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A Cognitive Approach to Multi-Verb Constructions in Mandarin Chinese

by

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Abstract

This dissertation addresses different kinds of Mandarin multi-verb constructions (MVCs), seeking to solve a long-standing problem in Chinese linguistics: namely, how to account for a plethora of constructions, including a subset called *serial verb constructions*. In most previous studies, only a limited number of MVCs have been examined by any one researcher. By contrast, this dissertation aims to provide a unified account of all types of Mandarin MVCs. I argue such a goal can be achieved through a usage-based cognitive approach.

By proposing that MVCs display varying degrees of event integration, my analysis can differentiate meaningfully among distinct kinds of MVCs. Based on the form-meaning pairing criterion, I argue that MVCs of different types can be localized along portions of a continuum of event integration.

This study mines the Lancaster Corpus of Mandarin Chinese for MVCs. The corpus results show there is lexical restrictedness as measured by verb type/token ratios in certain MVCs. The continuum of type/token ratios is argued to correlate with the continuum of event integration of MVCs, with lower ratios correlating with higher degrees of event integration and with higher ratios correlating with lower degrees of event integration.

The corpus data indicate there is a strong interaction between lexical items and construction types. Certain verbs are easily attracted to a particular construction or even a particular verb position. Also, the corpus results reflect an asymmetry in MVCs in that verbs in one position may be more restricted. The position-specific patterns of type/token

frequency largely reveal the event structures underlying particular MVCs. Generally, the verb position having a higher type/token ratio represents a core phase.

The corpus results show the mutual attraction of verbs and constructions, the strong tendency to use MVCs for encoding unitary albeit complex events, and the link between lexical restrictedness and event integration as evidenced by the large variety of types of MVCs in Mandarin. The findings support a usage-based model where constructions are understood to be conventionalized units, and fixed idiomatic expressions are considered to be as important to the expressive inventory of the language as are open or fully productive syntactic structures.

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List of Abbreviations

PERF: perfective

PROG: progressive

EXP: experiential

LOC: locative

PRES: present

CL: classifier

1SG: first person singular

1PL: first person plural

2SG: second person singular

3SG: third person singular

3SGF: third person singular female

3SGM: third person singular male

PL: plural

PRT: particle

NEG: negation

INJ: interjection

POSS: possessive

BA: object marker in the *ba*-construction

BEI: passive marker in the *bei*-construction

Chapter One

Introduction

Mandarin is classified as an isolating and non-inflecting language. What English achieves by changing verb forms, Mandarin Chinese expresses by means of additional adverbs, other independent morphemes, etc. For example, in Mandarin *lai* 'come' remains the same morphologically no matter when the action happened or happens or will happen since Mandarin does not inflect its verbs for tenses (Lin 2001). In syntax, Mandarin has very few overt morphosyntactic expressions of tense or aspect and has no subject-verb agreement, in contrast to inflectional languages. The lack of affixational morphology and syntactic markers in Chinese often makes a string of words highly ambiguous syntactically and, thus, a Mandarin expression with two or more verbs in a sequence could be associated with more than one construction type. For example, a multi-verb sequence in Mandarin could be analyzed as coordination (not unlike the English expression *eat* [and] *drink*), subordination (as in the English *I want* [to] *go*), or causation (such as *I made him leave*). A "multi-verb construction" (MVC) is understood as a sequence of verbs (with a shared or omitted participant) in an expression without any syntactic marking to indicate what the relation is between the verbs.

Because of a lack of universally agreed-upon definitional criteria, linguists have made different classifications of these highly ambiguous and uninflected multi-verb sequences in Mandarin Chinese. Most previous analyses in the literature have focused on one or two types of multi-verb sequences but little effort has been made to account for the whole range of multi-verb sequences in Mandarin. This dissertation aims to provide an account for all types of Mandarin multi-verb sequences. Such a goal can best be

achieved, I argue, through the usage-based cognitive approach (Langacker 1987, 1990, 1991, 1999, 2000, 2008), which claims that the organization of language is not form-driven but meaning-driven and that many linguistic units are of a graded phenomenon. Hence, structural and semantic indeterminacy is expected in language but it is not a barrier to analysis.

In this dissertation, I will argue that degrees of event integration are the key idea to account for multi-verb sequences, an idea that takes its inspiration from the cognitive framework (Langacker 1987, 1991, 1999, 2000, 2008; Talmy 2000). "Events" are defined as relatively temporal relations and are typically encoded by verbs (c.f. Langacker 1987, 1991; Grimshaw 1990). By proposing that multi-verb sequences display degrees of event integration or independence, my analysis can provide an account for all types of multi-verb sequences in Mandarin. Some multi-verb sequences express a single event encompassing multiple phases, while other sequences express two distinct events each being construed as having only a single phase. A multi-verb sequence like (1) represents the limiting case of complete event independence of two events denoted by two verbs, while the multi-verb sequence in (2) represents the limiting case of complete event integration of two sub-events denoted by two verbs.

(1) *Ta* *meitian* ***duanlian*** *shenti* ***xuexi*** *yingyu.*
3SG everyday exercise body study English
'S/he exercises (and) studies English everyday.'

(2) *Ta* ***na*** ***qu*** *le* *yi* *ben* *shu.*
3SG take go PERF one CL book
'S/he took away a book.'

However, most multi-verb sequences have interpretations which lie somewhere between the extremes of integration and independence of the two verbs/events. The two

verbs/events in many such sequences may be causally, sequentially, or otherwise related to various degrees. Multi-verb sequences in Mandarin are a graded phenomenon and reveal a continuum of event integration/independence. By analyzing multi-verb sequences from the perspective of a continuum of event integration/independence, all types of such sequences can be comfortably accounted for.

In this dissertation, following Goldberg (1995, 2003, 2006) and Langacker (1987, 1991, 2008), constructions are defined as follows: Constructions are understood as form-meaning pairings in which particular forms which subsume the surface syntactic features of constructions are linked to certain meanings which comprise the propositional content of an expression and the broader conceptualization that language users entertain as well. Constructions may differ in size and specificity. Constructions can be quite fixed, idiomatic expressions or quite general syntactic patterns while meanings can be specific or schematic (Fillmore et al. 1988; Kay & Fillmore 1999; Langacker 1987, 1991, 2008; Goldberg, 1995, 2003, 2006; Croft 2001; Stefanowitsch & Gries 2003 and others). Our system of grammar can be viewed as a continuum of successively more abstract constructions from fully fixed expressions to generic and abstract patterns (Stefanowitsch & Gries 2003: 211). Constructions are understood to cover (but are not restricted to) single morphemes (e.g. [N-s]/'plural'), mono-morphemic words (e.g. *give*, *and*, *take*), multi-morphemic words (e.g. *books*, *misgivings*), multi-word-expressions including compounds (e.g. *give-and-take*, *make do*), phrasal verbs (e.g. *to give up on someone*), lexically fully or partially filled idiomatic expressions (e.g. *to let the cat out of the bag*, *pull someone's leg*), and even include abstract syntactic structures or patterns (e.g.

phrasal categories, argument structures, ditransitive construction: Subj [V Obj1 Obj2], tense, aspect, mood) (Stefanowitsch & Gries 2003; Goldberg 2003, 2006).

In the present study, the constructions to be investigated are partly determined by part of speech, verbs. The part of speech helps me to narrow down the range, the frame which I am interested in. But within the verb, the part of speech, I am allowing meaning to be quite generic. I am open to all the evidence to what kind of verb can fill in the verb parts in each position. On the other hand, categorizing counstructions does allow for different levels of specificity (Goldberg 1995, 2003, 2006; Langacker 1987, 1991, 2008). It does allow for flexibility in how fine-grained or specific a construction is and how coarse-grained or schematic a construction is. The superordinate term "multi-verb construction" (MVC) in this dissertation encompasses all particular types of constructions consisting of multiple verbs and its meaning is a combination of temporally profiled events. The sub-MVCs form a continuum in terms of how lexically restricted they are. Generally, there is lexical affinity or lexical restrictedness in MVCs and constructional meanings largely determine what kind of verb is compatible with a given construction. Lexical restrictedness can be measured in type/token ratios (number of different verb types/number of total verb tokens of a construction in a corpus or a sub-corpus). In this dissertation, I will show that type/token ratios of verbs of different types of MVCs correlate with their degrees of event integration established by semantic analyses with lower ratios correlating with higher degrees of event integration and higher ratios correlating with higher degrees of event independence.

In order to better understand the full range of syntactic and semantic characteristics of multi-verb constructions, I examined actual instances of language use

from the Lancaster Corpus of Mandarin Chinese (LCMC). As a methodology, I searched for sentences which contain the 50 most frequent verbs in Mandarin to see what patterns are present and what constructions emerge. Therefore, the major objective of this dissertation is to explore real corpus data in order to account for all types of multi-verb sequences in Mandarin.

The corpus results suggest that there are degrees of freedom and fixedness in the collocating verbs associated with different kinds of multi-verb constructions. In this dissertation, I use V1 to indicate the first verb in a sequence and V2 the second verb. Type/token ratios of verbs indicate that certain types of constructions are V1-dependent, while others are V2-dependent. In short, some multi-verb constructions show tighter restrictions on V1 and others on V2. The position-specific patterns of type/token frequency reflect event structures for specific types of MVCs. In MVCs, the more restricted verbs usually have high token frequency and often express more schematic meaning while the less restricted verbs usually have low token frequency and often convey more concrete meaning. The position-specific patterns of type/token frequency shed light on our understanding of different phases in the conceptualization of events, and can largely help us determine which phase is the core phase and which ones are other phases of a macro event. A "macro event" is construed to consist of more than one phase and usually displays situational interdependence or semantic relatedness between its component phases. A "phase" in this dissertation refers to a sub-event in a macro event or a complex event. In MVCs, the verb position which has a low type/token ratio usually represents a non-core phase such as an inceptive, preparatory or resultative phase, while the verb position which has a higher type/token ratio represents a core phase. The

position-specific patterns of type/token frequency reflect conceptual structures of different kinds of MVCs in terms of the core phase and other phases of the macro event.

There has been much debate over whether multi-verb sequences involve coordination or subordination or both (e.g., Li & Thompson 1973; Stewart 2001; Alexandra & Dixon 2006). Furthermore, it is claimed that there is another family of constructions involving verb serialization which constitutes neither typical coordination nor typical subordination (e.g., Chao 1968; Langacker 1991; Song 1992). To date, few have satisfactorily explained, in detail, what the differences are meant to be between verb serialization on the one hand and coordination/subordination on the other. In this dissertation, Mandarin multi-verb sequences are shown to encompass all of these construction types: coordination, subordination and serialization. Verb serialization can be differentiated from typical subordinate constructions or coordinate constructions. The differences are seen to reside in their respective profiling—an aspect of speaker construal basic to Cognitive Grammar (Langacker 1991).

This dissertation will argue that the main differences between serialization, however defined, and non-serialization are best understood in term of profiling. Both events are considered to be both profiled in the case of coordination and serialization, since both events are raised to a distinctive level of prominence in these two constructions. However, the relation between the two profiled events differs in coordination and serialization. The two profiled events in a typical coordinate construction are independent and there is only a weak semantic relation between them. The two profiled events in the serialization construction are semantically inter-dependent and are typically construed as two phases of one larger "macro event". In the case of

subordination, only one event is profiled while the secondary event is usually expressed as a case of complementation or modification.

In the past, the evidence promoted in investigations of Mandarin Chinese multi-verb constructions has come mainly from the same sample sentences found in previously published studies or from the intuitions of linguists who are Mandarin speakers. There has been little or no systematic exploration of actual patterns of Chinese multi-verb constructions in Mandarin Chinese corpora. One aim of this dissertation is to fill this gap. Newman and Rice (2004: 352) claim that usage-based concepts such as sanction of new usages, conventionalization, entrenchment, degrees of familiarity and stochastic emergence can be explored through using the tools of corpus linguistics. They argue that "the grammatical patterns, constructions and rules that linguists posit should be abstracted from actual patterns of usage, rather than simply being the product of theorizing and model-building" (2004: 352). Instead of recycling old examples from other accounts, this dissertation mined actual instances of language use from the Lancaster Corpus of Mandarin Chinese (the LCMC is a one-million-word written corpus of modern Mandarin Chinese). I obtained the 50 most frequent verbs from the wordlist of the LCMC and searched them as key words using the web-based concordancer. If the number of saved hits which were obtained using a particular key verb search was greater than 300, I randomized the results to narrow them to 300 hits. The 15,000 hits which I obtained in this way (50 key verbs multiplied by 300 hits) form the basis of my corpus analysis. Frequency and distribution patterns of multi-verb sequences in the LCMC were obtained in order to arrive at indications of the relative strength and productivity of different kinds of multi-verb constructions. By relying on corpus evidence, my analysis

of Mandarin multi-verb sequences in this dissertation could be properly described as "data-based."

In addition, corpus tools such as concordancers were used to generate collocations in multi-verb constructions and to investigate the interactions between specific lexical items and specific types of constructions. This dissertation will show that it is not the case that any kind of verb is equally likely to be inserted into any of the verb slots in a given multi-verb construction. Certain verbs are easily attracted to a particular type of construction while others are largely excluded from a given construction (Stefanowitsch & Gries 2003). In short, different multi-verb sequences display degrees of openness or restrictedness in their verb slots, and it is often the case that one type of multi-verb construction may allow many kinds of verbs while another kind may only permit a few verbs into its verb slots. In fact, lexical items play an important role in interpreting multi-verb sequences. Without looking at the individual verbs participating in a multi-verb sequence, it is hard for us to arrive at the kind of conventionalized interpretation it receives. Naturally, interpretations of multi-verb constructions largely depend on the verbs which occur in them.

By looking at real examples from a corpus, I hope to discover what kinds of multi-verb sequences are robust in Mandarin Chinese and what distributional properties individual lexical items have in relation to particular sequences. The dissertation proper is organized as follows: Chapter 2 reviews the phenomenon and past treatments of verb serialization; Chapter 3 illustrates a cognitive approach to Mandarin multi-verb sequences; Chapter 4 presents corpus results of Mandarin multi-verb constructions; Chapter 5 reveals types and frequency of multi-verb constructions; Chapter 6 explores

correlations between type/token ratios and event integration in multi-verb constructions and Chapter 7 discusses interactions between lexical items and the construction types. Before exploring multi-verb sequences in detail, let me survey the past treatments of this family of phenomena. In the past, there have been abundant debates on what kinds of multi-verb sequences constitute serial verb constructions (henceforth SVCs) though there have been few investigations treating the full spectrum of multi-verb sequences. After reviewing past analyses of SVCs, I will argue that the term "SVC" has been used in an inconsistent manner in many cases, because arguments for or against a certain analysis have been based on a paltry amount of often invented examples as well as the heterogeneous classificatory criteria. By bringing hundreds of real examples of multi-verb sequences to the discussion, I believe that I can connect the dots between different types of Mandarin multi-verb constructions and arrange them on a continuum of lexical openness or restrictedness which is a kind of proxy for structural interpretation.

Chapter Two

The Phenomenon and Past Treatments of Verbs in Serialization

In this chapter, I will first address the phenomenon of serial verbs and then will survey past treatments of verb serialization. After reviewing the literature of this phenomenon, it will become apparent that there is little consensus about what is or is not an SVC.

2.1 Serial Verbs

Traditionally, the term "serial verb" refers to a sequence of verbs or verb phrases in a sentence in which there is no intervening conjunction. The English expression *go eat*, for example, might be considered as a kind of 'serial verb construction' since there is no infinitive or other morphosyntactic marker present to indicate a coordinating or subordinating relationship between the two verbs *go* and *eat* as in *go to eat* or *go for eating*. In English, *come look* and *go figure* are a relatively rare type of combination and seem to belong primarily to the colloquial layer of the language. In Mandarin Chinese, such sequences are very common and are not restricted to any one register and, thus, Mandarin Chinese is a good language for linguists to study in order to explore this phenomenon in detail. There are some interesting ways in which serial verbs are used in Mandarin, as the case of the verb 'kill' illustrates. In Mandarin, the sense of English 'kill' is conveyed not by just a single verb, but instead, speakers often use a serial verb construction *sha-si*, literally 'kill-die', on par with an English expression such as *stab to death*. If a speaker just uses the simple verb *sha* 'kill', it does not necessarily mean that anyone died, so the serial verb construction *sha-si* 'kill-die' is needed to make it clear that the killing event is telic and resulted in death. In this dissertation, I am investigating verb sequences such as 'kill-die' and other types of multi-verb sequences in Mandarin.

Constructions which involve a [NP V (NP) V …] sequence in Mandarin Chinese are troublesome for both learners and grammarians and clearly deserve the wide attention that they have received. Mandarin has few syntactic markers or inflections and, thus, a construction with two or more verbs in a sequence is many ways ambiguous. For lack of agreed-upon criteria, different linguists have given different classifications to these structurally similar multi-verb constructions in Mandarin. In the literature, discussions of multi-verb sequences have focused on serial verb constructions, but there is little consensus about what is or is not a Mandarin SVC within the range of multi-verb sequences as a whole. As will hopefully be apparent from the subsequent literature review, within the whole spectrum of multi-verb sequences the range of constructions called SVCs varies considerably from one linguist to another. Some linguists include most kinds of multi-verb sequences in their SVC classification, while others insist that only one or two types of multi-verb sequences are rightfully called SVCs. In fact, various accounts of SVCs in the literature are basically descriptions of a certain construction type or, at best, a narrow range in what I'm calling a continuum of multi-verb sequences. However, little attempt has been made to provide a unified account of the whole range of multi-verb sequences in Mandarin as most previous analyses have been content to focus on one or two types only.

2.2 Past Approaches to SVCs

Traditional analyses of verb serialization in Mandarin Chinese or other languages have not been able to offer an integrated and unified account of SVCs. Some analyses only reveal certain aspects or features of SVCs, while others treat irrelevant structures such as coordination as examples of SVCs as well. Instead, this dissertation aims at categorizing

and accounting for the plethora of constructions that have been called serial verb constructions at one time or another, including cases of coordination. In doing so, I hope to provide an integrated account of Mandarin multi-verb sequences from the Cognitive Grammar perspective (Langacker 1987, 1991). But before presenting my analysis, it would be helpful to provide a summary of the literature of SVCs and past approaches to Mandarin SVCs, in particular.

The phenomenon of serialized verbs was first described more than a hundred years ago by Christaller (1875). However, extensive and intensive formal syntactic research began to be conducted only after the publication of Chomsky's *Syntactic Structures* in the late 1950s (Stewart 2001). Since then, various approaches to SVCs have been adopted to account for the phenomenon. Nevertheless, Stewart (2001: 3) claims that after "over one century of grammatical analysis the SVC is still an ill-defined and often misinterpreted phenomenon". The following are representative studies that have dealt with the phenomenon of SVCs.

2.2.1 Christaller (1875)

Christaller (1875) was the first known scholar to have studied SVCs from a grammatical perspective. In his book, *A Grammar of the Asante and Fante Language called Tshi*, he states that it is possible for two or more verbs, which are not connected by conjunctions, to have the same subject in a Twi (Tshi) sentence. He distinguishes two basic types of verb combinations: essential combinations and accidental combinations.

By essential combinations, he refers to a construction in which one verb is principal and the other verb is an auxiliary verb which supplies an adverb of time or manner, or forms a complement or adjunct. The second verb is generally a supplemental

verb which forms a part of a larger verbal phrase (Christaller 1875). The actions expressed by the two verbs are simultaneous and the two are in an internal or inseparable relation or connection. In these cases, the auxiliary or supplemental verb is coordinate only in form, but subordinate in sense, as in the following examples:

(3) a. *Oguare* *baa* *mpoano*.
he.swim.PAST come.PAST shore
'He swam to the shore.' (Christaller 1875: 144)

b. *Oyɛ* *adwuma* *man* *ne* *nan*.
he.do.PRES work give.PRES his mother
'He works for his mother.' (Christaller 1875: 144)

As for accidental combinations, Christaller (1875: 143-4) indicates that two or more predicates (verbs with or without complements or adjuncts) which express different successive actions or denote a state simultaneous with another state or action happen to have the same subject and are merely joined together without conjunction. In accidental combinations, two or more sentences are contracted into one and the two verbs are coordinate in sense as well as in form, as exemplified in (4) (cf. Sebba 1987):

(4) a. *Osoree* *guaree* *srae*.
he.arise.PAST wash.PAST anoint.PAST
'He arose, washed (and) anointed himself.' (Christaller 1875: 144)

b. *Yesoree* *ntem* *koo* *ofie*.
we.arise.PAST quick go.PAST home
'We arose quickly (and) went home.' (Christaller 1875: 144)

Obviously, Christaller's analysis of SVCs is consonant with the traditional classification of verb combinations, which claims that the relationship of verb combinations is either one of coordination or subordination. His accidental combinations of verbs are commonly referred to by other linguists as "coordinate SVCs" while essential combinations of verbs as "subordinate SVCs". Interestingly, Christaller implies

that two or more sentences underlie a coordinate SVC. Chen (1993) claims that this view still holds in the modern linguistic literature.

2.2.2 Westermann (1930)

Another linguist who provides detailed descriptions of SVCs in West African languages is Westermann (1930). In his study of the Ewe language, he does not classify SVCs into either coordinate constructions or subordinate constructions as Christaller does. He states that a row of verbs often occur one after another. The main features of such verb sequences are that all the verbs stand next to each other without being connected, that all have the same tense or mood, and that in the event of their having a common subject and object, these surface near the first verb while the others remain bare. In case a conjunction should stand between the two verbs, the subject and object must be repeated. It seems to Westermann that the sentence in (5a) is a case of an SVC, but that the one in (5b) is not, since (5b) features a conjunction between the two verbs.

(5) a. *etsɔa* *ɬu*.
he.took.it ate
'He took it (and) ate it.' (Chen 1993: 4)

b. *etsɔa* *eye* *woɬui*.
he.took.it and he.ate.it
'He took it and he ate it.' (Chen 1993: 4)

In addition, Westermann describes a type of idiom which contains two verbs in a series. He claims that this type of idiom is a variation of an SVC in Ewe. He states that mostly the two verbs are conjugated in the same way as in (6a); however, occasionally the second verb is not conjugated, as in (6b).

(6) a. *maxɔ* *nya* *la* *ase*.
I.will.accept word the will.hear
'I will believe in a word.' (Chen 1993: 4)

b. *mexɔ* *nya* *la* *se*.
I.accepted word the hear
'I believed in a word.' (Chen 1993: 4)

Both Christaller (1875) and Westermann (1930) provide details of SVCs in African languages although neither does more than describe the phenomenon (Chen 1993). Neither of them is concerned with grammatical or theoretical issues such as why a sentence has more than one verb. Their main concern is to write pedagogical grammars that could facilitate the interaction between native speakers of West African languages and foreigners. Since these early investigators first described SVCs in West African languages, the general impression used to be that serial verb phenomena were localized to the languages of West Africa (Stewart 2001).

2.2.3 Stewart (1963)

With regard to SVCs, matters changed with the dawn of generative grammar (Chomsky 1957) and accounts of SVCs went from purely descriptive to more theoretical, especially taking a transformational flavor. Chomsky's book, *Syntactic Structures*, formalizes the description of a sentence in terms of the notion of a set of Phrase Structure Rules that characterize linguistic competence and serve as the underlying base from which all surface constructions in a language are generated. The basic idea concerning underlying sentence structure is that a clause has only one main verb or, put another way, a clause contains only one finite verb. The view that one clause allows only one finite verb made serial verb phenomena sound like some kind of oddity (Stewart 2001). However, generative grammarians claimed that through the power of transformations, the problem of a finite clause containing more than one verb could be solved.

Stewart (1963) is credited with the first generative analysis of SVCs. He suggests that generative grammar can create structures and then delete portions of them by transformations when certain conditions are met. He assumes that an SVC sentence is formed from two or more underlying clauses. He proposes that the sentence in (7) in the Twi language is derived from the two underlying or deep structure mono-clausal sentences shown in (8a) and (8b).

(7) *Akorɔma no kyeree akokɔ no wee.*
hawk that caught chicken that ate
'The hawk caught the chicken (and) ate (it).' (Stewart 1963: 145)

(8) a. *Akorɔma no kyeree akokɔ no.*
hawk that caught chicken that
'The hawk caught the chicken' (Stewart 1963: 145)

b. *Akorɔma no wee akokɔ no.*
hawk that ate chicken that
'The hawk ate the chicken.' (Stewart 1963: 145)

Stewart proposes two transformations to derive the sentence in (7) from the two underlying sentences in (8): the subject transformation (deletion) indicated in (9) and the object transformation (deletion) indicated in (10) (Stewart 1963: 145).

(9) SUBJECT DELETION:
The subject, which must be the same in each of the underlying simple sentences if they are to be eligible for coordination in a serial verbal sentence, is generally deleted in each sentence other than the first.

(10) OBJECT DELETION:
If two or more successive underlying sentences have the same direct object, this direct object is deleted in each of the sentences other than the first in which it occurs.

Stewart is mainly concerned with how to account for the missing subjects and missing objects when two transitive verbs happen to occur in a single sentence. He

assumes that transformations are able to delete recoverable subjects and objects and, thus, can generate such constructions when two verbs appear in a sequence in surface structure.

2.2.4 Bamgbose (1974)

Bamgbose's (1974) main interests are in establishing different kinds of serial verbs based on the relations between them. He identifies two types of SVCs in Yoruba, another West Africa language: the linking type and the modifying type. He assumes that these two types are different from each other in that only SVCs of the linking type are derived from two or more underlying sentences through transformations, while those of the modifying type are not.

He argues that the sentence in (11), an SVC of the linking type, is derived from the two underlying clauses shown in (12a) and (12b).

(11) *mo mu iwe wa ile.*
I took book come home
'I brought a book home'. (Bamgbose 1974: 19)

(12) a. *mo mu iwe.*
I took book
'I took a book.' (Bamgbose 1974: 19)

b. *mo si wa ile.*
I and came home.
'and I came home.' (Bamgbose 1974: 19)

Bamgbose's SVCs of the linking type seem to correspond to coordinate constructions in traditional analyses. The traditional view about the derivation of coordinate constructions through transformations still holds in the present literature (Chen 1993).

As for SVCs of the modifying type, in Bamgbose's view they are not derived from two or more underlying sentences. He claims that any transformation starting from two separate sentences/clauses to derive SVCs of the modifying type would involve

meaning change. For example, he claims that the sentence in (13) cannot be derived from (14a) and (14b) without changing its meaning.

