SVCs and Verb 2 refers to verbs occurring in the second verb slot in SVCs.

Table 4.2 Semantic Structure of SVCs

Category	Relation	Category
Event-1	<-->	Event-2
Verb-1	<-->	Verb-2

Table 4.2 demonstrates that verb-1 denotes event-1; verb-2, event-2. I assume that event-1 precedes event-2 in a syntactic slot (not in temporal event sequence). In any serial verb construction, there is a relation between the two events. For example, E1 can be the cause of E2; E2 can be the purpose of E1. These relations between SVCs will be discussed in Section 4.6 of this chapter.The event type is decided by the meaning types encoded by verbs. Figure 4.1 gives a complement to semantic structure of SVCs in Table 4.2.

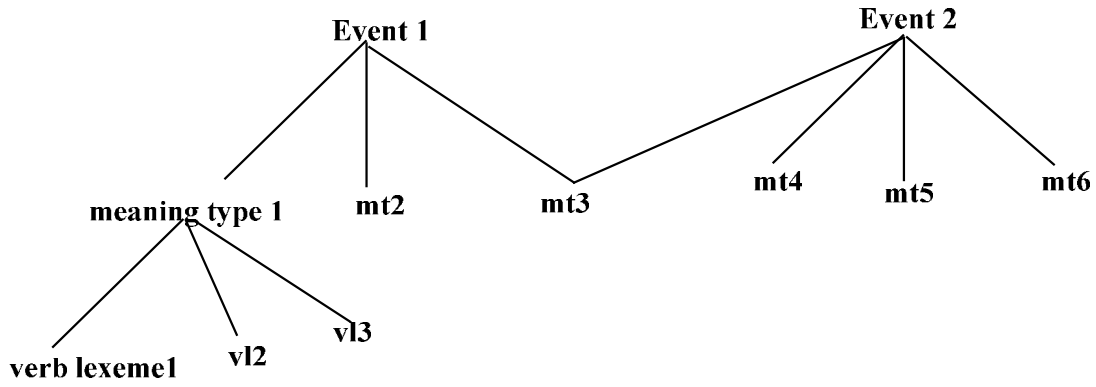


Figure 4.1 Semantic Structure of SVCs

The diagram is schematic. It says that event-1 can denote a number of different meaning types. Meaning types are the semantic parameters to be defined in Section 4.5. Sometimes, the same meaning type can be event-1 of a particular SVC orevent-2 of another SVC. In the diagram above, meaning type 3 (mt3) represents this case. In the left corner of Figure 4.1, the relations between meaning type 1 and verb lexeme 1(vl1), vl2 and vl3 show that a meaning type can be realized by more than one verb lexeme.

As we have seen, verb lexemes express meaning types. Take *walk* and *enter* as an example. *Walk* expresses the Manner information (the mode of movement) and *enter* expresses the Path information (where the movement is with respect to a space). Different verb lexemes

can express the same meaning type. For example *walk*, *run*, and *crawl* express the meaning type of Manner. When the verb denoting the meaning type occurs in the position of the first verb of a SVC, event-1 denotes the same meaning type. Similarly, when the verb occurs in the second-verb position of a SVC, event-2 denotes that meaning type.

(4.14) semantic structure of SVC *fēichū* (fly, exit; fly out)

V1 fēi (fly)	V2 chū (exit)
Lexicalisation$_{(T)}$ pattern: [Manner + Motion]	Lexicalisation$_{(T)}$ pattern: [Path + Motion]
Meaning type: E1Manner	Meaning type: E2Path
Semantic co-occurring pattern: 'Manner + Path'	

Example (4.14) shows the semantic structure of *fēi chū* (fly out) represented by the combination pattern of meaning types in order, 'Manner + Path'. The order of the meaning types is important in the sense that the criteria of being fully equal in semantics means each meaning type can be encoded by verbs in any slot within the SVCs. Now Iwill proceed to define the semantic meaning types which can give a comprehensive description of the SVCs in my data.

I used 13 semantic parameters to identify and analyse different SVC types. They are Action, Aspect, Cause, Condition, Deictic, Direction, Manner, Method, Location, Other Spatial Relation, Perception, Purpose, and State. I am going to define each one of them in Section 4.5. According to whether these semantic parameters are related to Talmy's semantic element of Path, I divided them into 2 groups. The first group includes Deictic, Direction, Location and Other Spatial Relation. They are subtypes of Path. Action, Aspect, Cause, Condition, Manner, Method, Perception, Purpose and State are included in the second group.

4.5 Semantic Parameters

Section 4.5.1 discusses the four parameters in the first group mentioned at the end of Section 4.4 and Section 4.5.2 discusses the nine parameters in group 2.

4.5.1 Deictic, Direction, Location and Other Spatial Relation

4.5.1.1 Path

Talmy's Path includes three components which are the Vector, the Conformation, and the Deictic and they have been explained in Section 2.2. Slobin (2008) added a fourth component to the elaboration of Path, namely, Earth-grid Displacement. This component specifies types of Path on the vertical and the horizontal axis. For example, the Chinese verb *shàng* (ascend) denotes motion along the vertical axis rather than motion along the horizontal one. But Slobin's Earth-grid Displacement is not necessary. The combination of Vector and

Conformation in Talmy's Path system includes the trajectories on the vertical and the horizontal axis, such as *on, onto*. In addition to Talmy and Slobin, a lot of the literature has discussed the semantic component of Path (Narasimhan 2003; Wälchli 2001; Cifuentes-Férez 2008; Berthele 2004;Jackendoff 1983).

Taking into consideration Talmy's Path components, Narasimhan (2003) explores Path in English and Hindi verbs. Table 4.3 presents the Path components she identified. Table 4.3 also presents examples of each type and compares the Path types with Talmy's.

Table 4.3 Narasimhan's Path Componentsand Talmy's Path Components(2003: 136)

	Path components	e.g.	Comparison with Talmy's Path components
a	Complex source-point[14]	*Enter*	Vector, Conformation, and combinations of Vector and Conformation
b	Complex source-point	*Exit*	
c	Simple endpoint	*Arrive*	
d	Simple potential endpoint	*Approach*	
e	Simple source-point	*Leave*	
f	Midpoint	*Pass*	
g	Direction	*Ascend*	
h	Deixis	*Come*	Deictic

Narasimham describes Path components mainly from the source, midpoint, and endpoint. However, compared with Talmy's discussion of Vector and Conformation (see Section 2.2.1), this Ground-related classification does not give specific description to the Ground or to the Path. Table 4.3 maps Narasimham's Path components to Talmy's. The Path components proposed by Narasimham have confusing labels.

Wälchli (2001) provides another classification of Path. There are all together 6 types of Path in his system and he uses Latin prepositions to express the six types.

(4.15) a. AD=the Figure goes to the Ground
b. IN=the Figure goes into the Ground
c. SUPER=the Figure goes onto the Ground
d. AB=the Figure comes from the Ground
e. EX=the Figure comes out of the Ground
f. DE=the Figure comes down from the Ground

[14] It encodes features of the endpoint, e.g., whether it is a container.

These six types use the relations between the Figure and the Ground to define Path. It is quite similar to Talmy's analysis of Path. There are also the combination of Vector and Conformation as in (c) SUPER (See Section 2.2.1). But it is obvious Deictic is not included in Wälchli's classification.

Path is a complex semantic element in the sense of including various subtypes. Each analysis above lists a method to explore Path components. I do not need so many subtypes of Path in the observation of semantic co-occurring patterns because my purpose is to observe the slot where the Path information can be encoded by verbs in SVCs, not to discuss what kind of Path is encoded by the verb (see Chapter 7 for discussion on verbs of Path). Thus, I narrow down the subtypes of Path into four and use these four categories to investigate the Path event in the serial verb constructions. They are Deictic, Direction, Location and Other Spatial Relation.

I chose these four subtypes of Path because (1) Direction and Location present the static movement in motion and non-motion events. Direction is the semantic element describing Path in the fictive motion or metaphorical motion (e.g., Langacker 1987a & 1987 b; Matsumoto 1996; Rojo & Valenzuela 2003; Talmy 2000a; Özçalişkan 2002, 2004). As for Location, BE_{LOC} is a special motion event. I assume Path components occur in the same verb slot. By observing the semantic elements describing the static motion events such BE_{LOC}, I testedwhether my assumption was right or not. I found that not all the Path components occur in the same slot. For example, it is observed that verbs that encode the Deictic information can occur in both V1 and V2 positions in SVCs and the verbs encoding Location can only occur in V1 slot of SVCs. These usagesare different from most other Path elements, such as Other Spatial Relation and Direction which are supposed by Talmy to happen only in the second verb position like a satellite. (2) Deictic is the same as Talmy's Path component. I took Deictic as a separate parameter out of Talmy's three Path components because Vector and Conformation always go together to describe complex Paths while I observed that there are complex Deictic verbs encoding the $lexicalisation_{(T)}$ pattern of 'Other Spatial Relation + Deictic' in Chinese as discussed in Section 4.5.1.2. (3) Furthermore, these four Path categories cover the concept of Talmy's Path as shown in Table 4.4 below.

Table 4.4 Four Path Parameters Corresponding to Talmy's Path Components

Path components in my thesis	Talmy's Path components
Deictic	Deictic
Location, Direction, Other Spatial Relation	Vector, Conformation, and combinations of Vector and Conformation

Table 4.4 compares the four Path parameters I am using to Talmy's three components of Path. We can see that Deictic in my thesis is the same as that in Talmy's Path component and Other Spatial Relation scopes over the Vector, Conformation, and combinations of Vector and Conformation. Location denotes a place where the event happens and Direction specifies the static movement in non-motion events such as fictive motion events. And they cover Vector, Conformation, and combinations of Vector and Conformation in Talmy's Path components.

4.5.1.2 Deictic

Deictic Element in Chinese SVCs

Deictic has been discussed in Section 2.2.1as a component of Path. Similarly, in Chinese, Deictic defines Path with respect to speakers and listeners. Deictic describes the relative positions of both speaker and listener. That is, whether the speaker is moving towards or away from the listener or the other way around. *Lái* (come) and *qù* (go) are the most typical verbs which encode the information of Deictic in Chinese and can occur in the first verb position or in the second verb position in SVCs.

(4.16) a. Wǒ lái zuòfàn.
1SG come cook
'I come to (the kitchen to) cook.'
b. Wǒ qù zuòfàn.
1SG go cook
'I go to (the kitchen to) cook.'

In example (4.16a), *laí* (come) indicates that the listener is in the kitchen and the speaker comes to the speaker. In example (4.16b), *qù* (go) indicates that the speaker and the listener are together before the speaker leaves to cook.

(4.17) a. chū lái
exit come
'come out'
b. chū qù
exit go
'go out'

Similarly, in (4.17a) the observer or the speaker is illustrated by *lái* (come) staying out of a certain container while *qù* (go) in (4.17b) indicates that the observer or the speaker is inside the container with the agent of *chū* (exit) and *qù* (go).

Note that in examples (4.16) and (4.17) Deictic is denoted by verbs in different positions.

(4.18) Deictic in V1 and in V2

SVCs in (4.16)		SVCs in (4.17)	
V1	V2	V1	V2
lái (come)	zuòfàn (cook)	chū (exit)	lái (come)
qù (go)	zuòfàn (cook)	chū (exit)	qù (go)
Deictic	Purpose	Other Spatial Relation	Deictic
E1	E2	E1	E2

Example (4.18) summarises the semantic structure of (4.16) and (4.17). We can see that both event 1 and event 2 can encode the Deictic element. The semantic co-occurring pattern for (4.16) is 'Deictic + Purpose' and for (4.17) is 'Other Spatial Relation + Deictic'.

Complex Deictic Verbs in Chinese

Lái (come) and *qù* (go) are also possible to combine with another Path verb to form complex Deictic verbs. The lexicalisation$_{(T)}$ pattern of the complex Deictic verbs is 'Other Spatial Relation + Deictic' as exemplified by example (4.17).

There is a lot of literature discussing verbs encoding Other Spatial Relation and Deictic in Chinese, e.g. Fan (1963), Sun (2004), Lin (1991) and Ma (2005). Since the complex Deictic verbs are a closed class, Fan (1963), Sun (2004) and Lin (1991) summarise the specific examples of this verb class. Even though the lists of complex Deictic verbs summarised bydifferent researchers differ from each other, the most common list is given in Table 4.5.[15]

These 14 specific verbs, their lexicalisation$_{(T)}$ patterns, and the observation of theiroccurring positions help a lot in defining event types of SVCs. I also observed that as a lexicalised$_{(D)}$ word each of the 14 words is being grammaticalized to be Path satellites or aspect markers. Talmy (2000b: 109) includes these words as Chinese satellites, which express the Path information. Fan (1963) also observes that these complex Deictic verbs can occur after another verb in Chinese to forma construction such as ***fēi chū lái*** (fly, exit, come; fly out toward the speaker).

[15] I did not call them SVCs because most of the words are compiled in dictionaries except for ***shàng lái*** (come upward toward the speaker), ***xià lái*** (come downward toward the speaker), and ***gùo qù*** (go away from the speaker). The different senses of three words are compiled by ***Xīnhuá zìdiǎn*** (Xinhua Dictionary).

Table 4.5 14 Complex Deictic Verbs in Chinese

	shàng (ascend)	xià (move downward)	jìn (enter)	chū (exit)	gùo (pass by)	huí (return)	qǐ (get up)
lái (come)	shàng lái (come upward toward the speaker)	xià lái (come downward toward the speaker)	jìn lái (enter toward the speaker)	chū lái (exit toward the speaker)	gùo lái (come toward the speaker)	huí lái (return toward the speaker)	qǐ lái (get up toward the speaker)
qù (go)	shàng qù (go upward away from the speaker)	xià qù (go downward away from the speaker)	jìn qù (enter away from the speaker)	chū qù (exit away from the speaker)	gùo qù (go away from the speaker)	huí qù (return away from the speaker)	qǐ qù (get up away from the speaker)
lái (come)	*lái shàng	*lái xià	*lái jìn	*lái chū	*lái gùo		* lái qǐ
qù (go)	*qù shàng	*qù xià	*qù jìn	*qù chū	*qù gùo	*qù huí	*qù qǐ

Table 4.5 lists the 14 verbs encoding complex Deictic. The complex Deictic verbs are grammatical only when *lái* (come) and *qù* (go) follows the other subtype of Path. When *lái* (come) and *qù* (go) are in V1 position, most of the combinations are ungrammatical due to meaninglessness. When *lái* (come) and *qù* (go) occur in the first verb position they require an Action event acting as the main event rather than a dependent event expressing only the Path information.[16]This is because*lái* (come) and *qù* (go) are being grammaticalized. They cannot appear in the first verb position with the meaning 'get closer to the speaker or get away from the speaker'. When they occur in the first verb position, they mean come towards the speaker to do something or go away from the speaker to do something.

Lái huí (the distance between two places) is the word which should take up the empty cell in Table 4.5. I have not put *lái huí* in Table 4.5 because it is not a verb. The word class changes when *lái* (come) and *huí* (return) are combined in order. *Lái huí* (the distance between two places; come and go for several times) is used as a noun and an adverb.

(4.19) a. Cóng Běijīng dào Tiānjīn lái huí yào 3 xiǎoshí.
From Beijing to Tianjin laihui take 3 hours
'It takes 3 hours to return between Beijing and Tianjin.'

b. Cóng Běijīng dào Tiānjīn dē (的) jùlí shì 80 qiānmǐ.

[16] The sequence of 'the Other Spatial Relation verb + the Deictic verb' is caused by the grammaticalization of *lai* (come) and *qù* (go). A lot of literature discusses this topic, to name a few: Ma (2005), Fan (1963), Zhao & Wang (2006), Zhang (2008), Tang (2005).

From Beijing to Tianjin noun marker distance be 80 kilometre

'The distance between Beijing and Tianjin is 80 kms.'

c. Dàjiā bào zhe shūběn lái huí pǎo.

Everybody take aspect marker book laihui run

'Everybody taking the books went and returned for several times.'

d. Dàjiā bào zhe shūběn fēikuaì dē (地) pǎo.

Everybody take aspect marker book very quickly de run

'Everybody taking the books ran very quickly.'

In example (4.19a),*lái huí* functions as a noun denoting the distance from X to Y and the return from Y to X. The *lái huí* in (4.19a) can be replaced by a standard noun such as *jùlí* (distance) as shown by example (4.19b). In example (4.19c) *lái huí* functions as an adverb meaning going and coming back for more than once. In (4.19c),*lái huí* modifies the main verb *pǎo* (run); thus, it is an adverb. Example (4.19d) shows that *lái huí* can be replaced with another adverb *fēikuaì* (very quickly like flying). Dē (地) in (4.19d) also shows the clear modifying relation between the adverb *fēikuaì* (very quickly like flying) and the verb *pǎo* (run). Dē (地) can also be put between *lái huí* and *pǎo* in example (4.19c).

Summary

In summary, *lái* (come) and *qù* (go) highlight Deictic verbs in Chinese and make it easy to detect and diagnose the Deictic meaning type. The simple Deictic verbs like *lái* (come) and *qù* (go) usually happen in the first verb positionexcept when they are encoded by the 14 complex Deictic verbs such as in *shànglái* (come upward toward the speaker), *xiàlái* (come downward toward the speaker), *shàngqù* (go upward away from the speaker), and so on. The 14 complex Deictic words usually appear in the second verb position after another Path verb or they can also appear in the first verb position as *lái* (come) and *qù* (go) followed by an Action subevent connected to the complex Deictic verb through the purpose relation such as in *xiàlái chīfàn* (come down, have dinner; come down to have dinner).

4.5.1.3 Direction

Verbs denoting Direction are usually followed by a NP which is a name for a place or a person or a nominal direction such as the south, the north, and the west. Like Deictic, verbs encoding Direction such as *wǎng* (go towards) and *xiàng* (go towards) can be used after other verbs in Chinese SVCs. Verbs of Direction convey the static Motion and static Path. It is not BE_{LOC} but BE_{Toward} without *lái* (come) or *qù* (go).

The diagnosis of Direction is easy. Firstly, compared with the Location discussed below, the meaning of being towards some place or being towards a specific direction is conveyed and the noun or noun phrase following the Direction verb must be the goal, instead of the source of moving. Secondly, compared with the meaning type of Deictic, there is no *lái* (come) or *qù* (go) in the expression. Finally, verbs of Direction can be used before another verb with the same meaning expressed but in a different word category. Satisfying these four requirements, the verb expresses the meaning type of Direction.

(4.20) a. Zhè chē qù wǎng běifāng/Běijīng.
This train go go toward north/Beijing
'This train goes towards north/Beijing.'

b. Zhè chē wǎng běifāng/Běijīng qù.
This train toward north/Beijing go
'This train goes toward north/Beijing.'

(4.21) a. Tāmén zǒu xiàng wǒ.
3PL walk go toward me
'They walk toward me.'

b. Tāmén xiàng wǒ zǒu lái.
3PL toward me walk come
'They walk toward me. (*lái* finishes the meaning of being toward the speaker.)'

Examples (4.20) and (4.21) show that prepositions of *wǎng* (toward) and *xiàng* (toward) are used before verbs to convey the same meaning as verbs of *wǎng* (go toward) and *xiàng* (go toward). The semantic co-occurring patterns are summarised in (4.22) below.

(4.22) Direction in V1

SVCs in (4.20a) and (4.21a)		'adverb + verb' in (4.20b) and (4.21b)	
V1	V2	preposition	V1
qù (go)	wǎng (go toward)	wǎng… (toward…)	qù (go)
Deictic	Direction	Direction	Deictic
zǒu (walk)	xiàng (go toward)	xiàng… (toward…)	zǒu (lái) (walk (come))
Manner	Direction	Direction	Manner (Deictic)
E1	E2	E1	E2

Table in (4.22) presents the semantic co-occurring patterns of 'Deictic + Direction', 'Manner + Direction', 'Direction + Deictic' and 'Direction + Manner'. Direction is encoded by prepositions in examples (4.20b) and (4.21b).Thisshows that verbs encoding Direction only occur in the second verb position in SVCs.

4.5.1.4 Location

In Talmy's terms, motion events consist of two subtypes—one static BE_{LOC} and one dynamic MOVE. In my terms, the static BE_{LOC} is described by 'Location' while MOVE is expressed by other meaning types such as Path and Manner because MOVE usually cannot be separated from Path, Manner, Figure, and Ground and words such as ***move***which only encode the MOVE information are few. Location is a kind of special movement and thus is counted as a member of the Path family in Talmy's sense.

(4.23) a. dào yījiā gōngsī rènzhí
go a-CL company work
'go to a company and work there'
b. zaì yījiā gōngsī rènzhí
at a-CL company work
'work at a company'

The verb *dào* (go to) denotes a Location when a place like a company is added after it. Verbs of Location combine with a specific place noun and function as the location where the following event happens.

Location and Direction are different. Direction shows a general direction and it is not clear whether the agent arrives at the goal or not. The place that Location depicts is part of the whole event, that is, where the event happens. Further, as examples (4.20a) and (4.21a) show, Direction is encoded only by V2s while as shown by example (4.23a)Location can only be encoded by V1s.

The diagnostic of Location can be done step by step. Firstly, compared with the Direction discussed above, the meaning of moving and being at a specific place is involved and the place encoded by the verb of Location provides the background information (the place) for the whole event. Secondly, compared with the meaning type of Deictic, there is no *lái* (come) or *qù* (go) in the construction. Finally, verbs of Location are usually used before the other verb in the SVCs and the Location meaning can be replaced by a preposition expressing the similar meaning. This is illustrated by example (4.23). The sentence in (4.23b) uses a preposition to convey the similar meaning as the example in (4.23a).

4.5.1.5 Other Spatial Relation

I have identified the meaning types of Deictic, Direction, and Location in the previous section. The remaining subtypes of Path which have been discussed in Table 4.4 are included

under the terms of Other Spatial Relation, Talmy's Vector and Conformation and combination of Vector and Conformation included.

Verbs encoding Other Spatial Relation usually occur in the second verb position in SVCs.

(4.24) zuò jìn
sit enter
E1 E2
Manner Other Spatial Relation
'go into a car and sit down (in the car)/go into the car with the manner of sitting'

In example (4.24), event-1 is sitting and event-2 is entering. When these two verbs combine together, the semantic co-occurring pattern they present is 'Manner + Other Spatial Relation'. And herein this example, Other Spatial Relation occurs in the second verb position.

In this thesis, four subtypes of Path are used to describe the co-occurring patterns of SVCs.They are Other Spatial Relation, Deictic, Direction, and Location.

4.5.2 The Nine Semantic Parameters in the Second Group

This section defines and discusses the nine semantic parameters in the second group divided in Section 4.4. Before going to define each specific parameter, Talmy's analysis of Cause and Manner in motion events is presented so that the defining of the other parameters in Chinese SVCs can follow.

4.5.2.1 Hints from Semantic Elements in Talmy's Motion Events

Before I define the nine semantic parameters in the second group, Talmy's decomposition of verbs' roots into semantic elements is repeated here. Talmy's diagnosis of the semantic elements Manner and Cause shows a method to define the semantic parameters. And Manner and Cause are in my parameter set.

Recalling that verb roots in motion events can encode a main event and a Co-event, the Co-event can be an event of Cause, an event of Manner, an event of Enablement, and so on. Taking Co-events of Cause and Manner as examples, Co-events of Cause denote a cause for main events and Co-events of Manner denote the Manner information of main events.

(4.25) Cause
Our tent blew down into the gully from a gust of wind.
a. [our tent MOVED down into the gully] WITH-THE-CAUSE-OF [a gust of wind blew on the tent]

b. [our tent MOVED down into the gully] WITH-THE-MANNER-OF [a gust of wind blew on the tent]

(4.26) Manner
The baby crawled across the floor.
a. [the baby MOVED across the floor] WITH-THE-MANNER-OF [the baby crawled]
b. [the baby MOVED across the floor] WITH-THE-CAUSE-OF [the baby crawled]

In example (4.25a), there is a clear causal relation of the wind blowing first and then the tent being blown down as a result. Example (4.26a) shows that a Co-event of Manner describes how the Figure in the sentence moves. I followed Talmy's diagnosing method and made up the analysis in (4.25b) and (4.26b). Both (4.25b) and (4.26b) turn out to be unacceptable as they are not the right analysis to the sentences in (4.25) and (4.26). The meaning types encoded by the verbs decide whether the analysis in (a) and (b) in (4.25) and (4.26) is right or wrong. *Blow* has the meaning of Cause—'to move or to move something by the force of the wind or a current of air' while *crawl* has the meaning of Manner—'to move along on your hands and knees with your body close to the ground'.[17]

Talmy gives definitions of Manner and Cause. Take Manner as an example. Manner is defined as the way in which a protagonist moves (e.g. *jump, roll*). Note the way Talmy illustrates that there is a Co-event which is in the relation of Cause or Manner to the main event in examples (4.25) and (4.26). It proposes a plausible method to tell apart semantic elements. I generalized this test in SVCs for the meaning types of verbs and events. In the defining of semantic parameters of Aspect, Cause, Condition, Method, Purpose, and Perception, a number of the sentence patterns such as 'with the aspect of…', 'with the cause of…, 'with the condition of…', 'with the perception of…' will be seen in the following section.

4.5.2.2 Action, Aspect, Cause, Condition, Manner, Method, Purpose, Perception and State

In this part, I give a description of each of the nine semantic parameters first. Then examples of each parameter in Chinese SVCs are given. And I also follow Talmy to perform the meaning type test with examples.

Action

Action refers to the events carried out usually by an animate agent. I compare Action with Talmy's Motion for a better understanding of Action.

[17] The meaning explanation is quoted from Longman Dictionary of Contemporary English.

In motion events, as long as Motion is involved there must be certain kinds of Path involved. If there is no Path then there is no motion event. Path is the core schema of motion and I use different kinds of Paths such as Deictic, Direction, Location and Other Spatial Relation to decompose motion events. Furthermore, there is the meaning type of Manner which can also be used to describe the manner of the movement. Especially when Motion and other meaning types are encoded in one verb root, such as [Motion + Path] or [Motion + Manner], the other semantic element is always more salient than Motion. Thus, motion is not included as a meaning type discussed here.

The method of comparing salience of semantic elements to decompose meanings of verbs also works in the non-motion events. Most of the non-motion events encode Action first and then if there are other meanings encoded by the verbs or coerced by the event relation or by the construction then the salient semantic element is taken as the meaning type of the verb. For example, in example (4.27b), the first verb encodes [Action + Aspect] and Aspect is the salient semantic element; thus, the meaning type for V1 is Aspect rather than Action. Different from Motion, Action is the meaning type for some verbs, such as in examples (4.27a) and (4.27c). Thus, it is possible to test whether a verb encodes the meaning type of Action in Talmy's sense.

According to the examples in my data, verbs encoding Action can occur in V1 and V2.

(4.27) a. zǔzhī hǎo
organise be good
Action State
E1 E2
'well organise something'

b. kāishǐ chéngxiàn
start present
Aspect Action
E1 E2
'start to present'

c. xiàlìng dàibǔ
order arrest
Action Action
E1 E2
'order to arrest'

I gave three examples in (4.27). In example (4.27a), verb-1 *zǔzhī* (organise) denotes the first event and verb-2 *hǎo* (be good) denotes the second event. Event-1 of organising is in the meaning type of Action and event-2 of being good is in the meaning type of State. The semantic structure of the SVC in (4.27a) is 'Action + State' and Action happens in E1. Similarly, in (4.27b) verb-1 encodes event-1 of starting and verb-2 encodes event-2 of presenting. The semantic structure of the SVC in (4.27b) is 'Aspect + Action' and Action happens in E2. In (4.27c), verb-1 encodes event-1 of ordering and verb-2 encodes event-2 of arresting. The semantic structure of the SVC in (4.27c) is 'Action + Action' and Action is encoded by V1 and V2 in one SVC.

Aspect

Aspect refers to the meaning types expressing the aspectual information. In addition to some aspectual marks such as the perfective mark *l*e, the experiential aspect marker *guò* and the imperfective aspect markers *zài* and *zhe* or adverbials *yǐjīng* (already), my data from the corpus shows that a small class of Chinese verbs can also indicate the Aspect information. Examples of verbs encoding Aspect information in Chinese are presented below.

(4.28) a. kāishǐ (start)

kāishǐ jìnshuǐ

start fill water

'begin to fill water'=fill water with the aspect of starting

b. qǐ (start)

guā qǐ

blow start

'start to blow'= blow with the aspect of starting

c. guòqù (pass)

fān guòqù

turn pass

'turn over'=turning with the aspect of completing

d. qǐlái(stand up)

jiànlì qǐlaí

build stand up

'have built up'=build with the aspect of completing

e. shàng (begin)

guò shàng

live begin

‘begin to live (a good life)’=live (a good life) with the aspect of starting

f. jìxù (continue)

jìxù wánshàn

continue improve

‘continue to improve’=improve with the aspect of continuing

In example (4.28), the first lines give the verbs encoding Aspect. The second lines show the SVC examples. The third lines are the glossing. The last lines illustrate the specific Aspect connecting the two subevents in Talmy’s way.

The Aspect element depicts the aspectual state of the events constructed by verbs. In the examples above, *kāishǐ, shàng* and *qǐ* indicate the start of an event while *qǐlái, guòqù* means the completion of events. *Jìxù* refers to the continuous state of an event.

The SVC examples in (4.28) also show that the meaning type of Aspect can occur in the slot of V1 or V2. For the same aspect meaning of starting, *kāishǐ* locates in V1 of SVCs and *shàng* and *qǐ* locate in V2 of SVCs. For the aspect meaning of completing, *qǐlái* and *guòqù*occur in V2. For the aspect meaning of continuing, *jìxù* occurs in V1.The Aspect verbs only show up in their respective positions in SVCs because their appearance elsewhere gives rise to ungrammaticality or differences in meaning. For the examples in (4.28), if the V1 and V2 exchange their positions, the examples will be ungrammatical.

Most of the verbs of Aspect here have a sense of a certain Path. Or put it in another way, verbs ofPath can be used in serial verb constructions to indicate the aspect of events. Or there is another possibility--in an opposite way around, verbs of Aspect can be used to describe the Path information. My data shows that only part of the verbs of Path can provide the meaning type ofAspect while almost all the verbs of Aspect except for *jìxù* (continue) and *kāishǐ*(start), are from verbs of Path. It indicates that verbs of Path have experienced the grammaticalization of becoming an aspect marker as predicted by (Aikhenvald 2006) and illustrated by Matthews (2006) in Cantonese. It is an interesting question but a diachronic research of Chinese is needed to investigate the evolution of verbs’ meanings. Li (1993) and Shi & Wu (2014) carried out a diachronic research on VV compound verbs.

Cause

The meaning type of Cause refers to the event which leads to the happening of another event. Sometimes, it is not so easy to assess whether a verb is expressing Manner or Cause in motion events in English. “For example, in ‘I rolled the keg into the storeroom’,

*rolled*basically refers to what the keg did and so expresses Manner, whereas in 'I pushed the keg…' ***pushed*** refers to what I did, and so gives the Cause of the event" (Talmy 2000b: 28).

In Chinese, the meaning type of Cause becomes easy to detect with the help of ***yīnwèi***… ***suǒyǐ***…(because…and thus…), ***zàochéng*** (bring about), ***dǎozhì*** (lead to), ***yīn'er*** (therefore) and ***yīncǐ*** (thus). ***Yīnwèi*** (because) and ***suǒyǐ*** (therefore) can be used to test the causal relation between events. Unlike in English, ***because*** and ***so*** cannot occur in one sentence. In Chinese, '***yīnwèi***… ***suǒyǐ***…(because…and thus…)' is a grammatical sentence pattern to link up cause and results in one sentence.Any of the above five Chinese causal tests can be used to diagnose Cause.

For example, in serial verb construction of ***dǎ hūn*** (hit,be unconscious; hit unconscious), the first subevent is ***dǎ*** (hit) and the second subevent is ***hūn*** (be unconscious). The second subevent signifying the result of an action immediately follows the first subevent denoting a Cause. I mark the first subevent the category Cause and the subevent following State. When used with ***yīnwèi*** (because) and ***suǒyǐ*** (therefore), we can test the example below.

(4.29) yīnwèi dǎ suǒyǐ hūn
because hit therefore being unconscious
'hit someone unconscious'=someone becomes unconscious with the cause of being hit

According to Hwang (2008), ***zàochéng*** (bring about) and ***dǎozhì*** (lead to) have the same function and ***yīn'er*** (therefore), ***yīncǐ*** (thus) have the same function. For example,

(4.30) dǎ zàochéng / dǎozhì hūn
hit bring about / lead to be unconscious
'hit someone unconscious'=someone becomes unconscious with the cause of being hit

(4.31) dǎ yīncǐ / yīn'er hūn
hit thus / therefore be unconscious
'hit someone unconscious'=someone becomes unconscious with the cause of being hit

Examples in (4.30) and (4.31) with ***zàochéng*** (bring about)/***dǎozhì*** (lead to), and ***yīn'er*** (therefore)/***yīncǐ*** (thus) confirm the causal relations between subevents ***dǎ*** (hit) and***hūn*** (be unconscious).

The occurrence of ***zàochéng*** (bring about)/ ***dǎozhì*** (lead to) and ***yīn'er*** (therefore)/ ***yīncǐ*** (thus) with other meaning types is impossible. Since any of the five expressions has the same effect,

I test against other meaning types only with *zàochéng* / *dǎozhì* (bring about / lead to) in examples (4.32).

(4.32) a. * kāishǐ zàochéng / dǎozhì jìnshuǐ
start bring about / lead to water-filling
b. * xīng zàochéng / dǎozhì qǐ
flourish bring about / lead to start
c. *jìxù zàochéng / dǎozhì wánshàn
continue bring about / lead to improve

I defined the semantic parameters taking into consideration the relations between the verbs/ subevents in SVCs. The relation between subevents of SVCs with the first verb encoding Cause is cause-result. Cause has to be encoded by the first verb because if cause and result do not happen simultaneously, cause has to happen before result. In Chinese SVCs, there is no marker to indicate the sequence of events. Thus, the events have to follow the temporal sequence and cause always happens first and leads to a result. For example, in ***dǎ hūn*** (hit unconscious), being hit causes being unconscious. Therefore, as a meaning type Cause is usually encoded by verb-1 in serial verb constructions.