(13) *o* *so* *fun* *mi*.
he said give me
'He told me.' (Bamgbose 1974: 31)

(14) a. *o* *so*.
he said
'he said.' (Bamgbose 1974: 31)

b. *o* *fun* *mi*.
he gave me
'He gave me.' (Bamgbose 1974: 31)

In the sentence (13), the semantics of *fun* 'give' is bleached and it functions to indicate a kind of grammatical relation like a dative case marker. Similar effects of grammatical category change have also been observed in Mandarin. Certain verbs such as *gei* 'give; dative marker' and *ba* 'take hold of; object marker' are susceptible to category changes, too. In later chapters of this dissertation, we will see similar effects of category change (grammaticalization) and re-lexicalization in Mandarin multi-verb sequences.

Bamgbose's treatment of SVCs is within the framework of Chomsky's early transformational grammar (1957, 1965). Although Chomsky does not discuss the serial verb phenomena per se in his early transformational grammar books (*Syntactic Structures* and *Aspects for the Theory of Syntax*), the transformational apparatus is often employed to generate SVCs from underlying structures.

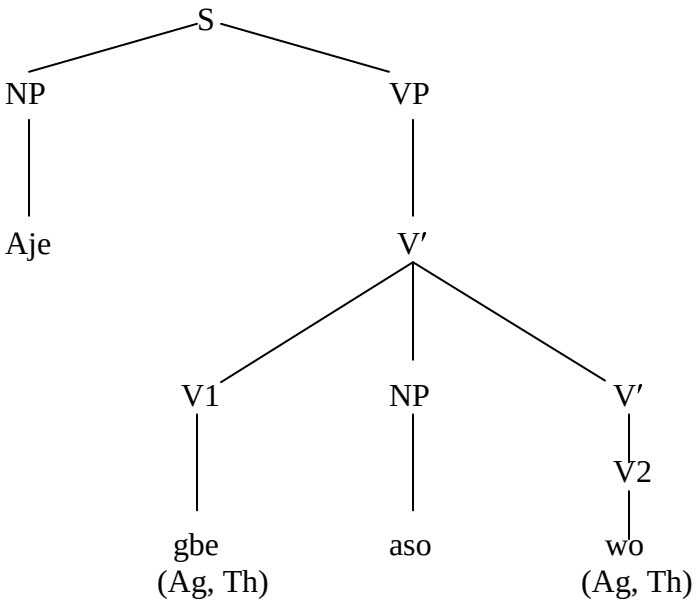
2.2.5 Baker (1989)

Baker (1989) proposes a Generalized Serialization Parameter from the perspective of Government and Binding Theory to capture differences among languages which have or lack SVCs. He takes a narrow view of SVCs and treats them as a purely syntactic

phenomenon involving nothing more than two verbs in the same clause which share an object and, thus, assign the same theta marking to it as in (15b).

(15) a. *Aje gbe aso wo.*
Aje took dress wear
'Aje took dress (to) wear.' (Baker 1989: 516)

b.



It can be seen from the structure in (15b) that the theta-marking of the NP *aso* by the V1 is straight-forward, but how V2 can also theta-mark the same NP does not seem to be obvious. In order to account for this, Baker relies on the standard conditions of theta-role assignment, which are stated as follows (1989: 520):

α may theta-mark β iff:
(a) α and β are structural sisters;
(b) a projection of α is a structural sister of β.

Condition (a) accounts for the theta-marking of the NP by V1 while condition (b) permits the theta-marking of the NP by V2, whose projection is a structural sister to the NP. Baker claims that both verbs are heads and both project to the higher level. VP and V′ are projections of both V1 and V2. As shown in this Yoruba sentence, Baker (1989) claims

that the two verbs *gbe* ‘took’ and *wo* ‘wear’ share the same direct object and so assign the same theta marking to *aso* ‘dress’. He argues that object-sharing by two verbs is the crucial feature of real SVCs.

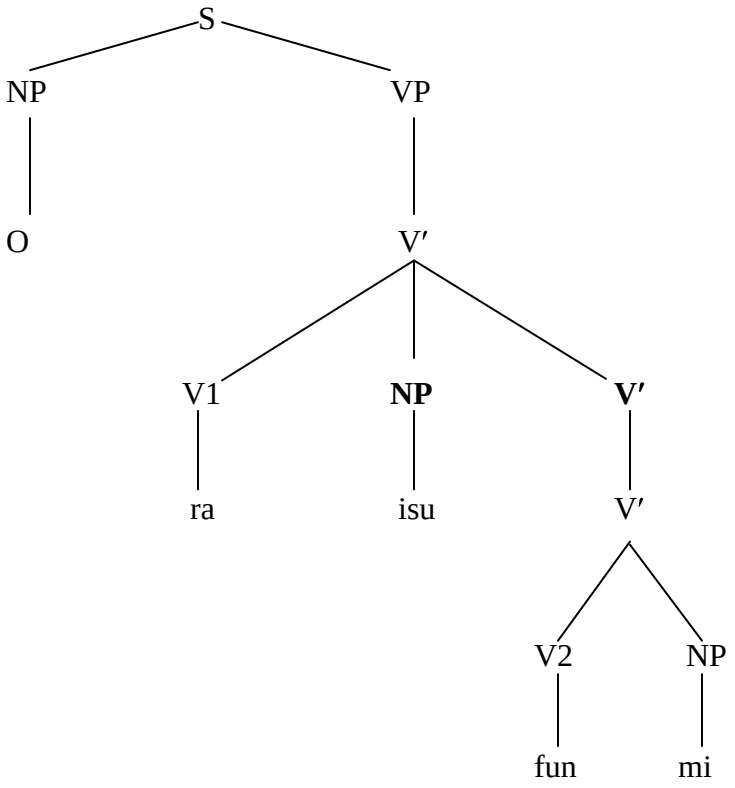
The sentence in (15) involves two transitive verbs which share an object. Baker argues that his framework can also account for cases which contain a triadic verb (that is, a three-place predicate) as shown in the Ewe sentence in (16).

(16) a.

O	*ra*	*isu*	*fun*	*mi*.
he	buy	yam	give	me

‘He bought a yam for me.’ (Baker 1989: 514)

b.



Baker believes that sentence (16a) is a kind of SVC since *ra* ‘buy’ and *fun* ‘give’ share the same object *isu* ‘yam’. The phenomenon of the theta-marking of the NP by both verbs can be accounted for by expanding the last V′ into a V and NP as in (16b). In this case,

according to Baker, V2 is able to theta-mark the NP between V1 and V2 since the projection of V2 *fun* ‘give’ is V′, which is a structural sister to the NP *isu* ‘yam’.

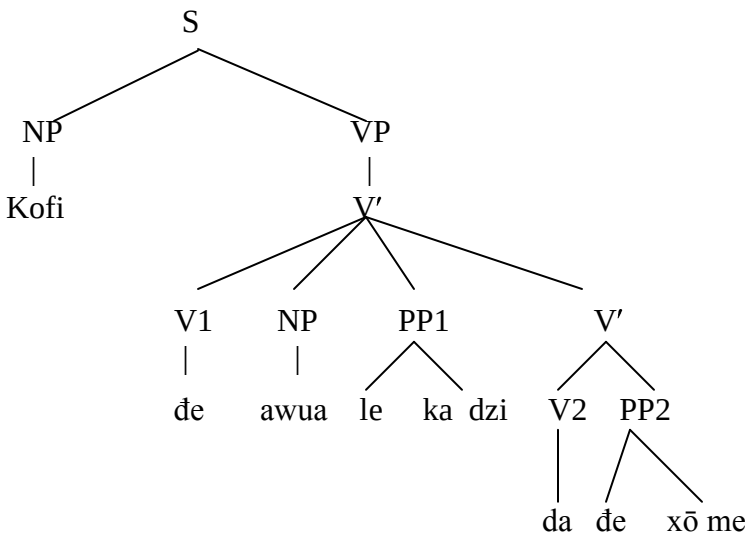
Baker’s SVC definition is based exclusively on the Shared Object Criterion and ignores any other criteria such as semantic interdependence between the two verbs. As such, his definition applies to limited types of SVCs and rules out other constructions that are called SVCs by others.

2.2.6 Agbedor (1994)

Agbedor (1994) claims that Baker's SVC model (1989) mainly accounts for cases involving transitive verbs in which the V1 only takes one argument. If the V1 in an SVC that takes an extra argument, his model is no longer workable, as shown in the Ewe example in (17):

(17a) *Kofi đe awua le ka dzi da đe xō me.*
Kofi remove shirt on rope top put LOC room in
‘Kofi removed the shirt from the line and put it in the room.’ (Agbedor 1994: 123)

(17b)



In (17a), the V1 assigns an additional theta role to the PP1. If Baker’s model is used to apply to the sentence in (17a), it would be expected that the V2 would theta-mark the PP

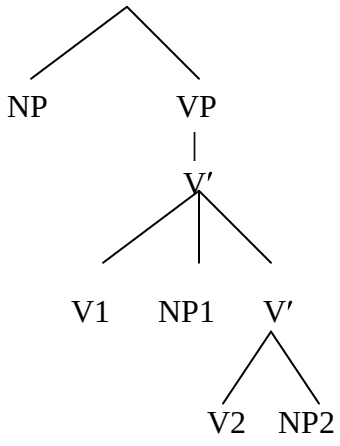
argument of the V1, PP1. As shown in (17b), the projection of V2 is a sister to both the NP and the PP1. According to Baker, the sharing of the NP by the two verbs is obligatory and the two verbs should theta-mark the NP between them. In addition, since the PP1 is an argument of V1 as well and a sister to the projection of V2, it would be expected that V2 should also theta-mark PP1. However, this is not the case. This poses a violation of the Projection Principle and the standard conditions on theta marking proposed by Baker.

Agbedor also points out that there are other cases which Baker's model fails to account for. He provides the following Ewe sentence as an example.

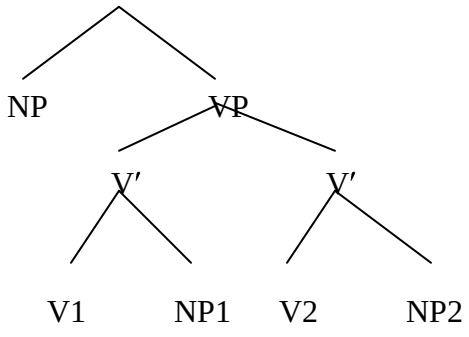
(18) *Kofi no tsi ku*.
Kofi drink water die
'Kofi died by drinking water.' (Agbedor 1994: 123)

In the above sentence, *ku* 'die' is an intransitive verb, and thus, Baker's object-sharing does not apply here. To account for this example, Baker claims that if two verbs theta-mark the same NP intervening between them, the structure (19a) is projected. However, if only the first verb theta-marks the intervening NP, the structure in (19b) which Baker calls "covert co-ordination" is projected.

(19) (a)



(b)



(Agbedor 1994: 124)

Baker proposes that the Projection Principle enables V2 to theta-mark NP1 in (19a), but this condition does not exist for (19b). He claims that NP1 is not theta-marked by V2 in the structure of (19b) since the NP is not sister to V2 or any of its projection. Baker views the structure in (19b) as a case of "covert co-ordination", which denotes a sequence of distinct events, whereas a true SVC signals a single event. What Baker suggests here is that cases of "covert co-ordination" are not true SVCs. Agbedor maintains that this position is not acceptable as it is hard to maintain that the sentence in (18) is a co-ordinate structure which indicates two distinct events. Agbedor claims that sentences like (18) are also true SVCs.

According to Agbedor, one other problem for Baker's model is the case where the two VPs do not share an object as in (20).

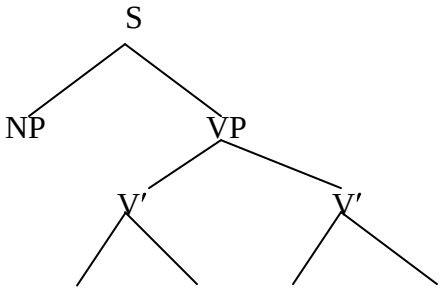
(20) *Kofi tutu devia dze anyi.*
Kofi push the.child fall down
'Kofi pushed the child and fell down.' (Agbedor 1994: 124)

In this Ewe sentence in (20), V2 can not theta-mark the NP of V1 since the sentence only has one interpretation, that is, Kofi pushes the child and Kofi fell down. Therefore, there is no object-sharing in this sentence and Baker's model fails to account for this true SVC in Ewe.

Agbedor has shown that the Ewe language poses certain problems for Baker's model, especially regarding the Projection Principle and the concept of object-sharing. He suggests that Baker's classification of the true and non-true SVC should be rejected. In order to improve upon Baker's model, Agbedor presents an alternative analysis to handle the Ewe SVC data. He proposes a structure for SVCs in which a double-headed

VP splits into two V single bars. He follows Baker (1989) in having double-headed VPs but he differs in the way that VPs are projected in the tree, as shown in (21).

(21)

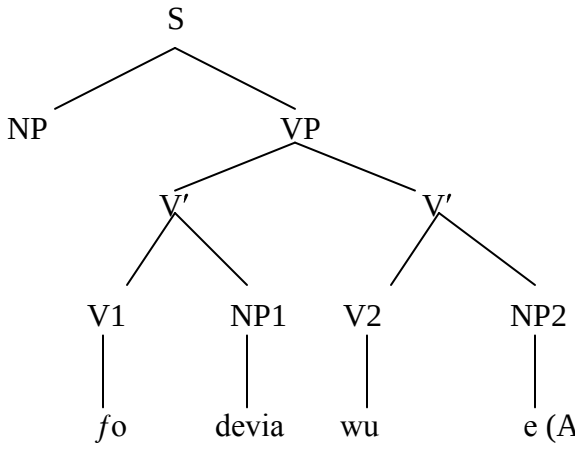


(Agbedor 1994: 124)

Agbedor further suggests that a null (empty) object for V2 is expected to be coindexed with the object of V1 in cases of SVCs involving object-sharing. This proposal avoids problems where V2 is unable to theta-mark an additional argument such as a PP, thus violating the Projection Principle proposed by Baker. This suggests that the phenomenon of the object sharing should be dealt with in a different way than Baker suggests. According to Agbedor's analysis, the sentence in (22a) should have the structure in (22b).

(22) a. *Kofi fo devia wu.*
Kofi beat the.child kill
'Kofi beat the child to death.' (Agbedor 1994: 128)

b.



(Agbedor 1994: 128)

Agbedor believes that his proposal would avoid at least two problems for Baker's SVC framework. It avoids the inability of V2 to theta-mark a PP argument of V1 since, in Agbedor's proposal, the projection of V2 is no longer the sister of the PP even though this PP position satisfies the condition for theta-marking under Baker's proposal. In addition, his proposal accounts for non-sharing of an NP between V1 and V2 in some SVCs. He claims that V2 does not have to share an NP object with V1 unless V2 has a null object coindexed with the object of V1.

Although his proposal is able to avoid some of the problems of Baker's analysis, Agbedor is aware that the notion of an empty object in SVCs is quite theory-specific at best and ad hoc at worst and needs to be further researched. Moreover, his proposal has to be tested with other SVC languages to establish its universality. Agbedor also realizes that there are still more questions than answers despite the extensive and intensive research on SVCs in the past dozens of years and that even the issue of what constitutes a real SVC is not clear.

2.2.7 Aikhenvald (2006)

A recent book, *Serial Verb Constructions: A Cross-linguistic Typology* (Aikhenvald & Dixon 2006), attempts to shed some cross-linguistic light on SVCs. This study acknowledges that certain languages from West Africa, East Asia, and Oceania are well known for their serial verb constructions and it provides a framework which covers the major cross-linguistic parameters for serial verbs. In the introduction, Aikhenvald defines an SVC as a sequence of verbs which act as a single predicate, without any overt marker of coordination, subordination or any other syntactic dependency. She claims that an SVC denotes a single event conceptually. "They are monoclausal; their international

properties are the same as those of a monoverbal clause, and they have just one tense, aspect, and polarity" (Aikhenvald, 2006: 1). She presents an overview of SVCs which covers cross-linguistically attested parameters of variation and formulates generalizations regarding different types of SVCs. Aikhenvald claims that SVCs can be classified on the basis of four parameters: composition, contiguity, wordhood of the components, and grammatical inflection of elements within the SVC.

In terms of composition, SVCs can be classified as a symmetrical type and an asymmetrical type. Symmetrical SVCs contain two verbs, each of which comes from a semantically and grammatically unrestricted class. An example is given in (23):

Alamblak (Aikhenvald 2006: 11)

(23) *mɨyt* *ritm* *muh-hambray-an-m*
tree insects climb-search-1SG-3PL
'I climbed the tree searching for insects.'

As in (23), each verb in symmetrical SVCs comes from unrestricted classes and the order of the component verbs are more likely to be iconic, reflecting the temporal sequence of its sub-events. This kind of SVC is not headed since its component verbs have equal status and none of them acts as a head or determines the semantic or syntactic properties of the whole construction.

On the contrary, an asymmetrical SVC contains a verb from a semantically or grammatically restricted class. This kind of SVC expresses a single conceptual event described by the main verb from a non-restricted class. The verb from the closed class serves as modification. It is often the case that motion or posture verbs signal direction or provide a tense or aspectual meaning to the construction as a whole. An example from Cantonese is given in (24)

Cantonese (Matthews 2006: 76)

(24) *lei* *lo* *di* *saam* *lai*
you take PL clothing come
'Bring some clothes.'

In (24), the verb *lai* 'come' provides directional specification to the SVC and *lo…lai* here together mean 'bring'. Aikhenvald claims that the transitivity value of asymmetrical SVCs is normally the same as that of the verb from the open class, and thus, this verb acts as the 'head' of the construction both syntactically and semantically. The verb from the unrestricted class is considered the 'major' verb while the verb from a grammatically restricted class is termed the 'minor' verb. Minor verbs in asymmetrical SVCs often get or have been grammaticalized.

SVCs can also be classified into two types: contiguous and non-contiguous. Verbs in contiguous SVCs usually have to be next to each other while verbs in non-contiguous SVCs may allow another constituent to intervene. Consider the examples in (25) and (26):

Alamblak (Aikhenvald 2006: 2)

(25) *wa -yarim-ak-hɨta-n -m -ko*
IMP-ELEV-get-put -2SG-3PL-ELEV
'Get them on a level plane toward me (and) put them up there.'

Cantonese (Mathews 2006: 74)

(26) *ngo* *bong* *lei* *daa* *din-waa*
I help you make phone-call
'I'll make a phone call for you.'

In (25), an instance of a contiguous SVC, the two component verbs *ak hɨta* 'get put' do not allow other constituents to go between them. However, as a non-contiguous SVC,

(26) does allow another constituent *lei* ‘you’ to intervene between its two component verbs *bong* ‘help’ and *daa* ‘make’.

The third parameter used to classify SVCs is wordhood of the components: verb components in an SVC may or may not constitute independent lexical words. Therefore, by the wordhood criterion, SVCs can be grouped into one-word or multi-word constructions. Verb components in some SVCs may function as independent lexical words; that is, each verb could act as a well-formed predicate in its own right as in (27). Alternatively, the component verbs in an SVC can function as one complex lexical word and the verbs in this kind of SVC are often referred to as ‘compounding’ or ‘Root Serialization’, as in (28).

Baule (Kwa, Niger-Congo: Aikhenvald 2006: 2)

(27) *ɔ-à-fà* *í* *swă* *n* *à-klè* *mĩ*
he-ANT-take his house DEF ANT-show me
‘He has shown me his house’ (take-show)

Alamblak (Aikhenvald 2006: 11)

(28) *m ɨyt* *guñm* *muh-h ɨti-marña-an-m*
tree stars climb-see-well-1sg-3PL
‘I climbed the tree seeing the stars clearly’

Inflectional marking of verbal components in an SVC is another parameter proposed to classify SVCs. Typically, verb inflection includes categories such as “person of the subject and object; tense, aspect, modality, mood, evidentiality; valence changing; word class changing derivations; illocutionary force; and discourse categories such as focus” (Aikhenvald 2006: 39). Within an SVC, each of these categories could be marked on every verb component and this kind of marking is called CONCORDANT MARKING. Alternatively, a grammatical category can be marked once per construction, which is

referred to as SINGLE MARKING. These marking alternatives are shown in (29) and (30), respectively.

Akan (Aikhenvald 2006: 40)

(29) *mede* *aburow* *migu* *msulm*
1SG.take corn 1SG.flow water.in
'I pour corn into water'

Paamese (Aikhenvald 2006: 42)

(30) *samsene* *mungali* *vaasi* *velaase-nV* *laisne*
Sampson 3SG+REALIS+rip.open split jaw-CONSTRUCT.STATE lion
'Sampson split apart the lion's jaw'

In (29), the person of the subject (first person singular) is marked on both verbs *mede* 'take' and *migu* 'flow'. In (30), the subject marker only occurs once and the person of the subject (third person singular) is only marked on the first verb, not the second.

Aikhenvald (2006) presents parameters of cross-linguistical variation and formulates generalizations regarding the types of SVCs observed and the properties associated with them. However, she claims that in a particular language SVCs are expected to have some or most, but not necessarily all of the relevant properties. She suggests a scalar approach to serial verb constructions. She believes that SVCs cover a wide range of meanings and functions and are not a single grammatical category. They display semantic and functional similarities to multi-clausal and subordinating constructions in non-serial verb languages. These similarities indicate that SVCs are part of a multi-dimensional continuum of multi-verb structures and SVCs have become a focal point within a continuum of multi-verb constructions (Aikhenvald 2006). Aikhenvald recognizes that "despite the considerable literature on verb serialization much

remains to be investigated in order to obtain a further cross-linguistic perspective on its varied facets" (2006: 57).

2.3 Past Approaches to Chinese SVCs

Like analyses of SVCs in other languages, those of Mandarin SVCs are greatly varied. Definitions of SVCs range from the very broad, which includes almost all sequences which contain two verbs as SVCs, to the very narrow, which subsumes only one type of SVC such as the object-sharing case of Baker (1989).

2.3.1 Chao (1968)

Chao (1968) proposes that SVCs in Mandarin Chinese form an intermediate type between coordinate and subordinate constructions, but are nearer to the latter than the former. A V-V sequence that's a true SVC is like a coordinate phrase in that both parts are verbal expressions, usually with an object after the first verb. However, Chao maintains that a coordinate verbal expression is reversible without affecting the value of the sentence, but a V-V sequence, when reversed, often has a different semantic value.

In a coordinate construction as in (31a), the V-V sequence can be reversed (31b) without changing the meaning.

(31) a. *Ta* *jingchang* *tiaowu* *change.*
3SG often dance sing
'S/he often dances and sings.'

b. *Ta* *jingchang* *change* *tiaowu.*
3SG often sing dance
'S/he often sings and dances.'

However, in a true SVC as in (32a), the reversal of the two verbs can and does change the interpretation, as (32b) shows.

(32) a. *Qu deng yihuier.*
go wait a.while
'Go (and) wait a while.' (Chao 1968: 326)

b. *Deng yihuier qu.*
wait a.while go
'Wait a while (before you) go.' (Chao 1968: 326)

It is true that SVCs are different from typical coordinate constructions, as Chao claims. However, according to him, a V-V series is like a subordinate construction in that the second verb serves as the main verb of the construction, and thus, it is the head to which the first verbal expression is a modifier, often translatable by a prepositional or other modifying phrase. As such, by his definition, most of his SVC sentences involve coverbs as in (33). In this example, the coverb *cong* 'from' is no longer a lexical verb and its source meaning 'follow' as a verb has been completely bleached. As a coverb, it does not suggest any aspectualized event but simply indicates location (source of motion).

(33) *Ta cong Zhongguo lai.*
3SG from China come
'S/he came from China.'

Even typical case markers in Mandarin Chinese like *ba* (object marker) and *bei* (passive marker) as in (34) and (35) are included in his taxonomy of serial verb constructions.

(34) *Ta ba ge pibao diu le.*
3SG BA CL wallet lose PERF
'S/he lost the wallet.' (Chao 1968: 344)

(35) *Wo bei ta pian le.*
I BEI 3SG fool PERF
'I was fooled by him/her.' (Chao 1968: 330)

The original verb meaning *ba* 'take hold of' or *bei* 'cover, receive' is no longer present in (34) and (35). These two coverbs profile participants rather than actions. Now, most

modern Chinese linguists think that typical coverbs act differently to a large extent than lexical verbs. In fact, most of the instances in Chao's SVC category are not typical SVCs but rather coverb constructions.

2.3.2 Li and Thompson (1981)

Li and Thompson (1981) define Mandarin serial verbs as "two or more verb phrases or clauses juxtaposed together without any marker indicating what relationship is between them (594)." According to Li and Thompson (ibid.: 595), Chinese serial verbs may be categorized as follows:

i. Two or more separate events (alternating, consecutive, circumstance and purpose)
ii. One verb phrase/clause serving as subject or direct object of another
iii. Pivotal constructions, in which one NP serves as both the object of VP1 and the logical subject of VP2
iv. Descriptive clauses

Li and Thompson's classification (1981) includes constructions with two or more clauses and largely discounts the nature of the interdependence between them. Consequently, their classification of Mandarin SVCs is rather broad and encompasses structures such as coordinate clauses as in (36), in which the two VPs do not bear any temporal or other interdependent relation.

(36) *Ta* *tian* *tian* *chang* *ge* *xie* *xin.*
3SG day day sing song write letter
'S/he sings songs and writes letters every day.' (Li & Thompson 1981: 595)

Their classification also covers typical complement clauses under their sub-type (ii) as in (37).

(37) *Ta* *fouren* *ta* *zuo* *cuo* *le.*
3SG deny 3SG do wrong PERF
'S/he confessed that (s/he) had done something wrong.'
(Li & Thompson 1981: 598)

Even relative clause constructions with the overt relative clause marker *de* are included in their SVC categories (under their sub-type (iv): Descriptive clauses) as in (38):

(38) *Ta* *yang* *le* *yi* *tiao* *wo* *yao* *mai* *de* *gou.*
3SG raise PERF one CL I want buy POSS dog
'S/he has raised one of those dogs which I want to buy.'
(Li & Thompson 1981: 615)

Li and Thompson's classification of SVCs aims to be widely inclusive in order to cover major types of multi-verb sequences in Mandarin which they think possess characteristics of SVCs. However, Chang (1990) claims that their classification of SVCs includes all kinds of irrelevant structures as SVCs such as coordination as in (36) and subordination as in (37), but leaves out relevant structures as non-SVCs such as the kind of the multi-verb construction in which both verbs share a subject and an object as well.

2.3.3 Chang (1990)

By contrast, Chang (1990) claims that true SVCs are of two types: double-headed constructions as in (39) and VV compounds as in (40).

(39) *Ta* *dao* *le* *san* *bei* *cha* *he*
3SG pour PERF three CL tea drink
'S/he poured three cups of tea to drink.' (Chang 1990: 293)

(40) *Ta* *tui* *dao* *le* *wo.*
3SG push fall PERF I
'S/he pushed me down.' (Chang 1990: 300)

He proposes that compounding in Mandarin Chinese is an important sub-type of SVC, but it is entirely ignored in Baker's account of SVCs. Baker (1889) insists that an SVC is a double-headed construction in which two heads (the verbs) share an internal argument, that is, an object. The sentence in (39) is a typical instance of Baker's true SVCs or object sharing structures. In (39), the two verbs *dao* 'pour' and *he* 'drink' share the same object, that is, *san bei sha* 'three cups of tea'. Chang (1990) claims that object-sharing is not a

criterion for defining SVCs, but rather reference-sharing is. He believes that verbal phrases in VV compounds do not share an object but share a referent or a participant. In (40), what the two verbs *tui* 'push' and *dao* 'fall' share is not the object but the same referent, the overlapping participant *wo* 'I'. Here, *wo* 'I' acts as both the object of the V1 *tui* 'push' and the subject of V2 *dao* 'fall'.

Chang (1990) modifies the shared object criterion of Baker (1986) and extends Baker's SVC classification to VV compounds. Based mainly on one syntactic criterion, his definition misses other SVCs, as does Baker's. In fact, both purposive constructions (e.g. *mei piao kan dianying* 'buy ticket (to) see film') and object-sharing constructions display strong links between the participants and the events themselves. The difference between them is that, in object-sharing constructions, the two verb phrases happen to share an internal argument. Apparently, both Baker's and Chang's definitions of SVCs are rather arbitrary and too restrictive and each fails to capture similarities in the nature and degree of event integration across a broad band of constructions that at one time or another have been called SVCs.

2.3.4 Dai (1990)

Different from the previous analyses, Dai's classification of verb serialization only applies to one type of multi-verb construction, that is, the *lai*-construction. He (1990) distinguishes three types of serial verb expressions in Chinese: coordination, subordination and serialization. His so-called verb serialization type is formed by a pair of V1 plus V2 (NP), in which V1 consists of the verb *lai* 'come' or *qu* 'go' as the following examples show (cf. Chen 1993: 42):

(41) *Ta* *lai* *shang* *ban* *le.*
3SG come ascend shift PERF
'S/he came to work.'

(42) *Ta* *qu* *guang* *gongyuan* *le*.
3SG go wonder park PERF.
'S/he went to see a park.'

Dai (1990) believes that there is no constraint on the V2 in a serial verb construction. He calls this kind of verb construction the *lai*-construction (referred to as motion constructions in my analysis below). He claims that this construction, structurally different from either coordinate or subordinate constructions though sharing some properties with them, is a marked construction and the only true SVC in Chinese.

Dai suggests that verb constituents in serialization and coordination both bear the same grammatical relation to the single overt external argument, that is, they share the subject, but there is no grammatical relation between the constituents themselves. The latter morphosyntactic feature distinguishes serialization and coordination from subordination.

Dai states that verb constituents in coordination do not bear any grammatical relation to each other and, thus, are independent from each other. However, verb constituents in subordination hold a dependency relationship between them. According to Dai, the two verb phrases in coordination are sisters and both have main verb status. Therefore, coordinate structures are double-headed. By contrast, the two VPs in subordination are not symmetrical or even at the same level syntactically. Only one of them is the main verb. The one which has the main verb status is the head and, thus, subordinate structures are single-headed.

The distinction between serialization and coordination lies in the difference between single-headedness in the former case and multi-headedness in the latter. The following is an example of a so-called typical SVC provided by Dai.

(43) *Ta lai xuexi yingyu.*
3SG come study English
'S/he came to study English.' (Dai 1990: 318)

Dai suggests that *xuexi* 'study' and *yingyu* 'English' do not form a constituent in this sentence since *lai* 'come' and *xuexi* 'study' form a compound. He claims that "one of the crucial properties of the SVC is that no element of any sort may intervene between V1+V2 in the *lai*-construction" (1990:318-319). It seems to him that the intervention constraint provides a strong piece of evidence to support the claim that the two verbs in the *lai*-construction form a compound. Dai maintains that, as a compound, V1 and V2 form a constituent with a single head in this kind of construction. However, V1 and V2 in coordination structures are independent and each verb forms its own head. Therefore, the important criterion to distinguish coordination and serialization is whether it is double-headed or single-headed, with the possibility of intervening material being the major diagnostic between them.

Chen (1993) points out that Dai's strong claim that nothing (neither the argument nor modifier of V1 or V2) may intervene between the verbs in serialization such as in the *lai*-construction is not entirely true. It is the case that *lai* in the *lai*-construction does not allow any complements of time. As a result, no temporal phrase may intervene between *lai* and the verb which follows it, as the following example illustrates:

(44) **Ta lai san xiaoshi xuexi yingyu.*
3SG come three hour study English
* 'S/he came for three hours to study English.' (Chen 1993: 46)

Chen (1993) suggests that sub-categorization restrictions on *lai* proscribing any complements of time are at work, not that *lai* cannot take any complement in the *lai*-construction. In fact, it is fully legitimate for *lai* to take complements of place, as (45) demonstrates:

(45) *Ta* *lai* *Yadian* *xuexi* *yingyu*.
3SG come Athens study English
'S/he came to Athens to study English.' (Chen 1993: 47)

In the *lai*-construction, *lai* not only is subcategorized to take complements of place, but it also allows its own modifiers. It is the same situation with the V2 which can take a complement and/or a modifier in this kind of construction.

(46) *Ta* *jingchang* *qu* *xuexiao* *nuli* *xuexi* *yingyu.*
3SG often go school hard study English.
'S/he often came to school to study English hard.' (Chen 1993: 47)

In Mandarin Chinese, a modifier precedes its head. An adverbial also usually precedes the verb it modifies. In (46), *jingchang* 'often' modifies the verb *qu* 'go' while *nuli* 'hard' modifies *xuexi* 'study'.

Example (46) shows that both V1 and V2 can take complements and allow modifiers respectively. The complement of *qu* virtually acts as the intervening element between V1 and V2. Dai's claim that no element can intervene between V1 and V2 in the *lai*-construction simply does not hold and, thus, V1 and V2 in this kind of construction do not really form a compound. The fact is that most of the cases in motion constructions which involve *lai/qu* as V1 do not take overt complements. My evidence comes from the corpus data (the Lancaster Corpus of Mandarin Chinese with one million written words), which will be discussed in detail in later chapters. The higher probability for *lai*/*qu* not to take any covert complements does not warrant the conclusion that *lai*/*qu* does not take

any complement at all in SVCs. Actually, the kind of *lai*-construction in which *lai*/*qu* does not take any intervening complement between V1 and V2 suggests a more conflated event integration and a tighter purposive construction than otherwise. Dai's *lai*-construction is only one kind of SVC and perhaps the canonical SVC; however, it is not the only type of SVC, as Dai claims it to be.

2.3.5 Paul (2004)

More recently, Paul (2004) points out that the term "serial verb construction" as currently used in Chinese linguistics simply refers to any surface string with more than one verb. It subsumes a multitude of different structures. He thinks that the term SVC is often used when in need of a *passepartout* label for a badly understood structure in Chinese. He takes Li and Thompson's view of SVC as representative of the current practice in the field since their work has been quite influential in Chinese linguistics. After having carefully examined Li and Thompson's SVC types (1981) one by one, he argues that in Chinese linguistics "SVC" has served as a cover term for distinct constructions with different properties. According to Li and Thompson, the term serial verb construction refers to a sentence that contains two or more verb phrases or clauses juxtaposed without any marker indicating what the relationship is between them. Paul identifies at least seven types of SVCs in Li and Thompson's classification. He believes that their SVC type denoting two or more separate events is a kind of coordinate construction while the SVC type in which one verb phrase or clause is the subject or direct object of another verb is certainly a kind of subordinate construction. Thus, he argues that different constructions are involved here, with a different set of syntactic and semantic properties in each case. According to Paul, to call all of them "SVCs" amounts to no more than stating that they

all contain two (or more) verbs. According to Paul, the term SVC in Mandarin Chinese, despite its claim to the status of construction, is nothing but a surface label for denoting the linear sequence of constituents and in no case gives us any indication as to the syntactic structure of the sequence at hand.

According to Paul, since "Chinese SVC" in Chinese linguistics has served as a cover term for distinct constructions with different properties and it does not refer to a unique construction with a predictable set of properties, the term SVC in its current use in Chinese linguistics is shown to be too vague to be of any use. Therefore, he proposes to abandon it altogether and suggests making a fresh start. In order to make the SVC a unique construction he adopts a narrow definition of SVC as object-sharing in the sense of Collins (1997) and believes that the so-called directional verb compounds as shown in (47) and (48) are real SVCs in Chinese. Such compounds refer to verb sequences of the type '$V_{displacement}$ ($-V_{direction}$) -come/go' such as *song lai* 'send come – send over', which he believes have so far not received a satisfactory analysis. In this type of verb sequence, the first constituent is a displacement verb, the second one is a direction verb which is optional, and the last one is the motion verb *lai* 'come' or *qu* 'go'.

(47) a. *Ta* *song-le* *yi-ge* *xiangzi* *lai*.
3SG send- PERF one-CL suitcase come
'S/he sent a suitcase over here.' (Paul 2004: 17)

b. *Ta* *song-lai-le* *yi-ge* *xiangzi*.
3SG send-come-PERF one-CL suitcase
'S/he sent a suitcase over here.' (Paul 2004: 17)

(48) a. *Ta* *duan-le* *yi-wan* *tang* *shang-lai* *le*.
3SG serve- PERF one-bowl soup ascend-come PART
'S/he served up a bowl of soup (towards the speaker).' (Paul 2004: 18)

b. *Ta* *duan-shang-lai-le* *yi-wan* *tang* le.
3SG serve-ascend-come- PERF one-bowl soup PART
'S/he served up a bowl of soup (towards the speaker).' (Paul 2004: 18)

Paul argues that the strings of the form '$V_{displacement}$ ($-V_{direction}$) -come/go' cannot be compounds since the first verb can be suffixed with the perfective aspect marker *-le* and the object can occupy a position within the sequence, as (47a) and (48a) show. He thinks such strings should be excluded from verbal compounds such as *pi-ping*, 'criticize-judge – criticize', *pao-qi* 'throw-discard – abandon', *chi-wan* 'eat-finish – eat up', given the *Lexical Integrity Hypothesis* (cf. Huang 1984), which states that word-internal structure is invisible to syntactic processes. For example, due to the *Lexical Integrity Hypothesis* no other element such as the aspect marker *le* can intervene between the constituents of a lexical compound, as (49a) and (49b) demonstrate.

(49) a. *Ta* *pi-ping-le* *Akiu*.
3SG criticize-judge-PERF Akiu.
'S/he criticized/abandoned Akiu.' (Paul 2004: 18)

b. * *Ta* *pi-le-ping* *Akiu*.
3SG criticize- PERF-judge Akiu (Paul 2004: 18)

c. * *Ta* *pi(-le)* *Akiu* *ping*.
3SG criticize-PERF Akiu judge (Paul 2004: 18)

(50) a. *Ta* *chi-wan-le* *wanfan*.
3SG eat-finish-PERF dinner
'S/he ate up his dinner.' (Paul 2004: 18)

b. * *Ta* *chi-le-wan* *wanfan*.
3SG eat-PERF-finish dinner (Paul 2004: 18)

c. * *Ta* *chi(-le)* *wanfan* *wan*.
3SG eat-PERF dinner finish (Paul 2004: 18)

Paul suggests that the clear contrast between the verbal compounds in (49)-(50) and the sequences '$V_{displacement}$ ($-V_{direction}$)-come/go' in (47)-(48) in terms of the object

position and the placement of the aspect marker *le* challenges the alleged compound status of the latter since the two verbs in either (39) or (40) do allow *le* or an object to intervene between them. He argues that the data given above show that '$V_{displacement}$(-$V_{direction}$)-come/go' strings do not behave on a par with verbal compounds and must therefore be analysed as phrases. He believes that to assign such verb sequences the structure of an internal argument-sharing SVC allows us to better account for their syntactic and semantic properties: the object of the first verb is also the internal argument of the verb *lai/qu* or its combination with a directional verb.

Paul acknowledges that more research needs to be done to flesh out the analysis of the so-called "directional verb compounds" with regard to an internal argument-sharing SVC. However, he claims that even at this preliminary stage, a positive result has been obtained from having discarded the old term SVC with its numerous definitions and that by doing this it allows us to make a fresh start and to give new and exact content to the term SVC. He believes that the application of the narrow definition of SVC as an internal argument-sharing construction sheds new light on the analysis of this so far rather poorly understood phenomenon. It seems that Paul was right in discarding the old term SVC and reexamining the phenomenon of verb serialization.

2.4 Discussions

From the above discussion about past treatments of SVCs, it is apparent that there is little consensus for either what is or is not an SVC or for subclassifications within the SVC category as a whole. The investigations of multi-verb sequences in the traditional linguistics literature have fixated on verb serialization because Mandarin morphosyntax is so impoverished. This largely explains why everyone comes up with a different set of

what is in or out of the serial verb construction category within the whole array of multi-verb sequences. In the treatment of SVC, no two analysts agree on the criteria used to determine what is a construction that is worth attention. In addition, people tend to keep recycling the same sentence types and those tired old sentences may or may not reflect what is going on in Mandarin. We know that Chinese morphosyntax is underspecified and that multiple verbs can co-occur inside a single expression. The question is how we should analyze the status of the multiple verbs. Let us look at some real corpus data and remain neutral for now about what is or is not in the SVC category. For my methodology, I searched for sentences which contain the 50 most frequent verbs in Mandarin to see what syntactic patterns they are most associated with. Through the corpus data, let us see what constructions "emerge" and what kinds of multi-verb sequences are actually present, if not robust, in Mandarin. Therefore, the major objective of this dissertation is to explore real corpus data in order to provide a broad and semantically motivated account for the full range of multi-verb sequences in Mandarin. I will argue that degree of event integration in multi-verb constructions is the key idea, an idea that takes its inspiration from Cognitive Grammar. In the next chapter, I will discuss some basic tenets of this framework.

Chapter Three

A Cognitive Approach to Mandarin Multi-verb Sequences

3.1 Basic Tenets of Cognitive Grammar

Since my analysis of Mandarin Chinese multi-verb sequences is based on Cognitive Grammar (Langacker 1987, 1990, 1991, 1999), it will be helpful to introduce some of its main tenets. In this section, I will discuss the basic assumptions and concepts of this framework.

3.1.1 Assumptions of Cognitive Grammar

Cognitive Grammar (CG) assumes that language structure is the product of our interaction with the world around us. The way we develop linguistic categories can be derived from the way we experience our environment and use that experience for communication (Langacker 1987). Langacker (1987) believes that we are less worried about what kind of syntax or phonology to use than we are about how to encode meanings we want to communicate. Language use is goal-oriented in the way that people use language to accomplish purposes and goals. Langacker (1987) argues that linguistic forms tend to adapt to meanings expressed by them and not normally the other way around. Therefore, it is reasonable to assume that the structural organization of language is meaning-driven rather than form-driven.

CG emerges organically from a comprehensive and unified view of linguistic organization characterized in terms of cognitive processing (Langacker 1987). CG views language as an integral part of human cognition. Langacker (1987) claims that no matter whether one posits an innate faculty or a special language "module", an account of linguistic structure should articulate what is known about general cognitive processing.

He argues that if such a faculty does exist, it should be embedded in a general cognitive matrix, since it represents the evolution and fixation of structures with a less specialized origin. We do not have valid reasons to expect a sharp dichotomy between linguistic ability and other aspects of cognition. Instead of trying to grasp at any apparent rationale for asserting the uniqueness of language, we should make efforts to integrate the findings of linguistics and cognition (Langacker 1987).

Langacker (1987) claims that linguistic structure is a direct reflection of cognition in the way that a particular linguistic expression is associated with a particular way of conceptualization. It would be better for us to understand language structure with reference to its conceptual foundations. Langacker (1987) argues that some linguistic forms are meaningless if we take them literally, but they can be accounted for if reference is given to the cognitive factors which are responsible for their growth. Thus, our primary concern should be the underlying concepts which are responsible for selecting a particular form or meaning (Langacker 1987). Language structures reflect patterns of human conceptualization because they are shaped by such patterns.

CG (Langacker 1991) assumes that grammar and meaning are indissociable and that meaning is a cognitive phenomenon. CG therefore identifies meaning with our conceptualization, that is, with our mental experience (Langacker 1991: 4). Langacker (1987, 1991) believes that semantic structure should be considered to be encyclopaedic in scope and that the meaning of a linguistic unit involves specifications in many cognitive domains. Some of the cognitive domains involved are more central to its value than others. Semantic units are relative to cognitive domains and any concept or knowledge system can function as a cognitive domain (Langacker 1987).

One of the focal concerns of CG involves semantic structure, which is based on conventional imagery. “Our capacity to construe the same content in different ways is referred to as imagery; expressions describing the same conceived situation may nonetheless be semantically quite distinct by virtue of the contrasting images they impose on it” (Langacker 1991: 4). In fact, grammar embodies imagery. It structures a situation in a particular way, viewing it from a certain perspective, stressing certain facets of the situation at the expense of others, or construing it in terms of metaphor or metonymy (Langacker 1987).

CG maintains that lexicon and grammar form a continuum. Only symbolic structures – each residing in the symbolic linkage of a semantic and a phonological structure − figure in their proper characterization of a linguistic expression (Langacker 1987, 1991). In the case of the wide range of constructions that are associated with Mandarin multi-verb sequences, these constructions form a continuum between lexicon and grammar as well. In the range of multi-verb constructions, some are more fixed and more lexical and some are more open and more productive. The key idea is that they form a cline of integration just as they form a cline of fixedness.

3.1.2 Symbolization

CG is driven by the assumption that language is essentially and inherently symbolic in nature (Langacker 1987, 1988, 1991, 1999). Langacker (1987, 1991) proposes that grammar can essentially reduce to the structuring and symbolization of conceptual content and it has no autonomous existence at all. CG “ascribes to language an organization that is both natural and minimal granted its communicative function of allowing conceptualizations to be symbolized by phonological sequences” (Langacker

1991: 1-2). Thus, Langacker (1987, 1991) claims that any linguistic expression, whether a morpheme, a single word, a phrase or a sentence is comprised of just three components – semantic structures, phonological structures, and the symbolic links between them, as shown in Figure 3.1.

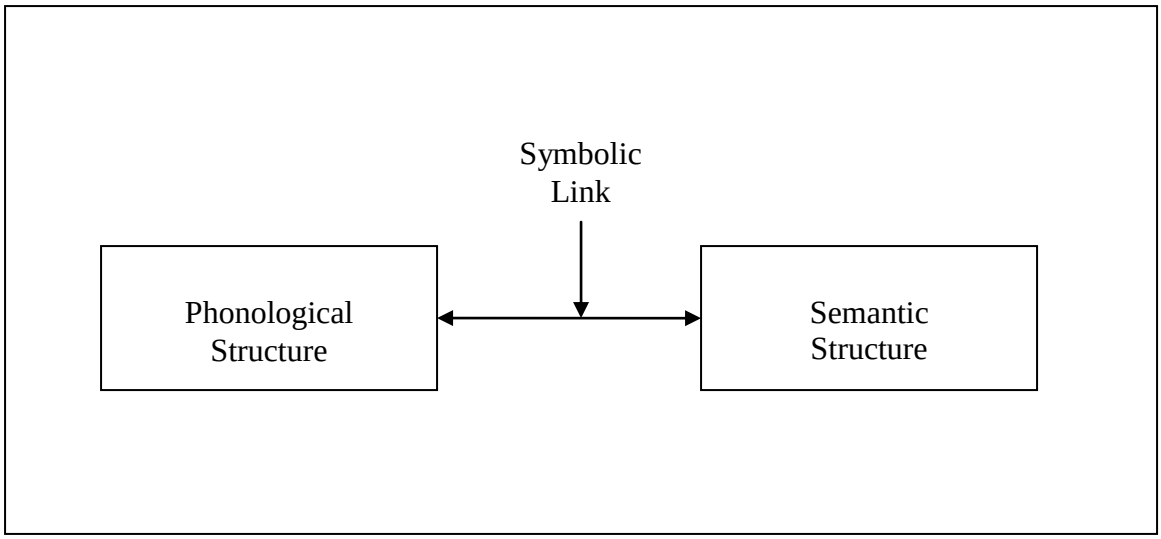


Figure 3.1 The three components of a linguistic expression, as proposed in CG

Figure 3.1 shows the organization of any linguistic expression in which only three kinds of components are depicted. CG makes the very strong claim that language can be exhaustively described in terms of these three kinds of components:

(i) Phonological structure refers to the overt manifestation of language, that is, a linguistic expression in its material or perceptible aspects. Typically, a linguistic expression is manifested in the medium of sound, but this component would encompass sign and orthographic representation as well.

(ii) Semantic structure refers to the meaning of an expression. CG views semantic structures as comprising both the propositional content of an expression and the broader conceptualization that language users entertain. Such conceptualization includes perspective, construal, figure-ground alignment and so on. Semantic

structure includes pragmatic aspects of meaning as well and it is broadly encyclopaedia in scope.

(iii) Symbolic links hold between phonological poles (structures) and semantic poles. In Figure 2.1, the arrow linking these two poles points in both directions and this suggests that the link between meaning and sound is a two-way relationship in that each pole of the symbolic relation invokes the other. In CG, symbolic links play an important role and linguistic expressions are largely analysed in terms of symbolic relations.

As Figure 3.1 indicates, CG assumes a direct association between phonological structures and semantic structures. By excluding a distinct syntactic level of organization, CG does not deny the existence of syntax. One important aspect for CG to handle is to show how smaller components can be combined to form larger constructions. What makes CG unique is that syntax itself is considered to be symbolic in the same way that the lexicon is and syntax, too, is handled in terms of symbolic relations between phonological structures and semantic structures (Langacker 1987). Next, I would like to look at how simpler symbolic structures are combined to form larger constructions in CG.

3.1.3 Construction and Composition

CG claims that grammar resides in patterns of expression that combine simpler symbolic units into progressively more complex ones. “Any such combination is referred to as a construction. It consists of two or more component structures that are integrated to from a composite structure. A construction is characterized as an assembly of symbolic structures linked by correspondences and categorizing relationships” (Langacker 1991: 5). Generally, CG does not view component structures as “building blocks” that are stacked together to form the composite structure. Langacker claims that the composite expression often displays emergent properties which are not discernable in any individual component, and that the composite structure can impose an alternate image to that of the

component structures (1991: 5). Thus, "the component structures are best described, not as constituting the composite structure, but rather as categorizing certain facets of it and as motivating to some degree the form-meaning pairing that the composite structure embodies" (Langacker 1991: 6).

A grammatical construction is a symbolic structure which involves the syntagmatic combination of component structures. Langacker (1987) claims that such a construction consists of component structures, the mode of integration, and the composite structure which results from the integration. Therefore, composition is essential in forming larger constructions. Langacker (1987) refers to the relation between component structures and the composite structures deriving from them as composition. Compositionality concerns such questions as "[i]s the integration of component structures to form a composite structure sufficiently regular to be susceptible to schematic characterization or is it possible to formulate a schema for a particular construction that will enable one to predict, for every potential choice of component structures, precisely what the composite structure will be (Langacker 1987: 448)?"

The classical view attributes full semantic compositionality to grammatical constructions. The assumption of compositionality is considered to be necessary to account for the fact that language users are able to produce and understand novel expressions. However, Langacker (1987, 1991) claims that patterns of compositionality are considered to be represented in the grammar as schematic constructions to specify the integration of component parts and the relation between component structures and the composite structure. Langacker argues (1987) that the existence of compositionality patterns does not substantiate the claim that composite structures are fully compositional

and that linguistic phenomena are more likely to show partial rather than fully compositionality. There are instances where composite structures evoke knowledge systems to which their components do not provide direct access and in many cases the component structures motivate and highlight certain facets of the composite meaning instead of exhausting its content (Langacker 1987: 453).

3.1.4 Base vs. Profile

The notion of base/profile is one of the essential concepts in Cognitive Grammar. Langacker (1988) proposes that a semantic structure derives its value through the imposition of a profile on a base. The profile comprises those portions of the base which the entity designates. "Some facet of the base is invariably raised to a distinctive level of prominence, and serves as its focal point; this substructure is the predication's profile" (Langacker 1988: 59). For example, the conception of a right triangle serves as the base for hypotenuse and its profile is one of the line segments, as illustrated in Figure 3.2:

(a) HYPOTENUSE (b) (C)

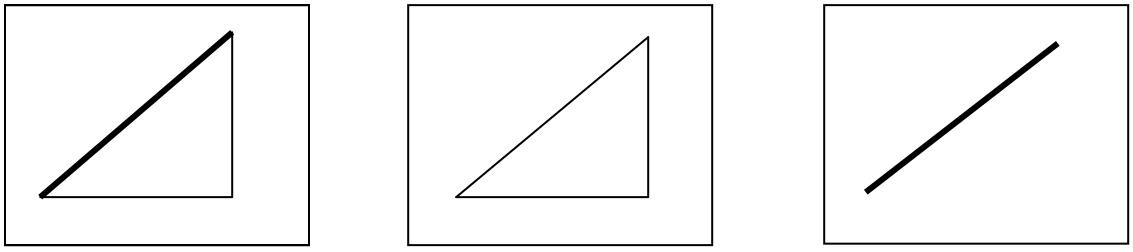


Figure 3.2 Distinction between the base and the profile (Langacker 1988: 59)

In Figure 3.2, the profiled element is represented by the heavy line to indicate the prominence, which distinguishes it from the remainder of the base. Langacker (1988)

suggests that an expression's meaning does not lie in either the profile or the base alone and that both of them are important to its value. Profiling involves the elevation of some part of the base to a special level of prominence. If the profiling of *hypotenuse* is suppressed, as in Figure 3.2 (b), what we get is not the conception of hypotenuse, but simply that of a right triangle. However, if the unprofiled portions of the base are suppressed, as in (c), there is no base for identifying the remaining line segment as being a hypotenuse (Langacker 1988), only a diagonal line. Therefore, the base is essential in realizing an expression's meaning by providing the context or the frame to identify the profiled entity or the intended designatum.