Condition

Similar to Cause, verbs of Condition occur in the first verb position to create a necessary trigger for the subsequent subevents. Usually, the events are bad ones. Cause and Condition differ in that the event following Cause is a resultative state while the event following Condition is not necessarily a result. The second event after Condition can be a result but it can be a common event as well, such as in ***chùmù xīnsuān*** (at sight of something one feels sad). The condition for one's feeling sad is seeing certain things. Event-1 of seeing certain things and event-2 of feeling sad are unique under the bounded serialization but event-2 is not the necessary result of event-1.

The expression of *yī...jiù...* (once…immediately…) is a good method to test the meaning type of Condition.

(4.33) a. chù mù xīn suān
touch eye heart sour
'Once eyes see something one's heart will feel sour.'
'At sight of something one feels sad.'
b. yī chù mù jiù xīn suān

once touch eye immediately heart sour

'Once eyes see something one's heart will feel sour.'

'At sight of something one feels sad.' =One feels sad with the condition of seeing something.

Examples (4.33) show the test of Condition with *yī…jiù…*(once…immediately…). And examples in (4.34) show that *yī…jiù…*(once…immediately…) cannot match with other semantic elements.

(4.34) a. Aspect

*yī	kāishǐ	jiù	jìnshuǐ
once	start	immediately	water-filling
*yī	xīng	jiù	qǐ
once	flourish	immediately	start
*yī	jìxù	jiù	wánshàn
once	continue	immediately	improve

b. Cause

?yī	dǎ	jiù	hūn
once	hit	immediately	be unconscious

Example (4.34a) shows that *yī…jiù…*(once…immediately…) is not compatiblewith verbs encoding Aspect. I put a question mark on (4.34b) because *yī…jiù…*(once…immediately…) changes its original cause-result relation in ***dǎyūn*** (hit, be unconscious; hit to be unconscious) into a condition-response one. ***Dǎyūn*** (hit, be unconscious; hit to be unconscious) emphasizes E1of hitting. It is being hit not being cold or anything else which causes E2 of being unconscious. In (4.34b), the condition reading emphasizes the link between E1 and E2; that is between the condition and the consequent reaction.The response of being hit is being unconscious.This is different from the reading of hitting causing being unconscious. In addition, both Condition and Cause occur in V1.

Method

Method describes the semantic element usually encoded by the first verb as a supplementary description to the event encoded by the second verb in the perspective of method, way, means, and equipment. Such as in ***yòng shuāngshǒu páo wā*** (use hands to dig), ***yòng shuāngshǒu*** (use hands) is the way how the digging is carried out instead of using shovels. To some extent, verbs encoding Method modify the event followed and makes it complete in meaning.

The expression of *píngjiè* (with the help of, using, depending on, by) is a good way to tell Method apart from Cause and Condition. The verb *yòng* (use) is also an indicator of method or means.

(4.35) a. píngjiè / yòng shuāngshǒu páo wā
by / use hands dig
'dig by hands'=dig with the method of using hands
b. *páo wā, píngjiè / yòng shuāngshǒu
dig by / use hands

For example, in (4.35a) *píngjiè* /yòng (with the help of…) tests the Method of digging. Example (4.35b) shows that Method occurs in verb-1 not in verb-2 in SVCs. The sentence in (4.35b) is possible in rare contexts, such as when the speaker wants to emphasize the method that is used to dig. But it is not a SVC because there is an intonation stop after *páo wā* (dig) in that reading.

The following examples contrast Method with other semanticparameters such as Aspect, Condition, and Cause which I have already introduced.It shows that *píngjiè* (with the help of, using, depending on, by) is the right means to diagnose the Method information in SVCs.

(4.36) a. Aspect
*píngjiè / yòng kāishǐ jìnshuǐ
by / use start water-filling
* píngjiè / yòng xīng qǐ
by / use flourish start
* píngjiè / yòng jìxù wánshàn
by / use continue improve
b. Condition
* píngjiè / yòng chù mù xīn suān
by / use touch eyes heart sour
c. Cause
* píngjiè / yòng dǎ hūn
by / use hit be unconscious

Example (4.36) presents the testing of *píngjiè* /yòng (with the help of…) against other meaning types. Examples in (4.36a) are the Aspect ones. Example in (4.36b) is the Condition one and (4.36c) is the Cause one. The sentences in (4.36) are ungrammatical with the testing

of *píngjiè* / yòng (with the help of…). It illustrates that meaning types of Aspect, Cause and Condition cannot be used with *píngjiè* / yòng (with the help of…).

Manner

In Talmy's theory, Manner describes the motion that the Figure exhibits. In motion events, Manner is a general term referring to movement, like from the series of ***walk, run, float, jump, climb,*** and ***fly*** which describe various ways of moving to the series of ***run, sprint,*** and ***jog*** which describe the specific way of running. Another perspective of Manner is in the non-motion events. In the non-motion events, Manner describes some gesture or some means of doing things, such as from the general series of Manner ***dance, cry, laugh, lie, sit, dig***, and so on to the series of one Manner type of laughing like ***smile, laugh, grin, beam, giggle, chuckle, smirk*** and so on. In this thesis, the meaning type of Manner includes both the Manner in motion events and the Manner in non-motion events.

The meaning types of Method and Manner are similar but different. Manner mainly refers to the abilities built in human beings and animals whereas Method denotes products of human thoughts and always involves tools or equipment. For example, in (4.37) and (4.38) walking and digging are the abilities of human beings while in example (4.35) hands are used as tools by people to do the digging.

Examples of verbs encoding Manner and the diagnostics are given below.

(4.37) a. zǒu chū jiàoshì
walk exit classroom
'walk out of the classroom'=exit the classroom with the manner of walking

b. yǐ zǒu dē fāngshǐ chū jiàoshì
with walk de manner exit classroom
'walk out of the classroom'=exit the classroom with the manner of walking

(4.38) a. páo wā shùgēn
plane dig tree root
'dig the roots of the tree'=move the tree roots with the manner of digging and planing

b. yǐ páo wā dē fāngshǐ (yídòng) shùgēn
with plane dig de manner (move) tree root
'dig the roots of the tree'=move the tree roots with the manner of digging and planing

In Chinese SVCs, the meaning type of Manner is encoded by verb-1 as in example (4.37a) and by both verb-1 and verb-2 in example (4.38a). All the verbs encoding Manner can be tested by '*yǐ…de fāngshǐ* (with the manner of…)' as in the (4.37b) and (4.38b). My data indicates that Manner always occurs in the position of V1 but there is a certain case where Manner is encoded by verb-2, such as in the semantic co-occurring pattern of 'Manner + Manner', exemplified by *páo wā* (plane, dig; dig) in example (4.38a).

Examples in (4.39a) to (4.39d) show that *yǐ…dē fāngshǐ* (with the manner of…) cannot be used with other meaning types such as Aspect, Condition, Cause, and Method. Thus,*yǐ…dē fāngshǐ* (with the manner of…) is a good diagnostic for Manner.

(4.39) a. Aspect

*yǐ	kāishǐ	dē	fāngshǐ	jìnshuǐ
with	start	de	manner	water-filling
* yǐ	xīng	dē	fāngshǐ	qǐ
with	flourish	de	manner	start
* yǐ	jìxù	dē	fāngshǐ	wánshàn
with	continue	de	manner	improve

b. Condition

* yǐ	chù	mù	dē	fāngshǐ	xīn	suān
with	touch	eyes	de	manner	heart	sour

c. Cause

* yǐ	dǎ	dē	fāngshǐ	hūn
with	hit	de	manner	be unconscious

d. Method

* yǐ	yòng	shuāngshǒu	dē	fāngshǐ	páo wā
with	use	hands	de	manner	dig

e. Method and Manner

píngjiè /yòng	shuāngshǒu	yǐ	páowā	dē	fāngshǐ	yídòng	shùgēn
by /use	hands	with	plane/dig	de	manner	move	tree root

'dig the roots of the tree by hands'=move the tree roots by hands with the manner of digging and planing

Example (4.39e) shows that the diagnostic of *píngjiè* (with the help of…) and *yǐ…dēfāngshǐ* (with the manner) can tell Method and Manner apart in application. It is quite clear that in (4.39e) the semantic co-occurring pattern is 'Method + Manner' with the Method encoded by *yòng shuāngshǒu* (use hands) and the Manner encoded by *páo wā* (plane and dig).

Purpose

Purpose depicts the purpose of another subevent and it is usually encoded by the second/last verb in SVCs. For example, in *chūmén dào lājī* (get out, throw away the trash; get out to throw away the trash), *dào lājī* (throw away the trash) is the purpose of *chūmén* (get out).

In Chinese, the marker *wèile* (in order to) is used to test whether the meaning type of Purpose is encoded. Hwang (2008) uses*wèile* (in order to) to test Chinese SVCs with the semantic relation of action-purpose. Examples of Purpose encoded in Chinese SVCs are given below.

(4.40) a. chū mén dào lājī
exit door throw trash
'get out to throw the trash'=get out with the purpose of throwing trash
b. chū mén wèile dào lājī
exit door in order to throw trash
'get out in order to throw trash'=get out with the purpose of throwing trash

Example (4.40a) shows that Purpose is encoded by the second verb in SVCs. The first event is encoded by *chūmén* (get out) and the second event is encoded by *dào lājī* (throw trash). Throwing trash is the purpose of getting out. *Wèile* (in order to) is used before the second verb to test the meaning type of Purpose.

In examples (4.41), I use *wèile* (in order to) to test the meaning types I have already introduced so that we can see that *wèile* (in order to)is exclusively to test the meaning type of Purpose.

(4.41) a. Aspect
* kāishǐ wèile jìnshuǐ
start in order to fill in water
* xīng wèile qǐ
flourish in order to start
* jìxù wèile wánshàn
continue in order to improve
b. Cause
* dǎ wèile hūn
hit in order to be unconscious
c. Condition

* xīn	suān	wèile	chù	mù
Touch	eyes	in order to	heart	sour

d. Method

* yòng	shuāngshǒu	wèile	páo wā
use	hands	in order to	plane dig

e. Manner

* zǒu	wèile	chū	jiàoshì
walk	in order to	exit	classroom

In example (4.41), the meaning types of Aspect, Cause, Condition, Method, and Manner cannot pass the test of ***wèile*** (in order to). Thus, they do not have the semantic feature of 'with the purpose of…' and are distinct from the meaning type of Purpose.

Perception

Perception is the way one notices things, especially by using the senses of human beings. Pairs of verbs like *look* and *see*, *listen* and *hear* all encode Perception. Similar to the bare infinitive use of English Perception verbs, verbs encoding Perception in Chinese SVCs usually appear beforeother verb(s).

(4.42) a. wàng dào
see reach
'see something'

b. wèi jiàn hǎozhuǎn
not see develop in a good way
'no improvement being seen'

For example in (4.42a), *dào* (complete) can be used to denote Location as in example (4.23a) in Section 4.5.1.4 but here it encodes the meaning of Aspect which indicates the event of thinking has been finished. In example (4.42b), *hǎozhuǎn* (develop in a good way) expresses State.

It is relatively easy to diagnose thePerception parameter. Once the usual senses of human beings such as touching, smelling, tasting, listening, seeing are recognised, verbs encoding the Perception information are diagnosed.

(4.43) look: kàn

a. Wǒ kàn huà.
1SG look painting

‘I look at the painting.’

b. Wǒ kàn dào le tā.
1SG see reach PERF 3SG
‘I saw him.’

Chinese uses the verb *kàn* (look) to express the meaning of *look* in English and *kàn dào* (look,arrive; see) to convey the meaning of *see* in English. The example in (4.43a) presents the single verb encoding the meaning of *look* and the example in (4.43b) presents a SVC expressing the meaning of *see*. In (4.43b), Perception is encoded by the first verb in the SVC.

I givemore examples for each sense of human beings and for the meaning type of Perception.

(4.44) listen: tīng

a. wǒ tīng gē.
1SG listen song
‘I listen to the song.’

b. wǒ tīng dào le tā dē shēngyīn.
1SG listen reach PERF his voice
‘I heard his voice.’

c. zhè gē tīng qǐlái bùcuò.
This song sound complete not bad
‘This song sounds not bad.’

(4.45) smell and taste: wén/cháng

a. wǒ wén / cháng wèidào.
1SG smell / taste taste
‘I smell/taste the taste.’

b. wǒ wén / cháng dào le tiánwèi .
1SG smell / taste reach PERF sweetness
‘I smelt/tasted the taste of sweet.’

c. dàngāo wén / cháng qǐlái zhēn tián.
cake smell / taste complete really sweet
‘The cake smells/tastes really sweet.’

Examples in (4.44) and (4.45) illustrate that verbs encoding Perception have similar behaviours and collocate with similar words. Examples in (4.44a) and (4.45a) show that verbs of Perception can have direct objects. Examples in (4.44b) and (4.45b) show that verbs of Perception collocate with *dào* (reach) to indicate an achievement not the processing of

perceiving. Examples in (4.44c) and (4.45c) show that verbs of Perception collocate with *qǐlái* (complete) to present the similar structure to the English middle construction.

In (4.44b) and (4.45b) it is the semantic co-occurring pattern of 'Perception + Aspect (Other Spatial Relation)' and in (4.44c) and (4.45c), it is the semantic co-occurring pattern of 'Perception + Aspect (complex Deictic)'. In the semantic co-occurring patterns in (4.44) and (4.45), Perception is encoded by verb-1 in SVCs.

I also found another subtype of Perception from my data — a human's cognitive ability, such as thinking, realizing, perceiving, and revealing. Verbs encoding these cognitive abilities share similar behaviours with verbs encoding Perception. This is illustrated by examples in (4.46).

(4.46) think: xiǎng

a. wǒ xiǎng dá'àn.
   1SG think answer
   'I think about the answer.'

b. wǒ xiǎng dào le dá'àn.
   1SG think reach PERF answer
   'I figured out the answer.'

c. fāngfǎ xiǎng qǐlái hěn róngyì.
   Method think complete very easy
   'It is easy to come up with the method.'

The verb *xiǎng* (think) in example (4.46) has similar behaviour as verbs of *tīng*(listen) in example (4.44), and *wén*/*cháng*(smell)/ (taste) in example (4.45). The verb *xiǎng* (think) denotes a process of thinking (an idea) and with the Path verb *dào* (reach) as the second verb of the SVC, *xiǎng dào* (figure out) refers to the achievement eventuality of thinking in Vendler's (1967) sense. Example (4.46c) also shows that the *xiǎng* (think) can co-occur with *qǐlái* (complete) to form the 'Perception + Aspect (complex Deictic)' pattern. Thus, I classify the meaning type of *xiǎng* (think) and that of verbs like *xiǎng* (think) as Perception.

State

The semantic parameter of State defines a status that a person or a thing or an event is in. Verbs encoding State usually follow another verb to indicate a resultative state or to add a complementary statement or additional explanations caused, required, or needed by the former verb. For example, in *chī bǎo* (eat, be full; eat enough and befull), *bǎo* (be full) is a

complement statement of the eating event indicating that the agent ate enough food and was full. In *xiāngyǒu* (be topped with, exist; be topped with), *yǒu* (exist) gives the additional information of something's existing.

The State here has the same semantic properties as the state in Vendler's (1967) theory of eventuality. That is, State refers to non-actions that hold for some period of time but lack continuous tenses. There is no boundary for events denoting State (the atelic property) but events denoting State are durative. The event of State is homogeneous, which does not change from moment to moment.

Based on the properties of State, there are many diagnostics for events of State in English. For example, verbs of State cannot occur in the construction of 'be + v-ing' or occur with the durative adverb phrase such as ***for an hour*** or a temporal frame adverbial such as ***in an hour*** or co-occur with ***persuade***. Verbs of State cannot occur in the construction of 'be + v-ing' because the eventuality of State is homogeneous but the construction of 'be + v-ing' implies a heterogeneous event. The test of 'in an hour' and 'for an hour' adds an endpoint to the event, which is contrary to the atelic property of state. The word***persuade*** shows the agentivity which is not required by State.

Examples in (4.47) show the property test of State in Chinese.

(4.47) a. Zhāngsān yǒu māmā.
Zhangsan have mother
'Zhangsan has Mum.'

b. *Zhāngsān zài yǒu māmā.
Zhangsan progressive marker have mother
intends to express: 'Zhangsan is having Mum.'

c. *Zhāngsān yǒu māmā yīxiǎoshí.
Zhangsan have mother one hour
intends to express: 'Zhangsan has Mum for an hour.'

d. *Zhāngsān zài yīxiǎoshí lǐ yǒu le māmā.
Zhangsan within an hour have PERF mother
intends to express: 'Zhangsan got a Mum in an hour.'

e. *Lǐsì quàn Zhāngsān yǒu māmā.
Lisi persuade Zhangsan have mother

In example (4.47a), *yǒu*(have) is a State verb. Example (4.47b) shows that *yǒu* (have) cannot occur with the progressive tense. *Zài* is the marker of the imperfective/progressive tense in

Chinese. Verbs encoding State cannot occur with the progressive marker of *zài* in Chinese. Examples in (4.47c) and (4.47d) test the verb *yǒu* (have) against the atelic property of State. The adverbials *zài yīxiǎoshí lǐ* (in an hour) and *yīxiǎoshí* (for an hour) add temporal limit to the event of having, which is not allowed by the unbounded property of State. The example in (4.47e) shows that verbs of State do not occur where agentivity is required. The progressive maker *zài*, *for an hour* and *in an hour*, and the agentivity test of *quàn* (persuade) in Chinese tell the meaning type of State apart from other meaning types.

State only occurs in verb-2. Examples are given below.

(4.48) a. chī bǎo
eat be full
'eat enough and be full'
b. xiāng yǒu
be topped exist
'be topped with'
c. *bǎo chī
be full eat
d. *yǒu xiāng
exist be topped

In the two SVCs in (4.48a) and (4.48b), the semantic co-occurring patterns are the same 'Manner + State', where verb-1 is in the category of Manner and verb-2 State. Examples in (4.48c) and (4.48d) show that it is impossible for State to be encoded by the first verb in SVCs.

4.5.3 Summary

In Section 4.5, the thirteen types of meaning types were defined one by one in two groups. The first group includes Deictic, Direction, Location, and Other Spatial Relation. These four parameters are subtypes of the semantic element of Path in Talmy's theory; thus, they are discussed ina group. The other nine parameters are defined following Talmy's diagnosing way of 'with the manner of…', 'with the aspect of…', 'with the cause of…', and so on.

V1: **Action**, **Aspect**, Cause, Condition, **Deictic**, Location,**Manner**, Method, **Other Spatial Relation**, Perception.
V2: **Action**, **Aspect**, **Deictic**, Direction, **Manner**, **Other Spatial Relation**, Purpose, State.
(The meaning types in bold can be encoded by both verb-1and by verb-2.)

For all the meaning types, Action, Aspect, Deictic, Manner, and Other Spatial Relation can occur in either V1 or V2. Cause, Condition, Location, Method, and Perception can only be encoded in V1 and Direction, Purpose and State can only be encoded in V2.

4.6 Event Relations in SVCs

The 13 semantic parameters are not exactly the relations of events in SVCs but they act as indicators of event relations. From the parameters I defined, the possible relations between the events within SVCs can be identified as cause-result, means-action, action-purpose, and so on. I will look at others' discussions of event relations first.

4.6.1 Li & Thompson's SVC Event Relations

The earliest study of event relations within Chinese SVCs is Li & Thompson (1981). The first type of Li & Thomson's SVCs is defined as "two or more separate events… may be understood to be related in one or more of the following four ways": consecutive, purpose, alternating, or circumstance (Li & Thompson 1981: 595). I repeat two examples from Section 2.6.1 for the convenience of readers.

(4.49) Wǒmen kāi huì tǎolùn nèi -ge wèntí
E1 E2
1PL hold meeting discuss that-CL problem
'We'll hold a meeting to discuss that problem.' (purpose)
'We'll discuss that problem holding a meeting.' (circumstance)

(4.50) Tā tiāntiān chàng gē xiě xìn
E1 E2
3SG everyday sing song write letter
'Every day she sings songs and writes letters.' (consecutive/alternating)

In example (4.49), discussing is the purpose and holding a meeting provides an environment or a circumstance for the other event, in the case of (4.49) discussing. Example (4.49) shows that when E1 is taken as the main event in the semantic sense, the relation between the events is named as after E1 as circumstance whereas when E2 is regarded as the main event in the sense of semantics, the relation between the events is named after E2 as purpose.

Example (4.49) implies two semantic meaning types. One is Purpose and the other is Method. Doing A is for the purpose of doing B. It is easy to understand and to diagnose the category of Purpose. The relation of circumstance implies the meaning types of Method. Here in

example (4.49) the holding of the meeting can be understood as a method to discuss the problem.

Example (4.50) gives us two events of singing and writing letters. The relation between the two events is either alternating or consecutive. When the relation between the events is alternating, the agent does not keep singing and writing letters simultaneously but keeps changing between these two different tasks. When the relation between events is consecutive, the agent finishes one task first and then does the second one. Singing and writing letters are Actions in terms of my semantic parameters.

However, there are some problems in Li and Thompson's discussion of event relations. It seems that the relation of purpose and of circumstance and the relation of alternating and of consecutive are not at the same level. The first group of relations is defined on the basis of the semantic parameter as I analysed above whereas the second group of relations is defined on the basis of temporal sequence. Following the defining method of the first group, there are more relation types such as cause-state (result). Following the defining method of the second group, there are more relation types such as being simultaneous. I did further semantic analysis of each verb component within SVCs in this thesis and the semantic co-occurring patterns of SVCs reflect the semantic relation between/among subevents.

4.6.2 Hwang's Event Relations within SVCs

Hwang (2008) classifies four types of SVCs according to the semantic relations within SVCs. The four SVC types identified by Hwang are cause-result SVCs, action-purpose SVCs, means-action SVCs and consecutive SVCs. Of these four types, the latter three types are similar to Li and Thomson's classification. I will discuss the cause-result SVCs below.

(4.51) Zhāngsān tuī dǎo le Lǐsì.
V1 V2
Zhangsan push fall PERF Lisi
'Zhangsan pushed Lisi, and as a result Lisi fell down.'
'Lisi fell down with the cause of Zhangsan pushed Lisi.'

In example (4.51), the pushing event encoded by verb-1 is the cause of the event of falling down encoded by verb-2. V1 denotes a cause and V2 denotes a resultative state of being down caused by being pushed.

Hwang's relation types also have the mistake of mixing up the temporal relations with the semantic relations between events. However, the same Hwang (2008) provides a careful

analysis of the temporal structure of SVCs and concludes that Chinese SVCs has three kinds of temporal structures, that is, the non-overlapping event structure, the partial overlapping event structure and the full overlapping event structure.

4.6.3 Semantic Relations and Temporal Relations

Thus, for me the relations within Chinese SVCs can be defined from two perspectives. One is the semantic relations between events and the other one is the temporal relations between events. The semantic relations contain all the semantic co-occurring patterns summarised from my data. This part will be fully presented in Chapter 5. As for the temporal relations, I agree with Hwang's classification. According to Hsieh (1989), most of the cause-result SVCs have a partial-overlap temporal relation between events. And according to Li (1991), even though there may not be a clear boundary between /among some events within SVCs, the ordering of the events in SVCs is determined by temporal sequence.

Chapter 5 Semantic Co-occurring Patterns of Chinese SVCs

5.1 Introduction

This chapter gives a basic discussion on the SVC data. Section 5.2 gives the basic information of the semantic co-occurring patterns of SVCs in 7 tables following the alphabetical order of the first verbs' semantic elements. Section 5.3 and 5.4 discuss the constraints of verbs'occurring position in the SVCs. That is,some verbs encoding certain semantic elements only occur in the first-verb position or some verbs only occur in the second-verb position or some verbs can occur in both positions or in neither position in the non-motion events. Section 5.4 summarises the semantic co-occurring constraints found in the motion SVCs and in the non-motion SVCs. Section 5.6 is the summary of the chapter.

Before I begin to present the data, as this chapter and the next chapter involves some quantitive analysis, and it seems to be a concern regarding the size of the sample and the possibilities for a meaningful quantificational analysis of my data, I will give a brief summary regarding the sample size and the types of the unattested combinations.

As I mentioned in Section 3.5, the LCMC gave me 32418 results of my search string. Of the first 500 results, I got only 218 SVC examples after examination. Of the 218 exmaples, described by the 13 semantic elements, logically, there should be 169 semantic co-occurring patterns. However, I found only 31 patterns from the data in the motion group and in the non-motion group with the repetitive co-occurring patterns calculated once. I discuss the absence of the 138 combinations of verb-types in Section 6.1. I give a brief summary below to show that my sample is enough to illustrate that the components of Chinese SVCs do not have equal grammatical status in the sense of semantics.

There are two types of unattested combinations. The first type violates the observed rules summarised in Section 4.5.3, repeated in Section 5.5 and Section 5.6. That is, verbs encoding Cause, Condition, Location, Method, and Perception only occur in V1 not in V2 and verbs encoding Direction, Purpose, and State only occur in V2 not in V1. I use the PTS (the Principle of Temporal Sequence; please see Section 6.2.1) to account for these unattested combinations in Section 6.2.2 and Section 6.2.3. The PTS can explain 70 of the unattested combinations but it cannot explain the 19 combinations involved Direction in V1 or Perception in V2. The property of Chinese being temporally inconic excludes the possibility of these 70 combinations.

The second type is the remaining 68 inexplicable combinations, including the 19 combinations with Direction encoded by V1 or Perception encoded by V2. Although I try

hard to account for every of the 68 unattested combinations in Section 6.3 from the syntactic blocking, in Section 6.4 from the semantic lexicalisation$_{(T)}$, and in Section 6.5 from the equipollent assumption, I find that these 68 combinations inexplicable and these 68 combinations are the accidental gaps in the grammar of Chinese.

Regarding the size of sample, if different researchers wrongly use my semantic parameters, some unattested combinations may be identified. This is due to the inavoidable subjectivity of the research method. However, as I will show in Section 6.5, the 6 non-occurring combinations of 'Action + Manner', 'Aspect + Manner', 'Deictic + Manner', 'Deictic + Other Spatial Relation', 'Other Spatial Relation + Action', and 'Other Spatial Relation + Manner' are strong evidence that Chinese SVC compoments do not share equal semantic status. In addition, the 70 unattested combinations which can be explained by the PTS are also evidence that Chinese SVCs do not share equal semantic status no matter how big or how small the sample size of SVCs are.

For more details on the two types of the absent combinations, I present step by step in Chapter 5 and Chapter 6, how the 70 unattested combinations can be explained by the PTS and how the 68 are arbitrary grammatical facts of Chinese.

5.2 Semantic Patterns Presented by Basic Tables

5.2.1 Introduction to the Seven Basic Tables

In this section, I analyse the co-occurring patterns of semantic elements in Chinese SVCs. I present this information in 7 tables: Table 5.1- Table 5.7. These 7 tables show the semantic combination patterns from my data in the alphabetical order of the first verb's semantic component. In other words, Table5.1 describes the 'Action+ X' patterns; Table 5.2 describes the 'Aspect/Cause/Condition+ X' patterns; Table 5.3 describes the 'Deictic+ X' and 'Location+ X' patterns; Table 5.4 describes the 'Manner+ X' patterns; Table 5.5 describes the 'Method+ X' patterns; Table 5.6 describes the 'Path+ X' patterns and Table 5.7 describes the 'Perception+ X' patterns. 'X' refers to any of the 13 semantic parameters and the semantic parameters are in order within the form of 'X + X'.

As discussed in Section 3.6 not every SVC expresses a motion event. So the SVC patterns were divided into two groups: the motion group and the non-motion group. In order to compare and contrast the patterns exhibited by the two groups, the semantic patterns of these two groups are represented in parallel in the seven tables.

There are 166examples and 27 different semantic patterns of combination in the non-motion group. In the motion group, there are 52examples and 14 semantic co-occurring patterns.

In each of the seven tables, I present the number ofsemantic patterns inthe motion group and in the non-motion group.The percentage calculated is the number of each semantic co-occurring pattern over the total number of examplesfor motion and non-motion group respectively. For example, the percentage is calculated as N/166 for the non-motion group and N/52 for the motion group, where N is the number of a particular semantic co-occurring pattern. I am not doing a detailed quantitative study but the percentage is a proper indicator for the most common semantic co-occurring pattern.

5.2.2 'Action+ X'Patterns

Table 5.1 'Action + X' Patterns

Semantic patterns		Non-motion group		Motion group	
V1	V2	Number	Percentage	Number	Percentage
Action	Action	10	6.02%		
Action	Aspect(Path)	8	4.82%		
Action	Deictic	4	2.41%	2	3.85%
Action	Direction	2	1.20%		
Action	Other Spatial Relation	2	1.20%	4	7.69%
Action	Purpose	3	1.81%	2	3.85%
Action	State(Path)	29	17.47%		
Sum		Total pattern number: 7 Total example number: 58	Total example percentage: 34.93%	Total pattern number: 3 Total example number: 8	Total example percentage: 15.39%

Table 5.1 shows the co-occurring patterns starting with the semantic element Action.The number of non-motion examples is given first and then the number of motion examples is given in the next column. The last row of this table summarises the total number of the semantic co-occurring patterns, the total example numbers in the 'Action+X' pattern, and the total percentage of the 'Action + X' combination patterns in each group. In the table, I separate the semantic element in two columns to show that they are in order and occur in either the first column as the first verb of the SVC or in the second column as the second verb of the SVC.

In Table 5.1, there are some semantic parameters which are followed by 'Path' such as in 'Aspect (Path)' and in 'State (Path)'. This means that a verb encoding the information of Path sometimes functions as an aspectual marker and expresses the aspectual meaning in

SVCs. Similarly, when a Path verb is used to express a kind of state in a SVC it is marked as encoding a State. When Path verbs are used to express other semantic elements instead of the original Path information such as to act as markers indicating aspect, the meaning of these verbs has changed. But not every example in 'Action + Aspect' and 'Action + State' is composed by a Path verb. Path verbs' functions and their evolution are discussed in Chapter 7.

From Table 5.1, we can see that there are 7 types of semantic combination starting with Actionin the non-motion group and there are three 'Action + X' patterns in the motion group. In the non-motion group of Table 5.1, the patterns of 'Action+ State' show the highest number of instanceswith 29 examples and 'Action+ Action' comes next with 10 examples. Note that Action verbs in V1 position in SVCs do not collocate with a second verb that expressesCause, Condition, Location, Manner, Method, or Perception. Thus, only 34.93% of logically possible patterns are actually found in non-motion group of SVCs.

5.2.3 'Aspect/Cause/Condition+ X' Patterns

Table 5.2 'Aspect/Cause/Condition + X' Patterns

Semantic patterns		Non-motion group		Motion group	
V1	V2	Number	Percentage	Number	Percentage
Aspect	Action	6	3.61%		
Cause	State	4	2.41%		
Condition	Action	1	0.60%		
Sum		Total pattern number: 3 Total example number: 11	Total example percentage: 6.62%	Total pattern number: 0 Total example number: 0	Total example percentage: 0%

Table 5.2 has a similar structure to Table 5.1 and it shows the semantic combination patterns of 'Aspect+ X', 'Cause+ X', and 'Condition+ X'. These three patterns do not have the same first semantic element so they are presented with an empty row in between in the Table 5.2. These three patterns come from the data of the non-motion group. The percentage of each co-occurring pattern is not high (3.61%, 2.41%, and 0.60%) but the percentage shows the existence of logically possible patterns starting with the first semantic element of Aspect, Cause and Condition. Unlike in the non-motion group, there are no logically possible patterns of 'Aspect+ X', 'Cause+ X', and 'Condition+ X' from the motion group (0%). Note that there is only one co-occurring pattern with V1 expressing Aspect, Cause and Condition. In other words, when the first verb in a SVC encodes the meaning of Aspect, the 12 semantic parameters (except for Action) cannot be encoded by V2 or only V2s encoding the Action

element can collocate with an aspect V1. As for the patterns with V1 expressing Cause, only V2s encoding State can match with them and the12 parameters left behind (except for State) cannot collocate with V1. Similarly, when V1s encode the information of Condition, only V2s encoding Action are found in collocation with them in SVCs and the other 12 semantic elements (except for Action) cannot.

5.2.4 'Deictic + X' and 'Location + X'Patterns

Table 5.3 'Deictic + X' Patterns and 'Location + X' Patterns

Semantic patterns		Non-motion group		Motion group	
V1	V2	Number	Percentage	Number	Percentage
Deictic	Action	1	0.60%	1	1.92%
Deictic	Purpose			4	7.69%
Location	Action	3	1.81%	3	5.77%
Location	Purpose	2	1.20%		
Sum		Total pattern number: 3 Total example number: 6	Total example percentage: 3.61%	Total pattern number: 3 Total example number: 8	Total example percentage: 15.38%

Alphabetically, patterns of 'Deictic + X' and 'Location + X' are supposed to appear in two tables. However, since Deictic and Location are both subtypes of Path and there are only two semantic co-occurring patterns starting with Deictic and Location in both groups, I put them together in Table 5.3 with an empty row in between to separate them. Verbs encoding Deictic and Location behave almost the same in the sense that the semantic elements following Deictic and Location are both Action and Purpose. In Table 5.3, the total pattern sum and the total example sum in the non-motion group and motion group refer to the pattern numbers and the example numbers of both 'Deictic + X' and 'Location + X'.

Table 5.3 presents the semantic patterns with the first verb expressing Deictic and Location in SVCs. There is only1pattern of 'Deictic + X' and 1 example in the non-motion group while there are 2 patterns of 'Deictic + X' and 5 examples in the motion group. Compared with the only combination pattern in the non-motion group, the pattern of the 'Deictic + Purpose' in the motion group takes a relatively high percentage of the total (7.69%) in the 'Deictic + X' patterns.