3.1.5 Construal

It has been commonly assumed that the role of language is to map elements of the external world onto linguistic form. According to the traditional view, situations can be dissected into component parts, each of which corresponds to certain element of language. Thus, the mapping from the external world to linguistic expression is considered relatively straightforward and this mapping basically involves a one-to-one encoding of the elements of the situation into linguistic structure.

However, CG argues that there is no such direct one-to-one mapping. CG holds that a given situation can be construed in different ways and different ways of construing the same situation represents different conceptualizations. The meaning of the linguistic expression is not just the conceptual content it evokes, but it also depends on the construal it imposes on that content (Langacker 1990). One dimension of construal is the degree of specificity and detail which a language user chooses to conceive and portray a given entity or situation. For example, the decision to describe something as *thing*, *living*

thing, *plant*, *tree*, *apple tree* is a matter of construal. Each expression in this series is schematic for the one that follows, which instantiates or elaborates it by providing a finer-grained characterization (Langacker 1999).

The contrast between (51) and (52) also reflects different ways of construing a particular situation.

(51) *John gave the book to Mary*. (Lee 2001: 2)

(52) *John gave Mary the book*. (Lee 2001: 2)

The traditional view assumes that these two sentences have the same meaning and the structural difference has no consequence in semantics. The transformational grammar claims that these two sentences are derived from the same underlying structure through formal rules and that the difference between them is a matter of form rather than meaning. However, there is some evidence to indicate that this view is simply not right. One piece of evidence comes from the fact that in some cases only one of the constructions sounds natural. For instance, the sentence *John gave the fence a new coat of paint* is perfectly acceptable but it would be odd to say ? *John gave a new coat of paint to the fence* (Langacker 1990: 14). These differences indicate that the two sentences in (51) and (52) have to do with different ways of construing the same situation and on some occasions only one mode of construal is appropriate and natural.

3.1.6 Perspective

One factor which is involved in alternative construals has to do with perspective. Langacker (1990) claims that instead of presenting a neutral conception of the situation described, many expressions invoke a conception that embodies a particular viewing arrangement. The effects of such an arrangement imposed on a given situation constitute

an inherent aspect of the semantic value of a linguistic expression. The term ‘perspective’ subsumes several aspects such as ‘orientation’ and ‘vantage point’ (or viewpoint). The importance of orientation is quite obvious in the case of *left* and *right* as contrasted in (53) and (54), the use of which is determined by the direction in which the speaker, the listener, or some other viewer faces (cf. Vandeloise 1984; Langacker 1990).

(53) *Turn right at the next corner*.

(54) *John was seated on Mary’s left*.

The significance of vantage point (the spot at which the viewer is situated and from which the situation is viewed) is evident from the motion verbs *come* vs. *go*, which indicate motion *to* vs. *away* from the deictic centre − usually the speaker or the subject of a sentence. The contrast between the sentences in (55) and (56) has to do with alternative construals as well.

(55) *The path falls steeply into the valley*. (Lee 2001: 2)

(56) *The path climbs steeply out of the valley*. (Lee 2001: 2)

Though these two sentences could be employed to depict the same situation, it would be hard for us to say that they express the same meaning. The difference between (55) and (56) involves viewpoint. The viewpoint in (55) is that of someone looking down into the valley while in (56) the viewpoint is that of someone looking up from the valley. For each of the two sentences, a particular viewing position is constructed as part of process of invoking meaning through language. Each sentence has to do with a particular construal of the situation in question and contrasting perspectives contribute to distinct interpretations (Lee 2001).

The relevance of vantage point (or viewpoint) is not restricted to the spatial domain. It can be in a rather more abstract domain, as the two sentences (57) and (58) illustrate.

(57) *John bought the car from Mary*. (Lee 2001: 3)

(58) *Mary sold the car to John*. (Lee 2001: 3)

It is obvious that these two sentences describe the same scene, but we would hardly tend to say that they express the same meaning. The contrast between (57) and (58) involves different viewpoints as well. Sentence (57) is an expression of John's viewpoint, but sentence (58) construes the event from the point of view of Mary. Their differences in viewpoints are made more obvious in the contrast of sentences (59) and (60).

(59) *John bought the car from Mary for a good price*. (Lee 2001: 3)

(60) *Mary sold the car to John for a good price*. (Lee 2001: 3)

It can be inferred that in (59) the price was relatively low; however, sentence (60) indicates that the price was high. This suggests that sentences (57) and (59) are construed for the buy's point of view while sentences (58) and (60) are oriented to that of the seller (Lee 2001).

3.1.7 Action Chain

Langacker (1990) uses the term *action chain* to refer to "an interaction network which includes a series of energetic interaction thus inducing a reaction whereby it in turn transfers energy to a third, and so on indefinitely" (1990: 215). Typically, the coverage of a clause is limited to certain facets of its interactive network. In a prototypical transitive clause, the profiled process constituting an action chain originates with a canonical agent

– volitional energy source and ends with a canonical patient – energy sink (Langacker 1990: 215).

In energetic interactions involving an *instrument* to form an action chain, it is often the case that three participants fall into the scope of predication of a finite clause. The three participants instantiate the canonical agent (AG), instrument (INSTR) and patient (PAT) roles, as Figure 2.3 illustrates.

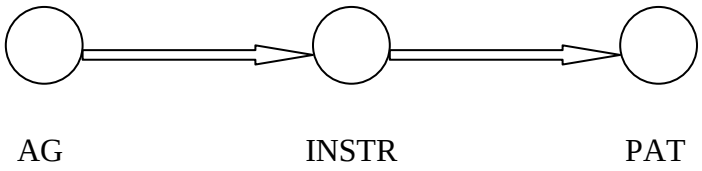


Figure 3.3 Schema for the canonical agent, instrument and patient roles (Langacker 1990)

Prototypically, the agent is chosen to be the subject and the patient is chosen to be the object. The subject is considered to be at the "head" of the profiled portion of the action chain and it lies the farthest "upstream" in the energy flow. On the other hand, the object is at the tail of the profiled portion of the action chain and it occupies the farthest position "downstream" in the flow (Langacker 1990).

3.1.8 Lexicon and Syntax

It is common practice for linguists to maintain the distinction between syntax and lexicon. Likewise, it is not uncommon for us to come across the recurrent issue of whether a given construction is to be handled in the domain of syntax or in that of the lexicon. The notion of lexicon as an appendix of the grammar or as a list of basic irregularities is not a new one. "The lexical component was dedicated for use as a repository for recalcitrant

phenomena that were originally considered syntactic but refused to obey certain preconceived ideas about that syntax should be like" (Langacker 1987: 26). Syntax was deemed to be the domain of generality and regularity containing productive rules to produce fully predictable linguistic expressions. Anything falling short of these standards was relegated to the domain of lexicon which is associated with irregularity, idiosyncrasy, and lists (Langacker 1987). However, this deeply ingrained and widely accepted concept of syntax has very little empirical foundation. There is no a priori reason for us to believe that grammatical constructions can be divided neatly into groups on the basis of generality. There are no factual grounds that the regular aspects of language structure can be separated neatly in any meaningful way from the irregular ones (Langacker 1987).

CG claims that there is no meaningful distinction between grammar and lexicon. Lexicon and syntax form a continuum of symbolic structures. They differ along various parameters, but it is arbitrary to divide them into separate components (Langacker 1987). Langacker (1987) believes that if the lexicon has any content, it refers to fixed expressions, and primarily those that are less than fully compositional. Many expressions that meet these conditions display internal grammatical organization and some of them even display obvious syntactic properties. Thus, CG posits a gradation uniting lexicon, morphology, and syntax. Any strict dichotomy based on novelty, generality and size of expressions is rejected (Langacker 1987). What seems categorical is really a matter of degree.

3.1.9 Schematic Representation of a Transitive Event

Participant sharing is a common phenomenon in multi-verb constructions in Mandarin. To serve as background for schematic representations for shared participant constructions, I would like to pictorially represent an event based on a Langacker-style notation. A canonical transitive event (e.g. 'She ate vegetables.') which features a relation (⟶) between two event participants (P_i P_j) can be represented as in Figure 3.4:

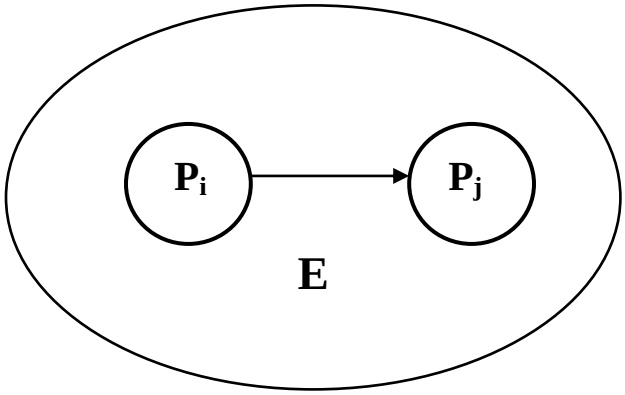


Figure 3.4 A canonical transitive event (Rice 1987a)

A transitive event with an omitted but implied object (e.g. 'She ate.') can be presented in Figure 3.5. The dashed oval in the figure represents an implied object.

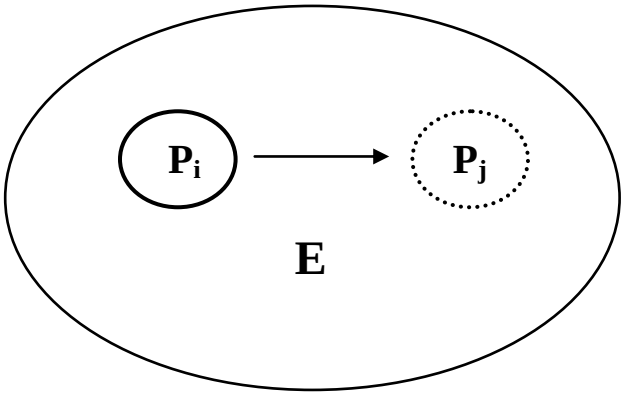


Figure 3.5 A transitive event with an omitted but implied object (Rice 1987a)

Figure 3.4 and Figure 3.5 have featured a shared base with different profiling. In Figure 3.4, both participants are given prominence, but in Figure 3.5, only one participant is profiled.

3.1.10 Usage-based Approaches

Usage-based models of language were introduced in Langacker (1987) and were defined in more detail in Langacker (1988). Kemmer and Barlow (2000) believe that the linguistic system of speakers (i.e. grammar) is fundamentally grounded in usage events, that is, instances of production and understanding of language by speakers. There is a direct relation between abstract representations or general linguistics patterns, often called *schemas*, in speakers' grammar and usage events experienced by speakers. As cognitive representations, schemas consist of generalizations over perceived similarities among instances of real language use. Thus, a usage-based approach stresses an intimate relationship between linguistic structures and instances of actual language use (Kemmer & Barlow 2000).

The importance of frequency is emphasized in usage-based models, which claim that frequency has an indispensable role in any explanatory description of language (cf. Bybee 1988; Haiman 1991, 1994). A greater degree of what Langacker calls entrenchment, i.e. cognitive routinization, results from higher frequency of a linguistic unit or pattern. The role of frequency in leading to entrenchment of linguistic units is one of the crucial aspects of Langacker's Cognitive Grammar (1987, 1991). The full recognition of the fundamental importance of frequency sharply distinguishes usage-based models from other models in which frequency is an insignificant artifact, unconnected with linguistic knowledge of speakers (Kemmer & Barlow 2000). Kemmer and Barlow (2000) claim that since the linguistic system is largely experience-driven, the frequency of instances is a main factor in its structure and operation.

Kemmer and Barlow (2000) propose that linguistic representations should be seen as emergent, rather than as fixed entities. Linguistic structures should be viewed not as part of a holistic autonomous system, but as something shifting and fluid (Bybee & Hopper 2001). The notion of emergence (Hopper 1987, 1988, 1998) is understood as an ongoing process of structuration, which "refers to the conditions which govern the continuity and dissolution of structures or types of structures" (Giddens 1977: 120). The fixing of linguistic units is the result at any point in time of the constant resystematization in language (Coseriu 1954). From this point of view, "mental representations are seen as provisional and temporary states of affairs that are sensitive, and constantly adapting themselves, to usage" (Bybee & Hopper 2001: 2). The concept of emergence relativizes linguistic structure to speakers' actual experience with language use and views structure as an on-going response to the pressure of discourse instead of a pre-existent matrix

(Hopper, 1988; Ochs, Schegloff & Thompson 1997). From this perspective, accounts of linguistic structure "must take note of how frequency and repetition effect and, ultimately, bring about form in language" (Bybee & Hopper 2001: 3).

Since the linguistic system is so closely related to usage, grammatical theories should be grounded in an observation of data from actual language use; however, it is not rare to find instances of linguistic research where methodologies largely depend on constructed examples without naturally occurring context of production (Kemmer & Barlow 2000). Such a practice in linguistics seems to derive from the fundamental assumption that there is only an indirect relation between linguistic knowledge and actual language use. Poplack (2001) observes that there is a very serious mismatch between the results of quantitative studies of language and grammatical accounts which rely exclusively on imaginary data. Kemmer and Barlow (2000) do not deny that intuitions of native speakers about constructed data are a useful tool if such data are treated with all appropriate care. However, speakers' intuitions about constructed examples should not be treated as the sole, or even primary, source of evidence in terms of the nature and properties of the linguistic system.

Kemmer and Barlow (2000) claim that a usage-based approach should take seriously the assumption that the primary object of study is the language that speakers produce and understand. Real language use should be viewed as the best evidence for determining the nature of properties of the linguistic system. According to Kemmer and Barlow (2000), an ideal usage-based analysis should be the one which emerges from observation of such large bodies of usage data, which are called *corpora*. Newman and Rice (2004) claim that corpus linguistics as a usage-based approach to the study of

language provides us with useful tools which are particularly suitable for the assumptions and goals familiar in cognitive linguistics. Cognitive linguistics assumes that the grammatical constructions, patterns, and rules that linguists posit should be abstracted from actual patterns of usage instead of "simply being the product of theorizing and model building" (Newman & Rice 2004: 352). Newman and Rice (2004: 352) believe that usage-based concepts such as degree of familiarity, stochastic emergence, sanctions of new usages, conventionalization and entrenchment can be explored through the use of the tools provided by corpus linguistics.

Though cognitive linguistics claims to be a usage-based model, actual usage and real language data from corpora have not been explored and utilized adequately in cognitive linguistics. This dissertation aims to promote corpus linguistics in cognitive linguistics. Not unexpectedly, my analysis of multi-verb sequences will be largely data-based; that is, corpus-based.

3.2 A Cognitive-based Approach to Mandarin Multi-verb Constructions

My dissertation seeks to provide an account for all types of multi-verb constructions in Mandarin. Such a goal can be achieved through a cognitive-based approach (e.g., Langacker 1987, 1990, 1991, 1999, 2000, 2008; Talmy 2000). In the next sub-section, I address the event structures of canonical coordination, subordination and serialization, as will be relevant to my analysis of Mandarin multi-verb constructions.

3.2.1 Event Structure of Coordination, Subordination, and SVCs

In the literature, there has been much debate over whether SVCs involve coordinate structures or subordinate structures or both; that is, some analyses advocate for the former and others for the latter (e.g., Li & Thompson 1973; Stewart 2001). However, a few

linguists assert that SVCs are not typical coordinate or typical subordinate structures (e.g., Chao 1968; Langacker 1991; Song 1992), but no one has explained the differences between SVCs and coordination or subordination in detail. This dissertation proposes that canonical SVCs have unique features distinct from typical subordinate constructions or coordinate constructions. The differences mainly lie in their respective event profiling – an aspect of construal (Langacker 1991).

As illustrated in the next series of diagrams, ovals will be used to represent individual events and line thickness to represent degree of profiling or cognitive salience. In typical coordinate constructions, as in (61) neither individual clausal profile overrides the other at the higher level of organization. The two clauses in this sentence are co-equal and they do not stand in a main clause/subordinate clause relationship. Thus, each clause has main clause status.

(61) *Ta* *meitian* ***duanlian*** *shenti* ***xuexi*** *hanyu.*
3SG everyday exercise body study Chinese
'S/he exercises his/her body (and) studies Chinese everyday.'

In a typical case of coordination, each conjunct is separate and equally profiled, as indicated by the bold line in Figure 3.6. Therefore, typical coordinate constructions have two processual profiles (Langacker 1991). The two clauses in such constructions are independent and there is no situational inter-dependence between them. Very often, there is no temporal sequential relation between them either.

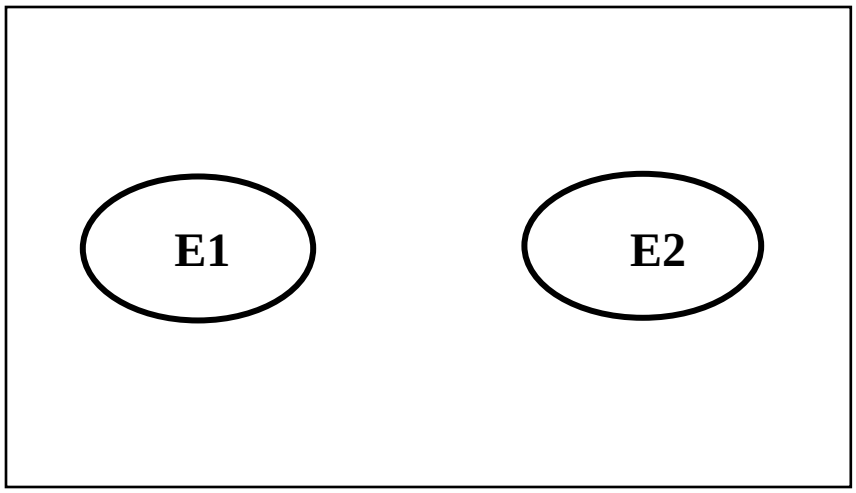


Figure 3.6 Event structure of coordination

By contrast, in a typical subordinate construction, there is usually only one main clause, as illustrated by the bold oval in Figure 3.7, in addition to a subordinate clause, as illustrated by the dotted oval. A main clause is the profile determinant and lends its profile to the composite structure of a multi-clausal expression (Langacker 1991: 436). A subordinate clause is defined as one "whose profile is overridden by that of a main clause" (Langacker 1991: 436) at the composite structure, represented in Figure 3.7 by the bigger oval which subsumes both E1 and E2.

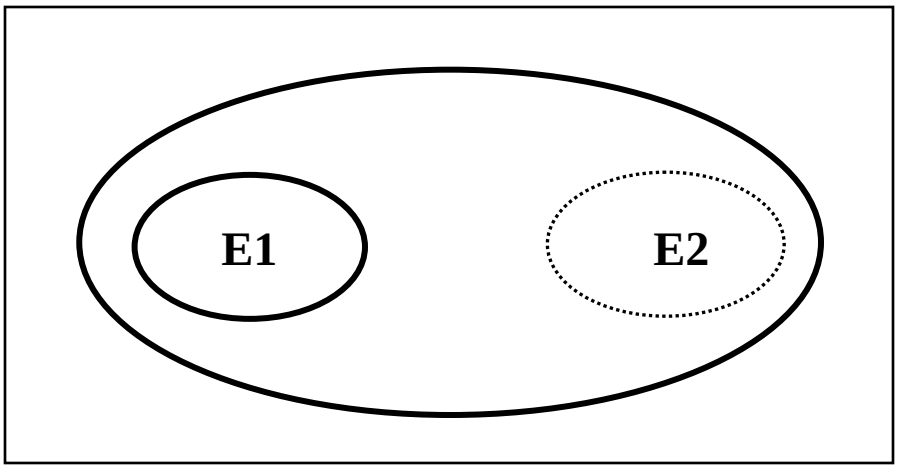


Figure 3.7 Event structure of subordination

In a typical complement or subordinate clause construction, the main clause and the subordinate clause combine directly. The main clause determines the profile of the overall structure as in (62). The sentence designates the process of confessing, not of doing something wrong.

(62) *Ta* ***chengren*** ***zuo*** *cuo* *le.*
3SG confess do wrong PERF
'He confessed that he had done something wrong.'

Finally, what is called a canonical SVC has its own characterization, distinct from the typical coordination and typical subordination cases (Langacker 1991). In canonical Mandarin SVCs, two or more content verbs (or phrases) of equal status are incorporated within a single clause. In Figure 3.8, both events are profiled as in the typical coordinate structure. However, there is situational inter-dependence between the two events, indicated by a bold line which connects them. As in the SVC *qu chi fan* 'go eat a meal', the two verbs represent successive temporal but interdependent phases. These two purposively related phases are construed to be one overall event represented by the bigger

bold oval which subsumes both E1 and E2. Thus, typical SVCs profile a single process comprising two or more separately coded phases. These phases join to form a composite verb (or verb phrase) which acts as the profile determinant for a clause (Langacker 1991).

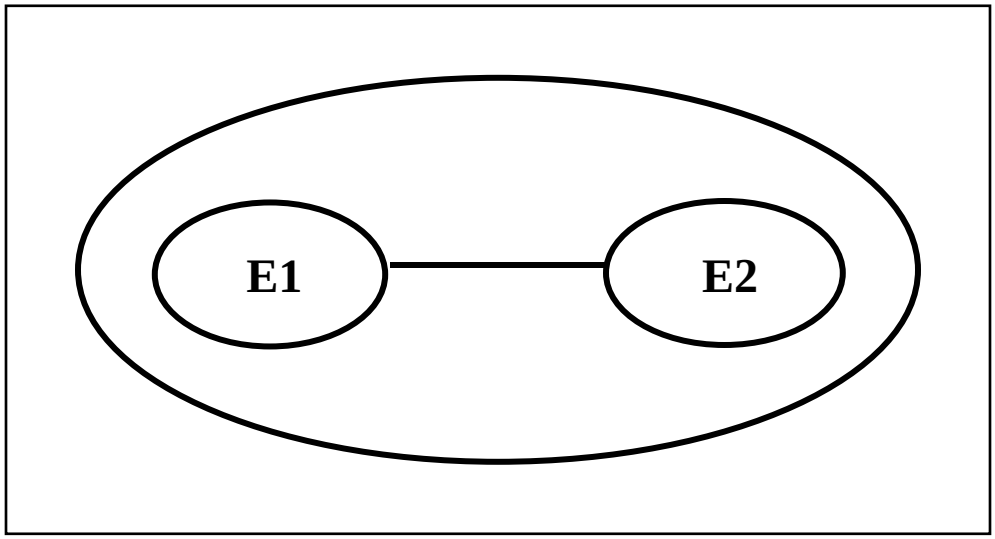


Figure 3.8 Event structure of an SVC

Cognitive Grammar provides useful mechanisms for describing differences between event structures such as coordination, subordination, and serialization. It enables us to discern the similarities and differences among them. In the examples just cited, each of these three general categories of constructions involves two events (or sub-events). The two events (or sub-events) are both profiled in coordinate constructions and in SVCs, since both (sub)-events are raised to a distinctive level of prominence in these two constructions. However, as shown in Figure 3.6 and Figure 3.8, the two events in typical coordinate constructions are independent and there is no necessary semantic relation between them, while the two events in SVCs are semantically inter-dependent and are construed as two phases under the single umbrella of a macro event. A macro event is a

kind of complex event since it consists of at least two phases. In subordinate constructions, as indicated in Figure 3.7, only one event denoted by the main event is profiled and the other event denoted by the subordinate clause is not profiled. This asymmetrical schema usually serves as a representation of complementation or modification relations.

3.2.2 Event Integration of Multi-verb Constructions

In the previous section, schematic differences in event structures of the three canonical types of multi-verb sequences were characterized. However, it should be stressed that each of the three major construction types is not a homogeneous category. Importantly, variation in degree of event integration allows us to make finer-grained distinctions of multi-verb constructions. By proposing that multi-verb sequences are of a graded phenomenon and display degrees of event integration or independence, my analysis can account for all types of multi-verb sequences in Mandarin.

Among multi-verb constructions which display a continuum of event integration, I will argue that some sequences are somewhat specific constructions whereby the structural frame is tightly linked to specific lexical items, while others are generic syntactic patterns (more schematic or abstract constructions). In this dissertation, a construction is defined as a form-meaning pairing in which a particular phonological pole which subsumes the surface syntactic features of the construction is directly associated with a particular semantic pole which refers to the overall meaning of the construction. According to the criterion of form-meaning pairing, out of the many multi-verb sequences used by Mandarin speakers, different types of multi-verb constructions can be defined. Conceptually, there is a continuum regarding multi-verb sequences running from

highly autonomous (lexically open and semantically independent events) to highly integrated (lexically fixed and semantically dependent) events. Mandarin speakers conventionalize constructions to express complex events that lie on different portions of this continuum. Thus, the idea of event integration associated with multi-verb sequences enables us to develop an account for all types of multi-verb constructions, whether they are specialized, idiomatized, and fully integrated expressions or productive, analyzable, and fully independent syntactic patterns.

Since my approach proposes that there are degrees of event integration which involves complex events, it would be helpful to define simple and complex events. Events can be simple or complex depending on how many temporal phases they contain and on how the speaker conceptualizes the event as a whole. Simple events will be defined as being construed as having a single phase, while complex events will be assumed to be construed as containing more than one phase (c.f. Van Valin & LaPolla 1997; Langacker 2008). Whether simple or complex, all events have a core component—the main activity—which is usually highlighted and salient (Grimshaw 1990). If an event is only composed of a core verbal component and is construed to have one phase, it is deemed a simple event, as in (63):

(63) *Zhe* *tiao* *du* *she* ***si*** *le*.
This CL poisonous snake **die** PERF
'This poisonous snake died.'

However, in addition to the main element (the activity phase), an event could be construed to have an inception phase and/or termination phase, with the former serving as a preparatory stage and the latter usually signaling a resultative stage of the main activity. Thus, one verb can signal the core phase of an event while another verb can allude to an

onset or outcome phase. If more than one phase is involved and expressed in the event, it necessarily becomes a complex event.

An action or an activity can cause a termination, fulfillment, or change of state—that is, a result. An action and its result can form a macro event (Talmy 2000). For example, the death of a poisonous snake could be the result of some action. People could kill a snake by taking some action such as beating or striking it. Speakers can choose sentence forms to reflect the construal of the event as having one or multiple phases that they wish to communicate. The death of the snake could be construed to be a result phase for the action phase of striking, as the example in (64) conveys:

(64) *Ta* ***ta*** ***si*** *le* *yi* *tiao* *du* *she*.
3SG **strike** **die** PERF one CL poisonous snake.
'S/he stroke a poisonous snake dead.'

The sentence in (64) is an expression of the speaker's construal of the event as having multiple phases. The expression is chosen by the speaker to present the event as having two purposively related phases or stages for the purposes of communication.

In the action of killing a snake, people could take a weapon such as a stick and then use it to strike the snake. Thus, the event of taking a stick can be construed as a preparatory stage (inception phase) for the purpose of striking the snake as in (65):

(65) *Ta* ***na*** *bang* ***da*** *du* *she*.
3SG **take** stick **strike** poisonous snake.
'S/he took a stick to strike a poisonous snake.'

In addition to the core component, a description of an event could include both an inception phase and a termination phase as (66) illustrates:

(66) *Ta* ***na*** *bang* ***da*** ***si*** *le* *du* *she*.
3SG **take** stick **strike** **die** PERF poisonous snake.
'S/he took a stick to strike a poisonous snake dead.'

A complex event consisting of more than one phase usually displays, to varying degrees, situational interdependence or semantic relatedness between its component phases. Means and aims or cause and effect are two common types of situational interdependence phenomena conveyed in a complex event. Event integration refers to the intergration of two or more component events into a complex event with two or more corresponding phases (Talmy 2000). Such integration is closely related to situational interdependence. The notion of situational interdependence is scalar and it involves a continuum linking two extremes: one in which the two events are wholly independent as in (67) and the other in which the two events have coalesced into a single event as in (68).

(67) *Ta* *meitian* ***xie*** *xin* ***hui*** *ke.*
3SG everyday write letter receive visitor
'S/he writes letters (and) receives visitors everyday.'

(68) *Ta* ***sha*** ***si*** *le* *zhu.*
3SG perform the action of killing die PERF pig
'S/he killed the pig.'

In fact, some multi-verb sequences express a single event with multiple phases (two sub-events) under an umbrella of one macro event (Talmy 2000), while others do not, expressing instead two events each being construed to have only one phase. Table 3.1 illustrates the correspondence between different phases and types of event.

Phases	**Type of events**
core phase	simple event
inception phase + core phase	complex event
core phase + termination phase	complex event
inception phase + core phase + termination phase	complex event
core phase + core phase	2 separate events

Table 3.1 Correspondence between different phases and types of events

However, most multi-verb sequences in Mandarin occupy the conceptual space between complete event autonomy and complete event integration. The two sub-events in many of these multi-verb sequences are integrated semantically in some way to form a complex event and they are causally or consequentially related to various degrees. Like many other linguistic units—all of which are graded phenomena (e.g., Langacker 1987, 1991, 2008), multi-verb sequences display a continuum of event integration/independence. By analyzing such so-called troublesome and ill-understood sequences from the perspective of event integration/independence, all types of multi-verb sequences can be reasonably accounted for.

In the next two chapters, I will discuss multi-verb sequences which were obtained from the Lancaster Corpus of Mandarin Chinese. I will define a broad range of multi-verb constructions which are treated as form-meaning pairs in the present analysis. I will also localize the different types of multi-verb constructions on a continuum of event integration.

Chapter Four

Corpus Results of Mandarin Multi-verb Constructions

To date, most of the published analyses of Mandarin Chinese multi-verb constructions have relied on constructed examples or on the intuition of speakers/linguists. As argued previously, the reliability and generalization of this kind of data as primary evidence for an analysis should be questioned. Unfortunately, there has been little or no systematic exploration of actual frequency and distribution patterns of Mandarin multi-verb sequences from Mandarin Chinese corpora. One of the major objectives of this dissertation is to fill in this gap. Instead of recycling old examples from previous analyses, this dissertation mined actual examples from the Lancaster Corpus of Mandarin Chinese (the LCMC is a one-million-word written corpus of modern Mandarin Chinese) to explore what constructions consisting of multiple verbs emerge and what kinds of multi-verb sequences are robust in Mandarin. The LCMC was queried to determine the frequency and distribution patterns of multi-verb sequences overall and to arrive at indicators of the relative strength and productivity of the different types of multi-verb constructions. Corpus tools such as concordancers were used to generate collocations of multi-verb constructions and to investigate the interactions between lexical items and specific types of multi-verb constructions.

4.1. The Corpus and Methodology Used in this Dissertation

The Lancaster Corpus of Mandarin Chinese, a publicly available balanced corpus, was designed as a Chinese match for the FLOB and FROWN corpora of modern British and American English. The FLOB and FROWN corpora, in turn, were modelled on the LOB and Brown corpora. The LCMC sampled 15 written text genres including news, literary

texts, academic prose, and official documents, published in the People's Republic of China in the 1990s. Following FLOB/FROWN, the corpus contains five hundred 2,000-word samples taken disproportionally from 15 genres in written Mandarin Chinese, totalling one million words. The components of the LCMC are given in Table 4.1.

Code	**Text category**	**No. of samples**	**Proportion (%)**
A	Press reportage	44	8.8
B	Press editorials	27	5.4
C	Press reviews	17	3.4
D	Religion	17	3.4
E	Skills, trades, and hobbies	38	7.6
F	Popular lore	44	8.8
G	Biographies and essays	77	15.4
H	Miscellaneous (reports, official documents)	30	6
J	Science (academic prose)	80	16
K	General fiction	29	5.8
L	Mystery and detective fiction	24	4.8
M	Science fiction	6	1.2
N	Martial arts fiction	29	5.8
P	Romantic fiction	29	5.8
R	Humor	9	1.8
Total		500	100

Table 4.1 LCMC text category, number of samples and proportion (McEnery et al. 2003: 363)

The same sampling frame as FLOB/FROWN was followed strictly in the Lancaster Corpus of Mandarin Chinese except for one minor variation. Western and adventure fiction (category N) was replaced with martial arts fiction. McEnery et al. (2003) state that there are three reasons for this change. "First, there is virtually no western fiction written in Chinese for a mainland Chinese audience. Second, martial arts fiction is broadly a type of adventure fiction and as such can reasonably be viewed as

category N material. It is also a very popular and important fiction type in China and hence should be represented. Finally, the language used in martial arts fiction is a distinctive language type and hence, given the wide distribution of martial arts fiction in China, once more one would wish to sample it" (McEnery et al. 2003:363). Linguistic annotations undertaken on the corpus include tokenization, which is the process of breaking a text up into its constituent tokens, and part-of-speech tagging. The LCMC is suitable for use in both monolingual research into modern Mandarin Chinese and cross-linguistic comparisons between Chinese and British/American English.

Though the corpus approach has been widely recognized as a useful tool for linguistic research, in-depth monolingual studies of Mandarin Chinese have proved difficult until this century, due to the general lack of readily available electronic corpora. The LCMC corpus was constructed to enable monolingual studies by making a diverse range of text types publicly available to academic researchers (McEnery et al. 2003). Currently, besides the LCMC, another popular and readily available balanced modern Chinese corpus is the Sinica Corpus. However, this corpus is not ideal for exploring modern Mandarin Chinese as spoken in the People's Republic of China, since it represents the language used in Taiwan.[1] Therefore, all things considered, I have decided to restrict my exploration to the LCMC data for my dissertation.

1. Since Taiwan has been separated politically from the mainland China for more than half a century, the Chinese language used in Taiwan has diverged to some extent from the language used in Mainland China. Thus, the Sinica Corpus does not represent standard modern Mandarin Chinese as written on the mainland of China and it can be considered as one of the dialects of Mandarin Chinese (McEnery et al. 2003).

The corpus data for this dissertation were obtained exclusively from the Lancaster Corpus of Mandarin Chinese. The LCMC is large enough to be useful for linguistic investigation (McEnery et al. 2003). In particular, a corpus with one million words is sufficient for looking at high frequency patterns (Newman & Rice 2008). The full LCMC can be accessed online using the web-based concordancer provided with the online version of the corpus. I obtained the 50 most frequent verbs (excluding those which are rarely used independently), the tokens of which occur no fewer than 300 times, and searched them as key words using the web-based concordancer. The search results in the concordancer were copied to a spreadsheet and saved. If the number of saved hits which were obtained using a particular key verb search was greater than 300, I randomized the results to get 300 hits and saved them to another spreadsheet. The 15,000 hits which I obtained in this way (50 key verbs multiplied by 300 tokens) form the basis of my corpus analysis and I assume that this sub-corpus represents the LCMC and reflects the language more generally.

Basically, each hit obtained is a complete sentence which typically contains several clauses separated by commas. In Chinese, a comma can be used between two finite clauses without any connector and sometimes its function is somewhat similar to that of a semi-colon in English. If we download the key verb in the searches with the context of a complete sentence consisting of several clauses in Chinese, the context in general can provide adequate information for the interpretation of the key word and the identification of the construction it enters into.

Each clause which contains the key word (verb) in the query hit was individually examined in the context of its sentence to see if it was a multi-verb sequence with a

shared participant. As I stated at the beginning of this dissertation, a multi-verb construction refers to a sequence of verbs with a shared participant, in an expression without any syntactic marking to indicate what the relation is between the verbs. A multi-verb sequence with different subjects, as (69) illustrates, is a typical case of coordination and as such does not involve any ambiguous interpretation. Nor is it classified as one of the multi-verb constructions that form the focus of this dissertation.

(69) PURE COORDINATE CLAUSE CONSTRUCTION WITH DIFFERENT SUBJECTS

Ta	*meitian*	***duanlian***	*shenti*	*wo*	*meitian*	***xuexi***	*yingyu.*
3SG	everyday	exercise	body	I	everyday	study	English

'S/he exercises everyday and I study English everyday.'

Verb sequences with different subjects like this are not of much interest here and no linguist recognizes them as potentially ambiguous structures. Therefore, this kind of sequence was ignored in the corpus-based analysis.

Mandarin Chinese lacks inflectional morphology and there are very few grammatical markings which help determine the part of speech for a word. There are three major controversial cases regarding verbhood in Mandarin. One concerns how to categorize a word as a verb or coverb; another is concerned with how to identify a word as a lexical verb or an auxiliary verb; the third is about how to treat polysemous lexical items. I will address these cases in turn.

In modern Mandarin, coverbs are terms created to cover a set of words which are semantically similar to or could be translated into prepositions in English (Li & Thompson 1974b, 1981). This deverbalized category, which has undergone the process of grammaticalization, is said to be historically derived from verbs, some of which are in fact derived from serial verb constructions. Table 4.2 lists some representative items with glosses of both their (older) verbal meanings and their prepositional meanings.

Coverb	(Older) Verbal Meaning	Prepositional Meaning
bei	to cover, to receive	by – passive marker
ba	to take, grasp	preverbal object marker
gei	to give	benefactive 'for', dative 'to' etc.
gen	to follow	comitative 'with'
bi	to compare	than
wei	to do	benefactive 'for'
dao	to arrive	to (location)
dui	to face	to, toward
xiang	to face	to, toward
shun	to follow, obey	along
yan	to go along	along
ti	to replace	on behalf on
cong	to follow	from

Table 4.2 Some representative coverbs with their older and prepositional meanings

Li and Thompson (1974b) claim that coverbs are not true verbs but rather prepositions, which they base on the following three syntactic criteria:

i) Verbs can occur in the V-not-V structure while coverbs usually do not. In Mandarin Chinese, the V(erb)-not-V(erb) structure is one way to form a yes-no question.

ii) Verbs can take aspect particles such as *le* 'perfective' or *zhe* 'progressive', while coverbs do not.

iii) Transitive verbs may occur without overt object NPs immediately following them in answer to a yes-no question while coverbs may not.

There are some items such as *yong* 'use' whose classification as verb or coverb is debatable. Typical coverbs like *bei* 'by – passive marker' may not pass any of these verbhood tests as (70) shows but items like *yong* 'use' can pass all of these three tests for verbhood as (71) indicates. In this dissertation, if a controversial item can pass all of the three verbhood tests it will be treated as a verb for the purpose of identifying multi-verb constructions.

(70) a. **Ta bei bu bei biaoyang le*?
3SG BEI NEG BEI praise PERF

b. ** Ta bei le shangshi biaoyang*?
3SG BEI PERF supervisor praise

c. Question: *Ta bei shangshi biaoyang le ma*?
3SG BEI supervisor praise PERF PRT
Has s/he been praised by her/his supervisor?

Answer: **Bei le*.
BEI PERF

(71) a. *Ta yong bu yong dao ge rou*?
3SG use NEG use knife cut meat
'Does s/he use a knife to cut meat?'

b. *Ta yong le dao ge rou*.
3SG use PERF knife cut meat
'S/he used a knife to cut meat.'

c. Question: *Ta yong dao ge rou le ma*?
3SG use knife cut meat PERF PRT
'Did s/he use a knife to cut meat?'

Answer: *Yong le*.
use PERF
'(S/he) used (it).'

As (70) indicates, the typical coverb *bei* 'by – passive marker' cannot occur in the V-not-V structure to form a yes-no question; it cannot take aspect particles like *le* 'perfective'; it cannot occur without an overt object NP immediately following it in answer to a yes-no question. In contrast, as (71) shows, *yong* 'use' can occur in the V-not-V structure to form a yes-no question; it can take the perfective aspect particle *le*; it can occur without an overt object NP immediately following it in answer to a yes-no question. Based on these verbhood tests, Li and Thompson (1974b) claim that *yong* 'use' should be analyzed as a real verb instead of a coverb.

Typical coverbs have distinct characteristics when compared with real lexical verbs and they act differently than lexical verbs. In modern Mandarin, coverbs generally cannot be used alone as can lexical verbs since they serve mainly to predicate relations between two nouns or between a verb and an oblique object as do prepositions in English. Some typical coverbs may still have some properties of verbs and may pass one or at most two of these verbhood tests; however, they certainly cannot pass all of these verbhood tests as *yong* 'use' does. Coverbs developed from lexical verbs and because of extensive grammaticalization they largely lost their lexical meanings. They do not lend aspectual force or profile processes, but are frequently used to introduce participants or help specify location. Since coverbs are not typical verbs and mainly perform grammatical functions, they were excluded from consideration as verbs when multi-verb sequences were identified and analyzed in this dissertation.

Another debatable case concerning verbhood for a lexical item is how to classify a word as either a lexical verb or an auxiliary verb. In Mandarin, auxiliary verbs refer to a closed set of items which express primarily the meaning of willingness or possibility (Lin 2001). Table 4.3 lists some representative examples of auxiliary verbs.

Auxiliary Verbs	**Gloss**	**Auxiliary Verbs**	**Gloss**
neng(gou)	can	*keyi*	may
ken	be willing	*yinggai*	should
yuanyi	be willing	*yingdan*	should
dei	have to	*gan*	dare to

Table 4.3 Some representative auxiliary verbs and their meanings (Lin 2001)

Li & Thompson (1981: 172) claim that auxiliary verbs "have some verbal properties and yet are not full-fledged verbs". They share two related properties with verbs:

i) An auxiliary verb may occur as the A element in the A-not-A structure to form a yes-no question, as in (72):

(72) *Ta neng bu neng chang ge*?
3SG can NEG can sing song
'Can s/he sing?' (Li & Thompson 1981: 172)

ii) An auxiliary verb may be negated by the particle *bu* 'not', as in (73):

(73) *Ta bu neng chang ge*.
3SG NEG can sing song
'S/he can't sing.' (Li & Thompson 1981: 173)

Auxiliary verbs differ from real verbs, however, in terms of the following properties (c.f. Li & Thompson 1981):

i) An auxiliary verb must co-occur with a verb or an "understood" verb. The sentence in (74) sounds incomplete and can be used only in a context in which a verb representing what we can do is understood, as in (74):

(74) *Women neng*.
we can
'We can.'

ii) An auxiliary verb cannot take aspect markers such as the perfective marker *le*, as in (75):

(75) **Ta neng le tiaowu*.
3SG can PERF dance

iii) An auxiliary verb cannot occur before the subject in a sentence, as in (76):

(76) **Neng ta chang ge*
can 3SG sing song (Li & Thompson 1981: 174)

iv) An auxiliary verb cannot take a direct object, as in (77):

(77) **Ta neng nei jian shi*.
3SG can that CL thing

In Chinese linguistics, there has been heated controversy around treating auxiliary verbs as verbs (Lin 2001). I agree with Li and Thompson (1981) on treating auxiliary verbs not as real verbs since they have some distinct properties from lexical verbs and in particular they cannot function as predicates to take NPs as direct objects in a clause/sentence. Thus, auxiliary verbs were not considered as real verbs in identifying multi-verb sequences in this dissertation.

It is still controversial whether to treat some lexical items such as *xuyao* 'need, request', *jixu* 'continue', or *yao* 'want' as verbs or as auxiliary verbs. Li and Thompson (1981) claim that these lexical items have been mistakenly or unjustifiably treated as auxiliary verbs since they fail to meet at least one of the criteria used to identify auxiliary verbs. All three verbs *xuyao* 'need, request', *jixu* 'continue', and *yao* 'want' can take NPs as their direct objects, as examples (78-80) show.

(78) a. *Women xuyao henduo de feiji.*
we need many GEN airplane
'We need many airplanes.'

b. **Women neng henduo de feiji.*
we can many GEN airplane

(79) a. *Women jixu ta de gongzuo.*
we continue 3SG GEN work
'We continue his/her work.' (Li & Thompson 1981: 178)

b. **Women keyi ta de gongzuo.*
we may 3SG GEN work

(80) a. *Wo yao yi ge pingguo.*
I want one CL apple
'I want an apple.'

b. **Wo yinggai yi ge pingguo.*
I should one CL apple

The (a) examples in (78-80) show that the verbs *xuyao* 'need, request', *jixu* 'continue', and *yao* 'want' alone can serve as predicates in a sentence; however, auxiliary verbs such as *neng* 'can', *keyi* 'may', or *yinggai* 'should' cannot act as predicates and take complement NPs as their direct objects in a sentence. Li and Thompson (1981) maintain that words like *xuyao* 'need, request', *jixu* 'continue', or *yao* 'want' are full-fledged verbs since they can take NP complements. In this dissertation, when dealing with controversial cases in classifying some lexical items as real verbs or auxiliary verbs, I followed Li and Thompson (1981) and treated any item as a verb if it could stand alone in a sentence and take an NP as a direct object.

The third controversial case concerns how to treat polysemous lexical items. This controversy particularly concerns different uses of motion verbs. Motion verbs in Mandarin can be used to indicate real motion, fictive motion, or even to express aspectual meanings. The status of certain motion verbs which are still undergoing grammaticalization is debatable. In this dissertation, if a lexical item which signals a grammatical meaning still can take aspectual markers such as the perfective marker *le*, it will be considered as a verb since it can still lend aspectual force. For example, *qilai* 'rise-come' as in (81) does not indicate real motion but still takes the perfective marker *le*.

(81) a. *Ta* *turan* *da* *xiao* *le* *qilai*.
3SG suddenly big laugh PERF rise-come
'S/he burst into (a big) laughter.'

b. *Ta* *turan* *da* *xiao* *qilai* *le*.
3SG suddenly big laugh rise-come PERF
'S/he burst into (a big) laughter.'

c. *Ta* *turan* *da* *xiao* *le* *qilai* *le*.
3SG suddenly big laugh PERF rise-come PERF
'S/he burst into (a big) laughter.'

The example sentences in (81) indicate that the perfective marker *le* can be used with the main verb *xiao* 'laugh', with the entire verb complex *xiao qilai* 'start to laugh' or with both verbs *xiao* and *qilai*. *Qilai* as in *xiao qilai* expresses aspectual meaning; however, it is still able to take its own aspectual marker. It is different from the coverb situation which represents the most extreme case of grammaticalization. Coverbs are mainly used to indicate relations between two participants or to specify location. They are not even considered lexical verbs any more and they have lost all independent processual sense.

Items which express aspectual meanings in Chinese developed at different stages of evolution and this kind of development is still under way (Dai 1997). Those items which developed earlier, such as the perfective marker *le*, the durative marker *zhe*, and the experiential marker *guo*, "have been fully grammaticalized and have become dedicated aspect markers" while some others such as *qilai* 'rise come' and *xiaqu* 'descend go', "though they have gradually begun to denote aspectual meanings, still keep their lexical meanings to a great extent" (Xiao & McEnery 2004: 216). Li and Thompson (1981) argue that lexical items such as *qilai* and *xiaqu* which are used to indicate aspect are still considered to be verbs since their aspectual meanings are metaphorical extensions of their directional meanings into the domain of time.

As stated previously, the data for this dissertation were obtained from the LCMC, using the 50 most frequent verbs as key search words. I downloaded 300 hits (randomized) per key verb. Each of the 15,000 clauses returned was examined in its larger context to see if it was a multi-verb sequence. If a verb sequence has a shared or an omitted participant, the verb(s) before and after the key word (verb) within the clause were identified in separate fields. By looking at verbs occurring in multi-verb sequences,

we are able to explore patterns of verbal behavior and to find out what types of multi-verb constructions we can see from real corpus data.

4.2 Verbs Occurring in Multi-verb Sequences

Among all the multi-verb sequences identified from the 15,000 hits, those containing two verbs in a sequence are typical and also the most frequent. In this chapter, I often use the term "multi-verb sequence" in contexts where I want to discuss how many verbs in a string there are, such as two-verb sequences or three-verb sequences. Cases with three verbs in a sequence are not uncommon though constructions with four or more verbs in a sequence are. By exploring those multi-verb sequences with two or three verbs we may look at these relatively common cases to obtain an idea of which verbs typically occur in multi-verb constructions as well as what their favored position is (first, last, and so on). In the analysis in this section, two-verb sequences and three-verb sequences are treated as separate constructions; that is, two-verb sequences are not those nested in three-verb sequences. First, let us investigate verbs appearing in V - V sequences, which is to say sequences with two verbs, out of these 15,000 corpus returns.

4.2.1 Verbs Occurring in V - V Sequences

Most of the multi-verb sequences extracted from the corpus contain two verbs—a very common pattern of multi-verb sequences in the LCMC. With only two verbs to track, it is easy to determine the preferred position of the individual verbs. Before discussing the V1 and V2 positions separately, let us look at V1 - V2 sequences holistically.

4.2.1.1 V1 - V2 Sequences

Table 4.4 lists the most frequent V - V sequences returned from the search of the LCMC. There are interesting discoveries to be made from examining the sequences presented in

Table 4.4. The two most frequent sequences are *xiao dao* ‘smile speak’ and *xiao shuo* ‘smile say’. It suggests that people often have a smiling expression on their faces before or during the act of speaking. So the strong association of *xiao* ‘smile’ with *dao* ‘speak’ or *shuo* ‘say’ conforms to the everyday reality of communicative interactions twinned with emotion.

V1	**V2**	**Tokens > 5**
xiao ‘smile/laugh’	*dao* ‘speak’	32
xiao ‘smile/laugh’	*shuo* ‘say’	28
shi ‘make’	*chengwei* ‘become, come into being’	21
dai ‘bring’	*lai* ‘come’	18
qu ‘go’	*zhao* ‘search, find’	15
xiao ‘smile/laugh’	*qilai* ‘rise-come’	14
zhan ‘stand’	*qilai* ‘rise-come’	13
shi ‘make’	*chansheng* ‘produce, come into being’	11
kaishi ‘start, begin’	*chuxian* ‘appear, come into being’	9
shi ‘make’	*juyou* ‘possess, have’	8
xiao ‘smile/laugh’	*wen* ‘enquire, ask’	8
xuyao ‘request, need’	*you* ‘have’	8
zou ‘walk’	*chulai* ‘exit, come out’	7
qu ‘go’	*zuo* ‘do’	7
kan ‘look’	*dao* ‘reach, achieve’	6
dai ‘bring’	*qu* ‘go’	6
zou ‘walk’	*shang* ‘ascend, up’	6
qu ‘go’	*kan* ‘look’	6
xiang ‘want’	*chengwei* ‘become, turn into’	6
ku ‘cry’	*qilai* ‘rise-come’	6
zou ‘walk’	*qu* ‘go’	6
zuo ‘sit’	*xialai* ‘descend, come down’	6
shi ‘make’	*fasheng* ‘happen, take place’	6
shi ‘lose’	*qu* ‘go’	6
qu ‘go’	*mai* ‘buy’	6

Table 4.4 Most frequent V - V sequences in the LCMC

In the case of *xiao* ‘smile’, which frequently collocates with communicative verbs to form multi-verb sequences, different kinds of multi-verb constructions would be available with some minor changes in a sequence. Let us look at what kinds of multi-verb constructions result from the top ranked two-verb sequence *xiao dao* ‘smile speak’ with some minor differences in the sequence, as (82) to (84) from the LCMC show.

(82) *na* *shaonu* *yi* *xiao* *dao*
the girl one smile speak
‘The girl smiled a smile and then spoke’

(83) *ta* *xiao* *zhe* *dao*
s/he smile PROG speak
‘S/he spoke while she was smiling’

(84) *Li* *dashu* *wenhede* *xiao* *dao*
Li uncle mildly smile speak
‘Uncle Li smiled (and) spoke mildly’

In (82), a numeral *yi* ‘one’ modifies *xiao* ‘smile’ to make the action of smiling to be aspectually bounded and to indicate that before speaking the girl smiled. Admittedly, the action of smiling was not necessarily stopped or ended when she spoke and it is possible to construe the situation such that when she spoke she was still smiling. However, if the numeral *yi* is used before the verb *xiao*, the speaker is likely to construe the two actions as happening one after the other. Hence, a sequential interpretation is preferred for this sentence. In (83), we find no numeral *yi* before *xiao* ‘smile’ as in (82). However, there is a progressive marker *zhe* right after the verb *xiao* to indicate that the two events happened at the same time. Thus, the two actions have a simultaneous interpretation instead of a sequential interpretation. In this case, the action of smiling is seen to be an accompanying event which serves as a modifier to the main verb *dao* ‘speak’. Therefore, in this kind of multi-verb sequence, only the main verb is profiled and the verb *xiao* which is

subordinate to the main verb is not, only specifying the manner of *dao* 'speak'. In (84), the adverb *wenhede* 'mildly' modifies the entire verb complex *xiao dao* 'smile speak'. This particular multi-verb sequence does not highlight a sequential or a simultaneous relation. The two verbs are not even encoded as two individuated events, but are tightly conflated into one. The two verbs seem to be lexicalized to some extent to form a verb complex, which indicates a higher degree of event integration than we find in (82) and (83).

Another observation to be made is that, as a semantic group, motion verbs as V1 are likely to form frequent V - V sequences. There are three motion verbs used as V1 in Table 4.4: *qu* 'go', *dai* 'bring', *zou* 'walk'. Table 4.4 also indicates that a given verb often collocates with one or two different semantic groups of verbs, as Table 4.5 shows. For example, *xiao* 'smile' collocates with communicative verbs or resultative verbs, while *dai* 'bring' only associates with directional verbs.