It is the other way around with the pattern of 'Location + X'. Location is a type of static Path. The non-motion group shows more varied semantic patterns in thatLocation matches with the information of Purpose and Action. There is the same pattern of 'Location+ Action' in the motion group as in the non-motion group. Note that in the non-motion group Location

verbs or phrases in V1 do not collocate with V2s that express Aspect, Cause, Condition, Deictic, Direction, Location, Manner, Method, Path, Perception, and State. When this observation comes to the motion group, one more parameter Purpose is added.

5.2.5 'Manner+ X' Patterns

Table 5.4 'Manner + X' Patterns

Semantic patterns		Non-motion group		Motion group	
V1	V2	Number	Percentage	Number	Percentage
Manner	Action	4	2.41%	2	3.85%
Manner	Aspect (Path)	9	5.42%		
Manner	Deictic	4	2.41%	10	19.23%
Manner	Manner	5	3.01%		
Manner	Other Spatial Relation	14	8.43%	18	34.62%
Manner	Purpose	2	1.20%		
Manner	State	28	16.87%	1	1.92%
Sum		Total pattern number: 7 Total example number:66	Total example percentage: 39.75%	Total patternnumber: 4 Total example number: 31	Total example percentage: 59.62%

Table 5.4 shows the semantic co-occurringpatterns which have the largest set of examples in number for both the non-motion group and the motion group. That is, 'Manner + X' (39.75%) in the non-motion group and 'Manner + X' (59.62%) in the motion group. The most common semantic combination patterns in each group are 'Manner + State' in the non-motion group and 'Manner + Other Spatial Relation' in the motion group.

There are 7 co-occurring patterns in the non-motion group and 4 patterns in the motion group. Between the two groups, the four patterns distributed in both groups are 'Manner + Action', 'Manner + Deictic', 'Manner + Other Spatial Relation', and 'Manner + State'. The three co-occurring patterns which are found in the non-motion group but not in the motion group are 'Manner + Aspect', 'Manner + Manner' and 'Manner + Purpose'. Despite the fact that the non-motion group has more patterns of 'Manner + X' than the motion group, the non-motion group has a logically possible pattern ratio lower than a half (39.75%) and the motion group has a logically possible pattern ratio over a half (59.62%).

In addition, Table 5.4 implies that Manner verbs in V1 position of SVCs cannot collocate with V2s which encode Cause, Condition, Direction, Method, Location, and Perception in the non-motion group and in the motion group plus three more: Aspect, Manner, and Purpose.

5.2.6 ‘Method+ X’Patterns

Table 5.5 ‘Method+ X’ Patterns

Semantic patterns		Non-motion group		Motion group	
V1	V2	Number	Percentage	Number	Percentage
Method	Action	10	6.02%		
Method	Other Spatial Relation			1	1.92%
Method	Purpose	2	1.20%		
Sum		Total pattern number:2 Total example number: 12	Total example percentage: 7.22%	Total pattern number: 1 Total example number: 1	Total example percentage: 1.92%

Table 5.5 shows the semantic combination pattern of ‘Method+X’. In the non-motion group, there are two categories of ‘Method + X’ patterns while there is only one type in the motion group. There is no overlapping combination pattern between the two groups. The patter in motion group is ‘Method + Other Spatial Relation’. Thetwosemantic components encoded by verbs and occurring in the X position in the non-motion group areActionand Purpose.

The percentage of the pattern ‘Method + X’ of the total is not high in both groups—7.22% for the non-motion group and 1.92% for the motion group. On the one hand it shows the logical possibility of existence of ‘Method + X’ is not high. Method cannot co-occure with many other semantic elements and ‘Method + X’ has only one example in the motion group. On the other hand, the low percentage indicates that there are lots of patterns which do not exist or are not found in my data. The unmatched V2s for the non-motion group encode the information of Aspect, Cause, Condition, Deictic, Direction, Manner, Method, Location, Other Spatial Relation, Perception, and State. The unmatched V2s in the motion group encode the information of Action, Aspect, Cause, Condition, Deictic, Direction, Manner, Method, Location, Perception, Purpose, and State.

5.2.7 'Other Spatial Relation + X'Patterns

Table 5.6 'Other Spatial Relation + X' Patterns

Semantic patterns		Non-motion group		Motion group	
V1	V2	Number	Percentage	Number	Percentage
Other Spatial Relation	Deictic			1	1.92%
Other Spatial Relation	Other Spatial Relation	4	2.41%	2	3.85%
Other Spatial Relation	Purpose			1	1.92%
Sum		Total pattern number: 1 Total example number: 4	Total example percentage: 2.41%	Total pattern number: 3 Total example number: 4	Total example percentage: 7.69%

Table 5.6 presents the semantic combination patterns of 'Other Spatial Relation + X'in SVCs. With Other Spatial Relationencoded by V1s in SVCs, there are 2 more categories of the combination patterns in the motion group than in the non-motion group. In the non-motion group, we can see there is only one realised pattern of 'Other Spatial Relation + Other Spatial Relation', and in the motion group in addition to this pattern there are two more patterns which are 'Other Spatial Relation + Deictic' and 'Other Spatial Relation + Purpose'.

Compared with the non-motion group (2.41%), more logically possible patterns of 'Other Spatial Relation + X' are found (7.69%) in the motion group.

Note that verbs encoding Other Spatial Relation in V1 position in the non-motion group of SVCs do not collocate with V2s that express Action, Aspect, Cause, Condition, Deictic, Direction, Location, Manner, Method, Perception, Purpose, or State. And for the motion group, V1s encoding Other Spatial Relation do not collocate withV2s that express Action, Aspect, Cause, Condition, Direction, Location, Manner, Method, Perception, or State.

5.2.8 'Perception +X' Patterns

Table 5.7 'Perception + X' Patterns

Semantic patterns		Non-motion group		Motion group	
V1	V2	Number	Percentage	Number	Percentage
Perception	Action	2	1.20%		
Perception	Aspect	5	3.01%		
Perception	Deictic	1	0.60%		
Perception	State	1	0.60%		
Sum		Total patternnumber: 4 Total example number: 9	Total example percentage: 5.41%	Total pattern number: 0 Total example number: 0	Total example percentage: 0%

Table 5.7 is the last table giving the basic information of semantic co-occurring patterns and it shows the 'Perception+ X' patterns. However, there are no such semantic combination patterns starting with Perception in the motion group. Thus, the total pattern number, and the total example number, and the total example percentage are all 0s in the part of motion group in Table 5.7. In the non-motion group, the 'Perception + Aspect' has the highest percentage (3.01%) of the four 'Perception + X' patterns.

Note that verbs encoding Perception in V1 positions of SVCs do not collocate with V2s that express Cause, Condition, Direction, Manner, Method, Location, Other Spatial Relation, Perception, and Purpose. Only5.41% of logically possible patterns are actually found in the non-motion group of SVCs.

5.2.9 Summary

This section mainly presents the semantic co-occurring patterns of SVCs. For each table from 5.1 to 5.7, I described the most frequent combination patterns in both motion and non-motion groups. The comparison of the co-occurring patterns between the two groups was also discussed. The semantic elements which cannot be encoded by V2s to collocate with 'Action + X', 'Aspect + X','Cause + X', 'Condition + X', 'Deictic + X', 'Location + X', 'Manner + X', 'Method + X', 'Other Spatial Relation + X', and 'Perception + X' were summarised as well.

5.3 Constraints on the Co-occurring Patterns of SVCs in the Non-motion Group

In Section 5.2 I described the semantic co-occurring patterns in alphabetic order in seven tables. In this section, I will present two large tables containing the semantic combination patterns of the whole motion group (Table 5.8) and of the whole non-motion group (Table

5.11). The constraints on the co-occurring patterns of both groups are clearly summarised in Section 5.3.3 and in Section 5.4.2.

5.3.1 Description of Table 5.8

Table 5.8 Semantic Patterns in the Non-motion Group

V1 V2	Action	Aspect	Cause	Condition	Deictic	Direction	Location	Manner	Method	Other Spatial Relation	Perception	Purpose	State	Pattern number	Total
Action	10 (6.02%)	6 (3.61%)		1 (0.60%)	1 (0.60%)		3 (1.81%)	4 (2.41%)	10 (6.02%)		2 (1.20%)			8	37 (22.27%)
Aspect	8 (4.82%)							9 (5.42%)			5 (3.01%)			3	22 (13.25%)
Cause														0	0
Condition														0	0
Deictic	4 (2.41%)							4 (2.41%)			1 (0.60%)			3	9 (5.42%)
Direction	2 (1.20%)													1	2 (1.20%)
Location														0	0
Manner								5 (3.01%)						1	5 (3.01%)
Method														0	0
Other Spatial Relation	2 (1.20%)							14 (8.43%)		4 (2.41%)				3	20 (12.05%)
Perception														0	0
Purpose	3 (1.81%)						2 (1.20%)	2 (1.20%)	2 (1.20%)					4	9 (5.41%)
State	29 (17.47%)		4 (2.41%)					28 (16.87%)			1 (0.60%)			4	62 (37.35%)
Patter number	7	1	1	1	1	0	2	7	2	1	4	0	0		
Total	58 (34.93%)	6 (3.61%)	4 (2.41%)	1 (0.60%)	1 (0.60%)	0	5 (3.01%)	66(39.75%)	12(7.22%)	4 (2.41%)	9 (5.41%)	0	0		

Table 5.8 is large but is straightforward to explain. Table 5.8 outlines the semantic co-occurring patterns in the non-motion group. The first row lists the 13 semantic parameters possibly encoded by V1s and the first column lists the 13 semantic parameters possibly encoded by V2s. Combining the two semantic elements encoded by V1 horizontally and V2

vertically, I get either a number followed by a percentage in a cell or an empty cell which means there are no examples of this co-occurring pattern found in my data. For example, '8 (4.82%)' in the cell in the third row and the second column in Table 5.8 expresses that there are 8 examples which have the co-occurring pattern of 'Action + Aspect' and with a percentage of 4.82 (8/166) in the non-motion group.

The last but one row presents the total numbers of the co-occurring patterns where V1s encoding a specific semantic information. For example, '7' in the cell in the last but one row and the second column in Table 5.8 stands for the 7 semantic elements of X in the co-occurring pattern 'Action + X' and correspondingly there are 7 patterns of 'Action + X' found in my data. 'X' can be any of the 13 semantic parameters, but here in the pattern of 'Action + X' in the non-motion group, 'X' is limited to the 7 semantic elements in the Table 5.8. The 7 proper elements are Action, Aspect, Deictic, Direction, Other Spatial Relation, Purpose, and State. The last row gives the total number of the examples and the total percentage of the specific co-occurring patterns. For '58 (34.93%)' in the cell of the last row and the second column, '58' refers to the 58 examples of the pattern 'Action + X' and these 58 examples make up 34.93% of the total 166 examples of the non-motion group. Similarly, the last but one column summarises the total number of the semantic co-occurring patterns when V2s encode specific semantic elements. For example, '8' in the cell of the second row and the last but one column refers to the fact that there are 8 types of 'X + Action' in the non-motion group. The 'X' here can only be any of the 8 semantic elements Action, Aspect, Condition, Deictic, Location, Manner, Method, and Perception. The last row shows the total example number and its percentage out of the total 166 examples in the non-motion group. For example, '37 (22.27%)' in the second row and the last column shows that there are altogether 37 examples in the 'X + Action' pattern and these 37 examples make up 22.27% of the 166 total examples in the non-motion group.

5.3.2 Semantic Components Encoded by BothV1s and V2s in the Non-motion Group

In the non-motion group of SVCs, V1s can encode 10 types of semantic components and V2scan encode8 kinds of semantic components. The 10 semantic components being able to be encoded by V1s are Action, Aspect, Cause, Condition, Deictic, Location, Manner, Method, Other Spatial Relation, and Perception. The 8 types of semantic components being able to be encoded by V2s are Action, Aspect, Deictic, Direction, Manner, Other Spatial Relation, Purpose, and State.

Manner (66 (39.75%)) is the most frequently encoded semantic element in the position of the first verb and Action is the second most frequently encoded semantic element with the

example number and percentage of 58 (34.93%). As for the position of the second verb, State takes up the highest rank in number 62 (37.35%) and Action (37 (22.27%)) is the second largest semantic component which is encoded by the second verb in number. This correlates to the fact that ‘Action + State’ and ‘Manner + State’ are the most frequently co-occurring patterns in the non-motion group.

Of the 10 types of semantic components encoded by V1s and the 8 types of semantic components encoded by V2s, there are five semantic components which V1s and V2s both encode in the non-motion group of SVCs. They are Action, Aspect, Deictic, Manner,and Other Spatial Relation. Sometimes I call them ‘shared semantic elements’ in my thesis.

Action is quite well represented in the position of V1 ((34.93%), the second highest in the last row of Table 5.8) and V2 ((22.27%), the second highest in the last column of Table 5.8). This can be observed from the 7‘Action + X’ co-occurring patterns and 58examples of them and from the 8semantic co-occurring subtypes and 37examples of ‘X + Action’.

Compared with Action, although Aspect can also be encoded by V1s and V2s, verbs encoding Aspect appear more frequently in the second verb position and collocate with V1s encodingvaried semantic elements. When Aspect is encoded by the first verbs in SVCs, it can only go with Action.

Verbs encoding Deictic tend to occur more frequently in the second verb position.

Verbs encoding Manner more frequently occur in the first verb position. Manner is the most frequently encoded information by V1s (39.75%)and can be followed by 7 types of semantic components. Manner can also appear in the position of the second verb on the condition that the semantic elements encoded by V1s express Manner.

Other Spatial Relation is in the opposite situation of Manner in the sense that compared with the two positions, verbs encoding Other Spatial Relation more frequently occur in the second verb position. When Other Spatial Relation is expressed by V1s, it can only be followed by another verb encoding Other Spatial Relation. When Other Spatial Relation is expressed by V2s, it can combine with Action, Manner, and Other Spatial Relation.

Table 5.9 Semantic Elements Encoded by Both V1s and V2s in the Non-motion Group

	V1	V2
Action	58 (34.93%)	37 (22.27%)
Aspect	6 (3.61%)	22 (13.25%)
Deictic	1 (0.60)	9 (5.42%)
Manner	66 (39.75%)	5 (3.01%)
Other Spatial Relation	4 (2.41%)	20 (12.05%)

Table 5.9 summarises the distribution of the five semantic elements which can be encoded by both V1s and V2s. It can be seen from the table that even though the semantic elements of Action, Aspect, Deictic, Manner, and Other Spatial Relation can be expressed by verbs in both positions, Manner tends to be expressed byV1s and Aspect, Deictic, and Other Spatial Relation tend to be expressed by V2s. But there is no specific preference for Action because the disparity in positional variants for Action verbs is not obviously as striking as those for the others.

In addition, when looking at cells connecting the diagonal line (down) in Table 5.8, I found that of the five components which can occur in both V1 and V2 only 3 of them can compose a co-occurring pattern as 'X + X', such as 'Action + Action', 'Manner + Manner', and 'Other Spatial Relation + Other Spatial Relation'. In Table 5.8, the cells describing the three patterns are shaded grey. There is no such collocation patterns of 'Aspect + Aspect' and 'Deictic + Deictic' in the non-motion group.

5.3.3 Constraints on V1s and V2s in the Non-motion group

From Table 5.8, I also found that (a) the semantic elements which occur only in V1 areCause, Condition, Location, Method, and Perception and those only occurring in V2 areDeictic, Purpose, andState. (b) The many zeros in Table5.8 in the last row and in the last column indicate that the semantic elements which cannot be encoded byV1s in non-motion SVCs are Direction, Purpose, and Stateand that those which cannot be encoded byV2s are Cause, Condition, Location, Method, and Perception. (c) Verbs encoding different subtypes of Path occur in different positions of SVCs. Verbs encoding Direction only occur in the second verb position and verbs encoding Location only occur in the first verb position. Although verbs encoding Deictic and Other Spatial Relation can appear in either V1 or V2, the Path elements of Deictic and Other Spatial Relation tend to be expressed more by V2s than by V1s.

The first two points are clearly illustrated by the last row and the last column in Table 5.8. The third point on Deictic is mentioned in Section 5.3.2. I give more explanation below.

Since the subtypes of Path contain the four parameters of Deictic, Direction, Location, and Other Spatial Relation, I summarise the percentage of the four Path relevant semantic elements in the non-motion group in Table 5.10 below.

Table 5.10 Four Path Relevant Semantic Elements Encoded in the Non-motion Group

Subtypes of Path	Number and percentage encoded in V1	Number and percentage encoded in V2
Deictic	1 (0.60%)	9 (5.42%)
Direction	0	2 (1.20%)
Location	5 (3.01%)	0
Other Spatial Relation	4 (2.41%)	20 (12.05%)
Total(Deictic /Direction / Location / Other Spatial Relation)	10 (6.02%)	31 (18.67%)

The first column of Table 5.10lists the four semantic elements relevant to Path. The second column gives the number of examples and in brackets the percentage composed of the number of examples against the total example number of 166 in the non-motion group when the specific Path element is encoded by V1s. Similarly, the third column gives the example number and in brackets the percentage when the specific Path element is encoded by V2s. Zero in the table means that no exampleswere found for a certain kind of Path element occurring in V1 or V2 in the non-motion group.

The total number and percentage in the last row of Table 5.10indicates that in the non-motion group, as a whole the Path element tends to occur in the position of V2. Separately, Deictic and Other Spatial Relation tend to occur in the second-verb position while Location only occurs in V1 and Direction only occurs in V2.

5.3.4 Summary

In the non-motion group, ‘Action + State’ and ‘Manner + State’ are the most frequently co-occurring patterns. There are 5 semantic elements which can occur in both V1 and V2 positions. Only 3 of these semantic elements can be encoded by V1s and V2s at the same time as in the pattern of ‘X + X’. Of the five semantic elements which can occur in both V1 and V2 positions, there is a strong tendency for Manner to be encoded by V1s and for Aspect, Deictic, and Other Spatial Relation to be encoded by V2s. Verbs encoding Cause, Condition, Location, Method, and Perception occur only in V1 and verbs encoding Direction, Purpose andState occur only in V2 while verbs encoding Direction, Purpose, and State are restricted to occur in V1 and verbs encoding Cause, Condition, Location, Method, and Perception are restricted to occur in V2. The explanations for these constraints will be discussed in Chapter 6. Before that, the constraints of semantic co-occurring patterns of the motion group are given and discussed.

5.4 Constraints on Semantic Co-occurring Patterns of SVCs in the Motion Group

Table 5.11 Semantic Patterns in the Motion Group

V1 V2	Action	Aspect	Cause	Condition	Deictic	Direction	Location	Manner	Method	Other Spatial Relation	Perception	Purpose	State	Pattern number	Total
Action					1 (1.92%)		3 (5.77%)	2 (3.85%)						3	6 (11.54%)
Aspect														0	0
Cause														0	0
Condition														0	0
Deictic	2 (3.85%)							10 (19.23%)		1 (1.92%)				3	13 (25.00%)
Direction														0	0
Location														0	0
Manner														0	0
Method														0	0
Other Spatial Relation	4(7.69%)							18 (34.62%)	1 (1.92%)	2 (3.85%)				4	25 (48.08%)
Perception														0	0
Purpose	2 (3.85%)				4 (7.69%)					1 (1.92%)				3	7 (13.46%)
State								1 (1.92%)						1	1 (1.92%)
Pattern number	3	0	0	0	2	0	1	4	1	3	0	0	0		
Total	8 (15.39%)	0	0	0	5 (9.61%)	0	3 (5.77%)	31 (59.62%)	1(1.92%)	4(7.69%)	0	0	0		

5.4.1 Components Encoded by Both V1s and V2s

With similar structure toTable 5.8, Table 5.11 illustrates the semantic combination patternsof SVCs in the motion group.

The Manner information (59.62%) is the largest in number encoded by verbs in the position of the first verb and Other Spatial Relation (48.08%) is the most frequentlyencoded semantic element in the second-verb position. This correlates with the result that the ‘Manner+ Other

Spatial Relation' pattern is the most commonsemantic co-occurring pattern in the motion group.

In the motion group, V1s can encode 6 types of semantic components and the position of V2 allows verbs encoding 5 kinds of semantic elements. The 6 types of semantic elements encoded by V1s are Action, Deictic, Location, Manner, Method, and Other Spatial Relation. The 5 kinds of semantic components encoded by V2s are Action, Deictic, Other Spatial Relation, Purpose, and State.

In the motion group, there are 3 semantic components which can be encoded by verbs in both V1 and V2 positions. They are Action, Deictic. Of them, Other Spatial Relation and Deictic and Other Spatial Relation aresubtypes of the Path. Although both Deictic and Other Spatial Relation are shared elements, both of them have a tendency to occur in V2 rather than in V1 as shown by the numbers in Table 5.12.

Table 5.12 Four Path Relevant Semantic Elements Encoded in the Motion Group

Subtypes of Path	Number and percentage encoded in V1	Number and percentage encoded in V2
Deictic	5 (9.61%)	13 (25.00%)
Direction	0	0
Location	3 (5.77%)	0
Other Spatial Relation	4 (7.69%)	25 (48.08%)
Total (Deictic/Direction/ Location/Other Spatial Relation)	12 (23.07%)	38 (73.08%)

- Deictic and Other Spatial Relation are two of the three 'shared elements' in SVCs in the motion group.

Table 5.12shows that some of the Path semantic components such as Deicticand Other Spatial Relation prefer the second-verb position. For example, the number of examples when Other Spatial Relation is encoded in V2 is almost seven times in percentage of that when it is encoded in V1. Thus, even though the semantic elements Deictic and Other Spatial Relation can be expressed by verbs in both positions, the trend is that Deictic and Other Spatial Relation tend to be expressed in the V2 position. However, different from other Path elements, verbs encoding Location occur only in the position of V1. This is same inthe occurrence of Location in the non-motion group as shown in Table 5.10. Verbs encoding Direction do not occur in the motion groups of SVCs.

In addition, when looking at cells connecting the diagonal line (down) in Table 5.11, I found that only one of the three shared semantic elements can occur in a 'X + X' pattern. That is, 'Other Spatial Relation + Other Spatial Relation' in Table 5.11 where the cell is shaded grey.

There is no such co-occurring pattern of ‘Deictic + Deictic’ and ‘Action + Action’in the motion group.

5.4.2 Constraints on V1s and V2s in the Motion Group

From Table 5.11, I also observed some constraints for the semantic elements and their occurring slot in the SVCs.

(a) The elements which occur only in V1 are Location, Manner, and Method and those only occurring in V2 are Purpose and State.

(b) The many zeros in Table 5.11 in the last row and in the final column indicate that the semantic elements which cannot be expressed in V1 in motion SVCs are Aspect, Cause, Condition, Direction, Perception, Purpose, and Stateand that those which cannot be expressed by verbs in the V2 position in motion events are Aspect, Cause, Condition, Direction, Location, Manner, Method, andPerception. Of them, verbs encoding Aspect, Cause, Condition, Direction, and Perception do not occur in SVCs expressing motion events. This makes the semantic elements in SVCs expressing motion events more restrictive than those encoded by non-motion SVCs.

(c) Table 5.12 already shows that in the motion group as a whole, the Path element tends to occur in the position of V2. Separately, verbs encoding Deicticand Other Spatial Relation tend to occur in the secondverb position while verbs encoding Location only occur in V1.

5.4.3 Summary

In the motion group, ‘Manner + Other Spatial Relation’ is the most frequently co-occurring pattern. There are three semantic elements which can occur in both V1 and V2 positions. Only Other Spatial Relation of the three semantic elements can be encoded by V1s and V2s at the same time in the pattern of ‘X+X’. For two of the three shared elements which are also two subtypes of Path, there is a strong tendency for Deictic and Other Spatial Relation to be encoded by V2s. For the other two subtypes of Path, Location can only be encoded by V1s in motion SVCs and verbs encoding Direction do not occur in motion groups of SVCs. Moreover, verbs encoding Aspect, Cause, Condition, and Perception do not occur in the motion groups of SVCs. Semantic elements Location, Manner, and Method are found only in V1 in motion events and Purpose andState are found only in V2. That is, verbs encoding Purposeand State are restricted to occur in V1 and verbs encoding Location, Manner, and Methodare restricted to occur in V2.

5.5 Summary of the Constraints from Section 5.2, 5.3, and 5.4

Before investigating the possible explanation for the linguistic phenomena in Chapter 6, a systematic summary of the above discussion is necessary so that I can classify similar phenomena under groups and explain the possible reasons.

Data in Section 5.2 are more specific compared with data in Sections 5.3 and 5.4. Tables in Section 5.2 present the constraints on certain semantic co-occurring patterns. For example, for 'Action + X' in Section 5.2.2, the data show that here 'X' in the non-motion group cannot be verbs encoding Cause, Condition, Location, Manner, Method, and Perception. When it is in the motion group, there are four more semantic elements, Action, Aspect, Direction, and State, which cannot collocate with V1s encoding Action.

Data in Section 5.3 and 5.4 give more general information on the types of semantic co-occurring patterns. The unattested co-occurring patterns can be seen clearly in Section 5.3 and 5.4. Through the analysis of the data in Section 5.3 and 5.4, several kinds of relations between the semantic elements and the positions they occur in are summarised.

(1) The semantic elements occurring in the positions of both V1 and V2 include five semantic elements in the non-motion group Action, Aspect, Deictic, Manner, and Other Spatial Relation and three semantic elements in the motion group Action, Deictic, and Other Spatial Relation. Sections 5.3.2 and 5.4.1 present these data.

Some of these shared semantic elements, particularly the Path, have a strong tendency to occur more frequently and be more active in one of the two positions. In the non-motion group, Aspect, Deictic, and Other Spatial Relation tend to occur in the second-verb position while Manner hasover thirteen-times more chance to occur in V1 than in V2. In the motion group, the two shared Path elements,Deictic and Other Spatial Relation, tend to occur in the position of V2. The occurring tendencies of shared semantic elements provide explanation for some unattested co-occurring patterns. For example, in 'Action + Manner' and 'Aspect + Manner', Manner is not expected to occur in the V2s and in 'Aspect + Manner' Aspect is also not expected to occur in V1 according to the occurring position tendencies of Manner and Aspect.

(2) The second type of relations between semantic elements and their occurring positions is that some semantic elements occur in only one of these two positions in SVCs, such as those observations mentioned in the first point of Section 5.3.3 and in the first point of Section 5.4.2. I repeat the semantic elements here for the sake of readers. In the non-motion group, semantic elements only occurring in V1s are

Cause, Condition, Location, Method, and Perception; semantic elements only occurring in V2s are Direction, Purpose, and State. In the motion group, semantic elements only occurring in V1s are Location, Manner, and Method; semantic elements only occurring in V2s are Purpose and State.

(3) Correlating with semantic elements in the second type of relations summarised in (2), those semantic elements occurring only in V1 can be also described as semantic elements that cannot occur in V2 and those occurring only in V2 as semantic elements that cannot occur in V1.

(4) The fourth type of relations involves the symmetric 'X + X' pattern where 'X' refers to any of the 13 semantic elements and verbs encoding X which take both positions of V1 and V2 at the same time in a SVC. As there are altogether 13 types of semantic elements, 13 types of 'X + X' semantic co-occurring patterns are expected to exist. However, only 3 types of 'X + X' patterns have been found in the data. In the non-motion group, there are three 'X + X's of 'Action + Action', 'Manner + Manner', and 'Other Spatial Relation + Other Spatial Relation'. In the motion group, only the pattern of 'Other Spatial Relation + Other Spatial Relation' was found. The 10 unattested co-occurring patterns of 'X + X's are 'Aspect + Aspect', 'Cause + Cause', 'Condition + Condition', 'Deictic + Deictic', 'Direction + Direction', 'Location + Location', 'Method + Method', 'Perception + Perception', 'Purpose + Purpose', and 'State + State'.

(5) There are some semantic elements which only occur in the non-motion group. Direction occurs only in V2 in the non-motion group while in the motion group Direction does not occur in either V1 or V2. This is due to the features of the different event types: motion events or non-motion events. Direction describes the BE_{TOWARD} movement (see Section 4.5.1.3). Verbs encoding Direction do not denote a translational motion event and thus do not occur in the motion SVCs.

Although verbs encoding Direction exclusively occur in the non-motion events, not all the four subtypes of Path elements occur merely in the non-motion group. Other Spatial Relation, Deictic, and Location are found in both the non-motion group and the motion group. Thus, when I discuss the semantic co-occurring patterns of both the non-motion group and motion group as a whole, Direction fits in the points described above in (2) and (3); that is, Direction occurs only in V2 and is not allowed in V1 based on the observation on the data in the non-motion SVCs.

Similarly, there are other semantic elements which occur only in the non-motion group. They are Aspect, Cause, Condition, and Perception. Again, differences between types of events explain why these three semantic elements are not eligible to occur in the motion SVCs. (Translational) motion events have to encode the core schema of motion events: the Path information so as to be qualified as a motion event in the sense of Section 3.6. That is, (translational) motion events have to involve change of location as part of their meaning. Usually, Aspect, Cause, Condition, and Perception rarely collocate with any kind of spatial changes, thus, no examples of patterns composed by any of them with other Path elements were found in the data of the motion group. Even if the examples of these patterns exist, they were classified as a non-motion event rather than a motion event. In my data, the only example found is 'Perception + Deictic' *wàng qù* (look, go; look towards (some place away from the speaker)) in the non-motion event. The Deictic verb is used in the example referring to looking away from the speaker, not any actual movement.[18] Therefore, it is understandable that the Cause, Condition and Perception elements are not encoded by verbs in motion SVCs.

In short, two questions arise from the summary of the five kinds of relations between semantic elements and V1 and V2 positions in SVCs. The first one is why Cause, Condition, Location, Method, and Perception occur only in V1 and are not allowed to occur in V2. The second one is why Direction, Purpose, and State occur only in V2 and are not allowed to occur in V1. If these two questions cannot be explained, it means that the verbs encoding various semantic elements cannot freely occur in SVCs and further that SVC components do not have equal grammatical status.

5.6 Summary

Through the observation of the data, we know that there are shared semantic elements which can be encoded by verbs occurring in both positions of V1 and V2. In the non-motion group those semantic elements include Action, Aspect, Deictic, Manner, and Other Spatial Relation. In the motion group those semantic elements include Action, Deictic, and Other Spatial Relation. Among these shared elements, Aspect, Deictic, and Other Spatial Relation tend to be encoded by verbs occurring in V2 while Manner tends to be encoded by verbs occurring in V1. Verbs encoding Action have no obvious tendency to occur in V1 or V2.

[18] There are another 6 examples ofPerception verbs followed by Path verbs in non-motion SVCs but in most of the cases, the Path verb is grammaticalized to express either State or Aspect.

There are other semantic elements which occur only in one specific position, V1 or V2. I call these kinds of semantic elements ‘unique elements’. In the non-motion group, semantic elements only occurring in V1 are Cause, Condition, Location, Method, and Perception; semantic elements only occurring in V2 are Direction, Purpose and State. In the motion group, semantic elements only occurring in V1 are Location, Manner, and Method; semantic elements only occurring in V2 are Purpose, and State. By taking the non-motion group and the motion group as a whole and excluding the shared elements in each group, I get a summary of unique elements of the Chinese SVCs. Those semantic elements which can only occur in V1 are Cause, Condition, Location, Method, and Perception and those which can only occur in V2 are Direction, Purpose, and State in both motion SVCs and in non-motion SVCs.

Chapter 6 Discussion of the Non-occurring Patterns

6.1 Introduction

In Chapter 5, I presented a full description of the semantic co-occurring patterns seen in serial verb constructions in Chinese and some primary observations about these patterns. This chapter accounts for the non-occurring semantic patterns. I attempt to provide pragmatic or semantic reasons why certain of the combinations might be dispreferred on those grounds. I use the pragmatic principles of temporal sequence, semantic lexicalisation$_{(T)}$, and syntactic explanation to account for part of the non-occurring semantic patterns. However, there are still examples with specific fixed patterns which cannot be explained by semantic, pragmatic, or syntactic reasons and they are the evidence that verb components within SVCs do not share equal status and so give evidence that Chinese is not an equipollent language.

Slobin argues that the components of SVCs have equal grammatical status. This is essential if his claim that Chinese does not fit Talmy's event typology is true. It is the basis of his analysis that Chinese is "equipollent". If we assume that Slobin's point of view is right, then the 13 semantic parameters should also share equal grammatical status and verbs encoding these semantic elements should be able to occur freely in any position within SVCs. Furthermore, following Slobin's assertion and its extension that semantic elements are equal and can occur freely in any position within SVCs, I expect that the semantic co-occurring patterns can be paired like 'X + Y' and 'Y + X' or 'X + X' with X and Y in order and referring to any of the 13 semantic elements. Thus, with the 13 identified semantic elements theoretically there should be 169 semantic co-occurring patterns.

However, as we can see from the data summarised in Chapter 5, actually, only 31 types of semantic co-occurring patterns were found. The motion group has 14 patterns and the non-motion group has 27 patterns. There are 10 patterns found in both groups. These 31 semantic patterns do not undermine Slobin's point of view on their own. But the unattested 138 semantic patterns, if they cannot be explained, are strong evidence that not every verb component shares equal status with every other verb component in Chinese SVCs. In this chapter, I account for the unattested semantic patterns from the perspective of the iconicity principle (pragmatics), syntactic convention and semantics. If the unattested semantic patterns fail to be realised by SVCs for predictable reasons or if these unattested patterns are explicable in more general terms then Slobin may be right in that components of SVCs are equal and that Chinese is an equipollently-framed language. But if there are any

unexplainable non-occurring patterns then they must be arbitrary grammatical phenomena, in which case Chinese is not an "equipollent" language.

The reasons for a set of 70 non-occurring patterns will be discussed in Section 6.2. I argue that the Principle of Temporal Sequence (PTS) explains the non-occurrence of semantic patterns involving V2s encoding Cause, Condition, Location, and Method and V1s encoding Purpose and State. Note that the 19 semantic patterns with V2s encoding Perception and V1s encoding Direction are not explicable by the PTS. Thus, they are arbitrary grammatical facts, which undermine Slobin's equipollent argument of SVC components.

The remaining 49 unattested patterns are explained in Section 6.3, 6.4 and 6.5. These 49 patterns are composed by semantic elements which can occur in both V1 and V2, that is, they are patterns that should theoretically exist but are not realised or found in my data. In Section 6.3, I use syntactic convention as a hypothesis to explain these unattested patterns but I found that syntactic convention is not a strong explanation. Then, I divide the unattested semantic patterns into the format of 'X + X' and 'X + Y' with X and Y referring to semantic category. In Section 6.4, I explore semantic constraints to account for the two unrealised 'X + X' patterns. In Section 6.5, I take advantage of Slobin's assertion on the equal status of SVC components and assume that semantic patterns composed by semantic elements which can occur in both V1 and V2 are equal and then on this basis I expect to pair or match the patterns of 'X + Y' and 'Y + X'. I extend the assumption to that if a member of the pair is explicable to be unrealised by Chinese SVCs then the other member can be regarded as explained too. However, there are still mismatching pairs of semantic patterns. That is, one member of the pair is realised but the other one is not and inexplicable. Thus, the assumptions built on the equal status of SVC components cannot be solidly improved.

Section 6.6 provides more evidence for the unequal status of SVC components from the perspective of surface elements in asymmetrical SVCs. Section 6.7 is the summary of this chapter.

6.2 An Iconic Explanation for the Non-occurring Patterns

For data in the motion group and in the non-motion group, there are constraints for certain semantic elements to occur only in V1 or V2 positions. I restate the constraints summarised in Section 5.6.

(6.1) Those semantic elements which can only occur in V1 are Cause, Condition, Location, Method, and Perception and those which can only occur in V2 are Direction, Purpose, and State in both motion SVCs and in non-motion SVCs.

They cover 89 of the non-occurring semantic patterns. But if these constraints themselves cannot be properly explained, the existence of these constraints turns out to be evidence of unequal status of SVC components. I discuss a possible principle behind the constraints in this section. But the principle of temporal sequence can only account for 70 of the non-occurring patterns.

6.2.1 The Principle of Temporal Sequence

According to the constraints, verbs encoding Cause, Condition, Location, Method, and Perception can only occur in the position of the first verb, and semantic elements Direction, Purpose, and State have to be encoded by verbs in the second position in SVCs. Tai (1985, 2002, 2011) and Huang & Tai (2014) propose the Principle of Temporal Sequence which provides a possible pragmatic explanation for this kind of constraint.

The PTS is defined in this way: "the relative word order between two syntactic units is determined by the temporal order of the states which they represent in the conceptual world" (Tai 1985: 50). Tai (1985) uses the PTS to explain the positions of different types of adverbials in Chinese, such as durative ones, locative ones, manner or instrumental ones, and verbs.

According to the PTS, verbs which encode the semantic information happening first between the events represented by the two verbs in the conceptual world occur in the first verb position. Since the first five semantic parameters noted in the first paragraph of this section all act as precursors for an action or other types of events, the iconic relation between different eventualities may be invoked to exclude verbs expressing them from appearing in the second verb position in a SVC. Similarly, the latter three semantic parameters noted in the first paragraph of this section act as direction, purpose or result of an action or other types of events; the iconic relation between different eventualities requires them to be expressed in the second verb position.

I use specific examples to illustrate how events in SVCs follow the PTS, especially for V1s encoding Cause, Condition, Location, and Method and for V2s encoding Purpose and State. The examples below are from my data collected from the LCMC. Since it is mainly the serialising string I recorded from the corpus, some of them are not complete sentences. In the examples below I use bold font to indicate an event and use the number 1 and 2 to indicate the event sequence in the conceptual world.

6.2.2 V1s Encoding Cause, Condition, Location, Method, and Perception

(6.2) V1 encoding Cause

a. lǎobaǐxìng **maǐbùqǐ** **màniáng**

1 2

common people cannot afford curse

'Common people cannot afford (a TV); thus they (begin to) curse.'

b. *lǎobaǐxìng **màniáng** **maǐbùqǐ**

2 1

common people curse cannot afford

c. lǎobaǐxìng **màniáng** yīnweì **maǐbùqǐ**

2 1

common people curse because cannot afford

'Common people (begin to) curse because they cannot afford (a TV).'

Verbs encoding Cause have to occur before other actions or states caused by the events expressing Cause. Without a cause there is no following-up consequence. In example (6.2), usually people will not curse without a good reason. When Cause is encoded in the event of not being able to afford (a TV), the string is coherent. However, if the sequence of the events or the order of the words does not follow the PTS the sentence is ungrammatical as shown by example (6.2b). The causing event can be expressed after the consequence caused by it but an obvious indicator is necessary to point out the temporal relations between the two events and connect the two events, such as in (6.2c), where *yīnweì* (because) helps listeners or readers to understand the sequence of events and the causal relation between the two events of cursing and not being able to afford (a TV).

As we can see from examples (6.2a) and (6.2c), there are always alternative expressions (6.2c) for a complex event which contains two or more subevents in one clause (6.1a). When there is an obvious marker to indicate the semantic relations and the temporal sequence between events, expressions are not necessary to strictly follow the order of the event sequences in the conceptual world. Comparatively, the PTS is more suitable to analyse structures such as Chinese SVCs because SVCs have no temporal markers or relation indicators to clearly imply the temporal sequence or the relations between events. Thus, the temporal sequence has to be followed by Chinese SVCs.

(6.3) V1 encoding Method

a. **yòng fādiànjī** **fādiàn**

1 2

use electric generator produce electricity

'use electric generator to produce electricity'

b. *__fādiàn__ __yòng fādiànjī__

2 1

produce electricity use electric generator

c. ?__fādiàn__ tōngguò __yòng fādiànjī__

2 1

produce electricity through use electric generator

'produce electricity by using electric generator'

Similarly, V1s encoding the Method information express a particular subevent while the verbs in V2 position following the method or instrumental verbs usually provide a more general but relevant description of what the method or instrument is used for. In example (6.3a), one has to get access to and operate an electric generator before electricity can be produced by the machine. Thus, the Method event of using a machine is ordered before the event of producing electricity. When the sequence of the order is reversed without any temporal indicator, the sentence is ungrammatical as in (6.3b). The example in (6.3c) is not a natural expression with the sequence of events not following its order in the conceptual world. It may be due to the conjunction *tōngguò* (by using), which is not an obvious indicator of temporal relation or the verb *yòng* (use), which behaves more like a preposition and tends to take the preverbal position so as to modify the verb phrase *fādiàn* (produce electricity). Only when treated as a topic-comment structure, is (6.3c) acceptable— *fādiàn* (produce electricity) is the topic and *tōngguò yòng fādiànjī* (by using the machine) is the comment. According to Tai, in terms of temporal sequence, topic precedes comment and is ordered accordingly.

(6.4) V1 encoding Condition

a. __chù mù__ __xīn suān__

1 2

touch eye heart sad

'Once the eyes see the scene, the heart will feel sad.'

b. *__xīn suān__ __chù mù__

2 1

Heart sad touch eye

c. yī __chù mù__ jiù __xīn suān__

1 2

once touch eye immediately heart sad

'Once the eyes see the scene, the heart will immediately feel sad.'

d. * jiù **xīn suān** yī **chù mù**

2 1

immediately heart sad once touch eye

e. yī **xīn suān** jiù **chù mù**

1 2

once heart sad immediately touch eye

'Whenever one feels sad the scene will immediately be reminded.'

Examples in (6.4) demonstrate that verbs encoding Condition have to be located in the first verb position in SVCs. For V1s encoding Condition, if and only if the trigger event takes place, can the subsequent event happen, such as the example in (6.3a): when one sees the scene, one immediately feels sad. When the sequence of the two events is reversed, the expression is ungrammatical as shown by (6.4b). The example in (6.4a) is more lexicalised$_{(D)}$ than the examples in (6.2a) and (6.3a) in that the expression in (6.4a) cannot be expressed in the order of event-2 and event-1 even with the help of a conjunctive expression such as '*yī…jiù…* (once…immediately...)' as in (6.4d). *Chù mù xīn suān* (once the eyes see the scene, the heart will feel sad.) is more like an idiom. The order of these two events is fixed so solid that the E2-E1 sequence is not acceptable in any kind of expression as in (6.4d). Moreover, since '*yī…jiù…* (once…immediately...)' has a fixed order to arrange E1 first and then E2, (6.4e) expresses a totally different event with the heart feeling sad as the first event and seeing the scene as the second event in the conceptual world. The meaning of example (6.4e) is different from what is conveyed by example (6.4c).

(6.5) V1 encoding Location

a. **zhuǎndào yīyuàn zhìliáo**

1 2

transfer hospital treat

'transfer to hospital for a treatment'

b. ***zhìliáo zhuǎndào yīyuàn**

2 1

treat transfer hospital

For V1s encoding Location, it serves as the place where the second event happens. It is impossible to get the treating event located before the transferring event in example (6.5b). Thus, verbs encoding Location have to appear in the first verb positon in SVCs to provide the background information of Location for the whole event. I cannot think of other

grammatical expressions with treating as the first event and the transferring as the second event in the temporal line. Therefore, Location encoded by verbs of SVCs is required by the PTS to occur in V1 so as to provide the Location information for the second event.

(6.6) V1 encoding Perception

a. **zhùyì dào**
1 2
notice arrive
'notice that…'

b. ***dào zhùyì**
2 1
arrive notice

Example (6.6a) shows that verbs encoding Perception cannot happen in the second verb position. As Gisborne (2010: 201, 203, 204-206) argues, the perceiving event and the event perceived happen co-temporally; a different explanation from the PTS is needed for the Perception element exclusively encoded by V1s in SVCs. In fact, I cannot think of any expressions, even ones with conjunctions which are grammatical with the word order of E2 E1 to express the example in (6.6a). Tai (1985) regards the structures like (6.6a) as compounds as the verb components cannot be split by any NP, aspect marker *le*, or by *de* (be able to do something) and *bù* (not be able to do something).[19] These show that example (6.6a) is on the way of lexicalisation$_{(D)}$ in the sense that it is unacceptable in any kind of expressions with the sequence of E2 E1.

6.2.3 V2s Encoding Direction, Purpose, and State

(6.7) V2 encoding Purpose

a. **kàojìn huǒduī qǔnuǎn**
1 2
get close to campfire get warm
'get close to campfire so as to get warm(er)'

b. ***qǔnuǎn kàojìn huǒduī**
2 1
get warm(er) get close to campfire

c. weìle **qǔnuǎn** er **kàojìn huǒduī**
2 1

[19] They are also called potential markers by Ding (1961) for their meanings.

for the purpose of get warm(er) and get close to campfire

'get closer to the campfire so as to get warmer'

In example (6.7a), the event of getting close to the campfire happens before the event of getting warm(er) in the real world. When encoded by the serial verb construction, the events follow the sequence of happening in the real world. When the order of the events is changed into E2 E1 in (6.7b), it is ungrammatical. With the help of the conjunction ***weìle**…**er**…* (for the purpose of…) in (6.7c), the purpose relation between the subevents and the temporal sequence of the two subevents are stated clearly in this structure. Thus, example (6.7c) with the E2-E1 sequence is grammatical. Since there is no marker to indicate the subordinate relation or coordinate relation between the events within SVCs, the word order in a SVC must follow the event sequence in the real world.

(6.8) V2 encoding State

a. **<u>dǎ</u>** **<u>hūn</u>**

1 2

beat faint

'beat down'

b. ***<u>hūn</u>** **<u>dǎ</u>**

2 1

faint beat

c. tā **<u>hūn</u>** le, shì beì **<u>dǎ</u>** de

2 1

3SG faint PERF is by beat de

'It is the beating that causes him to be faint.'

In example (6.8a), *hūn* (become faint) describes a kind of state caused by the action of *dǎ* (beat). The beating action happens first and the resultative state of becoming faint follows. Example (6.8b) shows that it is ungrammatical to reverse the order of the events in (6.8a). Example (6.8c) shows that with the proper conjunction, it is possible to use two clauses to clearly express the temporal sequence and the cause-result relation without following the sequence of events in the real world. '***Shì**…**de***' is a clause pattern to express emphasis and this clause pattern always appears as a second clause since new and emphasised information usually appears in the latter part of a sentence in Chinese. ***Beì*** is a non-agent topic marker (Cann and Wu 2011). The two clauses are connected by the sentence pattern of '***shì**…**de***' to emphasise the cause event of beating (E1).

In addition, ***dǎ hūn*** (beat faint; beat down) is in the process of being lexicalised$_{(D)}$. It is only possible to interrupt the string with specific items such as affixes ***de*** (be able to do something) and ***bù*** (not be able to do something), but not by any NP (in spite of the fact that ***dǎ*** (beat) is a transitive verb) or aspect marker ***le***. The aspect marker can only occur after the second verb. This will be further discussed in Section 6.6 when symmetrical and asymmetrical SVCs are analysed.

(6.9) V2 encoding Direction

a. **sòng** **wǎng**
1 2
send go to
'send (something) to (some place)'

b. ***wǎng** **sòng**
2 1
go to send

Example in (6.9a) shows the semantic co-occurring pattern with V2 encoding the information of Direction. As discussed in Section 4.6.2, the temporal relations between events are non-overlapping, partial overlapping, and full overlapping. Full overlapping events happen co-temporally while non-overlapping and partial overlapping events have temporal sequence of before and after. The subevent of sending and the subevent of going (to) in example (6.9a) occur co-temporally/simultaneously. Thus, the PTS cannot obviously explain why Direction has to be encoded by V2s in SVCs. And the ungrammaticality of example (6.9b) is hard to explain and has to be accounted as an arbitrary grammatical phenomenon. The PTS fails to explain why the Direction is encoded only by V2s not by V1s and this implies that Slobin's argument on equal SVC components is wrong.

The examples above illustrate that in SVCs Cause, Condition, Location, and Method have to be encoded by verbs occurring in the first verb position otherwise they violate the PTS and are ungrammatical; and that verbs encoding Purpose and State make SVCs ungrammatical when they appear in the first verb position due to violation of the PTS. There are 70 unattested semantic patterns which have any of Cause, Condition, Location, or Method, encoded by V2s or Purpose, State encoded by V1s. Thus, the PTS accounts for the non-occurrence of the 70 patterns in my data and it does not undermine Slobin's assertion on Chinese being an equipollently-framed language.

However, why Perception can be encoded only by V1s and Direction only by V2s is inexplicable by the PTS. The 19 unattested semantic co-occurring patterns with Direction encoded by V1s or Perception encoded by V2s are not explained. This point is strong evidence against Slobin's argument.

6.3 Syntactic Explanation

As we have already seen in Section 6.2, the semantic co-occurring patterns can be expressed by SVCs as well as by other syntactic structures. Then I hypothesize that the 68 semantic non-occurring patterns are for some reason just not expressed by serial verb constructions in Chinese. Subordinate structures such as adverbial adjuncts with a main verb (in the Chinese order of modifier and head) or coordinate structures can express these semantic collocation types in Chinese. If that is the case (and I do not explore this in this dissertation) then the exclusion of the 68 non-occurring patterns, such as 'Aspect + Other Spatial Relation' and 'Aspect + Aspect', which have not yet been covered by the account already explored, may be an arbitrary syntactic fact, rather than resulting from real world structures.

The syntactic blocking effect can be understood by referring to the morphological blocking effects. "Blocking in linguistics, or more specifically in morphology, refers to the unacceptability of applying a morphological process on a certain word due to the presence of a competing form" (Richards et al 2005: 71). Giegerich (2001) argues that there is a default morphological change, and in a particular case, there is a more specific rule in the morphological changes; and when the more specific rule prevents the application of the default change, this is the blocking effect in morphology, such as, the word formation of plurality. The default plurality should be made through adding the plural marker '-s/-es' but the specific rule of adding '-en' to some nouns works for words ***child*** and ***ox***. The blocking effect has chosen the competing form of ***children*** and ***oxen*** rather than the default form of ***childs*** or ***oxes*** as the plural form of ***child*** and ***ox***.

Here, the syntactic blocking convention refers to the linguistic phenomenon that other structures block some semantic co-occurring patterns to be expressed by the SVCs. For example, ***yǐjīng xiàjiàng*** (already descend) has the semantic pattern of 'Aspect + Other Spatial Relation' and is structured by an adverb ***yǐjīng*** (already) modifying a verb ***xiàjiàng*** (go down), rather than a SVC.

And for the 'X + X' collocation pattern such as 'Aspect + Aspect' and 'Deictic + Deictic', one might attribute the non-occurrence to a syntactic constraint in that it is possible that the non-existence of certain 'X + X' combinations is also the result of some sort of 'blocking

convention' induced by the fact that the meanings that would be expressed by such combinations can in fact be realised by existing common syntactic constructions. For example, 'Aspect + Aspect' can be encoded by verbs, adverbs and aspect makers as shown in example (6.10) below.

(6.10)	tā	yǐjīng	wánchéng	le	zuòyè
	3SG	already	finish	PERF	homework

'He has already finished his homework.'

In example (6.10), there are three words to express the Aspect information. They are adverb ***yǐjīng*** (already), verb ***wánchéng*** (finish) and aspect marker ***le*** which indicates something has been completed. The semantic pattern of 'Aspect + Aspect (+ Aspect)' is realised by 'adverb + verb (+ aspect marker)' rather than 'verb + verb' in example (6.10).

However, in any language there could be several possible methods to convey the same meaning. For example, in English there are double object structures such as 'give somebody something' and 'give something to somebody'. Or there are sentences like 'I walked to the office' and 'I went to the office on foot'. Or 'Are you following?' and 'You are following?'. There are more examples like these in Chapter 6 in Talmy (2000b). For example, 'They stayed at home because they were feeling tired' and 'They were feeling tired, and so they stayed home' (Talmy 2000b: 346). The meaning of the pairs of examples is the same but they are realised by different syntactic structures. When these meanings are expressed in real conversation or in writing, which structure the speaker or the writer chooses to use is subjective depending on the personal language habit or the specific situation or the context. In other words, there may be discourse/coherence reasons for choosing one form over another. Given the general variability in expression found in syntactic (as opposed to morphological) constructions, it is hard to show how a blocking convention would work in syntax, especially, in the current case of the semantic co-occurring patterns. It is difficult to answer the question why the same meaning can be expressed by a surface structure of 'adverb + verb' but it cannot be expressed by a SVC. Thus, I reject the idea that a blocking convention can account for the non-occurrence of certain types of serialising structures in Chinese.

In addition, there are patterns which cannot be explained by the pragmatic iconicity or any form of syntactic blocking convention such as 'Other Spatial Relation + Manner'. Theoretically, semantic elements Other Spatial Relation and Manner can be encoded by both V1s and V2s within SVCs but there is no example encoding the pattern 'Other Spatial

Relation + Manner'. *Fēi chū*(fly exit; fly out) expresses 'Manner + Other Spatial Relation' but **chū fēi* (exit fly) is ungrammatical. Furthermore, there are no other normal alternative expressions to collocate Other Spatial Relation first and Manner second. The closest I can think out is *'tā lái le, yòng pǎo de'* (he, come, PERF, by, run, emphasise marker; he came out by running).

(6.11) Tā lái le, yòng pǎo de.
3SG come PERF by run emphasise marker
'He came by running.'

The Path information is expressed in the first clause before the Manner information but the Manner information is emphasised in the second clause as a type of complementary description to detail how he came out. It is not the usual expression in spoken or written Chinese. Also, the example in (6.11) is bicausal and then by definition it is not a SVC. I conclude that syntactic blocking is not good enough to explain the non-occurrence of the pattern of 'Other Spatial Relation/ Deictic / Location + Manner' in Chinese SVCs. For now, I can only analyse the inexplicable non-occurring serialising patterns as arbitrary syntactic facts. In the following section, I give accounts from the semantic perspective to these non-occurring patterns.

6.4 'X + X' Patterns and Semantic Explanation

Most of the examples in Section 6.2 and 6.3 are in the form of the semantic pattern of 'X + Y'. There is another pattern, 'X + X'. This section accounts for the non-occurring patterns of 'X + X'. In SVCs, 'X + X' refers to verbs encoding the same semantic type. As there are 13 semantic elements, there should be 13 semantic patterns of 'X + X'. However, only 3 patterns are found in my data. They are 'Action + Action', 'Manner + Manner', and 'Other Spatial Relation + Other Spatial Relation'. Six semantic patterns are excluded involving Cause, Condition, Location, Method, Purpose, and State in the wrong positions and violating the PTS. Four more patterns are not found and not amenable to an obvious semantic explanation. They are 'Aspect + Aspect', 'Deictic + Deictic', 'Direction + Direction', and 'Perception + Perception'.

It should be noted that the repetition of a word form does not necessarily give rise to a SVC. Chinese also has a phenomenon that resembles 'reduplication', where a morpheme can be repeated for a particular effect. For example, *xiào xiào* (smile, smile; smile) gives emphasis to the semantic meaning of *xiào* (smile). As I focus on the semantic elements and semantic

patterns conveyed by SVCs, I do not take the exact two juxtaposed verbs (verb reduplication) as SVCs as I discussed in (D) in Section 3.5.

Patterns of ‘Direction + Direction’ and ‘Perception + Perception’ involve Direction in the wrong position of V1 and Perception in V2, which cannot be explained by the PTS. Patterns of ‘Aspect + Aspect’ and ‘Deictic + Deictic’ involve semantic elements Aspect and Deictic which can occur in both V1 and V2 within SVCs but it is hard to explain why there are no such co-occurring patterns of ‘Aspect + Aspect’ and ‘Deictic + Deictic’. Maybe it is not proper for a SVC to have two different types of Aspect information, or two different types of Deictic information. Or it may be a challenge to get the same type of semantic meaning encoded both by verbs in SVCs. Example (6.10) shows that the same Aspect information can be expressed by the combination of ‘adverb + verb (+ aspect marker)’ but not by a SVC.

Why can only three of the 13 semantic elements be realised in the form of ‘X + X’ by Chinese SVCs? The reason behind the three realised semantic patterns is the lexicalisation$_{(D)}$ of SVCs.

Looking at these examples, I found that examples in the semantic patterns of ‘Action + Action’, ‘Manner + Manner’, and ‘Other Spatial Relation + Other Spatial Relation’ are either in the process of being lexicalised$_{(D)}$ into fossilized words or some of the components are in the process of being grammaticalized. I give each semantic pattern some examples below.

(6.12) Action + Action

a. qì xué cóng shāng
discard studies take business
‘give up studies and get into business’

b. qì yī cóng wén
give up medicine take literature
‘abandon medicine and get into writing’

c. qì wén cóng wǔ
give up literature take army
‘give up a career in writing and get into army’

d. qì wǔ cóng wén
give up army take literature
‘give up a career in the army and get into writing’

e. *cóng shāng qì xué
take business give up studies

For ‘Action + Action’, the example in (6.12a) presents a macro event with two subevents connected closely in the conceptual world. The macro event depicts an abstract decision consisting of giving up studies and getting into a business career. The two subevents follow the temporal sequence. In semantics, the meaning of each verb component within (6.12a) is half fixed and the whole construction is almost fixed as an expression to convey the change of careers. By this, I mean I can replace the studies and business here with other careers such as medical studies, writing, martial arts (being a solider in the army) and so on as shown by examples (6.12b), (6.12c), and (6.12d). The careers can be interchangeable as in (6.12c) and (6.12d) but the sequence of the events cannot be changed. Once the event order is changed, the temporal and semantic connection of the two events is broken which causes the ungrammaticality of the SVC as in (6.12e).

Lexicalisation$_{(D)}$ helps the ‘Action + Action’ pattern to be realised by two verbs in Chinese SVCs. There are 10 examples of ‘Action + Action’, which is the highest in number among the three realised ‘X + X’ semantic patterns by SVCs.

(6.13) Manner + Manner

a. qì zhù
build by layering bricks construct
‘build’

b. tiāo jiǎn
select collect
‘pick up’

Examples in the pattern of ‘Manner + Manner’ use different verbs with similar meanings to depict various events. Examples with the pattern of ‘Manner + Manner’ use two synonymous verbs to depict one event and the subevents encoded by each verb overlap in the temporal line. The meaning of the construction is similar to meanings of each verb component. Each verb in examples (6.13) cannot interchange their positions or be interrupted by any affix or marker such as aspect marker ***le*** or potential marker ***bù*** (not be able to) and ***de*** (be able to). Examples in (6.13) are not yet lexicalised$_{(D)}$ to the extent to be compiled in dictionaries. As I mentioned in Section 3.5, my data do not include items compiled by dictionaries. There are five examples with the pattern of ‘Manner + Manner’.

(6.14) Other Spatial Relation + Other Spatial Relation

a. jiàng dào
descend arrive

‘go down to (the number has gone down to)’

b. dēng shàng

ascend go up

‘go up to (the ascending event has been completed and an end point should follow ***shàng*** (go up))’

c. dēng shān

ascend mountain

‘climb mountain’

d. dēng shàng shān

ascend go up mountain

‘reach the top of the mountain/ finish climbing the mountain’

e. zhī qǐ

put up get up

‘prop up (something, e.g., tent has been propped up)’

For the semantic patterns of ‘Other Spatial Relation + Other Spatial Relation’, the motivation behind this pattern is the process of grammaticalization. In example (6.14a), the whole event describes an abstract number or the Figure in Talmy’s term, going down to a point or to a level. The first verb describes the process of going down and the second verb specifies the point or the level the number/ Figure stops at/ arrives at. Of the 6 examples with the pattern of ‘Other Spatial Relation + Other Spatial Relation’, 5 of them invovle the verb ***dào*** (arrive) in the second verb position. I think ***dào*** (arrive) is in the process of becoming an aspect marker of completion which indicates that the event is complete. Similarly, the example in (6.14b) and (6.14e) both have a second verb which is undergoing the grammaticalization of becoming an aspect marker. Evidence is given below.

In (6.14b), the verb ***dēng*** (go up) already encodes the upward movement and it is a transitive verb which can take a NP encoding a place as object. Thus, ***dēng*** (go up) does not need the verb ***shàng*** (go up) to indicate the spatial relations or add the possibility to take an additional argument. The verb ***shàng*** (go up) also encodes spatial information and is transitive. The verb ***shàng*** (go up) here may contribute to provide an extra argument or to detail the Path (end of the Path) of the motion but the verb is sure to indicate the completion status of the event of going up. It is obvious that (6.14c) and (6.14d) express different events. Example (6.14c) in the sense of eventualities expresses an activity while example (6.14d) expresses an achievement.

Example (6.14e) is similar to the examples (6.14a) and (6.14b) in that the second verb is being grammaticalized to be an aspectual mark of completion. The difference is that in (6.14e) V1 is transitive while V2 is intransitive (in (6.14a) it is a 'vi. + vt.' and in (6.13b) 'vt. + vt.') and the meaning of V2 is partially lost so as to imply the completion status of the first verb/event.

The three realised 'X + X' patterns have been explored and can be accounted for by the lexicalisation$_{(D)}$ of SVCs but the four non-occurring patterns of 'X + X' cannot be explained. And there are still 47 non-occurring patterns requiring explanation. I explain these non-occurrences in Section 6.5.

6.5 Pairs of Semantic Co-occurring Patterns

Till now 70 non-occurrences have been explained by the PTS; 21 non-occurrences are illustrated to be inexplicable; and there are still 47 semantic patterns needing explanation. Since I have discussed the 13 'X + X' patterns, the patterns left are all in the pattern of 'X + Y' with X and Y referring to different semantic parameters.

As discussed in Section 6.1, if Slobin is right in the equal status of verb components in SVCs then I expect that semantic elements can occur freely within SVCs and that the semantic co-occurring patterns composed by the semantic elements should have equal status as well. That is, if the semantic pattern 'X + Y' is conveyed by SVCs and found in my data then I should expect to find the corresponding pair of 'Y + X' realised on the basis of equal status of SVC components.

These 47 semantic patterns are composed by the semantic elements which can be encoded by verbs which can occur in both V1 and V2 positions in SVCs. Theoretically, on the argument that there is equal status in the SVC components, the 47 patterns should exist but I did not find any of them in my data. I continue to discover whether the 47 patterns are not realised for some reason or not.

Of the 47 patterns, 30 of them do not have realised matching semantic patterns. Their matching pairs are excluded by the PTS discussed in Section 6.2. Then following the assumption of equal status of semantic co-occurring patterns, these 30 patterns are accounted for not being realised by SVCs. By this, I mean since the semantic pattern of 'X + Y' is excluded from being realised by the PTS, according to the equal-status assumption, the matching pair of 'Y + X' should not exist.

Similarly, of the 47 patterns there are 4 patterns which are matching semantic-pattern pairs of each other. That is to say, neither of the 'X + Y' or 'Y + X' in these two pairs is realised by Chinese SVCs. According to the equal-status assumption of SVC components and the extension on the equal status of paired semantic patterns, these 4 non-occurring patterns do not undermine the equipollence of semantic co-occurring patterns.

Since the above two types of 34 unrealised semantic patterns are explained, they do not undermine Slobin's judgment of equal status of SVC components. But the last 13 non-occurrence patterns are different from the other 34. Of the 13 non-occurrence patterns, 7 of them have paired patterns involving Direction and Perception which cannot be accounted for by the PTS and 6 of them have realised paired patterns. These 6 patterns break the perfectly balanced equal status of paired semantic patterns of 'X + Y' and 'Y + X'.

The 6 semantic patterns are 'Action + Manner', 'Aspect + Manner', 'Deictic + Manner', 'Deictic + Other Spatial Relation', 'Other Spatial Relation + Action', and 'Other Spatial Relation + Manner'. Four of them have a second verb encoding Manner. I will show below that verbs do not directly encode Manner and the construal of the construction always prevents a manner interpretation for the second verbs in SVCs. This further undermines Slobin's analysis as it means that the construction has its own interpretive possibilities. This should not be the case if verbs can freely collocate in SVCs. I invented the following SVC examples from (6.15) to (6.17) to try to present the non-occurring patterns close to 'Aspect + Manner', 'Deictic + Manner', and 'Action + Manner'.

(6.15) kāishǐ **wā /pǎo**
start dig/run
Aspect Action
'start digging/running'

In example (6.15), the semantic element encoded by ***kāishǐ*** (start) is Aspect and the one directly encoded by *wā*(dig) or *pǎo* (run) is Manner. However, the Manner information encoded by *wā* (dig)/ *pǎo* (run) is coerced by the meaning of Action in the SVC in (6.14). The event described by ***kāishǐ wā/pǎo*** is starting digging/running rather than starting doing something in the manner of digging/running. In this sense, the semantic pattern realised by the example of (6.14) is 'Aspect + Action'.

(6.16) a. laí **wā /pǎo**
come dig/run
Deictic Purpose

‘come to dig/run’

b. **wā /pǎo** laí
dig/run come
Manner Deictic
‘come in the manner of digging/running (digging/running all the way to come)’

Similarly, in example (6.16a), the semantic element encoded by *laí* (come) is Deictic and the one encoded by *wā /pǎo* (dig/run) is Manner. But when these two verbs occur in a SVC, the semantic pattern for the SVC is ‘Deictic + Purpose’. The semantic relation between the two subevents is purpose. Coming is for the purpose of digging/running. It does not mean coming in the manner of digging/running. The Manner reading can only be found in example (6.16b) with Manner encoded by V1 in the SVC. Thus, the semantic pattern presented by example (6.16a) is ‘Deictic + Purpose’ not ‘Deictic + Manner’.

(6.17) zǔzhī **wā /pǎo**
organize dig/run
Action Action
‘organize (the event) of digging/running’

Example (6.17) is constructed by me intending to express the semantic pattern of ‘Action + Manner’. However, the example does not convey the meaning of organizing some event/activity in the manner of digging/running. Thus, *wā /pǎo* (dig/run) in the SVC is not construed to encode Manner. By contrast, it presents an ‘Action + Action’ semantic pattern and expresses the organizing of an event such as digging or running.

I have shown that even though it seems that the examples I invented represent the semantic patterns of ‘Aspect + Manner’, ‘Deictic + Manner’, and ‘Action + Manner’ it turns out that they present semantic patterns of ‘Aspect + Action’, ‘Deictic + Purpose’, and ‘Action + Action’ which were all found elsewhere in my data. It thus appears that there is an arbitrary constraint (however it may be analysed) on the SVC construction that excludes these patterns.

For the three remaining patterns ‘Deictic + Other Spatial Relation’, ‘Other Spatial Relation + Action’, and ‘Other Spatial Relation + Manner’, I cannot think of any examples even similar ones like those given in examples (6.15) to (6.17). Moreover, for the pattern of ‘Other Spatial Relation + Manner’ it is not realised because V2 cannot be construed as encoding Manner in SVCs. Nevertheless, I give invented examples to the three patterns but as examples (6.18) show they are meaningless.

(6.18) a. ‘Deictic + Other Spatial Relation’

*lái shàng

come go upward

b. ‘Other Spatial Relation + Action’

* shàng zǔzhī

go upward organise

c. ‘Other Spatial Relation + Manner’

*shàng pǎo

go upward run

The 13 non-occurring patterns can thus not be explained by any reason. The semantic co-occurring patterns are not in matching pairs and this shows that the non-occurring patterns in Chinese SVCs are just arbitrary grammatical facts. The construction coercion on semantic elements shows that verbs in SVCs cannot collocate freely and this undermines the hypothesis of the equal status of verbs within Chinese SVCs.

6.6 Equipollent Surface Elements?

In previous sections, I tried to explain everything as far as possible but the 13 non-occurring patterns left unexplained give evidence that Slobin is wrong. In this section, I show another piece of evidence that Slobin is wrong in the equal status of SVC components. I first discuss the subtypes of SVCs and then use the subtypes of SVCs to give further evidence that the surface elements within Chinese SVCs are not equal in asymmetrical SVCs because one verb component comes from an open class and the other one comes from a closed class.

As described by Aikhenvald (2006) and Vittrant (2012), SVCs can be sub-divided into two main types: symmetrical SVC class and asymmetrical SVC class. The asymmetrical SVCs are composed by one verb from “a relatively large, open, or otherwise unrestricted class” and another one from “a semantically or grammatically restricted (or closed) class” (Aikhenvald 2006: 21). The symmetrical SVCs have components all from the open class of verbs. In asymmetrical SVCs, minor verbs are those verbs from closed classes and major verbs refer to verbs from relatively large and open classes. “Asymmetrical serial verb constructions tend to undergo grammaticalization—the minor verb becomes a grammatical marker. In contrast, symmetrical serial verb constructions tend to become lexicalised$_{(D)}$ and develop idiomatic meanings” (Aikhenvald 2006: 30). Aikhenvald (2006) also summarises the typical grammaticalization paths for the minor verbs in asymmetrical SVCs. The first one is that the minor verbs develop into tense-aspect and mood markers.