V1	**Preferred Collocating V2**
xiao 'smile'	COMMUNICATIVE VERBS (e.g. *dao* 'speak', *shuo* 'say') and DIRECTIONAL VERBS (e.g. *qilai* 'rise come')
shi 'make'	VERBS OF HAPPENING, COMING-INTO-EXISTENCE OR COMING-INTO-POSSESSION (e.g. *chansheng* 'produce, come into being', *fasheng* 'happen, take place')
qu 'go'	CONCRETE ACTIVITY VERBS (e.g. *zhao* 'search, find', *mai* 'buy')
dai 'bring'	DIRECTIONAL VERBS (e.g. *lai* 'come', *qu* 'go')

Table 4.5 Associations of the most frequent V1 verbs with certain semantic types of V2 verbs in V - V sequences

4.2.1.2 The Verbs in Position V1 and V2

Table 4.6 displays the most frequent verbs (token frequency >10) found in position V1 in the LCMC query. By looking at these verbs, we can find that some frequent multi-verb constructions seem to emerge. The most frequent verb *shi* 'make' together with other frequent causative verbs (e.g. *rang* 'let') often integrate with another verb in the V2 position to express the concept of causing someone to do something. Consequently, CAUSATIVE CONSTRUCTIONS are one of the most common types of multi-verb constructions.

The second most frequent verb in Table 4.6 is *kaishi* 'start, begin' and it specifies a kind of inchoative aspect for the verb which follows it. Conceptually, the event denoted by *kaishi* 'start, begin' subsumes the event denoted by its subsequent verb in a sequence. In this table, the seventh most frequent verb is *xiang* 'want, wish', which functions as a kind of modal verb to indicate desire or wish. Also, the event denoted by this verb often subsumes another event denoted by the verb which follows it in a multi-verb sequence. Syntactically, there is something in common as well between *kaishi* 'start, begin' and *xiang* 'want, wish'. These two verbs often collocate with another activity verb which functions as their complement as in *kaishi zuo moushi* 'begin do something' or *xiang zuo moushi* 'want do something'. In fact, the event specified by a complement elaborates one component of another event denoted by those verbs such as *kaishi* and *xiang*. Thus, COMPLEMENT CONSTRUCTIONS are another common multi-verb construction type.

Pinyin	**Gloss**	**Tokens >10**
shi	'make'	136
kaishi	'start, begin'	115
xiao	'smile/laugh'	105
qu	'go'	88
rang	'let'	87
qing	'ask'	77
xiang	'want, think'	75
xuyao	'request, need'	55
dai	'bring'	54
yaoqiu	'request, demand'	53
zuo	'sit'	50
yong	'use'	41
ting	'listen'	38
lai	'come'	37
zhao	'search, find'	36
zou	'walk'	35
you	'have'	35
jiao	'call, ask'	35
shuo	'say'	25
da	'beat, make'	22
jinxing	'conduct, proceed'	20
chi	'eat'	20
zhidao	'know'	19
kan	'look'	19
zhan	'stand'	18
tichu	'put forward'	17
dao	'get to, reach'	15
shi	'be'	12
renwei	'think'	12
hui	'return'	11
jiang	'tell, speak'	11
xie	'write'	11
others < 11		585
Total token frequency		**1969**
Total type frequency		**401**

Table 4.6 The most frequent verbs used in position V1 in V – V sequences

Table 4.6 also indicates that the group of motion verbs has more members than those of any other semantic group of verbs; that is, they have the highest type frequency. There are six motion verbs – *qu* 'go', *lai* 'come', *dai* 'bring', *zou* 'walk', *dao* 'get to, reach' and *hui* 'return', which were found to be the most frequent verbs in position V1 in the LCMC. It is apparent that motion verbs are very productive in forming a special type of multi-verb construction, what we now have confidence in labeling MOTION CONSTRUCTIONS, in which the motion verb specifies movement for subsequent action as in ***qu*** *chifan* '**go** eat'.

Even from this cursory examination so far, we can see that the corpus evidence strongly indicates that constructions are largely lexically driven. Without looking at verbs in a sequence, it is hard to decide what kind of multi-verb construction a given multi-verb sequence is. It is often the case that a given construction is only associated with a restricted set of verbs. Lexical items contribute much to multi-verb constructions in the way that the interpretation of a construction largely depends on its lexical items and it often inherits the meanings abstracted from a group of lexical items which frequently occur in the construction. In fact, we can not really divorce verbs from the constructions they enter into.

Another thing to note is that, as V1, the cardinal posture verbs *zuo* 'sit' and *zhan* 'stand' are listed as the most frequent verbs, while the posture verb *tang* 'lie' is not. The posture verb *zuo* 'sit' is more frequent than *zhan* 'stand'. The corpus results show that as V1, the posture verb *zuo* 'sit' often enters into a construction where *zuo* 'sit' assumes a posture in order to conduct another activity as in *zuo zai safa shang kan luxiang* 'sit on the sofa (to) watch a video'. Cardinal posture verbs here are referred to as the ones which

relate to the key at-rest positions: *zuo* 'sit', *zhan* 'stand' and *tang* 'lie'. Among all the multi-verb sequences containing two verbs, although there are cases of *zuo* 'sit' and *zhan* 'stand' in position V1, there is no case of *tang* 'lie' used as V1. Newman and Rice (2004) have an explanation for the frequency differences for the three posture verbs in multi-verb constructions. They believe that these frequency differences can be viewed as a reflection of the relative roles these three body positions have in our daily lives. Sitting and standing are activities that people usually assume multiple times a day, while lying is an activity which most people associate with unconscious sleep. Regarding the maintaining of the postures, sitting is the most comfortable position in daily life while standing becomes uncomfortable more quickly. In entering the posture and maintaining the posture to conduct another activity, sitting is the most salient and the corpus evidence echoes this reality in our daily life.

For these frequent verbs used in position V1 in two-verb sequences in Table 4.6, most of them can be grouped into various semantic sub-classes. Table 4.7 displays the frequency of different semantic groups of the verbs which occur in Table 4.6. Table 4.7 indicates that causative or requesting verbs have the highest token frequency and approximately one third of the verbs used in V1 among these frequently used verbs are causative verbs or requesting verbs. Another common semantic group is the motion verbs. Causative, requesting, and motion verbs make up about half of the most frequently used V1 verbs in this corpus study. Verbs which subsume other verbs (as their complements) are mainly psychological verbs like *xiang* 'want, think' and the verb *kaishi* 'start, begin', both of which indicate an inchoative meaning.

Semantic Classes of Verbs (V1)	Gloss	Frequency	Percentage
Causative or Requesting Verbs		**443**	**32%**
shi	'make'	136	
rang	'let'	87	
qing	'ask'	77	
xuyao	'request, need'	55	
yaoqiu	'request,	53	
jiao	'call, ask'	35	
Motion Verbs		**240**	**17.3%**
qu	'go'	88	
dai	'bring'	54	
lai	'come'	37	
zou	'walk'	35	
dao	'get to, reach'	15	
hui	'return'	11	
Verbs Subsuming Other Verbs		**221**	**16%**
kaishi	'start, begin'	115	
xiang	'want, think'	75	
zhidao	'know'	19	
renwei	'think'	12	
Action Verbs With Little or No Movement		**204**	**14.7%**
xiao	'smile/laugh'	105	
zuo	'sit'	50	
chi	'eat'	20	
zhan	'stand'	18	
xie	'write'	11	
Perception Verbs		**57**	**4.1%**
ting	'listen'	38	
kan	'look'	19	
Communicative Verbs		**36**	**2.6%**
shuo	'say'	25	
jiang	'tell, speak'	11	
Others		**183**	**13.2%**
yong	'use'	41	
zhao	'search, find'	36	
you	'have'	35	
da	'beat, make'	22	
jinxing	'conduct,	20	
tichu	'put forward'	17	
shi	'be'	12	
Total		**1384**	**100%**

Table 4.7 Frequency and percentage of different semantic groups of V1 verbs in two-verb sequences

Table 4.7 shows that the V1 slots in the two-verb sequences are not quite open and verbs which are likely to occur in this position are somehow restricted semantically. The verbs in the top four semantic verb groups in this table account for about 80% of all of the most frequent V1 verbs (that is, freq >10) found in two-verb sequences.

Having explored the verbs in position V1, let us now turn to the verbs in position V2. Table 4.8 lists the most frequent verbs used as V2 in multi-verb sequences which contain only two verbs. The table indicates that there is a preponderance of motion verbs used in position V2. Among the top five most frequent V2 verbs, there are four motion verbs: *qilai* 'rise come', *lai* 'come', *chulai* 'exit come' and *qu* 'go'. The reason why there are so many motion verbs in position V2 is largely due to the fact that Mandarin often uses motion verbs as satellites to 'main verbs' to indicate direction/result or path (Talmy 2000). Main verbs, here, refer to those verbs in position V1 which encode action or motion and sometimes also signal manner or cause.

The satellite verbs *lai* 'come' and *qu* 'go' are used extensively in Mandarin Chinese. They occur after other verbs of movement or action to indicate a path or direction 'towards' or 'away from' the speaker or a preferred deictic center. Another satellite verb *chulai* 'exit-come' can be used either to indicate direction or to signal result. As for the satellite verb *qilai* 'rise come', it can not only indicate direction or signal result but also function as an aspectual marker (Xiao & McEnery 2006). In Mandarin, main verbs and their satellite verbs which indicate real or abstract direction to signal result often form verb complexes. Since this kind of verb complex is very frequently used in Mandarin, DIRECTIONAL CONSTRUCTIONS are a major kind of multi-verb construction which naturally emerges from the corpus data.

Pinyin	Gloss	Tokens >10
qilai	'rise come'	**108**
lai	'come'	**72**
chulai	'exit, come out'	**70**
shuo	'say'	61
qu	'go'	**60**
dao	'reach, achieve'	**57**
zuo	'do'	45
kan	'look'	44
chengwei	'become, turn into'	43
dao	'speak'	32
zou	'walk'	**31**
zhao	'search, find'	31
chu	'exit'	**30**
wen	'ask'	28
chi	'eat'	27
you	'have'	26
zuo	'sit'	24
xie	'write'	24
mai	'buy'	22
xuexi	'study'	22
jiaqiang	'straighten'	20
ting	'listen'	20
fasheng	'happen, take place'	18
bian	'change'	18
jiang	'tell, speak'	17
chansheng	'produce'	16
yanjiu	'research, study'	16
gei	'give'	16
jinxing	'conduct, proceed'	15
fazhan	'develop'	15
zhuxian	'appear'	15
xialai	'descend come'	**14**
shang	'ascend'	13
juyou	'possess, have'	12
tigao	'raise, improve'	12
others		878
Total token frequency		**1969**
Total type frequency		**647**

Table 4.8 The most frequent verbs used in position V2 in two-verb sequences (the bold font identifies the motion verbs and their respective token frequency)

Comparing Table 4.6 with Table 4.8, it can be seen that there are more major kinds of frequently used verbs in position V1 than in position V2. There are three major kinds of verbs – causative verbs, motion verbs and desiderative or inchoative verbs which can subsume other verbs as their complements such as *xiang* 'want' or *kaishi* 'start' – that are found to be very common in the V1 position, while there is only one major kind of verb, motion verbs, which are used extensively and consistently in the V2 position. In terms of type frequency, there are fewer verb types in position V1 than in position V2. More verb types mean more lexical diversity. As Newman and Rice (2008) found in English multi-verb sequences, in Mandarin multi-verb sequences the V2 slot draws its verb from a larger lexical pool than the V1 slot does. This fact reflects a kind of asymmetry of multi-verb sequences in the way that verbs used as V1 are more restricted while verbs used as V2 are more open. Restricted verbs in asymmetrical multi-verb sequences often get grammaticalized. These semantically restricted verbs shown in the corpus results often indicate causation, instrumentation, or express aspectual meanings.

4.2.2 Verbs Occurring in V - V - V Sequences

Although most multi-verb sequences in Mandarin contain two verbs, those with three verbs in a sequence are also common. I will first discuss unique V1 - V2 - V3 sequences and then look at verbs in different positions in such multi-verb sequences separately.

4.2.2.1 V1 - V2 - V3 Sequences

Table 3.7 lists the most frequent multi-verb sequences which contain three verbs. Since the unique V1 - V2 - V3 sequences are not quite as frequent, the token frequency of such sequences is not as high as that of V1 - V2 sequences.

V1	V2	V3	Tokens >2
shi 'make'	*gan* 'feel'	*dao* 'arrive, achieve'	4
rang 'let'	*lai* 'come'	*kan* 'look'	4
shi 'make'	*zou* 'walk, leave'	*shang* 'ascend'	4
rang 'let'	*qu* 'go'	*mai* 'buy'	4
qing 'ask'	*chou* 'pull'	*chu* 'exit, out'	4
xiang 'want'	*qing* 'ask'	*zhao* 'search, find'	3

Table 4.9 Most frequent V - V - V sequences in the LCMC

Table 4.9 indicates that causative, requesting, and motion verbs are most commonly used in multi-verb sequences with three verbs. Moreover, causative or requesting verbs are often used together with motion verbs in a typical three-verb sequence. In the real world, it is often the case that people first make, let, or cause others to come or go. Coming and going often have a purpose for doing something else and, thus, it can be viewed as a preparatory stage for the conduct of a subsequent action. That is why coming or going is often followed by another verb to signal ultimate purpose. In three-verb sequences, making someone go (to do something) forms a causative construction while going (to a place) to do something exemplifies a motion construction. Therefore, three-verb sequences typically contain more than one kind of multi-verb construction. In Chinese linguistics, causative constructions are subsumed under the rubric of PIVOTAL CONSTRUCTION, in which a noun or pronoun serves as a pivot which functions as the object of one verb (V1) and the logical subject of another verb (V2), as in the case *wo qing ta tiaowu* 'I asked her (to) dance.'

Another point which is worth discussing here is that in three-verb sequences, the actual function of the motion verb is often different between verbs in position V2 and those in position V3. Motion verbs in position V2 such as *lai* 'come' or *qu* 'go' often indicate actions of real movement and the subsequent verb signals the purpose of the movement. However, motion verbs in position V3 often do not involve real movement but indicate direction of motion or result. When a V3 motion verb follows another motion verb it usually indicates direction. When a V3 verb follows a non-motion verb it often indicates result.

4.2.2.2 The Verbs in Different Positions in Three-Verb Sequences

Table 4.10 lists the most frequent verbs in position V1 in multi-verb sequences with three verbs. Generally, the verbs display similar patterns as those in two-verb sequences. It appears that PIVOTAL CONSTRUCTIONS which include causative constructions are the most frequent kind of multi-verb construction in three-verb sequences. Causative or requesting verbs such as *rang* 'let', *shi* 'make', *qing* 'ask', *jiao* 'call, tell', *yaoqiu* 'require' and *xuyao* 'demand', often require an object which also serves as the logical subject for another verb, and thus, they are likely to enter into pivotal constructions. Besides causative verbs, motion verbs are also commonly used as V1. Typical verbs belonging to this group, as shown in Table 4.10, are the following: *dai* 'bring', *qu* 'go', *na* 'take', *zou* 'walk, leave' and *dao* 'get to, arrive, reach'. In addition, there are two other verbs which are used frequently. They are *xiang* 'want' and *kaishi* 'start, begin'. Syntactically, there is something in common with these two different verbs as they usually require another verb to act as their complement. Not unexpectedly, complement constructions make for one kind of common multi-verb construction in three verb sequences as well.

Pinyin	**English**	**Tokens > 4**
rang	'let'	58
xiang	'want, think'	36
yong	'use'	26
shi	'make'	23
qing	'ask'	22
dai	'bring'	21
kaishi	'start, begin'	18
you	'have'	15
jiao	'call, ask'	15
yaoqiu	'request, demand'	9
qu	'go'	8
zuo	'sit'	7
xiao	'smile/laugh'	7
xuyao	'request, need'	6
pai	'send'	6
na	'take'	6
zou	'walk, leave'	6
xiwang	'hope, wish'	6
tichu	'put forward, propose'	5
dao	'get to, arrive'	5
Others < 5		272
Total Token Frequency		**577**
Total Type Frequency		**226**

Table 4.10 The most frequent verbs in position V1 in three-verb sequences

The most frequent verbs used in position V1 in three-verb sequences (as shown in Table 4.10) can be grouped into various and reliable semantic classes. Table 4.11 displays the frequency of different semantic groups of the verbs which are listed individually in Table 4.10. Table 4.11 indicates that causative or requesting verbs have the highest type and token frequency and more than one third of the verbs used in V1 among these frequent

used verbs are causative or requesting verbs. This reflects the fact that causing or requesting someone to go or come in order to do something is a very common concept in three-verb sequences. Another semantic grouping encompasses verbs which can assume other verbs as their complements. These verbs include desire verbs such as *xiang* 'want, hope' and *xiwang* 'wish, hope' and the verb *kaishi* 'start, begin' which expresses a kind of aspectual meaning. These two semantic groups of verbs make up more than 60% of the verbs in Table 4.11. Although motion verbs in three-verb sequences are not used as frequently as those in two-verb sequences, four motion verbs (*dai* 'bring', *qu* 'go', *zou* 'walk' and *dao* 'reach, arrive') do occur as the most frequent verbs. However, the motion verb *lai* 'come' does not appear at all frequently in V1 position in three-verb sequences. It is somewhat contrary to our intuition which might conclude that motion verbs such as *lai* 'come' and *qu* 'go' are used frequently in all positions in multi-verb constructions. The corpus evidence indicates that this is not always the case. In fact, which kind of verb is the most frequent depends largely on the particular position it occupies in different-sized multi-verb sequences.

Semantic Classes of Verbs (V1)	Gloss	Frequency	Percentage
Causative or Requesting Verbs		**133**	**43.6%**
rang	'let'	58	
shi	'make'	23	
qing	'ask'	22	
jiao	'call, ask'	15	
yaoqiu	'request, demand'	9	
xuyao	'request, need'	6	
Motion Verbs		**40**	**13.1%**
dai	'bring'	21	
qu	'go'	8	
zou	'walk, leave'	6	
dao	'get to, arrive'	5	
Verbs Subsuming Other Verbs		**60**	**19.7%**
xiang	'want, think'	36	
kaishi	'start, begin'	18	
xiwang	'hope, wish'	6	
Handling Verbs		**38**	**12.5%**
yong	'use'	26	
na	'take'	6	
pai	'send'	6	
Action Verbs With Little or No Movement		**14**	**4.6%**
zuo	'sit'	7	
xiao	'smile/laugh'	7	
Others		**20**	**6.6%**
you	'have'	15	
tichu	'put forward, propose'	5	
Total		**305**	**100%**

Table 4.11 Group frequency of different semantic groups of the most frequent verbs used as V1 in three-verb sequences

In Mandarin Chinese, motion verbs are the most frequent type of verbs entering into multi-verb constructions. However, the corpus results here show that there is a position preference for verbs occurring in multi-verb constructions and that it is not the

case that motion verbs are the most frequent in every position. The most frequent type of verb in position V1 is, in fact, a causative verb, though it seems to be the case that motion verbs are the most frequent verbs occupying positions V2 and V3. Table 4.11 also indicates that, as a semantic group, handling verbs are also commonly used, especially in position V2. Handling verbs such as *yong* 'use' and *na* 'take' can occur in INSTRUMENT CONSTRUCTIONS, in which the handling verb precedes another activity verb to indicate that an instrument is used to perform that action or activity. As in the case of verbs in position V1 in two-verb sequences, verbs in position V1 in three-verb sequences are also not quite open and the top four semantic groups of the verbs in Table 4.11 make up about 90% of the most frequently used V1 verbs in three-verb sequences.

Table 4.12 displays the most frequent verbs in position V2 in multi-verb sequences with three verbs. Among the top five verbs in position V2, there are four motion verbs (*qu* 'go', *lai* 'come', *dao* 'get to, arrive, reach' and *zou* 'walk, leave'). Besides these four motion verbs there are other motion verbs in the list of most frequent verbs in position V2 such as *dai* 'take', *chu* 'exit', *chulai* 'exit come', *jin* 'ascend', *guo* 'cross', *hui* 'return', *qilai* 'rise come'. There are reasons why motion verbs are predominately used as V2 in multi-verb constructions with three verbs. In three-verb sequences, the use of motion verbs in the middle position (position V2), is largely due to the polysemous use of these motion verbs. In the middle position, a motion verb such as *lai* can be used with another verb to indicate direction as in *na lai yitiao yu chi* 'take come a fish (to) eat'. It can also be used with other verbs to express real motion as in *jiao ta lai chi* 'ask him/her come (to) eat'. In addition, motion verbs such as *lai* 'come' used as V2 in three-verb sequences can function as a kind of purposive marker as in *xie*

wenzhang lai zheng qian ‘write articles come make money’. Therefore, very frequent use of motion verbs as V2 largely results from the various uses of motion verbs in this particular position, such as indicating real motion or abstract motion, signaling direction or result, or serving as a purposive marker.

Pinyin	**Gloss**	**Tokens > 4**
qu	‘go’	78
lai	‘come’	51
dao	‘get to, arrive’	22
zou	‘walk, leave’	16
qing	‘ask’	17
dai	‘bring’	16
rang	‘let’	15
zhao	‘search, find’	13
chu	‘exit’	9
zuo	‘sit’	9
jinxing	‘conduct, proceed’	8
xie	‘write’	8
chulai	‘exit come’	7
jin	‘enter’	7
jiao	‘call, ask’	7
shuo	‘say’	7
mai	‘buy’	7
qilai	‘rise come’	7
you	‘have’	6
guo	‘cross’	6
yong	‘use’	6
ting	‘listen’	5
hui	‘return’	5
da	‘beat, make’	5
chou	‘pull’	5
chi	‘eat’	5
Others < 5		230
Total Token Frequency		**577**
Total Type Frequency		**202**

Table 4.12 The most frequent verbs in position V2 in three-verb sequences

In Table 4.12, the causative verb *rang* ‘let’ and the requesting verb *qing* ‘ask’ are among the most frequent verbs in position V2 in three-verb sequences. Although causative verbs in V2 are not as frequent as those which appear in position V1 in three-verb sequences, they are still frequently used. In terms of posture verbs, as in the case of two-verb sequences, the verb *zuo* ‘sit’ is the most frequently used posture verb in three-verb sequences. The other two cardinal posture verbs *zhan* ‘stand’ and *tang* ‘lie’ are rarely used and do not appear in either Table 4.10 or Table 4.12. Again, the salient use of the verb *zuo* ‘sit’ is largely due to the fact that sitting is the most comfortable and most easily maintained posture in which to conduct another activity.

Table 4.13 lists the most frequent verbs in position V3 in multi-verb sequences with three verbs. The two most frequent verbs are the two general motion verbs *lai* ‘come’ and *qu* ‘go’. Other motion verbs such as *qilai* ‘rise come’, *chulai* ‘exit come’, *dao* ‘get to, arrive, achieve’, *chu* ‘exit’, *shang* ‘ascend’ and *zou* ‘walk, leave’ are also commonly used as V3. Motion verbs make up 46% of all the verbs in Table 4.13. Motion verbs are often used with their preceding verbs to form composite verbs that indicate direction, or result, or to signal aspectual meanings as in *ku qilai* ‘cry rise come – began to cry’. Besides motion verbs, the two perceptual verbs *kan* ‘look’ and *zhao* ‘look for, search’ are among the five most frequent verbs in Table 4.13. This suggests that *kan* ‘look’ and *zhao* ‘look for, search’ often serve as the motivating purpose for other actions/activities denoted by the verbs which precede them. As the last verb in three-verb sequences, verbs in position V3 are predominately concrete action verbs which often indicate the purpose behind prior motion or the end result of prior action.

Pinyin	**Gloss**	**Tokens > 4**
qu	‘go’	32
lai	‘come’	24
kan	‘look’	21
chulai	‘exit-come’	20
zhao	‘search, look’	19
qilai	‘rise-come’	19
dao	‘get to, arrive’	12
zuo	‘do’	12
mai	‘buy’	12
chu	‘exit’	12
ting	‘listen’	11
xuexi	‘study’	11
chi	‘eat’	11
shang	‘ascend’	10
zou	‘walk, leave’	7
wen	‘ask’	7
jinxing	‘conduct, proceed’	7
shuo	‘say’	7
xie	‘write’	6
gongzuo	‘work’	6
wei	‘become, serve as’	6
dao	‘speak’	6
da	‘beat, make’	5
yanjiu	‘research, study’	5
xiao	‘smile/laugh’	5
Others < 5		284
Total Token Frequency		**577**
Total Type Frequency		**240**

Table 4.13 The most frequent verbs in position V3 in three-verb sequences

4.2.3 Verbs in Two-verb and Three-verb Sequences

Table 4.14 lists the frequencies of the most common verbs in each position when verbs are collapsed across two-verb and three-verb sequences out of the 15,000 returns from the

queries of the LCMC. As stated previously, the background frequencies (15,000 returns) were obtained by using the 50 key verbs to search for 300 (randomized) hits (that is, 50 x 300 = 15,000). This table indicates that some verbs are more likely to occur in some positions while others are unlikely to appear in a particular position. Causative verbs like *shi* 'make' and *rang* 'let' occur in position V1 and V2, but there is no instance of such verbs appearing in position V3. This is because a causative verb often requires a verb complement to form a causative construction to express the concept of causing someone to do something. Causative verbs, therefore, are unlikely to occur in the final verb slot in a multi-verb sequence. Actually, the majority of causative verbs fill the V1 slot. Besides causative verbs, there are other verbs which do not fill V3 slots in the table. Among them, the two verbs *kaishi* 'start, begin' and *xiang* 'want, would like to' require other verbs to be their complements. There are two other verbs *yong* 'use' and *you* 'have, there be' which are not found in position V3 in the table. The verb *yong* 'use' are usually deployed in an instrument construction involving an action chain, which refers to an interaction network including a series of energetic interaction (Langacker 1990). In an instrument construction, the subject acts on the instrument and the energy transfers to the object to affect it through the instrument. Since using the instrument is an initiating action and affecting the object is a subsequent action, naturally the verb *yong* 'use' is heavily attracted to position V1.