Asymmetrical SVCs

Chinese has both types of SVCs. I first discuss Chinese examples of asymmetrical SVCs.

(6.19) asymmetrical SVCs

dǎ qǐlái

fight get up/start to do something

Manner Aspect

'start to fight'

In the non-motion group of SVCs there are many complex Deictic verbs expressing the Aspect of the event encoded by the first verb. In example (6.19), the first verb *dǎ* (fight) is a common verb encoding the information of Manner and the second verb *qǐlái* belongs to a small closed class of complex Deictic verbs as discussed in Section 4.5.1. Example (6.19) gives an asymmetrical SVC.

I agree with Vittrant (2012) in that minor verbs and the SVCs can undergo semantic changes. The SVC in (6.19) undergoes semantic change due to the meaning changes of the minor verb (the second verb). The meaning of the second verb *qǐlái* (get up toward the speaker) in example (6.19) is polysemous and has evolved from the meaning of 'getting up' to an aspectual meaning of 'starting to do something'. The meaning of the SVC also undergoes semantic changes because of the polysemous minor verb. Usually, when the Manner information is encoded by the first verb within a SVC it expresses the manner of the whole event conveyed by SVC. But with the meaning changes of the second verb, the meaning of the SVC also changes into 'starting to fight' rather than 'starting in the manner of fighting' or 'getting up in the manner of fighting'. Just like the grammaticalization path suggested by Aikhenvald (2006), *qǐlái* (get up/ start to) as a minor verb from the closed class of complex Deictic verbs develops to be an aspect marker in example (6.19). There are lots of examples in my data showing this tendency of Deictic verbs turning into aspect markers.

In addition, in my data I found that verbs encoding Other Spatial Relation function as an Aktionsart marker. That is, verbs encoding Other Spatial Relation sometimes change the eventualities of the event conveyed by SVCs. For example, in *fēi chū* (fly, exit; fly out), V1 expresses the event of flying and V2 expresses the resultative state of going out and being out. The event of flying is unbounded but the event encoded by V2 adds an ending point to the flying event and makes the SVC bounded in eventuality. Thus, *chū*(exit) functions as an Aktionsart marker for the SVC. *Fēi chū* (fly, exit; fly out) is Slobin's example of Chinese

SVC but it is an asymmetrical SVC of which *fēi* (fly) comes from an open class of verbs and *chū* (exit) comes from a closed class of Path verbs and acts as an Aktionsart marker.

From the examples above, it makes sense as an argument that some verbs encoding semantic elements such as Deictic and Other Spatial Relation are in the process of becoming function words indicating aspect or eventuality of events and they tend to occur in the second verb position within Chinese SVCs.

Symmetrical SVCs

There are symmetrical SVCs in Chinese as well. The most obvious examples in my data are those examples with semantic co-occurring patterns of 'X + X' because they have verbs from the same class. The realised 'X + X' patterns are 'Action + Action', 'Manner + Manner', and 'Other Spatial Relation + Other Spatial Relation'.

(6.20) symmetrical SVCs

a. Action + Action
   xiàn chǎn
   limit produce
   'control the process of producing'

b. Manner + Manner
   qì zhù
   build by layering bricks build
   'build'

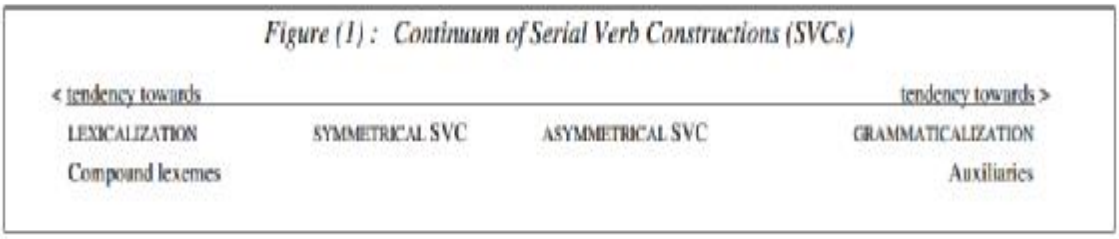
c. Other Spatial Relation + Other Spatial Relation
   shēng dào
   go up arrive
   'rise to/go up to'

In example (6.20), for each semantic pattern, the verbs encode the same semantic element which confirms the symmetrical nature of component of SVCs. There are no verbs coming from relatively small closed classes because verbs come from the same semantic category and no matter how small the category is the components have equal status. For example in (6.20a), both verbs are from the class of verbs encoding Action; similarly, for example in (6.20b), both verbs encode Manner and for example in (6.20c), both verbs encode Other Spatial Relation. The examples in (6.20) narrow down the category of symmetrical SVCs considering that the categories of verbs encoding Other Spatial Relation is a closed class (as will be illustrated in Chapter 7) instead of a relatively large, open and unrestricted class

mentioned in the definition of Aikhenvald. And according to Aikhenvald's definition of symmetrical SVCs, I expect other co-occurring patterns of symmetrical SVCs such as 'Manner + Action' with two verbs from relatively large, open and unrestricted classes. However, the subtypes of symmetrical SVCs are not my concern and I do not discuss them further. What is important is that the symmetrical SVCs do not undermine Slobin's argument in that the surface elements of symmetrical SVCs have two verbs coming from the same class.

Lexicalisation of SVCs

I discuss the lexicalisation$_{(D)}$ of asymmetrical SVCs and symmetrical SVCs. Vittrant (2012) summarises detailed properties for symmetrical and asymmetrical SVCs in Burmese and proposes to study different SVCs "as belonging to a continuum marked out by four prototypical categories, as shown in Figure (1)" below (Vittrant 2012: 13).



Returning to asymmetrical SVCs, I found that *dǎ qǐlái* (fight, start; start to fight) goes further in the cline of being lexicalised$_{(D)}$ than *fēi chū* (fly, exit; fly out). This can be illustrated by observing whether the SVC can be interrupted by aspect marker *le* or potential marker of *de* (be able to) and *bù* (not be able to).

(6.21) a. dǎ le qǐlái
fight PERF start
Action Aspect
'have started to fight'
b. dǎ qǐlái le
fight start PERF
Action Aspect
'have started to fight'
c. dǎ de/bù qǐlái
fight de/bu start
Action Aspect

‘be able to start to fight/ not be able to start to fight’

(6.22) a. *fēi le chū
fly PERF exit

b. fēi chū le
fly exit PERF
Manner Other Spatial Relation
‘have flown out’

c. fēi de/bù chū
fly de/bu exit
Manner Other Spatial Relation
‘be able to fly out/ not be able to fly out’

The aspect marker ***le*** can occur between the two verb components in example (6.21a) but it cannot in example (6.22a). Both examples can take ***le*** after the second verbs. Potential markers of ***de*** and ***bù*** can occur between component verbs in both examples. Therefore, ***dǎ qǐlái*** (fight, start; start to fight) goes further in the cline of being lexicalised$_{(D)}$ than ***fēi chū*** (fly, exit; fly out). This lexicalisation$_{(D)}$ cline between asymmetrical SVCs and symmetrical SVCs is more obvious.

For symmetrical SVCs, the behaviours of individual SVCs are also different according to the degree of lexicalisation$_{(D)}$. In the following examples, both SVCs cannot be interrupted by ***le***, but the SVC in (6.23c) can be interrupted by ***de*** and ***bù*** while the SVC example in (6.24c) cannot. This shows that the lexicalisation$_{(D)}$ of ***qì zhù*** (build) goes further than ***shēng dào*** (rise to).

(6.23) a. *shēng le dào
go up PERF arrive

b. shēng dào le
go up arrive PERF
Other Spatial Relation Other Spatial Relation
‘have risen to/go up to’

c. shēng de/bù dào
go up de/bu arrive
Other Spatial Relation Other Spatial Relation
‘be able to rise to/ not be able to rise to’

(6.24) a. *qì le zhù (xiàn chǎn)
build by layering bricks PERF build
b. qì zhù le
build by layering bricks build PERF
Manner Manner
'have built'
c. *qì de/bù zhù
build by layering bricks de/bu build

Xiàn chǎn (control the process of producing) has the same test results with examples in (6.24).

I summarise the tests for examples from (6.21) to (6.24) in the table below.

Table 6.1 Level of Lexicalisation$_{(D)}$

	Symmetrical SVCs	Asymmetrical SVCs		
	qì zhù (xiàn chǎn)	shēng dào	fēi chū	dǎ qǐlái
Interruption of *le*	×	×	×	√
Interruption of *de* and *bù*	×	√	√	√
Lexicalisation$_{(D)}$ level	Fully lexicalised$_{(D)}$	Partly lexicalised$_{(D)}$		Not lexicalised$_{(D)}$

Table 6.1 shows the comparison of lexicalisation$_{(D)}$ between Chinese symmetrical SVCs and asymmetrical SVCs. They behave differently in whether they allow the aspect marker *le* and the potential markers *de* and *bù* to intervene between the SVC components or not. The symmetrical SVCs and the asymmetrical SVCs show a cline from *qì zhù* (build) and *xiàn chǎn* (control the process of producing) which allow nothing to intervene (fully lexicalised$_{(D)}$), through *shēng dào* (rise to) and *fēi chū* (fly out) which allow potential markers of *de* and *bù* but not aspect marker *le* to intervene (partly lexicalised$_{(D)}$), and to *dǎ qǐlái* (not lexicalised$_{(D)}$) which allow both the interruption of aspect marker *le* and potential marker *de* and *bù*.

The examples in Table 6.1 can be mapped from left to right onto the middle part (symmetrical SVC and asymmetrical SVC) of the line in Figure (1) quoted from Vittrant (2012). That is, examples from left to right in Table 6.1 display themselves in the scale in Figure (1) following the more lexicalised$_{(D)}$ direction to become new compounds or a more grammaticalized direction to produce new words with meanings indicating aspect of events.

To summarise, asymmetrical SVCs show that the verb components do not come from the same classes. One is from a closed class of verbs and the other one is from a relatively open

class of verbs. The asymmetrical type of SVCs further illustrates that the surface elements of Chinese SVCs are not equal to each other. There is no equipollence between the components within Chinese SVCs in the level of either semantic elements or surface elements. Therefore, Slobin is wrong in proposing that components in Chinese SVCs share equal grammatical status and that Chinese is an equipollently-framed language.

6.7 Summary

This chapter provides an explanation to the data summarised in Chapter 5. The principle of temporal sequence explains why Cause, Condition, Location, and Method are only encoded by verbs in the first verb positions of SVCs and are constrained from V2s and why Purpose and State only occur in V2s and are constrained from V1s. The PTS can explain the non-occurrence of 70 semantic patterns but it cannot explain why Direction can only occur in V2 position or why Perception only occur in V1s and the associated 19 semantic patterns with V1s encoding Direction or V2s encoding Perception. The patterns of 'Direction + Direction' and 'Perception + Perception' are also inexplicable by the PTS and included in the 19 non-occurrences.

In addition, there are still 49 patterns which do not violate the PTS and are composed by semantic elements which occur in both V1 and V2. However, they were not found in my data of SVCs. That is, the 49 semantic collocation types should exist but are not found in my data.

I use the syntactic blocking convention to account for the non-occurring patterns but find it hard to prove. There are alternative expressions in every language to encode the same meaning and blocking convention in syntax is not a strong reason to account for the Chinese SVC non-occurrences. Thus, I explored other possible motivations.

The semantic pattern 'X + X' with X referring to the same semantic element is special. I compare the realised 'X + X' patterns and the unattested ones and find that the semantic meaning or the expressing function of SVCs may require that not every semantic element can be repeated by verbs in SVCs. This finding may explain the 2 non-occurring patterns of ''Aspect + Aspect' and 'Deictic + Deictic'. At the same time, I find that the realised 'X + X' patterns are motivated by the lexicalisation$_{(D)}$ of the SVCs and the grammaticalization of components of the SVC.

When investigating the remaining 47 'X + Y' non-occurring semantic patterns, I found that for the matching pairs of the 47 semantic non-occurring patterns, 30 of them have matching patterns which violate the PTS; and that 2 pairs of them do not exist, that is 4 patterns are

paired to be non-occurrences. I assume that if verbs encoding semantic elements have equal grammatical status in SVCs then the semantic elements should share equal status and the matching pairs of their semantic collocation patterns should also have the same equal status. By this, I mean if Manner and Other Spatial Relation share equal status, then the semantic pattern of 'Manner + Other Spatial Relation' and 'Other Spatial Relation + Manner' should have the same equal status. In this case, for the 30 patterns, when the equivalent matching semantic patterns are excluded due to violating the PTS the other halves of the pairs can also be regarded as being accounted for by the violation of the PTS. For the 4 patterns, their non-occurrence is justified in that both members of the pairs are not found. But for the remaining 13 non-occurring patterns, 6 of them have their matching pair members realised by Chinese SVCs and 7 of them have inexplicable matching pairs which involve Direction in V1s or Perception in V2s. The 13 non-occurring patterns are inexplicable and have to be attributed to arbitrary grammatical facts which strongly indicate that semantic co-occurring patterns of Chinese SVCs are not equal.

In Section 6.6, I also discussed the main subtypes of SVCs, which are symmetrical SVCs and asymmetrical SVCs. I found that the verb components of asymmetrical SVCs do not come from the exact classes. That is, in asymmetrical SVCs, the major verb comes from a relatively large, open and unrestricted class while the minor verb comes from a small and closed verb class. The various sources of verbs lead to the unequal status of surface elements and further to the unequal status of components of SVCs.

If Slobin is right, the pattern of 'Other Spatial Relation + Manner' should exist as an equivalent pattern of 'Manner + Other Spatial Relation' in serialising structures or the non-occurring patterns should be able to be properly explained. However, none of these is found to be the case.

Therefore, whether or not the explanation for the exclusion of 138 non-occurring patterns is the result of pragmatics, syntax, or semantics, the fact of the matter as shown by the data strongly implies that Slobin's claim that the two verbs in serial verb constructions have equal grammatical status is wrong: the semantic elements encoded by verb components are not equal in that they cannot freely occur in SVCs, and the semantic co-occurring patterns are not equal in that plenty of semantic patterns are not realised by SVCs, and lots of the semantic collocation patterns have no matching patterns, and the serial verb construction has coercion on the interpretation of semantic elements encoded by SVC components. Thus, there is no solid evidence for Mandarin Chinese to be an equipollently-framed language.

Chapter 7 Path Verbs in Chinese

7.1 Introduction

This chapter discusses Chinese Path verbs through observing the specific subtypes of Path encoded by them. Path verbs in type and in number are also compared among Chinese, English and Spanish.

In the rest of this chapter, Section 7.2 gives the theoretical background and links up this chapter to the others in the thesis. Section 7.3 presents the method of collecting Chinese Path verbs and defines the subtypes of Path. Section 7.4 describes Path verbs in Chinese and a brief comparison between Chinese Path verbs and English Path verbs is also presented. Section 7.5 analyses the differences among Path verbs in Chinese, English and Spanish from the perspectives of number and lexicalisation$_{(T)}$ types. Section 7.6 is the conclusion.

7.2 Linking and Developing

Since I have shown in previous chapters that Slobin's claim that Chinese is an equipollently-framed language is falsified by various subtypes of SVCs, the question then arises as to whether Chinese is like English and belongs to the scope of satellite-framed languages or rather shares more properties with verb-framed languages.

Talmy classifies Chinese asa satellite-framed language (please seeSection 2.2 on the reasoning of Talmy's) because (1) there are not many verbs which encode the information of Motion and Path together—verbs of Path or Path verbs; (2) even though Chinese verbs of Path can be used independently, some of them are analysed as satellites in Talmy's typology (Talmy 2000b: 109 & 275).

According to Talmy, Path is the core schema of motion events and the key factor to distinguish a satellite-framed language from a verb-framed language. That is, if Path is encoded by the main verb while other semantic elements such as Manner or Cause are encoded by other surface elements such as gerunds, then the language is a verb-framed language. If Path is encoded by a satellite then the language is a satellite-framed language.

As exemplified by SVCs, the semantic element of Path is indeed encoded by verbs in Chinese SVCs, but some of the Path verbs are in the process of being grammaticalized as shown by the minor verbsin the asymmetrical SVCs.

Furthermore, the question of whether Path is encoded by satellites or verbs in Chinese is also answered by Li (1993) and Shi & Wu (2014), who investigates the problem from a diachronic perspective and concludes that classical Chinese is a verb-framed language while

modern Chinese is a satellite-framed language. My data show that Path verbs can be used as independent verbs as well as satellites to encode the Path information in SVCs. More specifically, the SVCs such as ***feī chū***(fly, exit; fly out) support Chinese being a verb-framed language while the asymmetrical SVCs such as ***dǎ qǐlái*** (fight, get up; start to fight) with the grammaticalized verb particles are evidence of Chinese being a satellite-framed language.[20] Thus, my data suggest that Chinese is in the transition from a verb-framed language to a satellite-framed language.

Talmy (2000b) also observes that it is possible for a language to have a 'split system of conflation', a 'parallel system of conflation', or an 'intermixed system of conflation'. But I do not think that Chinese shows properties of any of these systems. A 'split system' refers to languages having a characteristic conflation type for one type of motion event and employing a different conflation type for another type of motion event. For example, Spanish uses the conflation of Motion and Path to express motions involving the Path type of crossing a boundary such as 'into' and 'out of' and uses the Co-event conflation to express unbounded motion events involving Path such as 'from', 'to' and 'toward'. "In a split system, a language uses different conflation types for different types of Motion event. But in a parallel system of conflation, a language can use different conflation types with roughly comparable colloquiality in the representation of the same type of Motion event"(Talmy 2000b: 66). As for the intermixed system of conflation, it means there is the possibility that a language might not exhibit a consistent pattern of conflation for some types of motion event, "but rather intermix different forms of conflation for the various members of that Motion event type" (Talmy 2000b: 67). And Talmy gives examples of Latin and Greek, such as in Greek, "'across' and 'past' can be expressed only with Path verbs while 'round' can be expressed only with a Path satellite"(Talmy 2000b: 67).

In the case of Chinese, of Chinese SVCs in particular, we do not see features of a split system or a parallel system. The closed class of Chinese Path verbs indicates the trend of

[20]In the case of ***feī chū*** (fly, exit; fly out) as an asymmetrical SVC, ***chū*** is being grammaticalized. This is consistent with ***chū*** not being the structural head. The structural head and the main verb here refers to the syntactic head in the tradition of Chomsky's (1957) and it can also be understood in the sense of word category with ***chū*** (exit) being grammaticalized and ***fēi*** (fly) as the main verb. Note that in this thesis I do not discuss the head of SVCs either the syntactic one or the semantic one. Regarding the syntactic head, the explorations peaked in the late 1980s and early 1990s discussing whether SVCs are coordination, subordination or adjunction (Baker and Stewart 1999 & 2002; Larson 1991). According to the literature, V1 can be the head (Collins 1997; Li 1990 & 1995); V2 can be the head (Li 1991; Law 1996; Déchaine 1993; Tai 2003; Li 2010; Lin et al 2012); SVCs can be double-headed by both V1 and V2 (Baker 1989 & 1991) or SVC is headless (Li 2008). Some linguists such as Paul (2008) hold the idea that SVCs are not consistent in structures and that SVCs cover different structures. At the interface, Francis and Matthews (2006) analyse that there is a mismatch between the semantic head and the syntactic head in Cantonese coverb structures (a type of SVCs in my thesis).

being an intermixed language system. But rather than showing a clear distinction as Greek does, these Path verbs that are undergoing grammaticalization sometimes behave as independent verbs.[21] Further, the lexicalisation$_{(T)}$ patterns of Path verbs in Chinese also show that some subtypes of Path can be expressed by both more verb-like Path verbs as well as by more lexicalised$_{(D)}$ grammatical markers which are identified by my data as Path verbs but listed by Talmy as satellites (Talmy 2000b: 109). This point makes Chinese different from an intermixed language system. To illustrate this, it is necessary to investigate the lexicalisation$_{(T)}$ patterns of Chinese Path verbs.

Path verbs are the basis of comparison among languages. Since Talmy classifies languages on the basis of a prototype, that is, classifying a language according to the characteristic conflation type; this allows minor systems of different conflation types. To put it differently, a language which belongs to a specific type of the dichotomy may display some phenomena which show certain properties of the other language type. For example, in English there are some borrowed words such as ***enter*** which encodes the information of Motion and Path and which does not need the help of a satellite to express the Path information. In Chinese and in Spanish there are Path verbs as well. This provides the possible condition for comparison.

Further, Özçalişkan (2004) has compared Path verbs in Turkish and in English, which are separately in the scope of verb-framed languages and satellite-framed languages. She found that languages of different typological types have similar numbers of Path verbs and she further claims that verbs of Manner are open to new members, but Path verbs form a closed lexical category. Languages belonging to different language types have similar numbers of Path verbs. As for languages belonging to the same language type—Chinese and English, what are the differences and similarities of Path verbs? To address this question, I compare the number of Path verbs among Chinese, English, and Spanish. I use Cifuentes-Férez's (2008) summary of Spanish Path verbs in my comparison of the number of differences between Chinese and Spanish Path verbs.[22]

This section gives answers to the following questions:

1) Do those 16 Chinese Path satellites identified by Talmy exclusively express certain subtypes of Path?
2) Do Chinese, English and Spanish have comparable Path verb lexicons and why?
    a. Are the three Path lexicons comparable in size?

[21] According to Hopper and Traugott (1993), this linguistic phenomenon is called "layering" in the grammaticalization theory.
[22] I obtained Dr Cifuentes-Férez's permission to use the data from her dissertation through personal communication.

b. Are the three Path lexicons comparable in their lexicalisation$_{(T)}$ patterns?
c. What sorts of Path notions are typically lexicalised$_{(T)}$ in Chinese?
d. What are the possible motivations for the comparable/incomparable number and lexicalisation$_{(T)}$ patterns?

This chapter explores which sort of path or trajectory of motion is the most typical in Chinese, in English, and in Spanish and whether Path verbs are comparable in size/number and in lexicalisation$_{(T)}$ types of Path among the three languages. Generally speaking, Path verbs in Chinese include intransitive verbs (vi.) and transitive ones (vt.) which can appear in constructions like: Figure (syntactic subject) + Path verb (vi.) or Figure (syntactic subject) + Path verb (vt.) + Ground (direct object; usually it refers to a location or place).

7.3 Sources of Path Verbs and Defining Subtypes of Path

7.3.1 Data Sources

The data of Chinese Path verbs were collected from various dictionaries and the English Path verbs and the Spanish ones are directly taken from Cifuentes-Férez (2008). For the purpose of comparison, the subtypes of Path follow the 13 types discussed and summarised by Cifuentes-Férez's (2008). I agree with her semantic description on each type of Path. Her classification criteria come from the relevant literature on subtypes of Path, which is briefly repeated below for the sake of readers. By studying the verb definitions in dictionaries, various subtypes of Path are identified and then the lexicalisation$_{(T)}$ patterns of Path verbs are built up in groups.

In order to get a comprehensive list of Chinese Path verbs, thesauri, monolingual and bilingual dictionaries, and available verb lists in the existing literature were all used. More specifically, the following dictionaries and thesauri were referred to when I constructed the list of Chinese Path verbs.

- *Thesaurus of Chinese Verbs*. China Logistics Publishing House. 1994.
- *Thesaurus of Modern Chinese Verbs*. Beijing Language and Culture University Press. 1994.
- *Xiàndaì hànyǔ cídiǎn (Modern Chinese Dictionary).*The Commercial Press. 2002.
- *Xīnhuá zìdiǎn (Xinhua Dictionary).*The Commercial Press. 11th Edition. 2011.
- *A Modern Chinese-English Dictionary*. Foreign Language Teaching and Research Press. 2001.
- *Oxford English Dictionary* (OED). SecondEdition. Online.
- *Longman Dictionary of Contemporary English* (4th Edition).

I collected the data of Chinese Path verbs on the basis of *Thesaurus of Chinese Verbs*. *A Modern Chinese-English Dictionary* and the *Oxford English Dictionary*were used for the purpose of properly glossing the Chinese examples of Path verbs. Google translation was also used in glossing Chinese examples.

Decisions ofjudging the Path information encoded by verbs were made mainly according to the primary definitions given by dictionaries. My intuition as a native speaker of Chinese was also involved in the judgment.

7.3.2 Subtypes of Path

This section explains more about the subtypes of Path. The 13 subtypes of Path are proposed by Cifuentes-Férez (2008). I follow her classification and briefly present her discussion on why the 13 subtypes of Path are used. Then, I critically evaluate Cifuentes-Férez's classification.

According to Cifuentes-Férez (2008), there are many different methods to classify the Path components encoded by verbs from more syntactically-oriented approaches (Levin 1993; Levin & Rappaport-Hovav 1992) to more semantically-oriented approaches (Berthele 2004; Faber & Mairial-Usón 1999; Narasimhan 2003; Rodríguez-García 1997; Slobin 2008; Talmy 2000b; Wälchli 2001). Cifuentes-Férez (2008) takes the more semantically-oriented approach. That is, she analyses the Path subtypes researched by Narasimhan (2003), Wälchli (2001) and Slobin (2008) and summarises her own 13 types of Path. The classifications of Path discussed in Narasimhan (2003), Wälchli (2001) and Slobin (2008) have been given in Section 4.5.1 where I also show the corresponding relations between the different sets of Path. I will not repeat it here. Compared with the four more general Path parameters used in the discussion of semantic co-occurring patterns of SVCs, that is, Deictic, Direction, Location, and Other Spatial Relation, this chapter includes the following 13 specific subtypes which are with reference to the lexicalisation$_{(T)}$ patterns of Path verbs in Chinese.

- To/towards G (arrival, endpoint)
- Away from G (departure, source)
- Into G (container)
- Out of G (container)
- Up/onto G-upwards
- Down/down from/to G-downwards
- Pass/cross G (traversal, milestone)
- Closer to G

- Forwards
- Back to G/backwards
- Change direction
- Multiple directions from a unique start
- After G

In the 13 subtypes of Path encoded by Path verbs, G refers to Ground. The first 7 types are summarised by Wälchli (2001) and Berthele (2004) while the last 6 ones are added by Cifuentes-Férez based on her data in her thesis. Together, these 13 subtypes of Path are used by Cifuentes-Férez (2008) to classify Path verbs in English and in Spanish. The examples in Chinese for each type are presented in the following section.

7.3.3 Differences from Cifuentes-Férez

I follow Cifuentes-Férez (2008) in using these 13 subtypes of Path so as to compare the Path verbs among Chinese, English and Spanish. Furthermore, compared with other studies, Cifuentes-Férez (2008) has a most detailed list of Path but there are some points I disagree with. For example, when I examined Chinese verbs, I found the verb *rào* (move round, circle) encodes a type of Path expressing the trajectory of moving around G. When I looked for English verbs of similar meanings, I found that in Cifuentes-Férez (2008) the English verb *circle* is classified as a Manner verb encoding the Manner information of 'Path shape'. But I tend to classify *circle* and verbs alikeunder the category of Path verbs. Even Cifuentes-Férez herself points out,"[T]his category might be problematic as it could be argued that Path shape is a path parameter instead of a manner parameter. Further research is needed to shed light on this issue" (Cifuentes-Férez 2008: 195).

Another point is that I think the subtype of Path 'closer to G' should not be listed separately and the Path verbs encoding 'closer to G' should be included in the subtype of 'to/towards G (arrival, endpoint)'. There is only one English example of 'closer to G' given by Cifuentes-Férez –*approach* whose definition given by *Oxford English Dictionary* (OED) is 'come near or nearer to (someone or something) in distance or time'. I double checked in *Longman Dictionary of Contemporary English* (4th Edition) and it is defined as 'to move towards or nearer to someone or something'. I think the Path subtype of 'to/towards G (arrival, endpoint)' can include the Path subtype of 'closer to G'. However, in order to meet the aim of comparison, I kept 'closer to G' where it is.

Intermediate Verbs

Manner and Path are difficult to distinguish in some verbs. That is to say, it is hard to judge whether a verb should be counted as a Manner verb or a Path verb. I found it so in the analysis of my data and specific examples are given in Section 7.4.2.

Cifuentes-Férez (2008: 121) discusses the question by referring to Wälchli (2006) and Özçalişkan (2004) first. Wälchli (2006) argues that there are intermediate verbs which encode both Manner and Path, such as ***sink*** (with downwards motion), ***climb*** (with upwards motion). Özçalişkan (2004) categorises verbs encoding Manner and Path, that is, Wälchli's intermediate verbs, as a subtype of Manner verbs. For example, ***sink*** encodes Manner and Ground (in water).

Cifuentes-Férez then presents her own evaluation. Firstly, she agrees with evidence that the intermediate verbs can collocate with other Path satellites. For example, for ***climb***, there are ***climb up (the hill)***, ***climb down (the tree)***, ***climb across***. Cifuentes-Férez claims that "it seems that path information, rather than residing in the verb, is relegated to satellites. Therefore, it might be argued that these manner verbs are devoid of the Path component" (Cifuentes-Férez 2008: 122). Her second claim is that "the fact that some manner verbs are frequently associated with certain paths suggests that the meaning of those manner verbs imply those paths; in other words, both Manner and Path are thought to be conflated in the verbs. … ***climb*** as encoding the use of one's legs and/or hands (Manner) in order to go up or onto something (Path)" (Cifuentes-Férez 2008: 122).

I support the first explanation. It is a good idea to use linguistic tests to see whether the Path information is part of the necessary meaning of an intermediate verb. For example, ***sink*** can go with ***sink down*** or ***sink to the bottom*** but **sink up*** is ungrammatical because the Path information of downward is part of the meaning of ***sink***. By contrast, the Path information can be cancelled in phrases such as ***climb down*** and ***climb across***. Thus, the Path information is a necessary part of ***sink***'s meaning while it is not for ***climb***. Further, there is no Manner information encoded in ***sink***. It is Ground that ***sink*** encodes together with Path and Motion. Therefore, I do not agree with Cifuentes-Férez's (2008) classification of ***climb***under the lexicalised$_{(T)}$ type of [Motion + Path + Manner] and ***sink***under[Motion + Path (down)]. Instead, ***climb*** should be in the type of [Motion + Manner] and ***sink*** in [Motion + Path + Ground].

In addition, Jackendoff (1985) argues that feature of UPWARD is presented in the lexical entry of ***climb*** unless clearly cancelled. I agree with the linguistic diagnostic of cancelling

but disagree with his conclusion because in *climb out of, climb across*, etc., no UPWARD feature is presented and UPWARD is not the necessary part of meaning of *climb*.

Ground

Similar to *sink* in English, Chinese verbs have the same requirement on the Ground. For *sink* in English and *chén* (sink) in Chinese, the event of going down needs to happen in water. In addition to this, Ground needs to be distinguished from Path in Chinese.

Talmy's theory originates from Fillmore's system of cases (1977). In Fillmore's system, there are "Source", "Goal", "Path", and "Location".[23] However, Talmy points out that there are some disadvantages in Fillmore's system. In the first place, Fillmore's "Source", "Path" etc. cannot be distinguished from "Instrument", "Patient", and "Agent". In Talmy's system, differences among nonagentive, agentive, self-agentive can be told apart. Secondly, Fillmore's system cannot highlight the commonality of "Source", "Goal" and "Path" from "Location". In Talmy's system, the Motion event is clearly divided into MOVE and BE_{LOC}. Finally, in Fillmore's system, Path is classified by the reference to the Ground. For example, *from* belongs to "Source" and *to*belongs to "Goal" in Fillmore's system. This increases the possibility for more similar categories in number. In Talmy's model, Path itself contains three components and the three components of Path can combine with one another to form complex Path as shown in Section 2.2.1. Therefore, Talmy's system has furthermore developed Fillmore's theory in the distinction of Path and Ground.

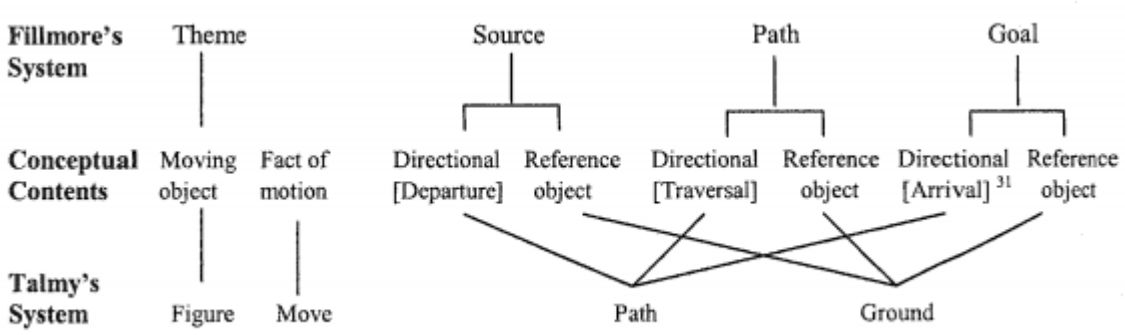


Figure 7.1 Comparison between Fillmore's and Talmy's Systems of the Conceptual Structure of Motion(Chu 2004: 39)

It is clear that the "Source", "Path", and "Goal" in Fillmore's system can be divided into Path and Ground according to Talmy's criteria of Path and Ground. In its application to

[23] I use quotation marks to distinguish Fillmore's concept from Talmy's semantic elements and my semantic parameters.

Chinese data, the examples below exactly show the difference of Talmy's Path and Ground from Fillmore's "Source", "Path", and "Goal".

(7.1) Fillmore's system:

Wǒ	cóng aìdīngbǎo	jīng āmǔsītèdān	fēi dào beǐjīng.
Theme	Source	Path	Goal
1SG	from Edinburgh	pass Amsterdam	fly arrive Beijing

'I fly from Edinburgh to Beijing transferring through Amsterdam.'

(7.2) Talmy's system:

Wǒ	cóng	aìdīngbǎo	jīng	āmǔsītèdān	fēi	dào	beǐjīng.
Figure	Path	Ground	Path	Ground	Move	Path	Ground
	[Departure]		[Traversal]		(and Manner)	[Arrival]	
1SG	from	Edinburgh	pass	Amsterdam	fly	arrive	Beijing

'I fly from Edinburgh to Beijing transferring through Amsterdam.'

Example in (7.1) gives the "Source", "Path", and "Goal" in Fillmore's system but not every sentence has a detailed path/trajectory description in any situation in the real world. As example (7.2) shows, there is a good match between Path, Ground and "Source", "Path", "Goal" similar to the content of Figure 7.1. And according to Talmy, the departure, traversal, and arrival are subtypes of Path. Each part of the underlined sentence in example (7.1) can be defined as composed by various types of Path and Ground expressing names of places.

The Path information encoded by Path verbs is the focus of this chapter but I have to take into consideration whether the motion happens on land, in water or in air, or the path is through the land, water or air, because: firstly, as for the components of Path, different types of Path require different Ground. For example, the Conformation type of Path classified by Talmy requires a geometric complex Ground, such as inside, surface, outside, which are in three-dimension space. Secondly, Cifuentes-Férez (2008) also classifies verbs lexicalising$_{(T)}$ more than two semantic elements which include Ground such as [Motion + Path + Ground]. When comparing Path verbs in Chinese, English and Spanish, it is the [Motion + Path] lexicalisation$_{(T)}$ pattern that is counted. Thus, I do not include verbs that encode more semantic elements than the Path information within the basic Motion.

7.3.4 Method of Data Collection

In actual practice, verbs with definitions clearly expressing Path (and Motion and nothing else) will be chosen as Chinese Path verbs. That is, my research scope only covers actual

motion. Fictive motion (e.g. Langacker 1987a & b; Matsumoto 1996; Rojo & Valenzuela 2003; Talmy 2000a) and metaphorical motion (e.g. Özçalişkan 2002, 2004) are excluded.

There are altogether four steps to find the targetedPath verbs. Firstly, with the help of definitions from the ***Thesaurus of Chinese Verbs***, the possible Path verbs are listed. And then the second step is to check the potential Path verbs by consulting definitions in other Chinese dictionaries. As for those verbs with different definitions in different dictionaries, the third step is to follow the similar definitions given by at least two dictionaries. And for the 'intermediate verbs', the entailment diagnostic test helps to get rid of the fake Path verbs. Finally, the last step is to find the proper English glossing in ***A Modern Chinese-English Dictionary***. At the same time, the distinction between Chinese and English is also detected and the explanation can be seen in Section 7.4.

However, one problem exists in this method. That is subjectivity. The definitions of Path verbs are not hard to find in dictionaries but the task to tell them apart from verbs encoding Motion and other semantic elements and to classify them as specific Path types is not so easy. Although various dictionaries help a lot, there are still problems such as the case of the English verb ***approach***, which was discussed in Section 7.3.3. That is, when dictionaries have different definitions of one verb, only my introspection as a native speaker of Chinese can help. The method itself cannot avoid this defect. What I do is to strictly follow the definitions or agree with the majority of dictionaries, check the examples of the specific senses of verbs and depend on the introspection of a native speaker.

7.4 Semantic Analysis of Chinese and English Path Verbs

7.4.1 Introduction

My data of Path verbs consists of 54 Chinese Path verbs (Appendix 3).[24] According to Cifuentes-Férez (2008), there are 44 English Path verbs (Appendix 4) and 63 Spanish Path verbs.

The following questions are the target of this section. I go through them again as a reminder. Do Chinese, English, and Spanish have comparable Path verb lexicons? This question includes two layers of meaning. One is that whether the two Path lexicons are comparable in size (number) and the other one is that whether they are comparable in their semantic nature (subtypes of Path encoded).

[24] Actually, there are all together 51 verbs. The reason why I give a total of 54 Path verbs is that three of the verbs have two different senses expressing different Path types. The three special verbs are ***shàng,xià*** and ***diào***.

The question about number is already answered in the first paragraph of this section. Then what kind of differences does this number variety indicate? This is relevant to the question of whether the Path verbs encode similar Path types. One possibility is that Chinese Path verbs and Spanish ones encode some types of Path which are not encoded by the English Path verbs; or Chinese, Spanish and English Path verbs encode similar types of Path but Chinese and Spanish have a larger number of verbs expressing Path. For the subtypes of Path, a subtle semantic analysis is needed to answer this question. By doing so, I also unveil both (1) the types of Path notions which are typically lexicalised$_{(T)}$ in Chinese, in English, and in Spanish and (2) cross-linguistic similarities and differences in the semantic subtypes of Path.

Path verbs are classified in terms of the subtypes of Path they express. Overall, 13 subtypes of Path have been identified in my data. In the sections below, I begin by exploring the subtypes of Path which are most frequently lexicalised$_{(T)}$ by Chinese and English Path verbs, and then less frequently lexicalised$_{(T)}$ ones will be discussed. Comparison among Chinese, English, and Spanish is made.

7.4.2 Chinese Path Verbs

Table 7.1 summarises the distribution of Chinese Path verbs ranked by the typicality of the encoded subtypes of Path.

Table 7.1 Distribution of Chinese Path Verbs

Types of Path	Number	Percentage
Down from/to G - downwards	7	12.96%
To/towards G	7	12.96%
Away from G	6	11.11%
Up/onto G—upwards	5	9.26%
Back to G/ backwards	5	9.26%
Into G	4	7.41%
Closer to G	4	7.41%
Multiple directions	4	7.41%
Pass/cross G	3	5.56%
Change direction	3	5.56%
Out of G	2	3.70%
Forwards	2	3.70%
After G	2	3.70%
Total	54	100%

As shown in Table 7.1, there are 54 identified Chinese Path verbs and some subtypes of Path have a higher percentage than others. For instance, ‘down from/to G’ and ‘to/toward’ are the most frequently lexicalised$_{(T)}$ subtypes of Path in Chinese Path verbs with 7 examples and 12.96% against the total 54 number of Chinese Path verbs and following it is the Path type of ‘away from G’ with 6 examples and 11.11%. The least frequently encoded Path type is the

‘out of G’, ‘forwards’ and ‘after G’ all with 2 examples (3.70%). Chinese Path verbs are discussed in groups following the ranking of the lexicalised$_{(T)}$ Path types.

(7.3) Down from /to G-downwards (7 verbs, 12.96% of Chinese Path verbs):
chén (sink); *diào* (fall, drop); *diē* (fall); *jiàng* (fall, drop); *luò* (fall); *xià* (come or go down from, descend); *xià jiàng* (descend).

Verbs in this group describe downward motion with regard to the earth or relatively from a higher place to a lower position on the vertical axis. Verbs in this group are intransitive verbs. Two points are worth discussing.

Firstly, similar to the composition of complex Deictic verbs discussed in Section 4.5.1, some verbs in this group can collocate with others to double the Path information, such as *xià diē* (decline), *xià jiàng* (descend), and *luò xià* (fall down), *jiàng xià* (descend down to), *diào xià* (fall down) and so on. The first example *xià diē* (decline)usually refers to abstract numbers going down, such as stock and the second example *xià jiàng* (descend) can describe real downwards motion of an airplane as well as abstract things such as number and temperature.Structured by two Path verbs without any marker indicating subordinate or coordinate relations, both examples of *xià diē* (decline) and *xià jiàng* (descend) cannot be separated by NPs, *de* and *bù*or aspect marker *le*. Thus, these two examples belong in the category of symmetrical SVCs. On the other hand, when *xià* (come or go down from, descend) locates in the second-verb position, such as in *luò xià* (fall down), *jiàng xià* (descend down to), *diào xià* (fall down), it shows the trend of grammaticalization of the minor verbs in asymmetrical SVCs. These examples can be separated by *de* and *bù* but not by aspect marker *le* and NPs. The Path information can be encoded by verbs as well as by satellites in Chinese SVCs and as shown in Section5.2.6, ‘Other Spatial Relation + Other Spatial Relation’ is a semantic co-occurring pattern found in Chinese SVCs.

The second point is that *chén* (sink) should be classified under the type of [Motion + Path + Ground] as discussed in Section of 7.3.3, but the English counterpart of *chén* (sink) is classified as the subtype of ‘down from/to G--downwards’ in Cifuentes-Férez (2008: 139). Then, following her, I include*chén* (sink) in the same subtype of Path so as to compare the Path verbs in Chinese and in English without affecting the result due to intuition of different native speakers.

(7.4) Towards G (7 verbs, 12.96% of Chinese Path verbs):
dào (arrive, reach); *dào dá* (arrive, get to, reach); *gǎn* (go to); *lái* (come (to)); *shàng* (go to, leave for); *xià* (go to low-lying or a place regarded as having lower social

status); *zào* (go to).

This group of verbs generally refers to the Figure's movement towards the Ground, which is usually a location, and the collocations of these Path verbs together with the Ground express the Goal in Fillmore's system (as shown in examples(7.1) and (7.2)). *Lái* (come) is the Chinese counterpart of the English word *come*. Both are Deictic Path verbs because both of them express the meaning of the Figure reaching its destination and both denote motion towards the speaker. *Shàng* (go to, leave for) and *xià* (go to low-lying or a place being regarded as having lower social status) is a unique group of antonym in Chinese in that not only the primary senses of *shàng* (going upwards) and *xià* (going downwards) are opposite, but also they can both express the similar meaning of going to certain places. For *shàng* (go to, leave for), it indicates going to a place without any particular requirement while *xià* (go to low-lying or a place regarded as having lower social status) usually strongly implies that the place to go to is in a lower social position or in a worse situation than the place the Figure stays with at the present time. This indication is related to its main semantic sense.

(7.5) Away from G (departure, source) (6 verbs, 11.11% of Chinese Path verbs): *bèi* (leave, go away); *chū fā* (set out); *lí* (leave, part from, be away from); *lí kāi* (leave, depart from); *qù* (leave a place (to go to another place)); *zoǔ* (leave, go away).

Words in this group express the meaning of the Figure leaving the Ground. Some verbs have a specific requirement for the Figure and the possible Ground. For example, for *bèi* (leave, go away) in *bèi jǐng lí xiāng* (to exile or banish from one's own home or country), the Figure is forced to or has to leave the Ground which is usually in a bad situation (e.g. there is a disaster happening in the Ground or the Figure killed someone and thus has to escape from the Ground); otherwise, the Figure will not leave his/her own hometown and go for other places in the case of this idiom. Thus, when *bèi* (leave, go away) expresses the meaning of leaving, it is always accompanied by the meaning of being forced or having to leave some place due to some objective situation.

C*hū fā* (set out) indicates the meaning of leaving Place A and then going to Place B but it stresses more on the leaving meaning. *Lí* (leave, part from, be away from), *lí kāi* (leave, depart from), *qù* (leave a place (to go another place)) seem to have the most common meanings. They refer to the Figure's moving away (from the speaker) with no further implications. In one of its basic senses, *qù* (go) is a Deictic Path verb. It indicates that the Figure moves away from the speaker. This Deictic meaning makes it possible for *qù* (go) in Chinese to be grammaticalized as in *lí qù* (leave and be away from the speaker) and *xià*

qù(go down and be away from the speaker).

(7.6) Up/onto G--upwards (5 verbs, 9.26% of Chinese Path verbs):
dēng (ascend); *qǐ* (go upwards, up); *shàng* (come or go up, ascend); *shēng* (go up, ascend); *tí* (lift, raise).

This group of verbs denotes the Path of upwards and upward motion; however, there are still some differences. *Dēng* (ascend) and *shàng* (come or go up, ascend) are usually followed by a NP expressing a place (Ground). *Shēng* (go up, ascend) usually describes the moving up of a flag, the sun or abstract numbers. For *qǐ* (go upwards/ up), the dictionary gives the example of (7.7).

(7.7) Píqiú bù qǐ le.
Ball negation go upward sentence end marker
'The ball does not go upward.' (from*Modern Chinese Dictionary*)

The sense of 'go upwards/ up' of*qǐ* is rare and I did not realise that *qǐ* has this specific meaning until I looked up the dictionary and found this definition and this example. I am more familiar with the posture changing sense of *qǐ*(changing from the sitting or lying to standing or from the posture of lying to sitting), which Cifuentes-Férez (2008) classifies as a Manner verb. *Qǐ* (go upwards/up)is losing its sense of going 'up/onto G—upwards'. The interesting point is that I found another sense in the *Modern Chinese Dictionary* stating that *qǐ* is used after verbs to express the sense of 'upwards'. The example given by the dictionary is *taí qǐ* (carry by two or more persons, upwards; lift). The *qǐ i*n this sense is not given a clear word category by the dictionary. In my data, I found that *qǐ* implies the aspect of events such as in (*kū*) *qǐ lái* (begin to do something (to cry)). And in daily use, there are examples like *shuō qǐ* (begin to talk about something or somebody). This kind of *qǐ* can collocate with many other verbs to form asymmetrical SVCs with *qǐ* indicating the aspectual meaning of starting to do something for the event.

The word category of *qǐ* causes Slobin to classify Chinese as an equipollently-framed language by treating *qǐ* as a verb. Francis and Matthews (2006) designed an experiment to test co-verbs in Cantonese and found that some native speakers regard verbs like *qǐ* as verbs while others do not. These three senses of *qǐ*, the Manner reading of posture changing, the Path reading of going upward, and the Aspect reading of starting to do something,perfectly illustrate Li's (1993) claim and Talmy's point that*qǐ* is in the transition of being grammaticalized from an independent verb to a satellite and Chinese is in the transition from a verb-framed language to a satellite-framed language.

Tí (rise, lift, raise) has to be used together with other words (NPs or verbs) to construct a phrase, such as *tí shēng* (elevate, promote) and *tí gāo* (raise, enhance), which emphasise the meaning of going upwards. And both, particularly *tí shēng* (elevate, promote), contain a metaphorical extension in the sense of being better in something. The most common meaning for *tí* is holding something with hands especially something like bags with a handle.

Taking into consideration the different senses of *tí*, the difficulty of distinguishing the Manner and the Path information as in intermediate verbs (Section 7.3.3), the basic ideas of the localist hypothesis (Section 3.6.1), and the transferring state of Chinese from a verb-framed language to a satellite-frame language, a possible hypothesis is that Path verbs appear earlier than Manner verbs and that Manner verbs evolve from Path verbs.

Then with the development of Chinese and with the change from a verb-framed language to a satellite-framed language, the Manner information becomes more salient in some Path verbs or intermediate verbsand some Path verbs lose the priority to be encoded by verb roots and become gradually grammaticalized. This may be the answer to the motivation of the existence of intermediate verbs. Further diachronic research is needed.

(7.8) Back to G/ backwards (5 verbs, 9.26% of Chinese Path verbs):
dào (move backwards); *dàotùi* (go backwards); *huán* (go (or come) back); *huí* (return, go back); *tuì* (move back).

Dào (move backwards), *dào tùi* (go backwards) and *tuì* (move back) denote the Figure's backward motion; however, the final reference destination is not clearly expressed. For *huán* and *huí*, the final trajectory is the previous location. The backward subtype of Path indicates the motion which has to be in the opposite direction compared with the motion event that already happened. Distance and shape of the Path are not taken into consideration. This phenomenon happens frequently to *huán* (go (or come) back) and *huí* (return, go back).[25]If someone goes from A to B, when he returns from B to A, whether the Path is straight or curved; long or short from B back to A, it is still the backwards Path that is encoded in the motion.

(7.9) Into G (4 verbs, 7.41% of Chinese Path verbs):
jìn (enter, come (or go into), get into); *shōu* (gather in); *zhuāng* (load, pack, hold); *zuān* (get into; go through, make one's way into).

Verbs in this group depict the kind of 'moving into' movement. Whether the objects are

[25]*Huí* (return, go back) is identified asPath satellite by Talmy (2000b: 109).

solid, liquid, or gas, whether an agent moves into/through (agentively) or the object is being moved into/through by an agent, the common feature is that the movement encodes the Path of going into some container or relatively closed space. Of them, ***shōu*** (gather in) and ***zhuāng*** (load, pack, hold) have an effect on direct objects (NPs) and cause direct objects to move into some container. ***Jìn*** (enter) and ***zuān*** (get into) describes agentive and volitional movement of going into some container.

Similar to the intermediate verbs, the subtype of 'into G' is also hard to distinguish from verbs encoding [Motion + Manner], such as ***shèn*** (liquid slowly seeping into or out) which seems to encode two opposite subtypes of Path according to the definition in the dictionary. One is to go into the container (into G); the other one is to go out of the container (out of G). Examples are given below.

(7.10) a. Shāngkǒu dē bēngdài shàngmiàn shèn chū le xiě.
wound possession marker bandage surface seep exit PERF blood
'Blood oozes out to the bandage on the wound.'
The Figure (blood) ***shèn*** Out of G (body)

b. Yǔshuǐ shèn jìn tǔrǎng.
rain seep enter the earth
'Rain seeped into the earth.'
The Figure (rain) ***shèn*** Into G (earth)

c. Shuǐ cóng gāng zhōng shèn chū, shèn jìn tǔ lǐ zīrùn zuòwù.
water from vat inside ooze exit seep enter earth inside moisten plants
'Water oozes out of the vat and seeps into the earth to moisten the plants.'
The Figure (water) ***shèn*** Out of G1 (vat) and Into G2 (earth)

But the Path meaning can be cancelled by other Path verbs. Thus, it is not the necessary meaning of ***shèn***. A different reference point (Ground) and different collocation can lead to different Path subtypes. That is, similar to ***climb down*** and ***up*** in which the satellites ***down*** and ***up*** can cancel or reinforce the Path information encoded by the verb ***climb***, the Path verbs following ***shèn*** can also change the Path information encoded by ***shèn***. This change makes Manner (slowly) encoded by ***shèn*** more salient than Path. The Figure is usually liquid but gas is also possible. Whether ***shèn*** presents the 'into G' Path subtype or the 'out of G' Path subtype depends on the specific context, or on the Path verbs following it. In example (7.10c), water oozed out of the container and seeped into the earth. The same Figure (water), taking the container as the reference point (Ground), can go out of the container while in the meanwhile, given the earth as the reference point, the water can go into the earth.

(7.11) Closer to G (4 verbs, 7.41% of Chinese Path verbs):

āi (to get close to); *kào* (get near, come up to); *yā* (approach, be getting near); *kào jìn* (draw near, approach).

These four Path verbs denote that the Figure actively moves closer to the Ground. In certain constructions, they can denote an external agent which causes the Figure to move closer to the Ground.

(7.12) Hǎilàng	shǐ	xiǎo chuán	mànmàn	kàojìn	mǎtóu.
wave	cause	small boat	slowly	approach	pier

'Waves drive the boat to approach the pier.'

In example (7.12), waves (Agent) cause the boat (Figure) to move (Motion) closer to (Path) the pier (Ground).

(7.13) Multiple directions from a unique start (4 verbs, 7.41% of Chinese Path verbs):

sǎ (a lot of small things fall in multi-directions); *sǎ* (sprinkle); *sàn* (scatter); *sǎ luò* (scattered fall).

There are four Path verbs encoding this subtype of Path in Chinese. However, strictly speaking, I argue that there is another subtype of Path encoded by three of the four verbs and only *sàn* (scatter) is the counterpart of English *scatter*.

As we can see, every definition of the four verbs involves the same word *sàn*meaning becoming separated from a gathering status. The definition of *sàn* given by the ***Modern Chinese Dictionary*** depicts motion with the Path of 'multiple directions from a unique start'. But when carefully looking at the definitions of the three verbs, it seems that the Path type of 'down from/to G—downwards' is also encoded. The meaning of the three verbs are composed as [Motion + Path (the 'multiple directions from a unique start') + Path (the 'down from/to G—downwards')]. There is no similar pattern found by Cifuentes-Férez (2008) in English and in Spanish. Thus, I include *sǎ* (a lot of small things fall in multi-directions), *sǎ* (sprinkle) and *sǎ luò* (scattered fall) in this group.

The commonality is that the four verbs here have a similar requirement for Figure which is a group of entities, usually small. There are other senses for the two *sǎ*(spread/throw in different directions over a wide area, usually powder or liquid) which encode Manner rather than Path and Motion.

(7.14) Pass/cross G (3 verbs, 5.56% of Chinese Path verbs):

guò (cross, pass); *jīng guò* (pass, go through); *tōng guò* (pass through, get past, traverse).

These three verbs show us a complex picture of geometry. *Guò* (cross, pass) and *jīng guò* (pass, go through) express passing by a place such as a point along either the vertical axis or the horizontal axis.*Tōngguò* (pass through) denotes motion through the Ground which is generally a two or three dimensional entity such as a container rather than a point in space. On the other hand, there are verbs which encode similar Path information but are excluded from this group, such as *dù* (cross (a river, the sea)) and *tòu* ((liquid and light) penetrate), because each verb separately encodes a lexicalised$_{(T)}$ semantic pattern of [Motion + Path + Ground] and [Motion + Path + Figure].

(7.15) Change direction (3 verbs, 5.56% of Chinese Path verbs):
diào (turn); *yí dòng* (shift, move from a place to another one); *zhuǎn* (turn, shift, change).

This group of verbs denotes that the Figure changes its trajectory of motion in a general sense.

(7.16) Out of G (2 verbs, 3.70% of Chinese Path verbs):
chū (go or come out); *tū chū* (break through).

Verbs in this group encode motion of going out of a container.

It is an interesting phenomenon that *chū* (go or come out) and *tū chū* (break out) appear in the same group. Similar to *tū chū* (break through), *chū* (go or come out) can be used after other verbs to form combinations such as*shè chū* (send out) which encodes the semantic co-occurring pattern of 'Manner + Path'. *Chū* (go or come out) is a verb in these examples as it shows the function to take additional argument (the Ground) and it also adds a boundary end point to the events encoded by the first verbs. Aspect marker *le*, potential markers *de* and *bù* cannot interrupt *tū chū* (break out) which has been lexicalised$_{(D)}$ and compiled in dictionaries. Therefore, *tū chū* (break out) is listed with *chū* (go or come out) but *shè chū* (send out) is a SVC and not listed as a Path verb.

(7.17) Forwards (2 verbs, 3.70% of Chinese Path verbs):
jìn (advance, move forward, move ahead); *qián jìn* (advance).

Both verbs denote motion forwards. To move forward is another main senses of *jìn* compared with the one in the 'into G' group. In *qián jìn* (go forward), *jìn* (move forward)

encodes the forwards Path and *qián* (go forward) also encodes the same Path information and reinforces the forward direction of the motion expressed by *jìn* (move forward).

Qián jìn (go forward) is a word in modern Chinese and cannot be separated by any NP, aspect marker *le*,orpotential marker *de* and *bù*. Within the word, *qián* (go forward) modifies *jìn* (move forward) in the way of enforcing the forward meaning already encoded and expressed by *jìn*. Without *jìn*, *qián* with the sense of moving forward cannot function as an independent verb in modern Chinese except in some idioms such as *yǒngwǎngzhíqián* (strike bravely forward; go ahead boldly; advance courageously) and *weìsuōbùqián* (recoil in fear; hang back in face of danger; hesitate to press forward). But in classical Chinese, *qián* (go forward) is the synonym of *jìn* (move forward).

(7.18) Kǒngzi xiàchē er qián.
Confucius go down the horse and move forward
'Confucius went down the horse and moved forward.' (from*Zhuāng Zi*[26])

Example (7.18) shows the usage of *qián* (move forward) in the period of 430-221 B.C..*Guǎng Yǎ*edited in the period of 222-280 A.D. directly points out that "Qián, jìn yě (*qián* is synonym of *jìn*)".[27]Q*ián jìn* (go forward) is lexicalised$_{(D)}$ in modern Chinese while *qián* (go forward), in the diachronic perspective, has been grammaticalized into a directional marker as predicted by Akihenvald (2006: 31). The evolution process of *qián* sheds light on the process of becoming a satellite in Chinese. Diachronic research can make up the part missing from Talmy's discussion of satellites in Chinese.

(7.19) After G (2 verbs, 3.70% of Chinese Path verbs):
niǎn (quicken one's pace to catch up, pursue); *zhuī* (chase (or run) after).

Verbs in this group denote that the Figure is moving after or following another Figure. *Niǎn* (quicken one's pace to catch up, pursue) is more frequently used in spoken Chinese and in dialect.*Zhuī* (chase (or run) after) appears more frequently in written Chinese.

7.4.3 English Path Verbs

In this section, I briefly compare the Chinese Path verbs with their counterparts in English. I use Cifuentes-Férez's (2008) summary of English Path verbs. Since the semantic analysis

[26] A book written by the famous philosopher Zhuāng Zhōu in the Warring States Period (403-221 B.C.)
[27] A dictionary compiled in The Three Kingdoms-Weì, Shǔ Hàn, and Wú -which divided China and ruled part of China for A.D. 222-280.

has been carried out by Cifuentes-Férez, my analysis on English Path verbs concentrates on the comparison with the Chinese ones.[28]

Table 7.2 shows the distribution of English Path verbs following the ranking of the subtypes of Path.

Table 7.2 Distribution of English Path Verbs Cifuentes-Férez (2008: 165)

Lexicalisation Patterns	Number	Percentage
Away from G	11	25.00%
Up/onto G - upwards	5	11.36%
After G	4	9.09%
Change direction	4	8.89%
Down from/to G - downwards	4	9.09%
To/towards G	4	9.09%
Back to G/ backwards	3	6.82%
Pass/cross G	3	6.82%
Into G	2	4.55%
Closer to G	1	2.27%
Forwards	1	2.27%
Multiple directions	1	2.27%
Out of G	1	2.27%
Total	44	100.00%

There are 44 English Path verbs identified by Cifuentes-Férez (2008). The typical lexicalised$_{(T)}$ Path type is 'away from G', which has 11 examples and takes up a quarter of the English Path verbs. The second highest lexicalised$_{(T)}$ Path is 'up/onto G—upwards' with 5 examples and 11.36 percentage of the total Path verbs in English. The difference between top 1 and top 2 in number is larger than that between top 1 and top 2 in Chinese Path verbs. The Path of 'closer to G', 'forwards', 'multiple directions', and 'out of G' share the last rank in the lexicalised$_{(T)}$ subtype of Path in English Path verbs.

(7.20) Away from G (departure, source) (11 verbs, 25.00% of English Path verbs): *go, abandon, depart, desert, dodge, escape, leave, recede, retire, retreat, stray*.

Cifuentes-Férez (2008: 165-166) describes that "[T]his group of verbs generally denotes motion away from the Ground. This translational motion can imply that (a) the Figure leaves the Ground (as direct object) behind, sometimes on its own and in a bad situation (e.g., *abandon, desert*); (b) the Figure is fleeing from the Ground in order to be free or to avoid danger (e.g., *escape, retreat*); (c) the Figure avoids the Ground by moving quickly to one side (*dodge*) and (d) the Figure goes away from the intended path (*stray*)."

[28] For more details on the English Path verbs and the Spanish ones, Section 5.4.1 and Section 5.4.2 in Cifuentes-Férez (2008) give a comprehensive discussion.

In Chinese,six verbs express the Path of ‘away from G’. The semantic meaningsare not as rich as their English counterparts. For the semantic meaning analysed by Cifuentes-Férez above, only ***bèi*** (leave, go away) implies similar meanings in (a) and (b), which gives a specific requirement on the Ground. The other verbs do not have such requirement.

Chū fā (set out) and***qù*** (go to (a place)) imply the Figure’s moving away and continuation to another place. Cifuentes-Férez analyses three basic senses of ***go*** and gets a similar conclusion that two of the main senses indicate that ***go*** is a Deictic Path verb and it denotes the motion away from the speaker and seems to imply a motion ‘towards another place’.

Lí (leave, part from, go away from), ***lí kāi*** (leave, depart from), and ***zǒu*** (leave, go away) are general in meaning and express the Figure’s movement away with no further implications. Chinese Path verbs lack the other specific meaning types described by (c) and (d) in the last paragraph discussed by Cifuentes-Férez.

(7.21) Up/onto G – upwards (5 verbs, 11.36% of English Path verbs):
arise, ascend, mount, rise, scale.

Chinese also hasfive Path verbs expressing the upwards motion. In English, the upwards motion can refer to the upward route or it can also refer to the motion of going onto the surface of the Ground.

In Chinese, the upward Path verbs need to combine with other Path verbs such as ***shàng*** (come or go up, ascend; upwards) and ***dào*** (arrive; to/towards G) to express the completion of the movement and the complex Path of ‘onto G’. For example, ***dēng shàng*** (finish ascending and arrive at some place) and ***shēng dào*** (finish ascending and arrive to/at). Both***dēng*** and ***shàng***encode the upwards movement without an end point and when are used together in aSVC,***dēng shàng*** (finish ascending and arrive at some place)expresses the completion of the upward motion. Similarly, ***shēng dào*** is the collocation of ***shēng***(go up, ascend) encoding an upward motion without an end and ***dào***(arrive) encoding a towards-G motion and as a whole it expresses the completion of upward motion ending up on/at some Ground.

(7.22) After G (4 verbs, 9.09% of English Path verbs):
follow, hound, pursue, shadow.

These four verbs denote that a Figure moves after or behind another Figure. This type of Path verbs shows a big discrepancy in number between English and Chinese. Chinese only

has twoPath verbs expressing ‘after G’ which takes up 3.70% of the 54 Chinese Path verbs.

In Chinese *zhuī* (chase or run after) denotes only Path while *niǎn* (quicken one’s pace to catch up, pursue) implies the unfriendly attitude of the second Figure who follows after the first one. This is the same observation as Cifuentes-Férez (2008: 167) made with the English word *pursue*, which has the meaning of the first Figure intending to capture or kill the second Figure.

(7.23) Change direction (4 verbs, 9.09% of English Path verbs):
divert, swerve, tack, turn.

Compared with English, Chinese has 3 verbs encoding ‘change direction’, 5.56% of the 54 Chinese Path verbs. Similar to *divert* and *turn* in English, *diào* (turn), *yí dòng* (shift, move from a place to another one),and zhuǎn (turn, shift, change) display agentive behaviour (caused motion).

(7.24) Down from/to G – downwards (4 verbs, 9.09% of English Path verbs):
descend, drop, fall, sink.

In contrast to English, Chinese has more verbs encoding the downwards motion. There are 7 Chinese Path verbs encoding the Path of ‘down from/to G--downwards’ and it takes the first place in number in the Chinese Path verbs, which means the typical lexicalised$_{(T)}$ Path by Chinese Path verbs is ‘down from/to G—downwards’.

(7.25) To/towards G (4 verbs, 9.09% of English Path verbs):
arrive, alight, come, reach.

Verbs in this group denote the motion towards the Ground. Chinese Path verbs of this type outnumber the English ones. Three of the English verbs correspond to the Chinese ones, *arrive-dào* (arrive, reach); *come- lái* (come (to)); *reach- dào dá* (arrive, get to, reach). Two of the three pairs not only have similar semantic meanings, but also share similar usage.

In English,*arrive* is an intransitive verb. When it expresses reaching some place, *arrive* has to be followed by prepositions such as *at* or *in*. Similarly, in Chinese, when *dào* (arrive, reach) expresses the completion of arriving at some place, it has either to be followed by a tense marker like *le* or to be added to *dá* (reach, achieve, attain), which is *dào le* (arrived (at some place)) and *dào dá* (arrived (at some place)). D*ào dá* can be followed directly by a place which is the usage of *reach* in English.

However, *come- lái* (come (to)) is different. *Come* and *lái* (come (to)) can be regarded as the counterpart to each other in the perspective of meaning but not in the usage. *Come* needs a preposition such as *to* to link a NP (Ground) and to add a boundary to the motion while *lái* (come (to)) can directly take a location NP as Ground.

Moreover, Cifuentes-Férez (2008: 168) found that *come* is also used to "refer to the accomplishment of the movement involved in reaching". This is interesting as I also claim in Section 6.6 that many Path verbs tend to be grammaticalized to be aspect markers or directional markers. No matter what the surface elements are, 'verb + satellite' in *come to* or 'verb + verb' in *lái dào* (come, arrive; arrive at some place where the speaker is), or in the examples of *dēng shàng* (finish ascending and arrive at some place) and *shēng dào* (finish ascending and arrive to/at) as discussed in the group of (7.21), as long as there is a semantic pattern of 'Path + Path' and one of the verb tends to be grammaticalized, the whole event is bounded in the sense of ending up with arriving at some place or the event is accomplished in aspect; and if the same subtype of Path is encoded, then the Path information is also reinforced.

In addition, in this group, some Chinese verbs expressing motion going upwards and downwards, that is, the vertical direction, appear in this group again with the different sense of 'move to/towards G'. Different from Chinese, ***alight*** in this group also implies a downwards Path but is not included in the group of 'down from/to G—downwards'.

(7.26) Back to G/backwards (3 verbs, 6.82% of English Path verbs):
back, return, recoil.

Compared with English verbs in this group, Chinese has 5 backwards Path verbs which take up 9.26% of the 54 Chinese Path verbs. Of them, like ***back*** and ***recoil*** in English, *dào* (move backwards), *dào tùi* (go backwards), and *tuì* (move back) express motion backwards and "no explicit reference to the trajectory towards the Ground seems to be conveyed by these verbs" (Cifuentes-Férez 2008: 169). In contrast, similar to ***return*** in English, *huán* (go (or come) back) and *huí* (return, go back) denote a trajectory back to an earlier location or place.

As seen from the surface elements, *dào tùi* (go backwards) is composed by *dào* (move backwards) and *tuì* (move back) which are independent Path verbs. It is a trend in Chinese that separate Path verbs collocate with each other to reinforce the same Path information encoded by the two Path verbs or to convey the aspect of the whole event as shown inSection 6.4, 6.6, or example (7.25) in this section. Here, *dào tùi* is made up of two Path verbs expressing the same Path of 'backwards'. When SVCs like this are lexicalised$_{(D)}$, there are

more Chinese Path verbs. Thus, this may be one of the reasons why Chinese outnumbers English in the number of Path verbs.

(7.27) Pass/cross G (traversal, milestone) (3 verbs, 6.82% of English Path verbs):
cross, *pass*, *traverse*.