Pinyin	English	V1	V2	V3
qu	'go'	96 (36%)	138 (52%)	32 (12%)
lai	'come'	38 (21%)	123 (66%)	24 (13%)
shi	'make'	159 (99%)	2 (1%)	
rang	'let'	145 (91%)	15 (9%)	
kaishi	'start, begin'	133 (94%)	5 (6%)	
xiao	'smile/laugh'	112 (85%)	14 (11%)	5 (4%)
qing	'ask'	99 (83%)	20 (17%)	
xiang	'want, would like to'	111 (94%)	7 (6%)	
dao	'get to, arrive, achieve'	20 (18%)	79 (71%)	12 (11%)
shuo	'say'	29 (28%)	68 (65%)	7 (6%)
zhao	'search, find'	38 (38%)	44 (44%)	19 (19%)
dai	'bring'	75 (77%)	21 (22%)	1 (1%)
qilai	'rise-come'		115 (86%)	19 (14%)
chulai	'exit-come'		77 (79%)	20 (21%)
zou	'walk, leave'	41 (43%)	47 (50%)	7 (7%)
zuo	'sit'	57 (61%)	33 (36%)	3 (3%)
kan	'look'	21 (23.5%)	47 (53%)	21 (23.5%)
you	'have'	49 (60%)	33 (40%)	
ting	'listen'	41 (53%)	26 (33%)	11 (14%)
yong	'use'	67 (89%)	8 (11%)	
yaoqiu	'request, demand'	62 (91%)	6 (9%)	
jiao	'call, ask'	50 (73%)	16 (23%)	3 (4%)
chi	'eat'	20 (32%)	32 (51%)	11 (17%)
xuyao	'request, need'	61 (100%)		
chu	'exit'	7 (12%)	39 (61%)	12 (17%)
zuo	'do'	1 (2%)	46 (78%)	12 (20%)
buy	'buy'	10 (19%)	31 (58%)	12 (23%)
xie	'write'	14 (27%)	32 (62%)	6 (11%)

Table 4.14 The most frequent verbs in position V1, V2 and V3 when verbs are collapsed across two-verb and three-verb sequences

Similar to *yong* 'use', the verb *you* 'have, there be' also favors position V1. In fact when *you* 'have, there be' combines with another verb to form a multi-verb construction

it is usually in the V1 slot and the verb following it often indicates existence or specifies an activity that someone has the right or qualifications to perform, as shown in (85).

(85) a. *Zai shijieshang you 400,000 ren canjia tuofu kaoshi.*
at world.on have 400,000 people take TOEFL test
'In the world, there are 400,000 people (to) take the TOEFL test.'

b. *Ta you liyou jujue renheren de ai.*
3SG has reason refuse anybody POSS love
'S/he has reasons to refuse love from anybody.'

In (85a), *you* 'have' is used to introduce the existence of something, not unlike the English existential construction *there is/are*. In this case, more often than not there is a phrase indicating general location such as *wo guo* 'our country' or *zai shijie shang* 'in the world'. In Mandarin, *shang* 'ascend, above' and *xia* 'descend, below' can be classified as a motion verb or as a locative adverb depending on context. *Shang* in *zai shijie shang* is classified a locative adverb. It is also common that *you* 'have' is followed by an abstract concept to serve as its object, as in (85b). The common abstract nouns which follow *you* 'have' are 'right', 'ability', 'responsibility', 'necessity', 'reason', 'courage', 'confidence'.

In contrast to causative and other verbs which favor the V1 position, some verbs such as *chulai* 'exit-come' and *qilai* 'rise-come' do not occur in V1 position in the table. Both *chulai* 'exit come' and *qilai* 'rise-come' usually follow other verbs to specify direction or abstract motion. *Chulai* 'exit-come' is often used as V2 to indicate direction (e.g. *zuo chulai* 'walk exit-come') or result (e.g. *xie chulai* 'write exit-come') of V1 while *qilai* 'rise-come' often follows another verb to signal direction (e.g. *zhan qilai* 'stand rise-come') or express a kind of aspectual meaning (e.g. *ku qilai* 'cry rise-come, began to cry'). Table 4.14 also indicates that the three most frequent verbs in position V2 are the three general-purpose verbs *qu* 'go', *lai* 'come' and *dao* 'arrive, reach, achieve'. In two-

verb sequences, these three verbs are frequently used in position V2 to indicate direction or result. In three-verb sequences, they are also quite likely to occur in V2 slots as in *qing ta qu mai dongxi* 'ask him go (to) buy things'. The high frequency for the three general-purpose verbs results from the fact that they easily enter into both two-verb and three-verb sequences in position V2. As for position V1, *qu* 'go' and *xiao* 'smile/laugh' are among the verbs having the highest frequency of occurrence in this particular position. The corpus evidence shows that going to do something rather than coming to do something is the most common concept associated with motion events. In the case of *xiao* 'smile/laugh', this verb also favors position V1 since it is often used before another verb (especially a communicative verb) to serve as a modifier. The corpus results suggest that there is an interaction between verbs and positions in multi-verb sequences. Some verbs are more likely to occur in one position, while others are largely excluded from or rarely found to be in a particular position.

Table 4.15 lists the total frequencies of the most frequent verbs in two-verb sequences and three-verb sequences when verbs are collapsed across all the positions out of the background frequency of the 15,000 returns. It can be seen from the table that frequencies of verbs in multi-verb sequences are distinct from the overall frequencies ranked according to the corpus. None of the three most frequent verbs (*shi* 'be'; *you* 'have'; *shuo* 'say') in the corpus is in the top three verbs ranked according to frequencies in multi-verb constructions. The corpus results indicate that the overall frequency in the corpus is not driving the frequency we found in multi-verb sequences and that frequencies of verbs in multi-verb sequences do not reflect the overall frequency of verbs in the corpus.

Pinyin	Gloss	Total (Tokens > 50)	Frequency in LCMC	Rank According to Freq in LCMC
qu	'go'	266	1679	5
lai	'come'	185	2093	4
shi	'make'	161	1299	8
rang	'let'	160	625	14
kaishi	'start, begin'	138	447	20
qilai	'rise come'	134	685	12
xiao	'smile/laugh'	131	382	23
qing	'ask'	119	304	28
xiang	'want, think'	118	975	10
dao	'get to, arrive, achieve'	111	2805	3
shuo	'say'	104	3754	2
zhao	'search, find'	101	426	21
dai	'bring'	97	359	26
chulai	'exit come'	97	414	22
zou	'walk, leave'	95	907	11
zuo	'sit'	93	309	27
kan	'look'	89	1159	9
you	'have'	82	5045	1
ting	'listen'	78	521	18
yong	'use'	75	1470	6
jiao	'call, ask'	69	547	17
yaoqiu	'request, demand'	68	567	15
chi	'eat'	63	477	19
xuyao	'request, need'	61	567	15
zuo	'do'	59	676	13
chu	'exit'	58	1314	7
mai	'buy'	53	342	25
xie	'write'	52	357	24

Table 4.15 The most frequent verbs in two-verb and three-verb sequences when verbs are collapsed across all the positions

The overall frequency used here and throughout the dissertation is from the overall word list of the corpus. The word list was obtained by undertaking tokenization on the corpus to break a text up into its constituent tokens and the list was accessed

through the on-line version of the corpus. In this word list, the frequency of a mono-morphemic word does not overlap with the frequency of a bi-morphemic word in which the mono-morphemic word is its constituent. For example, the frequency of *lai* 'come' is separated from the frequency of *chulai* 'exit-come' through the application of tokenization. Thus, in the word list the frequency of *lai* does not overlap or subsume the frequency of *chulai*.

Table 4.15 indicates that two general motion verbs *qu* 'go' and *lai* 'come' are the most frequent ones with *qu* 'go' being ranked at the top of the list. The two general motion verbs are easily used with other verbs to indicate direction and, thus, directional constructions are among the most frequent multi-verb constructions to be found. Next to motion verbs, causative verbs which are associated with causative constructions are among the most frequent verbs, with the two verbs *shi* 'make' and *rang* 'let' being the highest ranked within this semantic group. Also among the most frequent verbs in the table, *kaishi* 'start, begin' and *xiang* 'want, think' are ranked high as well. Both of the two verbs can subsume other verbs and they are usually associated with complement constructions.

Table 4.15 also suggests that in addition to the two top ranked verbs *lai* 'come' and *qu* 'go' other motion verbs such as *dao* 'get to, arrive, achieve' and *zuo* 'walk, leave' are also ranked quite high on the list. As a semantic group, motion verbs are the most frequent verbs occurring in multi-verb constructions. Of course, they could also be polysemous because they have entered into various kinds of multi-verb constructions in Mandarin.

In this chapter, I have focused my discussion on verbs occurring in two-verb and three-verb sequences. In the next chapter, I will explore in detail types of multi-verb constructions which we can see emerging from the corpus results. I will also discuss frequencies of different kinds of multi-verb constructions.

Chapter Five

Types and Frequency of Multi-verb Constructions

The 15,000 hits (50 key words with 300 hits for each) which form the basis for my analysis were checked for whether they conformed to the criteria of being multi-verb constructions (MVCs) discussed previously. Out of these 15,000 hits, 2,816 returns contain multi-verb constructions used as predicates in a clause, which means that nearly one out of five (19%) clauses in the written corpus consists of multi-verb constructions. In this chapter, I will explore the types of multi-verb constructions which can be seen from the LCMC and frequency of each type of multi-verb construction.

The corpus results indicate that motion verbs are very frequently used in multi-verb constructions. In fact, among the 50 verbs used as key words in corpus searches for multi-verb constructions, the motion verbs *lai* 'come' and *qu* 'go' most commonly enter into MVCs as shown in Table 5.1. Table 5.1 lists the frequency of returns which contain MVCs out of 300 hits for each of the 50 most frequent verbs. Since the frequency for each verb in the corpus is different, I randomly selected 300 hits which contain the verb from the corpus in order to normalize the data. If all the verbs behave the same in entering MVCs, we would expect to get the same number of MVCs for each verb out of 300 hits. However, the incidence of MVCs per verb is quite idiosyncratic. The corpus results inform us about which verbs are more likely to enter into multi-verb constructions and which do not among these 50 verbs, as Table 5.1 indicates.

Rank	Pinyin	English Gloss	Freq of Returns Containing MVCs Out of 300 Hits	Freq from LCMC	Rank based on Freq in LCMC
1	*lai*	'come'	151	2093	5
2	*qu*	'go'	138	1679	6
3	*qing*	'ask'	133	304	49
4	*kaishi*	'begin'	129	447	28
4	*rang*	'allow, let'	129	625	18
6	*xiao*	'smile, laugh'	125	382	35
7	*zuo*	'sit'	92	309	49
8	*zhao*	'search, look for'	89	426	30
9	*shi*	'make'	88	1299	9
10	*xiang*	'want, think'	83	975	13
11	*zou*	'walk'	82	907	14
12	*dai*	'bring'	81	359	41
13	*qilai*	'rise come'	80	685	16
14	*chulai*	'come (exit) out'	75	414	32
15	*ting*	'listen'	73	521	25
16	*mai*	'buy'	67	342	44
17	*xuyao*	'need'	63	567	20
18	*yong*	'use'	61	1470	7
18	*yaoqiu*	'require'	61	567	20
20	*jiao*	'tell, call, yell'	60	547	23
20	*kan*	'look'	60	1159	11
22	*chi*	'eat'	58	477	27
23	*dao*	'reach, get to'	55	2805	4
24	*xie*	'write'	54	357	42
25	*jinxing*	'conduct, proceed'	53	791	15
26	*wen*	'ask'	50	528	24
27	*shuo*	'say'	49	3754	3
28	*you*	'have, there be'	48	5045	2
28	*gei*	'give'	48	1134	12
30	*zuo*	'do'	43	676	17
31	*chengwei*	'become'	38	365	38
32	*xuexi*	'study'	33	313	47
33	*da*	'beat, strike'	32	410	33
34	*tichu*	'put forward'	31	381	36
35	*bian*	'change'	30	301	50

36	*jiang*	'talk, tell'	27	389	34
36	*fazhang*	'develop'	27	1434	8
38	*yanjiu*	'research, study'	25	593	19
39	*jiaqiang*	'strengthen'	23	322	46
40	*shi*	'be'	22	11601	1
41	*zhidao*	'know'	21	549	22
42	*chansheng*	'bring about, produce'	19	361	40
43	*fasheng*	'happen, occur'	18	343	43
44	*chuxian*	'come into being, appear'	17	431	29
45	*faxian*	'find out'	15	365	38
46	*juyou*	'possess, have'	13	376	37
46	*renwei*	'think'	13	504	26
48	*gongzuo*	'work'	12	1296	10
48	*zhan*	'occupy, make up'	12	325	45
50	*tigao*	'raise, improve'	10	426	30

Table 5.1 The 50 verbs and frequency of hits which contain multi-verb constructions into which they enter

The corpus findings suggest that frequencies of verbs in MVCs are not replicating the overall frequency of verbs in the corpus. It can be seen from Table 5.1 that the top three verbs in overall frequency are *shi* 'be', *you* 'have' and *shuo* 'say'. However, none of these three verbs enter into the top three in observed frequency of MVCs out of the 300 hits. Instead, the top three verbs in observed frequency of MVCs are the two motion verbs *lai* and *qu* and the communicative verb *qing* 'ask'.

Motion verbs in multi-verb sequences often signal concrete motion events or indicate purpose. In fact, there is a conceptual overlap between motion and purpose. A motion event is usually a purposeful event, carried out with the intention of conducting another event denoted by V2 (Newman & Rice 2008). For example, "coming" or "going"

is not normally about pure motion but about moving to a location to perform a subsequent action. In addition to signaling the action of movement from one location to another, intentionality or purposefulness is often inherent in the semantics of motion verbs (Newman & Lin 2007). In some cases, both movement and purposefulness are profiled for motion verbs in a multi-verb sequence such as *qu fandian chifan* 'go (to a) restaurant (to) eat'. However, in other cases, movement is not salient in multi-verb constructions involving motion verbs which are mainly used to signal intentionality or purposefulness. In the multi-verb sequence, *xie wenzhang lai zheng qian* 'write articles come make money (i.e., write articles to make money)', the motion verb *lai* does not involve any obvious movement, but acts like a kind of purposive marker to suggest that the purpose of writing articles is for making money. The base against which a motion verb is profiled (or not) in various constructions is the same. Because the base provides the context or the frame of reference for identifying the profiled entity or the intended designatum, it is an essential contributor to the overall meaning of a construction. However, what components in the base are salient and actually profied may vary from construction to construction. Langacker claims (1988) that a semantic structure derives its value through the imposition of a profile on a base. The meaning of a motion verb in a particular construction largely depends on profiling—which event components are given prominence in the morphosyntax. Profiling is a matter of construal in the larger context of use.

In addition to specifying motion or indicating purpose, motion verbs like *lai* and *qu* can be used to indicate direction, as in *zuo lai* 'walk come, walk here', *na qu* 'take qo, take away'. When *lai* or *qu* functions to indicate motion or purpose it often precedes

another verb to form an MVC. When a motion verb is used to specify direction it usually occupies the V2 position in an MVC. In V1 + V2 sequences out of the 300 hits, cases of *lai* 'come' occurring in the V1 position make up 13% of all cases while instances of *lai* appearing in the V2 position occupy 77% of all cases, which means that *lai* mostly occurs in directional constructions as V2. In the case of *qu* 'go', it seems that it is equally likely to appear in either position. 47% of instances of *qu* have it occurring in the V1 position and 53% in the V2 position. It is both common for *qu* to occur in motion construcions as V1 or in directional constructions as V2. The verb *qing* 'ask' is ranked third in the observed frequency, although its overall frequency is very low among the 50 verbs. The situation for this verb in MVCs is different from either *lai* or *qu*. All of the instances of *qing* in V1 + V2 sequences out of the 300 hits have it exclusively occupying the V1 position to form pivotal constructions with another verb which follows it. These corpus results are consonant with those of Gries and Stefanowitsch (2006), who demonstrate with multiple case studies the special affinities or repulsions that exist between lexical items and the constructions they enter into. What they call *collostructional attraction* or *repulsion* can cause a relatively low-frequency verb to be strongly if not exclusively associated with a particular construction type, just as a relatively high-frequency verb might not participate at all in a relatively high-frequency construction, despite its semantic or subcategorial suitability.

Now let us look at the cases of the three lowest verbs in observed frequency out of the 300 hits in V1–V2 sequences. The verb *tigao* 'raise, improve' has the lowest observed frequency of MVCs out of the 300 hits and it only occurs in the V2 position. In most cases *tigao* is used in complement clause constructions as V2. From 300 returns, we see

that the verb *gongzuo* ‘work’ also only appears in the V2 slot in two-verb sequences. The other member among the three lowest observed frequency verbs in two-verb MVCs is *zhan* ‘occupy, make up’, which can occur in both verb positions (56% of its observed instances are in the V1 position, while 44% are in the V2 position). The corpus results indicate that some verbs are quite likely to appear in both verb positions and that others show strong positional preferences, depending on the construction.

5.1 Types of Multi-verb Constructions

The construction types which will be introduced and discussed in this chapter are largely based on the previous linguistic literature. The constructions I am working with are not categories which I inferred from the corpus results by performing statistic tests on the raw data to arrive at different divisions of all the cases consisting of multi-verb sequences. The overall approach I am taking is to defer to the tradition in linguistics of recognizing those construction types which have been exhaustively described in the previous literature. Linguists have been using these terms for years and I will turn to the corpus to see what the corpus says about these “presupposed” analytical categories. I want to connect with these traditions in the literature and preserve these categories or constructions because they are familiar in to Mandarin scholars. I am aware of the pros and cons of preserving these categories or constructions. One of the arguments for preserving the conventional categories would be that this can help to situate my analysis in the context of past discussion. An argument against the preservation of “received wisdom” and historical categories is that some of these categories are not well motivated. Some might be too specific and some might be too structural. The criteria for the categories are also inherited from structuralist linguistic tradition. Sometimes it might be

more form-based or based on part-of-speech, rather than on semantics or the conceptual structure of the entire construction. I understand all these shortcomings; however, all things considered, I have decided to largely maintain tradition in the way I categorize and label the best-known multi-verb sequences (e.g. the shared-object construction). However, elsewhere in this dissertation, I must move away from tradition because the range of constructions returned from the corpus searches is too varied for the coarse-grained analytical categories familiar in the literature.

In the present analysis, constructions are understood as form-meaning pairings which may differ in size, uniqueness, and specificity (cf., notably, Langacker 1987, 1991; Goldberg, 1995, 2006). The range of multi-verb constructions which were identified from the corpus searches is rich and covers a wider range of construction types. Let us look at the types of multi-verb constructions which we can see from the corpus.

5.1.1 Motion Constructions

As discussed previously, motion verbs are very productive in forming various types of multi-verb constructions. One type of MVC which motion verbs often enter into is a motion construction which has the form [$V1_{MOTION}$ $V2_{EVENT}$]. The schematic meaning of this construction is MOVEMENT-FOR-EVENT—that is, a movement is carried out in order to conduct another event. In motion constructions, typically the first verb is *lai* 'come' or *qu* 'go' and the two verbs share a tight situational inter-dependence (e.g, Yin 2001). It is often the case that movement is accompanied by a purpose which is expressed by another verb, as shown in (86) and (87).

(86) ***Qu*** ***chi*** *fan.*
Go **eat** food.
'Go eat.'

(87) *Women* ***lai*** ***zhao*** *ni*.
we **come** **look.for** you
'we came (to) look for you.'

Here, the purpose of going is explicitly for eating in (86) and the purpose of coming is clearly in order to look for someone in (87). In motion constructions, the first verbs are usually drawn from a restricted set, with *lai* and *qu* being prototypical. The idea of an aim or a purpose is often inherited from the activity of movement. In such constructions, the movement happens first and the event serving as the purpose of the movement takes place next. Typically the endpoint of coming or going is the beginning of the subsequent activity, which is implicitly the purpose of the initial coming or going.

The schematic representation of motion constructions can be illustrated in Figure 5.1. In Figure 5.1, the two adjacent ovals represent two events. The first event which represents an inceptive or preparatory phase is the one denoted by a motion verb indicated by E1 (Motion) and the other event which represents a core phase is the one denoted by another verb that expresses the purpose of the movement, indicated by E_2 (Purpose). The TR (or *trajector*) indicates the most prominent participant semantically of an activity or process, which is usually expressed grammatically as the subject. The dashed line connecting the two TRs indicates a correspondence (here, identity) between them. With the passing of time, the subject moves through space to reach the place where the intended action or activity is to be performed. The adjacency of the two ovals suggests that the two activities (sub-events) happen one after the other. The arrow connecting the two ovals indicates that the two sub-events are causally related. The big oval compassing the two small ovals suggests that the two sub-events represent one overall conceptual macro event with two purposively related phases.

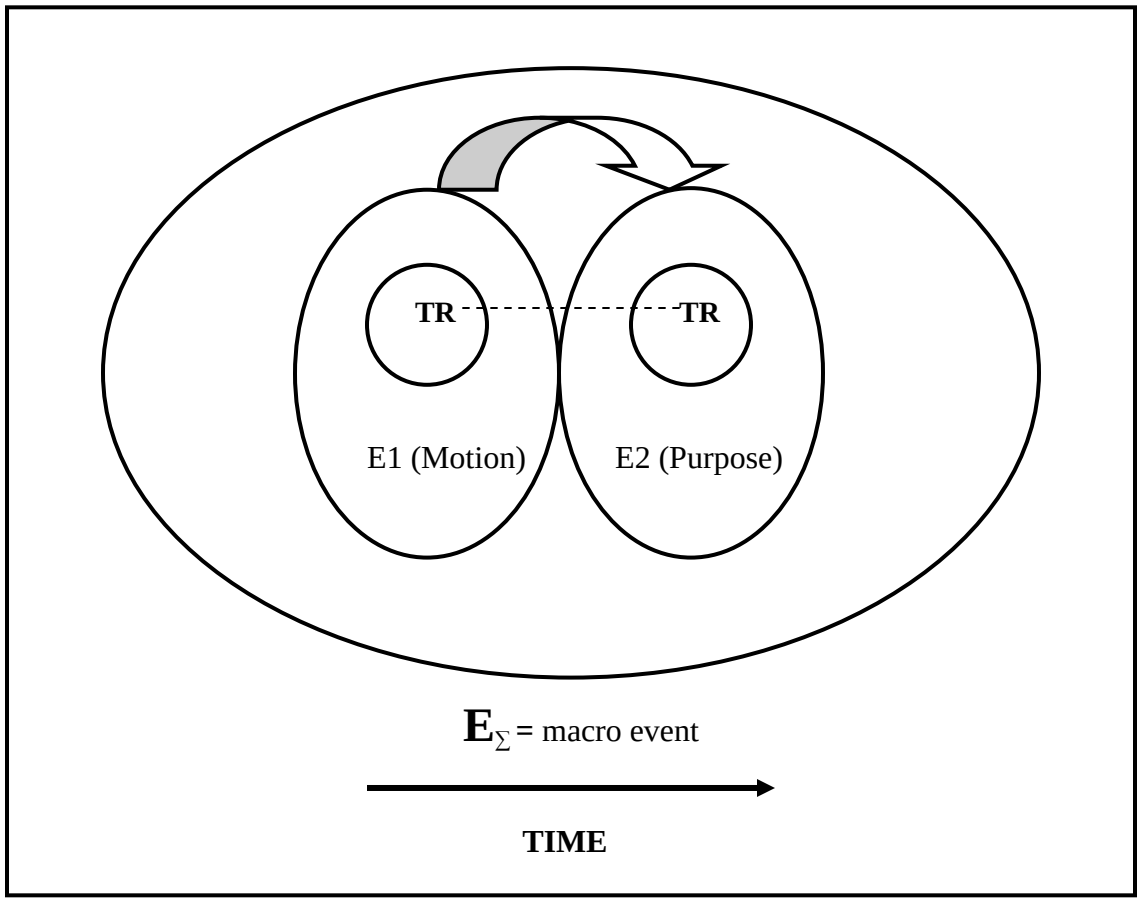


Figure 5.1 Schematic representation of motion constructions

5.1.2 Directional Constructions

Motion verbs are very frequently used as V2 to indicate direction to form directional constructions (e.g., Li & Thompson 1981; Zou 1994). This type of MVC has the schematic nature [$V1_{MOTION/ACTION}$ $V2_{DIRECTION}$], in which the second verb signifies the path or direction of the first verb, as illustrated in (88) and (89). In these two cases, the verbs in the V2 position do not specify motion in their own right, but only the direction or the path of the motion or action suggested by the first verb, the main verb.

(88) *Jiang Zhiming tongzhi da bu* ***zou*** ***lai***
Jiang Zhiming comrade big step **walk** **come**
'Comrade Jiang Zhiming walked over here in big steps' (LCMC)

(89) (*Baixin*) *xiang tingche chu* ***zou*** ***qu***
(Baixin) toward parking place **walk** **go**
'(Baixin) walked away toward the parking lot' (LCMC)

In directional constructions, the second verb, typically one of the motion verbs *lai* 'come' or *qu* 'go', indicates the direction of the first verb. In Mandarin, certain verbs, typically verbs of displacement, show up as the first verb in directional constructions. As Li and Thompson (1981) have observed, the most obvious type of displacement verb is a verb of motion such as *pao* 'run', *zou* 'walk', *fei* 'fly', *gun* 'roll'. Another common type of displacement verb is a dislocation verb, a verb that "inherently implies that the direct object undergoes a change of location" (Li & Thompson 1981: 58) such as *ban* 'remove', *reng* 'throw', *song* 'send', *ji* 'mail', *ju* 'lift', *fang* 'put', *duan* 'carry'. These verbs generally conflate movement with some other activity.

Prototypical V2s in directional constructions are *lai* 'come' and *qu* 'go', although there is a small set of additional verbs which function as complements of direction. I'll discuss these in turn. The verbs *lai* 'come' and *qu* 'go' are used extensively in Mandarin MVCs as complements of direction. They occur after verbs of movement or action to indicate a direction 'towards' or 'away from' a preferred deictic centre (Yip & Don 1998a). Typically, these involve events of TRANSPORTATION as in (90) or TRANSACTION (TRANSLOCATION) as in (91):

(90) a. *Zhangsan* ***pao*** ***lai*** *le.*
Zhangsan **run** **come** PERF
'Zhangsan run over here.'

b. *Lisi* ***pao*** ***qu*** *le.*
Lisi **run** **go** PERF
'Lisi run over there.'

(91) a. *Zhangsan* ***na*** ***lai*** *le* *yi* *ben* *shu.*
Zhangsan **carry** **come** PERF one CL book
'Zhangsan brought a book.'

b. *Lisi* ***na*** ***qu*** *le* *yi* *ben* *shu.*
Lisi **carry** **go** PERF one CL book
'Lisi took a book with him.'