Like the 'pass/cross G' Path verbs in Chinese, ***cross*** and ***traverse*** denote motion in two or three dimensional space while ***cross*** also indicates the motion of moving by, past, beyond the Ground which is seen as a reference point. These features are shared between English and Chinese Path verbs in this group.

(7.28) Into G (container) (2 verbs, 4.55% of English Path verbs):
enter, *penetrate*.

For this group, Chinese has four Path verbs to express 'into-G' movement. The English Path verb ***enter*** is the counterpart of Chinese ***jìn*** (enter, come (or go into), get into) and both are transitive verbs with agentive subject and direct object of Ground (usually a place name). ***Zuān*** (get into, go through, make one's way into) does not have an equivalent meaning of ***penetrate***and the other two Chinese verbs ***zhuāng*** (load, pack, hold) and ***shōu*** (gather in) encode caused motion.

(7.29) Closer to G (1 verb, 2.27% of English Path verbs):
approach.

Of the four Chinese Path verbs encoding 'closer to G', ***kào jìn*** (draw near, approach) can be viewed as the counterpart of ***approach***.

(7.30) Forwards (1 verb, 2.27% of English Path verbs):
advance.

There are two Chinese verbs encoding the Path of 'forwards'. They are ***jìn*** (advance, move forward, move ahead) and ***qián jìn*** (advance, go forward). Both can be seen as counterparts of ***advance*** in English. And in the sense of moving forward, the three verbs in Chinese and in English are intransitive ones.

(7.31) Multiple directions from a unique start (1 verb, 2.27% of English Path verbs):
scatter.

In Chinese, there are four verbs encoding the subtype of 'multiple directions from a unique

start'. Both for Chinese and English, verbs encoding this subtype of Path usually have a Figure composed by a group of entities and denote motion starting from the same point with different parts of the Figure going in different trajectories and ending up with slightly different locations in a wide area.

(7.32) Out of G (container) (1 verb, 2.27% of English Path verbs):
exit.

Chinese has two Path verbs expressing the Path of 'out of G'. The Chinese verb ***chū***(go or come out) can be regarded as the counterpart of ***exit***. Both of them are transitive verbs with Ground as the direct object.

This is the outline of Path verbs in English in contrast with those in Chinese. As I do not know any Spanish, I am not able to present a semantic analysis on the lexicalised$_{(T)}$ Path in Spanish Path verbs. But I take Cifuentes-Férez's (2008) data and use it as a contrast group among English and Chinese in Section 7.5.

7.5 Discussion

In this section, the discussion is mainlyabout the research questions proposed in Section 7.2. Section 7.5.1 gives a quantitative discussion and Section 7.5.2 presents a qualitative analysis.

7.5.1 Answers to Question (2a), (2b), and (2c) in Section 7.2

Table 7.3 presents the distribution of Spanish Path verbs, which is relevant to the second main research question proposed in Section 7.2. The typical lexicalised$_{(T)}$ Path type in Spanish Path verbs is 'away from G' with 14 examples and a percentage of 22.22 against the total 63 Spanish Path verbs. The second highest lexicalised$_{(T)}$ Path type is 'up/onto G—upwards' and 'to/towards G' with 8 examples and 12.70%. The least lexicalised$_{(T)}$ Path type is 'out of G'.

Table 7.3 Distribution of Spanish Path Verbs Cifuentes-Férez (2008: 170)

Types of Path	Number	Percentage
Away from G	14	22.22%
To/towards G	8	12.70%
Up/onto G - upwards	8	12.70%
Down from/to G - downwards	6	9.52%
Into G	6	9.52%
Back to G/ backwards	4	6.35%
Change direction	4	6.35%
Closer to G	3	4.76%
Pass/cross G	3	4.76%
After G	2	3.17%
Forwards	2	3.17%
Multiple directions	2	3.17%
Out of G	1	1.59%
Total	63	100%

Using this table, plus Table 7.1 and Table 7.2, the second main research question is answered. Firstly, for the question in (2a) the three Path lexicons are not comparable in size. In total, Chinese Path verbs outnumber the English ones and Spanish Path verbs outnumber the Chinese ones. The number of the three lexicons of Path verbs ranks like this: Spanish (63) > Chinese (54) > English (44). This result is possible and expected because as a satellite-framed language English is expected to have few Path verbs and as a verb-framed language Spanish is expected to have more Path verbs and as a transferring language Chinese is losing some old Path verbs shifting to Path satellites and the number of Path verbs is expected to be more than that in English but fewer than that in Spanish.

Secondly, for the question in (2b), the verb lexicons in English, in Spanish, and in Chinese are comparable in their lexicalisation$_{(T)}$ patterns of Path. English and Spanish have 13 types of Path verbs and Chinese shares the same 13 types. Therefore, they can be said to be comparable in their lexicalisation$_{(T)}$ patterns of Path.

Thirdly, to answer the question in (2c), we just need to have a look at the high-ranking lexicalised$_{(T)}$ Path types in Table 7.1, 7.2 and 7.3. The first and the last few lexicalised$_{(T)}$ subtypes of Path are examined in detail. A big discrepancy exists for the first four top-ranking types in number, particularly between English Path verbs and Spanish Path verbs (6-example discrepancy between top 1 and Top 2 lexicalised$_{(T)}$ subtypes of Path). The Top 4 most typically encoded subtypes of Path in Chinese are ‘down from/to G’, ‘to/towards G’, ‘away from G’, ‘up/onto G—upwards’, and ‘back to G/ backwards’; the Top 2 most typically lexicalised$_{(T)}$ Path notions in English are ‘away from G’ and ‘up/onto G – Upwards’; the Top

3 most typically lexicalised$_{(T)}$ Path types in Spanish are ‘away from G’, ‘up/onto G—upwards’, ‘to/towards G’, ‘down from/to G—downwards’, and ‘into G’.[29] As for the least lexicalised$_{(T)}$ types of Path, in Chinese they are ‘out of G’, ‘forwards’, and ‘after G’; and in English they are ‘out of G’, ‘forwards’, ‘closer to G’, and ‘multiple directions’; in Spanish they are ‘out of G’, ‘forwards’, ‘multiple directions’, and ‘after G’. Both the high ranking lexicalised$_{(T)}$ Paths and the low ranking lexicalised$_{(T)}$ Paths partially overlap among the three languages. This detailed comparison gives more evidence to the comparable status of the three Path lexicons.

Finally, I discuss the data in the perspective of statistics. The data in Table 7.4 is arranged following the rank of Chinese Path types so as to more directly show us the discrepancy in number in the same subtypes of Path.

Table 7.4 Distribution of Path Verbs in Chinese, English and Spanish

	Types of Path	Chinese		English		Spanish	
		Number	Percentage	Number	Percentage	Number	Percentage
1	Down from/to G - downwards	7	12.96%	4	9.09%	6	9.52%
2	To/towards G	7	12.96%	4	9.09%	8	12.70%
3	Away from G	6	11.11%	11	25.00%	14	22.22%
4	Up/onto G - upwards	5	9.26%	5	11.36%	8	12.70%
5	Back to G/ backwards	5	9.26%	3	6.82%	4	6.35%
6	Closer to G	4	7.41%	1	2.27%	3	4.76%
7	Into G	4	7.41%	2	4.55%	6	9.52%
8	Multiple directions	4	7.41%	1	2.27%	2	3.17%
9	Pass/cross G	3	5.56%	3	6.82%	3	4.76%
10	Change direction	3	5.56%	4	9.09%	4	6.35%
11	Out of G	2	3.70%	1	2.27%	1	1.59%
12	Forwards	2	3.70%	1	2.27%	2	3.17%
13	After G	2	3.70%	4	9.09%	2	3.17%
	Total	54	100%	44	100%	63	100%

For the convenience of comparison, Figure 7.2 of the distribution of Chinese, English, and Spanish Path verbs is also given. It follows the type rank of Chinese Path verbs in Table 7.4. The X (horizontal) axis refers to the 13 subtypes of Path and the Y (vertical) axis refers to the number of each subtype of Path. The circle stands for the Chinese Path verbs; the triangle stands for the English Path verbs and the star stands for the Spanish Path verbs.

[29] Some of the subtypes of Path share the same rank. For example, in Chinese the Top 4 lexicalised$_{(T)}$ Path types include five categories.

As we can see, the distance of the same type in Figure 7.2 represents the difference in number. It is obvious that the farther the distance is, the bigger the difference in number of the same Path type is. The type showing the farthest distance is Type 3 of 'away from G' in Figure 7.2. The shortest distance is Type 9 'pass/cross G', where the three dots overlap at one point meaning there are 3 Path verbs of the 'pass/cross G'in every language. As I have discussed before, Chinese Path verbs outnumber English ones and Spanish Path verbs outnumber Chinese ones; therefore, there is no surprise that the discrepancy between each type exists. The question is whether these differences in number are significant or not. Statistical evidence gives us the answer.

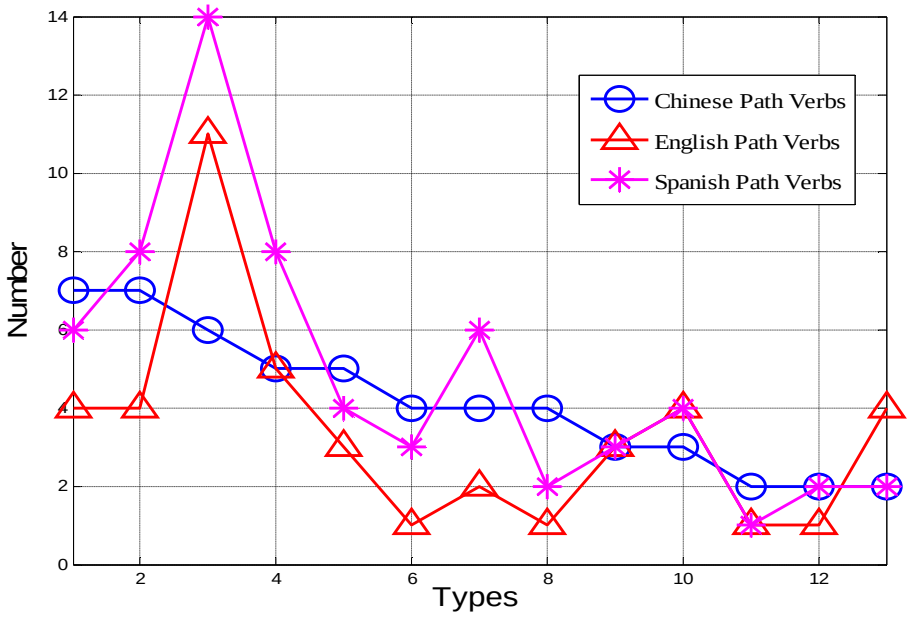


Figure 7.2 Distribution of Path Verbs in Chinese, Spanish and English (following the Rank of Chinese Path Types)

Following Cifuentes-Férez (2008: 177), I did a chi-square test using the data of Path verbs in Chinese, English and Spanish. The result is that although the three languages differ in the total number of Path verbs, no significant difference is found in the distribution of Path subtypes encoded by Path verbs. The chi-square is used to test whether there is significant difference between two or more groups. Usually, the Fisher's Exact test is used where contingency tables are 2*2, but it is also possible to be used for my 3*13 tables.My data satisfy the requirement for a chi-square test but I have to calculate the Exact chi-square test because many of the Path subtypes have less than 5 samples.

The result of the Fisher's Exact test (chi-square) is $p = 0.987$ (> 0.05). Similar to the result of comparison between Spanish Path verbs and English Path verbs in Cifuentes-Férez's (2008)

work, there is no significant difference found in the distribution of Path verbs into the 13 types of Path in Chinese, English and Spanish, which suggests that the three languages are not different in the organization of their Path verb lexicon. This chi-square further supports my answer to the second main question.

Based on the four points above, the answer to the second main question is positive. That is, Chinese, English, and Spanish have comparable Path verbs lexicons.

7.5.2 Answers to Question (2d) in Section 7.2

In the previous section, I have discussed the number difference of Path verbs in the three languages. In this section, the reasons for comparable lexicalisation$_{(T)}$ patterns with different total numbers of Path verbs in Chinese, English and Spanish are discussed.

I expect that the raw number of Spanish Path verbs is higher than that of English and Chinese because Spanish is a verb-framed language. Both Chinese and English are satellite-framed languages according to Talmy (2000b). Chinese has more Path verbs than English does. This difference in total raw numbers of Path verbs in satellite-framed languages may be caused by the following three reasons.

Firstly, one word in Chinese can have different senses and there is no exception for the Path verb. Some of them even have two senses expressing different Path types. Such as *xià*$_1$ (come or go down from, descend) and *xià*$_2$ (go to low-lying or a place regarded as having lower social status). The first sense of *xià*encodes the Path of ‘down from/to G--downwards’ while the second one encodes the Path of ‘to/towards G’.

Secondly, from the diachronic perspective, the Chinese Path verbs should outnumber their English counterparts. Despite the diachronic shift of Chinese from a verb-framed language to a satellite-framed language, some Chinese Path verbs are being grammaticalized with meaning change unfinished. That is, some independent Path verbs have already developed the function of being markers or behaving like satellites but in the meanwhile they preserve the properties of independent verbs. For example,Path verbs gradually become directional markers or aspect markers while their usage as independent verbs is still active. Therefore, the double usage and the nature ofPath verbs also lead Chinese Path verbs to gain the advantage in number.

Last but not least, Path verbs with the lexicalised$_{(T)}$ pattern of [Path + Path] also contribute to the relatively large number of Chinese Path verbs. This point has been mentioned in the analysis of Chinese Path verbs in example (7.16). I summarise this type of Chinese Path

verbs in Table 7.5 below, which well illustrates the combination of Path verbs with Path verbs.They are similar to symmetrical SVCs with the semanticco-occurring pattern of 'Other Spatial Relation + Other Spatial Relation' but they are not SVCs because they are already compiled in dictionary. Each component of the combination encodes and expresses the same Path type or different ones. Examples in group 1, group 2, and group 3 summarised in Table 7.5 are typical in that each part of the combinations can act as independent Path verbs. However, such phenomenon does not exist in English. Therefore, this also leads to the increasing of Chinese Path verbs in number.

Table 7.5 Examples of Chinese Path Verbs

Group	Path Verbs	Lexicalisation Patterns
1	倒 dào (move backwards)	Back
	退 tuì (move back)	Back
	倒退 dào tùi (go backwards)	Back
2	下 xià (come or go down from, descend)	Downwards
	降 jiàng (fall, drop)	Downwards
	下降 xià jiàng (descend)	Downwards
3	洒 să (sprinkle)	Multiple directions from a unique start
	落 luò (fall, drop)	Downwards
	洒落 să luò (drip)	Multiple directions from a unique start

The three points cause the number difference of Path verbs in Chinese and in English.

This section explains why there is a total number discrepancy for Path verbs in Chinese, English, and Spanish. The discussion above gives answers to the question in (2d) in Section 7.2.

7.5.3 Answers to Question (1) in Section 7.2

Having answered the second research question, I give a brief answer to the first research question. That is,whether the 16 Chinese Path satellites identified by Talmy exclusively express certain subtypes of Path.

The following 16 words are given by Talmy (2000b: 109) as examples of Chinese Path satellites.

(7.33) qù (thither): away from G; lái (hither): to/towards G;
shàng (up): up/onto G—upwards; xià (down): down from/to G—downwards;
jìn (in): into G; chū (out): out of G; chū (out): out of G;
dào (all the way (to)): to/towards G; guò (across/past): pass/cross G;
qǐ (up off): up/onto G—upwards; zǒu (away): away from G;
huí (back): back to G/ backwards; sàn (ascatter): multiple directions;

diào (off (He ran off)): down from/to G;	kāi (apart/free): away from G;
lǒng (together):	dǎo (topple (i.e., pivotally over)):

Of the 16 satellites identified by Talmy, 13 of them are also Path verbs identified by my data. Thus, this observation does not fit into Talmy's description of the "intermixed system of conflation" as it is obvious that both Path verbs and Path satellites express the same type of Path.

The three exceptions are *kāi* (apart/free), *lǒng* (together), and *dǎo* (topple (i.e., pivotally over). As for *kāi* (apart/free), when this sense is expressed, it is a verb particle or a Path satellite following another verb and conveying the 'away from G' Path. Both satellitessuch as *kāi* (apart/free)and verbs identified by my data such as *lí* (leave, depart from) express the Path of 'away from G'. This also excludes the possibility of Chinese being Talmy's "intermixed system of conflation".

As for *lǒng* (together), the definition given by *Modern Chinese Dictionary* is 'cause something to gather together'. First of all, it is a verb not a satellite. Secondly, the information*lǒng*encodes is Manner. Gathering together describes an activity rather than a motion event with trajectory. By this, I mean being together is the final status for the things being gathered. *Lǒng* (gather together) reflects the Manner in which people deal with something rather than describe a specific Path of a motion. Moreover, *lǒng* (cause things to gather together) needs help of other adverbs to specify the Path information. For example, in*xiàng hòu lǒng* (gather things backwards), *xiàng hòu* is an adverb phrase modifying *lǒng* to convey the Path of gathering. Thus, I treat *lǒng* as a Manner verb rather than a Path satellite.

As for *dǎo* (topple), I disagree with Talmy's classification of it as a satellite expression. It is a verb, a Manner verb which means 'fall in the manner of lying down' and it usually refers to a vertical-standing Figure that falls at some angle and ends up lying flat.

In addition, many of the Path verbs which show the tendency to be grammaticalized, such as *qù* (go to (a place)), *xià* (come or go down from, descend), and *chū* (go or come out) analysed in Section 7.4.2 and 7.4.3, are identified by Talmy as Path satellites. This is more than coincidence. It is evidence of Chinese transferring from a verb-framed language to a satellite-framed language.

7.6 Summary

Based on Talmy's theoretical framework andCifuentes-Férez'sclassification of subtypes of Path, I got a comprehensive list of 54 Chinese Path verbs. Using the list of Path verbs, I

further explored the lexicalisation$_{(T)}$ patterns of Chinese Path verbs and compared them with the English ones and the Spanish ones. The difference in raw number of Path verbs (Spanish (63) > Chinese (54) > English (44)) supportsthe claim that Chinese is possibly in the period of transferring from a verb-framed language to a satellite-framed language.There is no significant difference in lexicalisation$_{(T)}$ patterns of Path verbs in Chinese, English and Spanish.

Through Talmy's core schema, Path, I link this chapter to the previous studies on the semantic co-occurring patterns of Chinese SVCs. The surface element encoding Path determines the language typology. I discovered that words encoding Path in Chinese can be verbs as well as satellites. Thus, Chinese is not simply a verb-framed language or a satellite-framed language. I also argue that Chinese is not a language which has a split system, a parallel system or an intermixed system of conflation. The grammaticalization of Path verbs provides the possible account for the co-existence of Path verbs and Path satellites encoding the same Path. This observation also supports the transition state of Chinese becoming a satellite-framed language from a verb-framed language.

This chapter compares lexicalisation$_{(T)}$ patterns of Path verbs amongChinese, English, and Spanish. Despite the raw number difference, the lexicalised$_{(T)}$ Path types are the same among the three languages and the chi-square test shows that there is no significant difference for the distributions of Path verbs in the 13 subtypes of Path among the three languages. Chinese is not an intermixed system in Talmy's language typology; Chinese is not an equipollently-framed language as Slobin argues; Chinese is a language in transition from a verb-framed language to a satellite-framed language.

Chapter 8 Conclusion

8.1 Final Conclusion

As I have shown, there are three main approaches to the question of the event typology of Chinese. The question is whether Chinese is a verb-framed language, a satellite-framed language or a language which has a different classification that was not included in Talmy's original system. The classic data set for investigating this question is the serial verb constructions in Chinese.

The first approach is to observe the lexicalisation$_{(T)}$ patterns of verbs in Talmy's tradition. Talmy (1985, 2000a&b) looks at how information which is essential to the meanings of motion predicates, such as Path and Manner is encoded. Is it encoded within the meaning of the verb, as in the case of ENTER? Or is it encoded by adding an additional constituent to a clause as in *went into the house*? Depending on where the semantic element of Path is encoded, Talmy further divides the languages in the world into two types. If Path is always encoded by verbs in a language, then this language and languages like it belong to the category of verb-framed languages. If Path is encoded by other surface elements rather than verbs, then languages sharing this property are called satellite-framed languages. According to Talmy, Spanish is a typical verb-framed language and English and Chinese are typical satellite-framed languages.

The second approach is to carry out an investigation of motion events in narrative or in experiment in Slobin's tradition. Slobin (2004) disagrees with Talmy's dichotomy of language typology. He argues that Chinese uses two verbs to separately encode the information of Path and Manner and the two verbs share equal grammatical form and status; thus, Chinese should not be classified as either a verb-framed language or a satellite-framed language but as an equipollently-framed language. Serial verb constructions are what Slobin uses to challenge Talmy's dichotomy. A lot of the literature (Slobin 1996, 2004, 2006, 2008; Slobin & Hoiting 1994; Zlatev & Yangklang 2004; Chen 2007; Chen & Guo 2009, 2010; Guo & Chen 2009; Xu 2013) has followed Slobin's approach and counted the patterns of [Manner + Path], [Manner + Deictic], [Path + Path] and so on in motion events, and also calculated the percentage of Ground occurring after a verb.

The third approach is Talmy's redefinition of main verb or the head of SVCs in arguing against Slobin's equipollent framing for language type.Talmy (2009) takes this approach to tackle the problem of head in SVCs by proposing a set of requirements to identify the main

verb in a SVC. The focus is not in the lexicalisation$_{(T)}$ patterns any more. Thus, I listed it separately as a third approach.

In Talmy (2009), the identification of the main verb in SVCs is shown to be an important factor to classify the typology of Chinese.

Talmy (2009) argues that there are two types of SVCs in Chinese. The first case is like this. When V2 can be used not only in a SVC but also independently in other clauses (not in a SVC), and V2 expresses the same meaning in the SVC or in other clauses, then SVCs with this kind of V2 are equipollently framed. That is, V1 and V2 are both main verbs in the SVC. Example (8.1b) below illustrates this kind of SVC. The second case is like this. When V2 can only appear in a SVC and cannot be used independently with the same meaning expressed,that is V2 can be used independently with a different meaning from that in a SVC, then these SVCs are not equipollently framed and have V1 as the head. The examples are those SVCs which have a V2 being grammaticalized such as ***dǎ qǐlái*** (fight, begin; begin to fight). When used independently, ***qǐlái*** functions as a predicate meaning 'get up from sitting or lying', which is different from the aspectual meaning of 'begin to do something' in the SVC.

I disagree with Talmy's claim in the first case. I take the SVC of ***fēi chū*** (fly, exit; fly out) as an example. It is the first type of SVC mentioned above because ***chū*** (exit, out) can be used independently expressing the same Path information.Apparently, in semantics, the Path information is more important as the core schema of motion events and as a final result of the flying and ***fēi*** (fly) is intransitive and cannot take a direct object. ***Chū*** (exit, out) takes the additional Ground information for the motion event. In this sense, I do not agree with Talmy's conclusion that V1 and V2 are both main verbs and ***fēi chū*** (fly exit; fly out) illustrates the equipollently-framed feature.

In my analysis, only symmetrical SVCs in the strict sense, that is, SVCs with components encoding the same semantic element, are the possible examples of an equipollently-framed structure. Although Talmy (2009) argues that equipollently-framed SVCs are rare, I wonder the exact percentage that Chinese speakers use these equipollently-framed SVCs to express motion events and the percentage of other expressions of motion events.

Of the three approaches that I have outlined, I have argued for the first approach. My main arguments have concerned the semantic co-occurring patterns of Chinese SVCs, and to support my analyses, I have conducted a careful, handsorted analysis of corpus data, which I have supplemented with a historical investigation. I have concluded that Talmy's typology of

motion events can be applied to Chinese and Chinese is in a transition from a verb-framed language to a satellite-framed language but not an equipollently-framed language.

The main points in my data which supported my analysis were

(1) The limited semantic co-occurring patterns of Chinese SVCs have illustrated in the perspective of semantics that SVC components are not equal and cannot occur freely within SVCs (in Chapter 5 and Chapter 6);

(2) The SVC components do not share equal forms in asymmetrical SVCs (in Chapter 6);

(3) The grammaticalization of Path verbs to be aspect/ eventuality markers has also been consistent with my transition claim (in Chapters 6 and Chapter 7);

(4) The serial verb construction has its own interpretive possibilities which coerce the particular meaning of its verb components (Chapter 6);

(5) Chinese has shown both encoding patterns of verb-framed languages and satellite-framed languages (in Chapter 6 and Chapter 7);

(6) The raw numbers of Path verbs in three languages (Spanish (63) > Chinese (54) > English (44)) and the reasons for this (in Chapter 7) also support my claim.

These main points listed above have supported my claim. The main theoretical arguments which led to these conclusions were decomposition of a verb's meaning and lexicalisation$_{(T)}$ patterns of verbs. Therefore I am in agreement with Talmy (1985, 2000a& b, 2009), Li (1993), and Shi & Wu (2014) and think that Slobin (1996, 2004, 2006 & 2008), Slobin & Hoiting (1994), Chen (2007), Chen & Guo (2009 &2010), Guo & Chen (2009),and Xu (2013) have not got the right arguments, for the reasons above.

I have not only found reasons for disputing Slobin's account in my data, and my analyses of these data. It is also possible to criticise Slobin directly. Slobin's narrative approach is based on the calculation of numbers of how the motion segments such as Path, Ground, and Manner were expressed by speakers.In the case of Chinese and other serial languages, there is also the concept of SVCs as a descriptive basis.However, firstly, there are other semantic elements such as Cause, Figure, Motion, which have not been paid enough attention to in this narrative approach (Talmy 2009: 4). Secondly, there is no clear definition of SVCs. Since these two points are the basis of narrative research, the results of research on a partial correlation of semantic elements and an unclear SVC concept are not reliable.

In addition, one of the main results is the observation that for a language to be in a transitional state between one typological class and another does not mean that it is in a split system of typology, or a parallel one or an intermixed one in Talmy's sense. Chinese has expressions for motion events in example (8.1).

(8.1) a. Zhāngsān chū le jiàoshì.
Zhangsan exit PERF room
'Zhangsan exited the room.'

b. Zhāngsān pǎo chū le jiàoshì.
Zhangsan run exit PERF room
'Zhangsan ran out of the room.'

Example (8.1a) uses a verb to encode the Path information and expresses a boundary-crossing motion event. Example (8.1b) uses a SVC encoding 'Manner + Path' to express the same boundary-crossing motion event. Chinese uses different expressions for the same type of motion event. Thus, Chinese is not a split system.

Chen and Guo (2009) give the 'Manner + Path' number and the Manner only number in nine Chinese novels. I represent the table from Chen & Guo (2009: 1760) below. It is a pity there is no number for different types of motion events expressed by SVCs or Path verbs. Thus, I cannot tell whether Chinese is a parallel system, that is, half of the boundary-crossing motion events are expressed by SVCs and the other half by Path verbs and half of the nonboundary-crossing motion events are expressed by SVCs and the other half by Path verbs. Further research is needed.

Table 4
The distribution of motion verb constructions in the nine Chinese novels.

Motion verb construction		Token	Percentage	Subtotal
Manner + path	MPD	103	19.81%	62.31%
	MP	221	42.50%	
Manner only[a]	MD	42	8.08%	14.81%
	M	35	6.73%	
Path only	PD	27	5.19%	22.12%
	PP	20	3.85%	
	P	68	13.08%	
Deictic only	D	4	0.77%	0.77%
Total		520	100%	

[a] Although the two deictic verbs express a very general sense of path of motion, the meaning is primarily focused on the directional relationship with the speaker. In addition, other researchers (e.g., Özçalışkan and Slobin, 2003) categorize motion verbs such as *come* and *go* as "neutral verbs", expressing neither manner nor path. For this reason, MD constructions are considered as "manner only" constructions.

As for the intermixed patterns in Talmy's term, the lexicalisation$_{(T)}$ patterns of Chinese Path verbs show that not all Path verbs exclusively express one or several types of Path while all

Path satellites exclusively express the other types of Path; and vice versa. Thus, Chinese is not intermixed patterns.

8.2 Further Research

For further research, there are four interesting points.

The first one is a diachronic study of Path verbs and SVCs because it can probably solve the problems on the evolution of Chinese SVCs, the grammaticalization and the lexicalisation$_{(D)}$ of Chinese SVCs and shed light on the typological shift of Chinese.

I have found the tendency of grammaticalization of some Path verbs and lexicalisation$_{(D)}$ of some SVCs. If a systematic analysis of how the meanings and functionsof these Chinese Path verbs can be carried out, the shift typology of Chinese can be more strongly supported.

Secondly, I focused on two-verb serial verb constructions in this thesis. I supposed that the co-occurring patterns of three-verb, four-verb, five-verb SVCs (if there is any) also follow certain constraints and are arbitrary linguistic facts. This hypothesis needs further examination.

Thirdly, in Slobin's narrative approach to explore the language typology, researchers (Slobin 1996, 2004, 2006, 2008; Slobin & Hoiting 1994; Zlatev & Yangklang 2004; Chen 2007; Chen & Guo 2009, 2010; Guo & Chen 2009; Xu 2013) focus on not only the semantic elements of Path and Manner but also on the Ground. Slobin (2000) argues that there is a low level of Ground expression in verb-framed languages because speakers pay more attention to the Path information. Zlatev & Yangklang (2004) show that in the serial-language of Thai, a verb-framed language in Talmy's dichotomy, speakers express a relatively low level of Ground. However, Zlatev and Yangklang (2004: 184) give a different explanation to this low level of Ground information.

> As for Thai, the reason for the relatively low level of Ground specificationis clearly not a low level of Path expression, as hypothesized for V-languagesby Slobin, but rather the opposite: since the Motion event is often so richlyspecified *verbally* (cf. Table 7), nominal Ground specification is often omittedsince the information can be worked out from context. This can also be seen aspart of a general tendency in Thai, and other South-East Asian languages, towardsreferential implicitness or "zero anaphora" (Clark 1992).

Zlatev and Yangklang (2004) use this different explanation so as to show that Thai is not a verb-framed language. However, no matter what the possible reason for this low level of Ground specification is, this low level of Ground expression is not in conflict with the features of a verb-framed language.

Chen (2007) summarises the Ground information in Chinese motion events and it is quite similar to the portion of the Ground in Thai motion events. This similar percentage is shown by Ibarretxe-Antuñano & Hijazo-Gascón (2012: 354) in a table.

Table 1. Path salience cline

Languages[lexicalisation pattern]	Minus-ground	Plus-ground
Chantyal[v] (Noonan 2003)	0%	100%
Basque[v] (Ibarretxe-Antuñano 2004a, b)	11.86%	88.14%
Swedish[s] (Ragnarsdóttir and Strömqvist 2004)	12%	42%
Icelandic[s] (Ragnarsdóttir and Strömqvist 2004)[a]	14%	71%
English[s] (Slobin 1996)	18%	82%
Polish[s] (Szczybelski Zborowski 2006)	23%	77%
German[s] (Berthele 2006, Slobin 1997)	26%	74%
Turkish[v] (Aksu-Koç 1994)	27.27%	72.72%
Danish[s] (Cadierno 2004)	29.51%	70,49%
French[v] (Berthele 2006)	31%	69%
Spanish[v] (Slobin 1996)	37%	63%
Malay[v] (Huang and Tanangkingsing 2005)	42%	58%
Mandarin Chinese[e] (Chen 2005)	48%	52%
Thai[e] (Zlatev and Yangklang 2004)	51%	49%
Tsou[e] (Huang and Tanangkingsing 2005)	52%	48%
Tagalog[v] (Huang and Tanangkingsing 2005)	55%	45%
Cebuano[v] (Huang and Tanangkingsing 2005)	59%	41%
W. Greenlandic[v] (Engberg and Blytmann 2004)	60%	40%
Saisiyat[v] (Huang and Tanangkingsing 2005)	61%	39%
Squliq[v] (Huang and Tanangkingsing 2005)	64%	36%
Mapuche[e] (Becerra-Parra 2008)	65%	35%

High-path salience

+

−

Low-path salience

In the table above, Mandarin Chinese has a different percentage of Ground from English, Spanish, and Thai. Compared with English, Chinese has less Ground information expressed and therefore Chinese is more like a verb-framed language in the level of Ground specification.

However, these data are based on motion events, notspecifically on motion events expressed by SVCs or non-SVCs such as single Path verbs. I also explained the difference between Ground and Path (especially the Goal) in Section 7.3.2. I think it is worth a detailed observation of Ground specification in SVCs expressing motion events and other structures expressing motion events on a basis of well-defined concepts of Ground and SVCs so that the refined difference of Ground between motion events in Chinese and other languages can be revealed.

Fourthly, using the methodology of corpus, I also found that there are rare Mandarin Chinese corpora suitable for data involving word categories. There are lots of corpora which have more examples than the LCMC but I had to use the LCMC because other corpora either do not tag word categories or cannot realise the ‘V next to V’ search. This is a future research direction for Chinese corpus development.

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Appendix 1 Chinese Motion SVCs

	SVCs	Semantic element of V1	Semantic element of V2
1	转到 zhuǎn dào (transfer, arrive; transfer to)	Action	Other Spatial Relation
2	转移到 zhuǎnyí dào (transfer, arrive; transfer to)	Action	Other Spatial Relation
3	运去 yùn qù (move, go; move to)	Action	Deictic
4	带来 daì laí (bring, come; bring)	Action	Deictic
5	回收到 huíshōu dào (recycle, arrive; recollect to)	Action	Other Spatial Relation
6	运回 yùn huí (transfer, go back; move back)	Action	Other Spatial Relation
7	出门买菜 chūmén mǎicài (go out; buy vegetables; go out to buy vegetables)	Action	Purpose
8	出门倒垃圾 chūmén dào lājī (get out, throw away the trash; get out to throw away the trash)	Action	Purpose
9	下来踏上 xiàlái tàshàng (come down, step on; come and step onto)	Deictic	Action
10	去挖 qù wā (go, dig; go digging)	Deictic	Purpose
11	来护理 lái hùlǐ (come, take care of; come to take care of)	Deictic	Purpose
12	去找 qù zhǎo (go, look for; go to look for)	Deictic	Purpose
13	去上班 qù shàngbān (go, work; go to work)	Deictic	Purpose
14	转到医院治疗 zhuǎndàoyīyuàn zhìliáo (transfer to a hospital, get treated; transfer to hospital for treatment)	Location	Action
15	前往科威特行医治病 qiánwǎngkēwēitè xíngyīzhìbìng (go to Kuwait, practise medicine; go to Kuwait to practise medicine)	Location	Action
16	来这里采访 láizhèlǐ cǎifǎng (come here, interview; come to interview)	Location	Action
17	躬身进屋 gōngshēn jìnwū (bend down, enter the house; bend into the house)	Manner	Action
18	窜上来抱起 cuànshànglái bàoqǐ (leap up, get hold of; jump forward to get hold of)	Manner	Action

19	涌去 yǒng qù (surge, go; surge away)	Manner	Deictic
20	撵回来 niǎn huílai (drive out, go back; be forced to go back)	Manner	Deictic
21	奔来 bēnlái (run, go towards; run towards)	Manner	Deictic
22	执花奔来 zhíhuā bēnlái (hold flowers, run to; run to.. with flowers in hand)	Manner	Deictic
23	窜上来 cuàn shànglái (jump, go towards; pounce to)	Manner	Deictic
24	跨上去 kuà shàngqù (step, go forward; step towards)	Manner	Deictic
25	赶回去 gǎn huíqù (rush, go back; rush back)	Manner	Deictic
26	拉走 lā zǒu (drag, go away; drag away)	Manner	Deictic
27	滚下来 gǔn xiàlái (roll, go down to; roll down to)	Manner	Deictic
28	摔下来 shuāi xiàlái (fall, go down to; fall down towards)	Manner	Deictic
29	偷渡到 tōudù dào (sneak, arrive; sneak into)	Manner	Other Spatial Relation
30	游到 yóu dào (swim, arrive; swim to)	Manner	Other Spatial Relation
31	坐到 zuò dào (sit, arrive; sit into..)	Manner	Other Spatial Relation
32	逃出 táo chū (excape, exit; escape out (of…))	Manner	Other Spatial Relation
33	走出 zǒu chū (walk, exit; walk out)	Manner	Other Spatial Relation
34	走到 zǒu dào (walk, arrive; walk to)	Manner	Other Spatial Relation
35	踏上 tà shàng (step, go onto; step onto)	Manner	Other Spatial Relation
36	搬出 bān chū (move, exit; move out)	Manner	Other Spatial Relation
37	坠下 zhuì xià (fall, go down; fall down)	Manner	Other Spatial Relation
38	跳下 tiào xià (jump, go down; jump down)	Manner	Other Spatial Relation
39	飞到 fēi dào (fly, arrive; fly to)	Manner	Other Spatial Relation

40	跑到 pǎo dào (run, arrive; run to)	Manner	Other Spatial Relation
41	冲到 chōng dào (rush, arrive; rush to)	Manner	Other Spatial Relation
42	坐进 zuò jìn (sit, enter; sit into…)	Manner	Other Spatial Relation
43	抬到 taí dào (lift, arrive; move to)	Manner	Other Spatial Relation
44	流进 liú jìn (flow, enter; flow into)	Manner	Other Spatial Relation
45	杀入 shā rù (kill, enter; kill one's way to)	Manner	Other Spatial Relation
46	漫过 màn guò (flow, go over; overflow)	Manner	Other Spatial Relation
47	埋下 maí xià (bury, go down; bury)	Manner	State (Other Spatial Relation)
48	乘船抵达 chéngchuán dǐdá (take boat, arrive; take boat and arrive at)	Method	Other Spatial Relation
49	离去 lí qù (leave, go away; leave)	Other Spatial Relation	Deictic
50	回到 huí dào (return, arrive; go back to)	Other Spatial Relation	Other Spatial Relation
51	登上 dēng shàng (climb, go up; climb up to)	Other Spatial Relation	Other Spatial Relation
52	靠近火堆取暖 kàojìnhuǒduī qǔnuǎn (get near to the fire, get warm; come close to the fire to get warm)	Other Spatial Relation	Purpose

Appendix 2 Chinese Non-motion SVCs

	SVCs	Semantic element of V1	Semantic element of V2
1	限产 xiàn chǎn (limit, produce;control the process of producing)	Action	Action
2	坐下打个盹 zuòxià dǎgèdǔn (sit down, nap; sit down and nap)	Action	Action
3	认罪伏法 rènzuì fúfǎ (confess, take the punishment; confess and take the punishment)	Action	Action
4	登记参加 dēngjì cānjiā (register, participate; register to participate)	Action	Action
5	闻讯找到 wénxùn zhǎodào (hear the news, find; follow the news and find)	Action	Action
6	等待加油 děngdài jiāyóu (wait, add oil; wait to add oil)	Action	Action
7	下令逮捕 xiàlìng dàibǔ (order, arrest; order to arrest)	Action	Action
8	亟待治理 jídài zhìlǐ (wait, put in order; wait for the treatment)	Action	Action
9	等待 (法则) 淘汰 děngdài (fǎzé) táotài (wait, (natural laws), eliminate through selection; wait for the natural selection)	Action	Action
10	弃学从商 qìxué cóngshāng (give up studies, get into business; give up studies and get into business)	Action	Action
11	昏死过去 hūnsǐ guòqù (faint, complete; faint)	Action	Aspect
12	建立起来 jiànlì qǐlái (build, complete; build up)	Action	Aspect
13	作起 zuò qǐ (do, start to; start to do…)	Action	Aspect
14	惹起 rě qǐ (cause, complete; cause)	Action	Aspect
15	长起 zhǎng qǐ (grow, complete; grow up)	Action	Aspect
16	过上 guò shàng (live, start; begin to live)	Action	Aspect
17	翻过去 fān guòqù (turn, complete; turn over)	Action	Aspect
18	赢来 yíng lái (win, come towards the speaker; win)	Action	Deictic
19	花去 huā qù (spend, go away; spend)	Action	Deictic
20	换来 huàn lái (exchange, come over; exchange for)	Action	Deictic

21	带来 dài lái (bring, come over; bring)	Action	Deictic
22	送往 sòng wǎng (send go towards; send to)	Action	Direction
23	通向 tōng xiàng (lead, go towards; lead to)	Action	Direction
24	支撑起 zhīchēng qǐ (support, go up; prop up)	Action	Other Spatial Relation
25	救出 jiù chū (save; exit; save someone out of)	Action	Other Spatial Relation
26	找不到 zhǎo bù dào (find, not be able to, arrive; cannot find)	Action	State (Other Spatial Relation)
27	顾不上 gù bù shàng (attend to, not be able to, go upward; have no time to attend to)	Action	State (Other Spatial Relation)
28	熬过 áo guò (drag on, go over; get over)	Action	State (Other Spatial Relation)
29	占到 zhàn dào (take, arrive; take up)	Action	State (Other Spatial Relation)
30	晋升到 jìnshēng dào (promote, arrive; raise to)	Action	State (Other Spatial Relation)
31	买不起 mǎi bù qǐ (buy, not be able to, get up off; cannot afford)	Action	State (Other Spatial Relation)
32	理出 lǐ chū (arrange, exit; sort out)	Action	State (Other Spatial Relation)
33	生产出 shengchǎn chū (produce, exit; produce)	Action	State (Other Spatial Relation)
34	长出 zhǎng chū (grow, exit; grow out)	Action	State (Other Spatial Relation)
35	生火取暖 shēnghuǒ qǔnuǎn (make fire, get warm; make fire to get warm)	Action	Purpose
36	装车外运 zhuāngchē wàiyùn (load, move out; load to move)	Action	Purpose
37	赶来看看 gǎnlái kànkàn (rush, look; rush to have a look)	Action	Purpose

38	围满 wéi măn (surround, be full; be crowded with)	Action	State
39	叫住 jiao4zhu4 (call to stop somebody)	Action	State
40	宣判为 xuānpàn wéi (sentence, be; sentence)	Action	State
41	销不动 xiāo bù dòng (sell, not be able to do, move; cannot sell out)	Action	State
42	卖不好 mài bù hăo (sell, not be able to do, be good; cannot sell well)	Action	State
43	亮出 liàng chū (show, exit; get out)	Action	State
44	出尽 chū jìn (show, to the greatest extent; show all)	Action	State
45	种上 zhòng shàng (grow, go upward; plant)	Action	State
46	操尽 cāo jìn (worry, to the greatest extent; worry about)	Action	State
47	组织好 zūzhī hăo (organize, be good; well organize)	Action	State
48	放满 fang măn (place, be full; fill with)	Action	State
49	接住 jiē zhù (catch, stop; catch)	Action	State
50	放平 fàng píng (lay, be flat; lay flat)	Action	State
51	犯有 fàn yŏu (commit, exist; commit)	Action	State
52	活下去 huó xiàqù (live, continue; continue to live)	Action	Aspect (Deictic)
53	培育出 péiyù chū (cultivate, exit; cultivate)	Action	State (Other Spatial Relation)
54	买到 măi dào (buy, arrive; find and buy)	Action	State (Other Spatial Relation)
55	算清 suàn qīng (calculate, be clear; figure out)	Action	State
56	加上 jiā shàng (add, go upward; add to)	Action	State
57	掩饰不住 yănshì bù zhù (hide, not be able to do, stay; cannot cover up)	Action	State
58	占去 zhàn qù (take, go; take up)	Action	State
59	开始算清 kāishĭ suànqīng (begin, figure out; begin to know)	Aspect	Action
60	开始进水 kāishĭ jìnshuĭ (begin, overflow; start to overflow)	Aspect	Action

61	开始呈现 kāishǐ chéngxiàn (begin, present; start to present)	Aspect	Action
62	开始凝固 kāishǐ nínggù (begin, solidify; start to solidify)	Aspect	Action
63	停止循环 tíngzhǐ xúnhuán (stop, cycle; stop recycling)	Aspect	Action
64	继续完善 jìxù wánshàn (continue, improve; continue to improve)	Aspect	Action
65	犯罪入狱 fànzuì rùyù (commit crime, go to jail; commit crime and go to jail)	Cause	State
66	被炸身亡 bèi zhà shēnwáng (passive marker, explode, be dead; be killed by explosion)	Cause	State
67	憋死 biē sǐ (suffocate, die; suffocate to death)	Cause	State
68	买不起骂娘 mǎibùqǐ mà'niáng (cannot afford, curse; cannot afford and curse)	Cause	State
69	触目心酸 chùmù xīnsuān (at sight, feel sad; at sight of…feel sad)	Condition	Action
70	出来应答 chūlái yìngdá (come out, answer; come out to answer)	Deictic	Action
71	分配到…当…fēnpèidào dàng (be allocated to (a place) to be...)	Location	Action
72	到一家公司任职 dàoyījiāgōngsī rènzhí (go to a company, work; go to work in a company)	Location	Action
73	跑到跟前打量 pǎodàogēnqián dǎliáng (run to someone, observe; run to someone and observe the person)	Location	Action
74	走出墓来尝尝味道 zǒuchūmùlái chángchángwèidào (walk out of the tomb, have a taste; walk out of the tomb and have a taste)	Location	Purpose
75	跑到郊区去砍树 pǎodàojiāoqū qùkǎnshù (run to suburb area, cut trees; go to the suburb to cut down trees)	Location	Purpose
76	极目望去 jímù wàngqù (look as far as possible, look away to; look within the scope of the eyes	Manner	Action
77	介绍说 jièshào shuō (introduce, speak; introduce)	Manner	Action
78	评价说 píngjià shuō (comment, speak; comment)	Manner	Action
79	放眼一瞧 fàngyǎn yīqiáo (use eyes, look; have a look with eyes; take a board view)	Manner	Action
80	说完 shuō wán (talk, finish; finish talking)	Manner	Aspect

81	激荡不已 jīdàng bùyǐ (feel exciting, non-stopping; exciting)	Manner	Aspect
82	折去 zhé qù (crack, go; crack off)	Manner	Deictic
83	赚来 zhuàn lái (earn, come; earn)	Manner	Deictic
84	吞下去 tūn xiàqù (swallow, go down; swallow down)	Manner	Deictic
85	拿回去 ná huíqù (hold, go back; get back)	Manner	Deictic
86	锁起来 suǒ qǐlái (lock, complete; lock up)	Manner	Aspect (Deictic)
87	打起来 dǎ qǐlái (fight, begin; begin to fight)	Manner	Aspect (Deictic)
88	抽泣起来 chōuqì qǐlái (cry, begin; start to cry)	Manner	Aspect (Deictic)
89	翻靠 fān kào (turn over, lean on; turn over and rely on)	Manner	Manner
90	砌筑 qì zhù (build by layering bricks, construct; build)	Manner	Manner
91	挑捡 tiāo jiǎn (select, collect; pick up)	Manner	Manner
92	刨挖 páo wā (plane, dig; dig)	Manner	Manner
93	掏扒 táo bā (dig, dig; dig)	Manner	Manner
94	镶入 xiāng rù (set into the surface, go into; insert)	Manner	Other Spatial Relation
95	拿起 ná qǐ (hold, get up; pick up)	Manner	Other Spatial Relation
96	涌上 yǒng shàng (gush, go up; rush towards)	Manner	Other Spatial Relation
97	抹到 mā dào (wipe, arrive; wipe to)	Manner	Other Spatial Relation
98	抱起 bào qǐ (hold in arms, get up; catch up)	Manner	Other Spatial Relation
99	撞到 zhuàng dào (bump against, arrive; run into)	Manner	Other Spatial Relation
100	挤到 jǐ dào (push against, arrive; squeeze to)	Manner	Other Spatial Relation
101	拽出 zhuài chū (pull, exit; drag out)	Manner	Other Spatial Relation
102	掏出 tāo chū (pull out, exit; get out)	Manner	Other Spatial

			Relation
103	拨出 bō chū (divide, exit; give)	Manner	Other Spatial Relation
104	挖出 wā chū (dig, exit; dig out)	Manner	Other Spatial Relation
105	抠进 kōu jìn (dig, go into; dig into)	Manner	Other Spatial Relation
106	拉起来 lā qǐlái (pull, get up; pull up)	Manner	Other Spatial Relation
107	端起 duān qǐ (hold up, get up; hold up)	Manner	Other Spatial Relation
108	漾起 yàng qǐ (ripple, start; start to ripple)	Manner	Aspect (Other Spatial Relation)
109	刮起 guā qǐ (blow, start; start to blow up)	Manner	Aspect (Other Spatial Relation)
110	画到底 huà dàodǐ (draw, go to the end; draw to the end)	Manner	Aspect (Other Spatial Relation)
111	哭出 kū chū (cry, exit; start to cry)	Manner	Aspect (Other Spatial Relation)
112	写出 xiě chū (write, exit; finish writing)	Manner	State (Other Spatial Relation)
113	说出 shuō chū (speak, exit; speak out)	Manner	State (Other Spatial Relation)
114	买不到 maǐ bù dào (buy, not be able to, arrive; cannot afford)	Manner	State (Other Spatial Relation)
115	挤成疙瘩看照片 jǐchénggēdā kànzhàopiān (squeeze into a knot, look at the pictures; squeeze to look at the picture)	Manner	Purpose
116	挑捡…当柴烧 tiāojiǎn dāngcháishāo (pick up, use as fuel; choose as fuel)	Manner	Purpose
117	镶有 xiāng yǒu (set into the surface, exist; be topped with)	Manner	State
118	打昏 dǎ hūn (hit, faint; hit down)	Manner	State

119	撬开 qiào kāi (open with a stick, open; open)	Manner	State
120	挤成 jǐ chéng (squeeze, become; squeeze into)	Manner	State
121	抱住 bào zhù (hold with arms, stop; catch)	Manner	State
122	喊住 hǎn zhù (shout, stop; stop somebody by shouting)	Manner	State
123	砸裂 zá liè (pound, split; pound and split)	Manner	State
124	砸肿 zá zhǒng (pound, become swollen; pound and become swollen)	Manner	State
125	震塌 zhèn tā (shake, collapse; shake and collapse)	Manner	State
126	压死 yā sǐ (press, be dead; press to death)	Manner	State
127	摔伤 shuāi shāng (fall down, get hurt; fall down and get hurt)	Manner	State
128	碰伤 pèng shāng (hit, hurt; hit and get hurt)	Manner	State
129	烧尽 shāo jìn (burn, go to the end; burn to the end)	Manner	State
130	炸死 zhà sǐ (explode, die; kill by blast)	Manner	State
131	抱成 bào chéng (hold by arms, become; hold into)	Manner	State
132	挑开 tiǎo kāi (raise something with a stick, be away; get rid of)	Manner	State
133	喊哑 hǎn yǎ (shout, be hoarse; shout and become hoarse)	Manner	State
134	摆满 bǎi mǎn (lay, be full; lay full)	Manner	State
135	硷(碱) 死 jiǎn sǐ (soak in soda, die; kill by soda)	Manner	State
136	砍死 kǎn sǐ (chop, die; kill by chopping)	Manner	State
137	撅折 juē she (break, be broken; bend to break)	Manner	State
138	抱定 bào dìng (hold with arms, be steady; hold firmly)	Manner	State
139	装有 zhuāng yǒu (load, exist; be equipped with)	Manner	State
140	握住 wò zhù (hold, be steady; hold)	Manner	State
141	吃够 chī gòu (eat, be full; eat enough)	Manner	State
142	用发电机发电 yòngfādiànjī fādiàn (use electric generator, produce electricity; produce electricity by using electric generator)	Method	Action
143	作价卖给 zuòjià màigěi (set a price; sell; set a price and sell)	Method	Action

144	合资生产 hézī shēngchǎn (joint inverstment, produce; produce by joining investment)	Method	Action
145	拿个铁片把锁撬开 nágètiěpiàn bǎsuǒqiàokāi (use a piece of iron, open the lock; use a piece of iron to open the lock)	Method	Action
146	用双手刨挖 yòngshuāngshǒu páowā (use hands, dig; use hands to dig)	Method	Action
147	用双手刨出来 yòngshuāngshǒu páochūlái (use hands, dig out; use hands to dig out)	Method	Action
148	打电话转达 dǎdiànhuà zhuǎndá (make a phone call, tell; call to inform)	Method	Action
149	拿彩电作奖品开展活动 nácǎidiànzuòjiǎngpǐn kāizhǎnhuódòng (use TVs as prizes, carry out activities; use TVs as prizes to carry out activities)	Method	Action
150	拨出专款帮助灾民 bōchūzhuānkuǎn bāngzhùzāimín (give money, help victims; allocate money to help sufferer)	Method	Purpose
151	用手段去制止 yòngshǒuduàn qùzhìzhǐ (use a method, go to stop; use a method to stop something)	Method	Purpose
152	联系承包一项工程 liánxì chéngbāoyīxiàngōngchéng (contact, take a project; contact to get a contract)	Method	Action
153	托人带信 tuōrén dàixìn (ask for someone’s favour, send a letter; have somebody helping to send a letter)	Method	Action
154	支起 zhī qǐ (put up, get up; prop up)	Other Spatial Relation	Other Spatial Relation
155	降到 jiàng dào (go down, arrive; decrease to)	Other Spatial Relation	Other Spatial Relation
156	上升到 shàngshēng dào (go up, arrive; rise to)	Other Spatial Relation	Other Spatial Relation
157	升到 shēng dào (go up, arrive; rise to)	Other Spatial Relation	Other Spatial Relation
158	闻声望去 wénshēng wàngqù (follow the sound, look; follow the sound and look)	Perception	Action
159	想到自杀 xiǎngdào zìshā (think of, commit suicide; think of suicide)	Perception	Action
160	回想起 huíxiǎng qǐ (think of, begin; start to recall)	Perception	Aspect (Other Spatial Relation)
161	望去 wàng qù (look, go; look towards (some place away	Perception	Deictic

	from the speaker))		
162	苏醒过来 sūxǐng guòlái (wake, complete; wake up)	Perception	Aspect (Deictic)
163	注意到 zhùyì dào (notice, arrive; notice that)	Perception	Aspect (Other Spatial Relation)
164	望到 wàng dào (see, arrive; see as far as possible)	Perception	Aspect (Other Spatial Relation)
165	流露出 liúlù chū (show, exit; show)	Perception	Aspect (Other Spatial Relation)
166	未见好转 wèi jiàn hǎozhuǎn (not, see, become better; no improvement being seen)	Perception	State

Appendix 3 Chinese Path Verbs

	PATH VERBS	DICTIONARY DEFINITION	PATH TYPE
1	撵 niǎn	追赶 catch up	After G
2	追 zhuī	追赶 chase (or run) after	After G
3	出发 chūfā	离开原来所在的地方到别的地方去 set out	Away from G
4	去 qù	从所在地到别的地方 go to (a place)	Away from G
5	离 lí	离开，分离 leave, part from, be away from	Away from G
6	离开 líkāi	跟人、物或地方分开 leave, depart from	Away from G
7	背 bèi	离开 leave, go	Away from G
8	走 zoǔ	离开，去 leave, go away	Away from G
9	倒 dào	使向相反的方向移动或颠倒 move backwards	Back to G/backwards
10	倒退 dàotùi	往后退 go backwards	Back to G/backwards
11	回 huí	从别的地方回到原来的地方 return, go back	Back to G/backwards
12	还 huán	返回原来的地方 go (or come) back	Back to G/backwards
13	退 tuì	使物体向后移动 move back	Back to G/backwards
14	掉 diào	回转 turn	Change direction
15	移动 yídòng	改变原来的位置 shift, move	Change direction
16	转 zhuǎn	改变方向、位置 turn, shift, change	Change direction
17	压 yā	逼近 approach, be getting near	Closer to G
18	挨 āi	靠近 to get close to	Closer to G
19	靠 kào	接近，挨近 get near, come up to	Closer to G
20	靠近 kàjìn	向目标接近 draw near, approach	Closer to G
21	下 xià	由高处到低处 come or go down from, descend	Down from/to G-Downwards
22	下降 xiàjiàng	由高到低 descend	Down from/to G-Downwards
23	掉 diào	落 fall, drop	Down from/to G-Downwards

24	沉 chén	(在水里)往下落 sink	Down from/to G-Downwards
25	落 luò	下降 fall, drop	Down from/to G-Downwards
26	跌 diē	(物体)落下 fall	Down from/to G-Downwards
27	降 jiàng	落下 fall, drop	Down from/to G-Downwards
28	前进 qiánjìn	向前行动或发展 advance	Forwards
29	进 jìn	向前移动 advance, move forward, move ahead	Forwards
30	收 shōu	把外面的事物拿到里面 gather in	Into G
31	装 zhuāng	把东西放进容器里 load, pack, hold	Into G
32	进 jìn, into	从外面移到里面 enter, come (or go into), get	Into G
33	钻 zuān	穿过，进入 get into; go through, make one's way into	Into G
34	撒 să	把颗粒状的东西分散着扔出去 a lot of small things fall in multi-directions	Multiple directions from a unique start
35	散 sàn	分散到各处 scatter	Multiple directions from a unique start
36	洒 să	（使水或其他东西）分散地落下 sprinkle	Multiple directions from a unique start
37	洒落 săluò	分散地落下 scattered fall	Multiple directions from a unique start
38	出 chū	从里面到外面 go or come out	Out of G
39	突出 tūchū	冲出 break out	Out of G
40	经过 jīngguò	通过（处所、时间、动作等）pass, go through, undergo	Pass/cross G
41	过 guò	从一个地点转移到另外一个地点过河过桥 cross, pass	Pass/cross G
42	通过 tōngguò	从一端或一侧到另一端或另一侧 pass through, get past, traverse	Pass/cross G
43	到 dào	达于某一点；到达；达到 arrive, reach	To/towards G
44	到达 dàodá	到了某一点，某一阶段 arrive, get to, reach	To/towards G

45	来 lái	从别的地方到说话人所在的地方 come (to)	To/towards G
46	赶 gǎn	去，到（某处）赶集 go to	To/towards G
47	上 shàng	去，到上工厂上街 go to, leave for	To/towards G
48	下 xià	去；到（处所）go to a place thought of as lower or below	To/towards G
49	造 zào	前往，到 go to	Towards G
50	上 shàng	由低到高 come or go up, ascend	Up/onto G--Upwards
51	升 shēng	由低往高移动（跟降相对）go up, ascend	Up/onto G--Upwards
52	提 tí	使物体由下往上移 lift, raise	Up/onto G--Upwards
53	起 qǐ	使物体由下往上升 eg. 皮球不起了 go upwards, up	Up/onto G--Upwards
54	登 dēng	（人）由低处到高处（多指步行）ascent	Up/onto G--Upwards

Appendix 4 English Path Verbs(Cifuentes-Férez 2008)

	MOTION VERB	PATH TYPE	DICTIONARY DEFINITION (OED)
1	abandon	awayfromG (depart, source)	[transitive verb] Toforsake, leave,ordesert(a place,person, or cause); to leavewithoutone's presence,help,or support.
2	advance	forwards	[intransitiveand transitiveverb] To move forward in place.
3	alight	to/towards G (arrival, endpoint)	[intransitiveverb] Referring chiefly totheresult: Toland.Toget down fromahorse orconveyance; to dismount or descend for the time; tofinish one's ride,stop.
4	approach	closer to G	[intransitiveverb] Tocome nearer(relatively),or drawnear (absolutely), in space.[transitiveverb] Tocome nearto
5	arise	earth-based orientation:upwards	[intransitiveverb] Toascend,go or come higher.
6	arrive	to/towards G (arrival, endpoint)	[intransitiveverb] Tocome toshore or into port; to land. To come to,landat,reach(a shore, port, etc.).Tocome to the end of a journey, to a destination, or to some definite place; to come upon the scene,
7	ascend	earth-based orientation:upwards	[intransitiveverb](emphasizedby aredundantup) To go or come up,originally by a gradual motion,toarelatively higher position. Ofvoluntaryagents: Toclimb up,travelup, walk up; to soar, mount.Of inanimate things:To rise, be raised,
8	back	backwards	[intransitiveverb](for refl.)Tomove,go, come back. [transitive verb] Tocause to move back,putback.
9	come	deixis: towards G(speaker)	An elementaryintransitiveverb of motion,expressing movement towards orsoas to reachthespeaker, orthe person spokento,or towardsa pointwherethespeaker inthoughtor imaginationplaceshimself, or (when heisnot himself in question)towardsthe person who formsthe subjectof his narrative.It is thusoften usedinoppositionto go, although the latter doesnotprimarily involvedirection,andisoften usedwithout reference thereto. Come is alsousedmerelyof the accomplishmentof the movement, involved in reachingor becomingpresentatanyplaceorpoint; and sometimes
10	cross	pass/crossG	[transitive and intransitive verb] To passover a line, boundary,river,channel,etc.; to passfromonesideto the otherofanyspace.
11	depart	away fromG	[intransitiveverb] To goapartor away,with its derived senses.
12	descend	earth-based orientation:downwards	[intransitiveverb] Tomoveor pass froma higher toa lower positioninspace; tocome orgo down, fall,sink. (Thegeneral word,includingall kindsof downwardmotion,vertical or oblique; the oppositeof

13	desert	away fromG	[intransitive andtransitiveverb] To abandon, forsake, relinquish,give up(a thing);todepartfrom(aplaceor position).
14	divert	changeDirection	[transitive verb] Toturnaside(a thing, as a stream, etc.) from its (proper) directionor course; todeflect (the course of something); to turnfromone destination orobject to another.
15	dodge	away from G	[intransitiveverb] Toavoidanencounterwith(a person or thing)by changesof position,shifts,or doublings; to elude(a pursuer,etc.) by shiftsor sidewardmovements.
16	drop	earth-basedorientation:downwards	[intransitiveverb] To fall vertically, like a singledrop, under thesimple influence of gravity; todescend.To haveanabrupt descent in position. [transitive verb] Tolet fall
17	enter	intoG	[intransitiveverb] To go orcome in. To go or come intoa place,building, room, etc.; topasswithin theboundariesofa country, region, portion ofspace, medium, etc.
18	escape	awayfromG	[intransitiveverb] To gain one's liberty by flight; to getfree fromdetention orcontrol, orfroman oppressiveorirksome condition.[transitiveverb] Toeffectone's flight from (prison);to freeoneselffrom(aperson's graspor control);to get safelyout of(painful or dangerousconditions)
19	exit	outofG	[intransitiveverb] Tomake one's exit,depart,
20	fall	earth-based orientation:downwards	[intransitiveverb] To descend freely(primarily by ‘weight’or gravity): opposedto ‘rise’. To drop froma high or relatively high position.To drop,come or go down,in agiven direction or toa required position.
21	follow	afterG	[transitive verb] To go or come after(aperson or otherobject inmotion); tomovebehind inthesame direction. To go forwardalong (apath),to keepin (atrack)as one goes. [intransitiveverb] To go orcome after aperson or thingin motion; to move behind some object; also,to go asaperson's attendant orcompanion.
22	go	deixis: away fromG(speaker)	An intransitive verb of motion, serving as the most general expression (I) for a movement viewed without regard to its point of departure or destination; (II) for a movement away from the speaker, or from the point at which he mentally places himself; and (III) for a movement to or towards a place which is neither in fact nor in thought that occupied by the speaker.
23	hound	afterG	[transitive verb] To hunt, chase, orpursuewithhoundsoras a dog does.
24	leave	away fromG	[transitive verb] To depart from, quit, relinquish. To go away from,quit(aplace,person,orthing); to deviate from(a line of road, etc.).

25	mount	earth-basedorientation: upwards; up/ onto G	Senses relating toelevation or upwardmovement. [intransitiveverb] To fly upwards, to soar, to ascend.Of a missile: toriseinits flight.[intransitiveverb]To travelor proceedin an upward direction; toascendorclimb. [intransitiveverb] Toascendtoahigher level inrank, estimation, power, excellence, completeness. [transitiveverb] To cause toascend orrise; toraise, elevate,lift,draw or drive up.Sensesrelatingto upward motion on to something. [intransitiveverb] To getup onto theback of ahorse orother animal (occas.on aperson's shoulders)for thepurposeof riding. [transitiveverb] Tosetonthe back of a horseor other animal.
26	pass	pass/crossG(traversal)	[intransitiveverb] To proceed, move forward, depart.Of a person or animal: togo by or past.To go on, moveonward; to make one's way. [transitiveverb] To go beyond (apointor place). To cause or enable(apersonor thing) to goor proceed somewhere; tocarry, convey,or send, esp. to convey acrossa river orland; totransport. Usu. with preposition or adverb of direction
27	penetrate	into G	[transitive verb] To get into or through,gain entranceor access to, esp.withforce, effort, ordifficulty; to pierce. [intransitiveverb]Usu.withinto,
28	pursue	afterG	To follow or goin pursuit(chiefly involving physical movement). [intransitiveverb] To goinchase orpursuit; to give chase. [transitiveverb] Originally: to follow (aperson, animal, or thing) with intent to overtake and capture,harm,or kill; tohunt. Later usu.moregenerally: tochase, goafter.
29	reach	to/towards G (arrival, endpoint)	[transitive verb] Tocome to, arriveat (a place, object,or point in space),to get upto orasfaras.
30	recede	awayfromG	[intransitiveverb] To go back or further off;toremove to or towards a more distantposition.Ofpersons. Usually = to retreat,retire.
31	recoil	backwards	[intransitiveverb] To retreat,retire,go ordrawback (or aback)beforeanenemy oropposing force.Tostaggerback, fromthe effects of ablow. Tostart or springback infear, horror,disgust, or the like
32	retire	away fromG	[intransitiveverb] Towithdrawto or into aplace (orway of life) for thesake of seclusion, shelter,or security. [transitive verb] To withdraw, lead back (troops,etc.), esp.beforea superior force.
33	retreat	awayfromG	[intransitive verb] To withdraw, retire, draw back. Of an army or a combatant: To retire before superior force or after a defeat. [transitive verb] To draw or lead back; to remove, take away.
34	return	back toG	[intransitiveverb] To come orgoback to aplace orperson. [transitive verb] Tobring or conveyback toa placeor person.

35	rise	Earth-based orientation:upwards	[intransitive verb] To ascend, mount up. Of the heavenly bodies: To come above the horizon. Of smoke, vapour, or the like: To ascend into the air, mount up. To move or be carried upwards; to ascend.
36	scale	Earth-based orientation:upwards	[transitive verb] Toclimb, getover (awall or the like); to ascend(amountain); to get to orreachthetopof.
37	scatter	Multiple directionsfroma uniquestart	[intransitiveverb]To separate and disperse;to go dispersedly or stragglingly. [transitiveverb] To separateand drive in variousdirections(a body of menoranimals,acollection of things); to disperse,dissipate(aquantity ofmatter); to dispel (clouds,mists).
38	shadow	afterG	[transitive verb] To follow(aperson) like a shadow; inmod. Journalistic languagesaid of adetective whodogsthestepsof a person undersurveillance.
39	sink	earth-based orientation: downwards	[intransitiveverb] To becomesubmergedinwater; to go under ortothebottom; (of ships) to founder.To become partly orcompletely submergedin quicksand,marshyground, snow, etc.To subside or go downinto, to beswallowed up by, the earth, etc. [transitiveverb] Tocause(a vessel, etc.) to plunge or go down beneaththewater; tosubmerge by rendering incapableof floating. To submerge; toputor thrust underwater.Tocause(a thing) to descend or fall to a lower planeorlevelto force, press or weigh down; to
40	stray	away fromG	[intransitiveverb] Toescapefromconfinement or control, to wanderaway froma place,one's companions. [intransitive verb] To wander fromthe
41	swerve	changedirection	[intransitiveverb] Toturnaside,deviate in movement from thestraightordirect course.
42	tack	changedirection	[intransitiveverb] Toshift the tacks and brace the yards, and turnthe ship's head tothewind, sothat she shall sail at the same angletothe wind on theotherside; togo about inthis way.
43	traverse	pass/crossG (traversal)	[transitive verb] To runacross or through; to cross.
44	turn	changedirection	[intransitiveverb] Tomoveor shift(by a rotary motion,or throughanangle)so as tochangeone's postureor position; esp.toshift the body(asonan axis) fromside toside; totwist or writhe about.