Besides *lai* and *qu*, there is a small group of Mandarin motion verbs (e.g. *jin* 'enter', *chu* 'exit', *qi* 'rise', *hui* 'return', *guo* 'cross', *kai* 'open') which also participate in directional constructions. These verbs are mainly used in directional complements to express directional meanings and they are seldom used as independent verbs (Li & Thompson 1981). Two examples are given below:

(92) *Ta* ***zuo*** ***jin*** *le* *jiaoshi.*
3SG **walk** **enter** PERF classroom.
'S/he walked into the classroom.'

(93) *Ta* ***fang*** ***hui*** *le* *shubao.*
3SG **put** **return** PERF schoolbag
'S/he put back her/his schoolbag.'

Lai 'come' and *qu* 'go' may be linked to other motion verbs such as *jin* 'enter', *chu* 'exit' or *qi* 'rise' to form a set of double directional complements.

(94) *Huar* ***diao*** ***xia-lai*** *le.*
Picture **drop** **descend-come** PERF
'The picture fell down.'

(95) *Shu* ***fang*** ***hui-qu*** *le.*
Book **put** **return-go** PERF
'The book was put back.'

These double complements as in (94) and (95), are listed as single units in dictionaries. The second constituent in such double complements are phonologically reduced in that

they often lose their original tone and carry instead a neutral tone (Lamarre 2007). Therefore, it makes sense to analyze such double complements as single lexical units. These double complements display properties of being construable as a single conceptual unit. Instead of instances of two verbs, they are actually lexicalized to form new compound verbs. As evidence of this reanalysis, the particle *le* can be placed between the main verb and the double complements as in (96), but it can not occur within the double complements as in (97).

(96) *Li Fang* *you* *yici* *zhan* ***le*** *chu-lai*.
Li Fang again once stand **PERF** exit-come
'Li Fang once again stood up'

(97) * *Li Fang* *you* *yici* *zhan* *chu-**le**-lai*.
Li Fang again once stand exit-**PERF**-come

It is often the case that these double complements can have metaphorical interpretations in appropriate contexts as in (98) and (99), besides being used literally.

(98) *Ni* *yinggai* *ti* *ta* ***shang-lai***.
You should pick 3SG **ascend-come**
'You should lift him/her up.'
'You should promote him/her.'

Here *shanglai* 'ascend-come' can be used figuratively: come up high in social (or administrative) position and the metaphorical meaning is derived from the literal directional meaning *shanglai* 'come up'.

(99) *Ta* *xiang* *da* ***xia-qu***.
3SG want fight **descend-go**
'S/he wants to fight on.'

In (99), *xia-qu* is also used figuratively. The directional aspect of *xia-qu* is metaphorically extended to the domain of time (Li & Thompson 1981). Therefore, *da xia-qu* 'fight

descend-go' is interpreted as 'fight on'. The double complement *xia qu* has been lexicalized as a unit.

The schematic representation of directional constructions can be illustrated as in Figure 5.2:

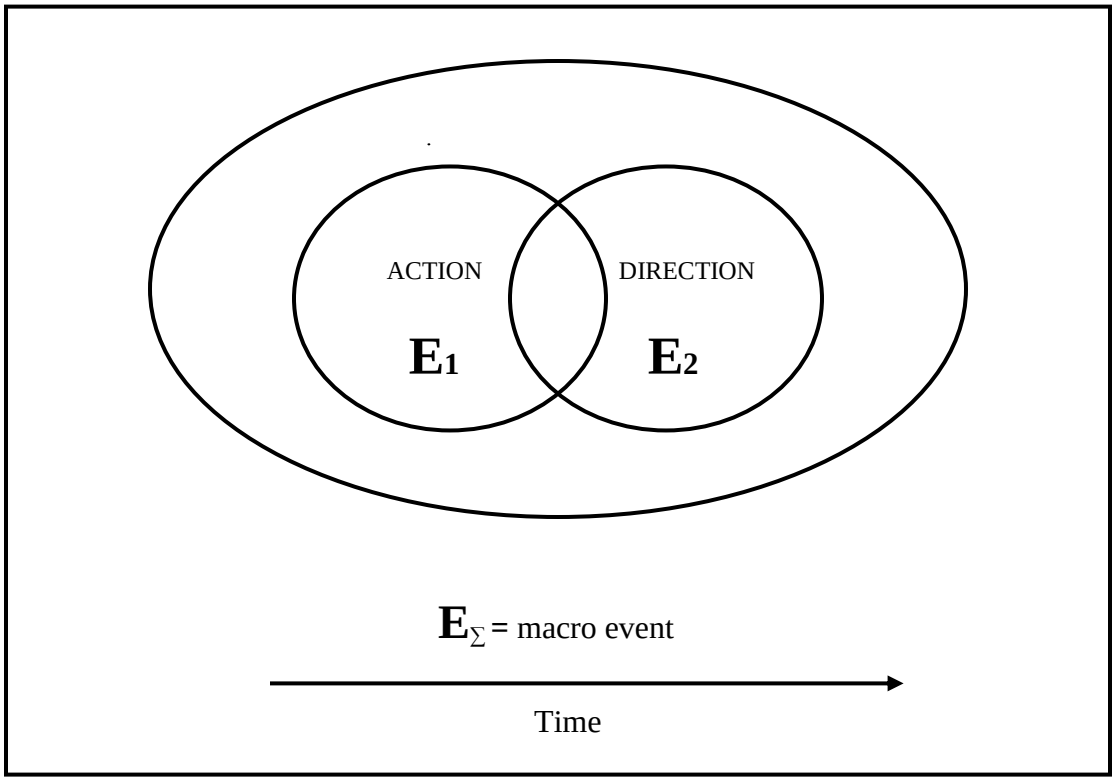


Figure 5.2 Schematic representation of directional constructions

Figure 5.2 displays the limiting case of complete event integration in MVCs. The overlap between the two events indicates that the action phase is accompanied and followed by the direction phase and it also suggests a high degree of event integration. At the composite level, EVENT_1 becomes a core phase and EVENT_2 becomes a termination phase and the result of the action is usually indicated by the transversal of the path or by

reaching the destination. The two events actually coalesce with each other and they are conflated in such a way that they constitute a single macro event (represented by E_{Σ} in Figure 5.2) with two related phases.

5.1.3 Resultative Constructions

In the corpus, we can see another construction—the resultative construction—in which the V2 is also quite restricted lexically (e.g., Mei 1991; Gao 1997). This construction has the schematic form [$V1_{ACTION}$ $V2_{RESULT}$], such that the second verb indicates the result or end state of the action denoted by the first verb. The most commonly used verbs that indicate result are the following phasal or achievement verbs: *dao* 'fall', *diao* 'drop', *kai* 'open, separate', *dao* 'reach, attain, achieve'. These verbs, when serving as complements, express the end phases or achievements of the first verbs. In English, the resulting state is usually indicated by an adjective or prepositional particle—in short, by an atemporal relational predication (Langacker 1987), while in Mandarin, the resulting state is often indicated by a complement verb which usually immediately follows the first verb and admits no intervening aspectual particle.

(100) *Ta* ***tui*** ***dao*** *le* *wo.*
3SG **push** **fall** PERF me
'S/he pushed me down.'

(101) *Zhangsan* ***mo*** ***diao*** *le* *zang* *dongxi.*
Zhangsan **wipe** **drop** PERF dirty thing
'Zhangsan wiped the dirty things away.'

In (100) the result of pushing is that the things being pushed fall; in (101) the result of wiping the dirty things is that the dirty things drop away.

The schematic representation of resultative constructions can be illustrated in Figure 5.3:

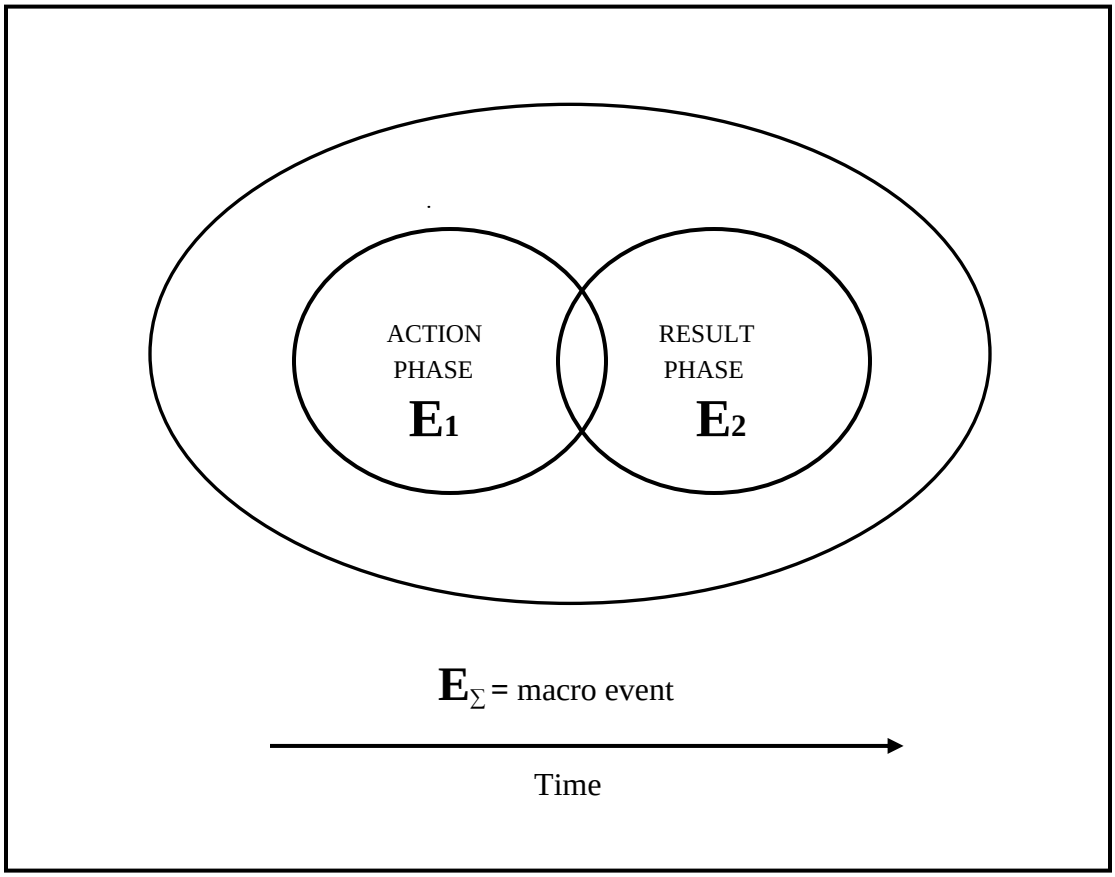


Figure 5.3 Schematic representation of resultative constructions

Figure 5.3 displays another case of a high degree of event integration in MVCs. The overlap between the two events indicates that the ending state of the action phase is the beginning of the result phase and it also suggests a relatively high degree of event interdependence. However, it can be seen from Figure 5.2 and Figure 5.3 that the overlap between the two events in resultative constructions is not as extensive as that in directional constructions, which indicates that the degree of event integration in resultative constructions is a bit weaker than in directional constructions. In these resultative constructions, the invocation of the V2 phase is not absolutely necessary. One

can still have a felicitous sentence with only the V1. As indicated in Figure 5.2 and Figure 5.3, another difference between directional constructions and resultative constructions is that E2 in the former is a direction and that E2 in the latter is a result. At the composite level, EVENT_1 is the core phase and EVENT_2 is only the resultative phase. The two events are tightly conflated to constitute a macro event (represented by $E_{\sum}$ in Figure 5.3) with two related phases.

5.1.4 Pivotal Constructions

In the Chinese linguistics literature, there is one common multi-verb construction called the pivotal construction (e.g., Li & Thompson 1981; Lu 1999). Such a construction has the canonical form [NP_1 V_1 **NP_2** VP_2] with the **NP_2** serving both as the landmark (LM)—the secondary participant for the first event and the trajector (TR)—the primary participant for the second event. As (102) shows, *wo* 'me' acts as both the landmark of V1 *rang* 'let' and trajector of V2 *ganhuo* 'work'. In pivotal constructions, it is often the case that V1 causes V2 to happen in a direct or indirect way. Pivotal constructions are quite common and they are one of the most frequent multi-verb constructions found in the corpus data. However, the range of verbs found in V1 position in such constructions is quite limited.

(102) *ta* *yi* *tian* *dao* *wan* ***rang*** *wo* ***gan*** *huo*
3SGF one day till night **let** me **do** chore
'she let me do chores from morning till night' (LCMC)

(103) *chuangshan* ***shi*** *niao* ***shiqu*** *le* *bufen* *huodong* *nengli*
Injury **make** bird **lose** PERF part movement ability
'the injury made the bird partially lose its ability of movement' (LCMC)

Pivotal constructions behave quite differently from pure clausal complements such as *Wo* ***shuo*** *ni jiu* ***zou*** 'I **say** that you **go (walk)** right away'. With cognitive and

communicative verbs such as *shuo* ‘say’, *xiang* ‘think’ it is possible to add the V1 as an afterthought, as in *Ni jiu zuo, wo shuo* ‘You should go right away, I say’. However, it is impossible to form sentences in this way with pivotal constructions: **Ni jiu zuo, wo qing* ‘You go right away, I ask’ (Chao 1968). In pivotal constructions, the fact that the pivot itself is also the object of the first verb can be seen when it is repeated as a resumptive pronoun and put back in the afterthought form. The resulting ungrammatical sentence which contains the pivol *ni* ‘you’ would be grammatical again, for instance: ***Ni*** *jiu zuo, wo qing* ***ni*** ‘**You** should go, I ask **you**’.

The schematic representation of pivotal constructions can be illustrated in Figure 5.4:

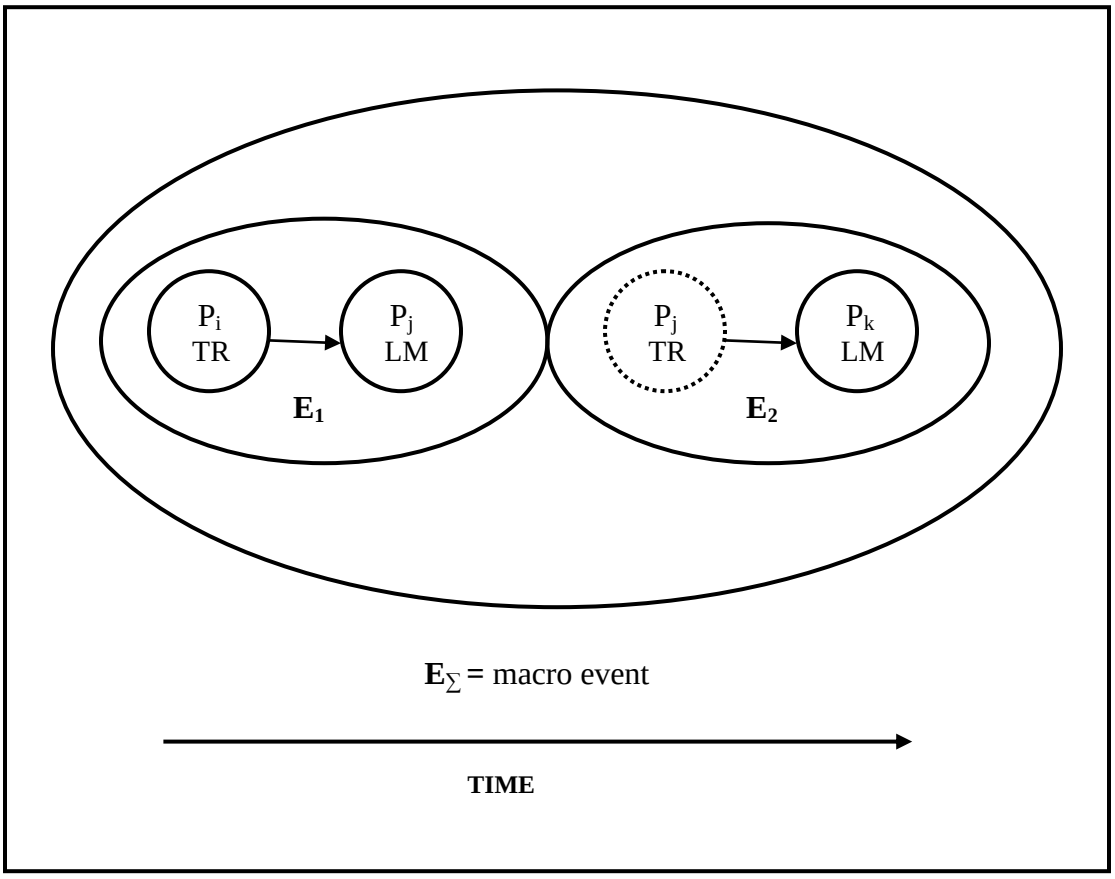


Figure 5.4 Schematic representation of pivotal constructions

Figure 5.4 illustrates a pivotal construction in which the shared participant represented as P_j in the figure acts as both the landmark (LM—expressed as the object) of V1 and the trajector (TR—expressed as the subject) of V2. The big oval encompassing two smaller ovals suggests that $EVENT_1$ and $EVENT_2$ conceptually comprise one macro-event with two phases. The circle in the dashed line in $EVENT_2$ suggests that pivotal constructions feature coercion of the subject of V2 by the object of V1 captured by its templatic construction at the level of its syntactic realization. In pivotal constructions, usually there is a causal

relation between the two events, that is, $EVENT_1$ causes $EVENT_2$ to happen or $EVENT_1$ serves as the cause for the happening of $EVENT_2$.

In pivotal constructions, verbs in the V1 position are mainly causative verbs or communicative verbs. According to the semantic groups of V1 verbs, pivotal constructions can be classified into two major sub-types: CAUSATIVE CONSTRUCTIONS and COMMUNICATIVE PIVOTAL CONSTRUCTIONS. In a causative construction (Li & Thompson 1976), V1 causes V2 to happen and the causing event is usually left vague as in (104). In (104a) the manner of making him/her dance is not stated while in (104b) the manner of the causing event in not specified.

(104) a. *Wo* ***shi*** *ta* ***chang*** *yi* *shou* *ge*.
I **make** 3SG **sing** one CL song
'I made him/her sing a song.'

b. *Ta* ***bi*** *Zhangshan* *chong* ***zuo***.
3SG **force** Zhangshan again **do**
'S/he forced Zhangshan to do (it) again.'

Another sub-type of pivotal construction is the communicative pivotal construction. Examples in (105) illustrate this subtype of pivotal construction.

(105) a. *Wo* ***qing*** *ta* ***chi*** *fan*.
I **ask, invite** 3SG **eat** meal
'I invited him/her to have dinner.'

b. *Ta* ***jiao*** *Zhangshan* ***qu*** *Beijing*.
S/he **call, ask** Zhangshan ***go*** Beijing.
'S/he asked Zhangshan to go to Beijing.'

In communicative pivotal constructions, V1 verbs usually communicative verbs such as *qing* 'ask, invite' and *jiao* 'call, ask'. The status of *qing* 'ask, invite' and *jiao* 'call, ask' as causative verbs is debatable. In this dissertation, following most Mandarin linguists I will treat them as communicative verbs rather than as causative verbs. In communicative

pivotal construction, the first event usually happens before the second and the two events hold a causal relation as examples in (93) indicate.

5.1.5 Complement Constructions

From the discussion of verbs occurring in multi-verb sequences in Chapter Three, it was noted that complement constructions (e.g., Langacker 1991; Lin 2001) are one of the most frequent multi-verb constructions found in the corpus data. The notion of complement construction is well-known in the linguistics literature and I use this term in this dissertation since it will be familiar to most readers. However, I realize that complement constructions are not a homogenous category. The complement construction may be coherent on the basis of form but certainly not coherent on the basis of meaning. At a coarse-grained or more schematic level, all the verbs in this construction can allow a clause to be its complement; however, at a finer-grained or more specific level, it subsumes three major sub-types. We can divide up verbs which frequently occur in complement constructions into ideational verbs, communicative verbs, and aspectual verbs. (In further research, I might redo my analysis and treat them as three different constructions to see how they line up in the continuum of event integration.)

A complement construction has the schematic form [V1 $V2_{COMPLEMENT}$]. In complement constructions, the first verb is generally a communicative or cognitive/desiderative verb, while the second verb is subordinate and the entire clause it heads serves as the complement for the main verb, as the two examples in (106) and (107) show. These examples come from the LCMC.

(106) *pengyou* *du* ***shuo*** ***you*** *guo* *leisi* *de* *jingli*
friends all **say** **have** EXP similar POSS experiences
'all the friends said that (they) had similar experiences'

(107) *wo* *ye* ***xiang*** *gen* *tamen* *yiqi* ***qu*** '*tianguo*'
I also **think, want** with them together **go** heaven
'I also want (to) go to the 'heaven' together with them'

In (106), the VP *youguo leisi de jingli* 'had similar experiences' functions as the complement of the main verb *shuo* 'say' while in (107), the second VP *gen tamen yiqi qu tianguo* 'go to the heaven together with them' is subordinate to the main verb *xiang* 'think, want' as its complement. In (106) and (107), the subject is shared by two verbs.

The schematic representation of complement constructions as in (106) – (107) containing communicative or cognitive matrix verbs can be illustrated in Figure 5.5:

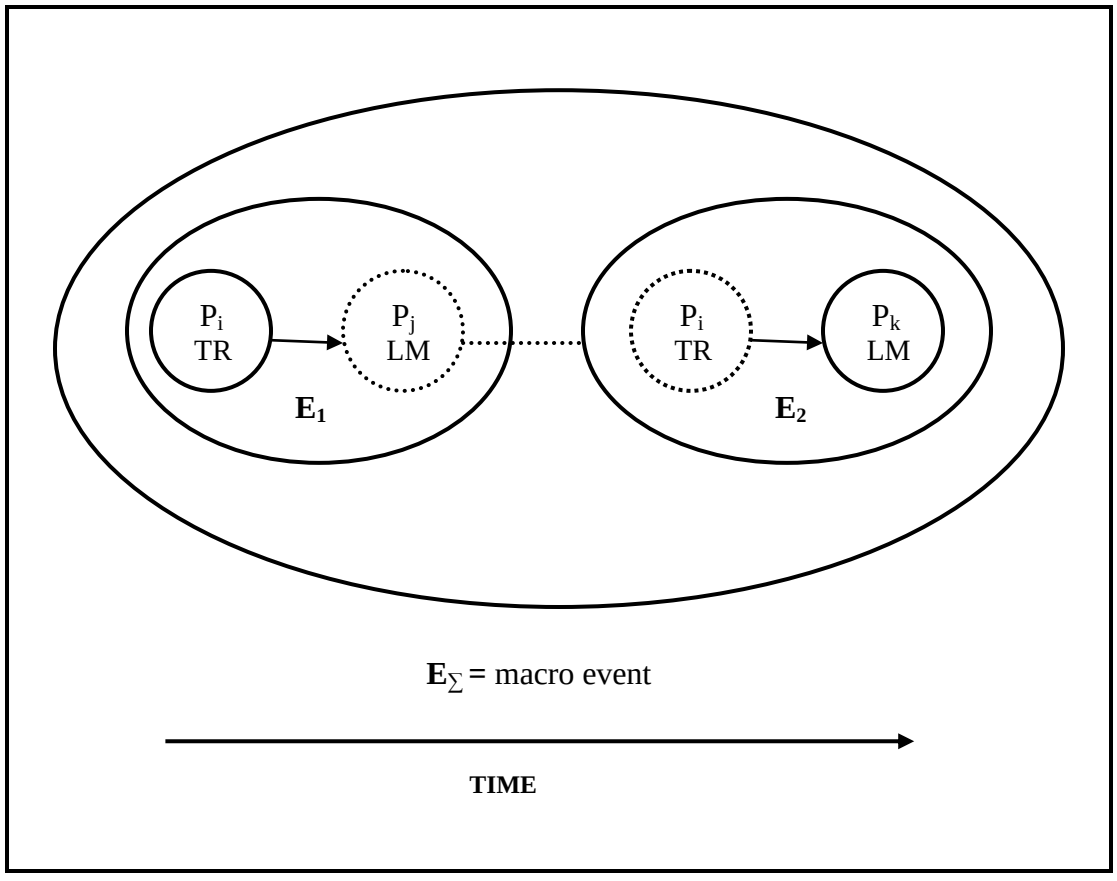


Figure 5.5 Schematic representation of complement clause constructions with a shared subject

In Figure 5.5, EVENT_1 (E1) is denoted by a main verb (V1) while EVENT_2 (E2) is denoted by a subordinate verb (V2). The dotted line which links the landmark of EVENT_1 with EVENT_2 indicates that they are identical. The round dotted circle representing the landmark in EVENT_1 suggests that this is an elaborating site (e-site) which requires an entity to elaborate the landmark. EVENT_2 (E2) expressed as a clausal complement functions to elaborate the landmark (LM) of EVENT_1. In complement constructions, E2 is independent of E1 but the integration comes from the subordination of the profile of E2 to the profile of E1. In Figure 5.5, the participant acting as the trajector of E1 is coindexed with that of E2, which indicates that the two events share the same participant as a trajector. The trajector of E2 in the dashed circle indicates that it is elided at its syntactic realization. The corpus data show that only a limited number of verbs can head such constructions. These verbs are mainly communicative or ideational/desire verbs, but aspectualized verbs such as *kaishi* 'start, begin' are also commonly found requiring a complement of some type, frequently another clause.

5.1.6 Instrument Constructions

Syntactically, the instrument construction (e.g, Li & Thompson 1974b; Lu 1984); has the schematic form [V1 $\text{NP}_{\text{INSTRUMENT}}$ V2] and in this construction the object of V1 is some nominal instrument used to carry out V2. In instrument constructions like (108) and (109), the first event functions as a precursor event whereby an instrument is obtained for the purpose of executing the second event. In (108), the purpose of taking a piece of iron is to pry the lock open while in (109), using a ball(point)-pen is for writing letters. In instrument constructions, the first event always involves an instrument or tool. The verbs

that participate as V1 in marking EVENT_1 in such constructions are very limited and they mainly denote handling actions.

(108) *wo* *jiu* ***na*** *ge* *tie* *pian* ***qiao*** *suo*
I then **take** CL iron piece **pry** lock
'I then took a piece of iron (to) pry the lock'

(109) *ta* ***yong*** *yuanzhubi* ***xie*** *xin*
3SG **use** ball-pen **write** letter
's/he used a ball-pen (to) write letters'

The schematic representation of instrument constructions can be illustrated in Figure 5.6.

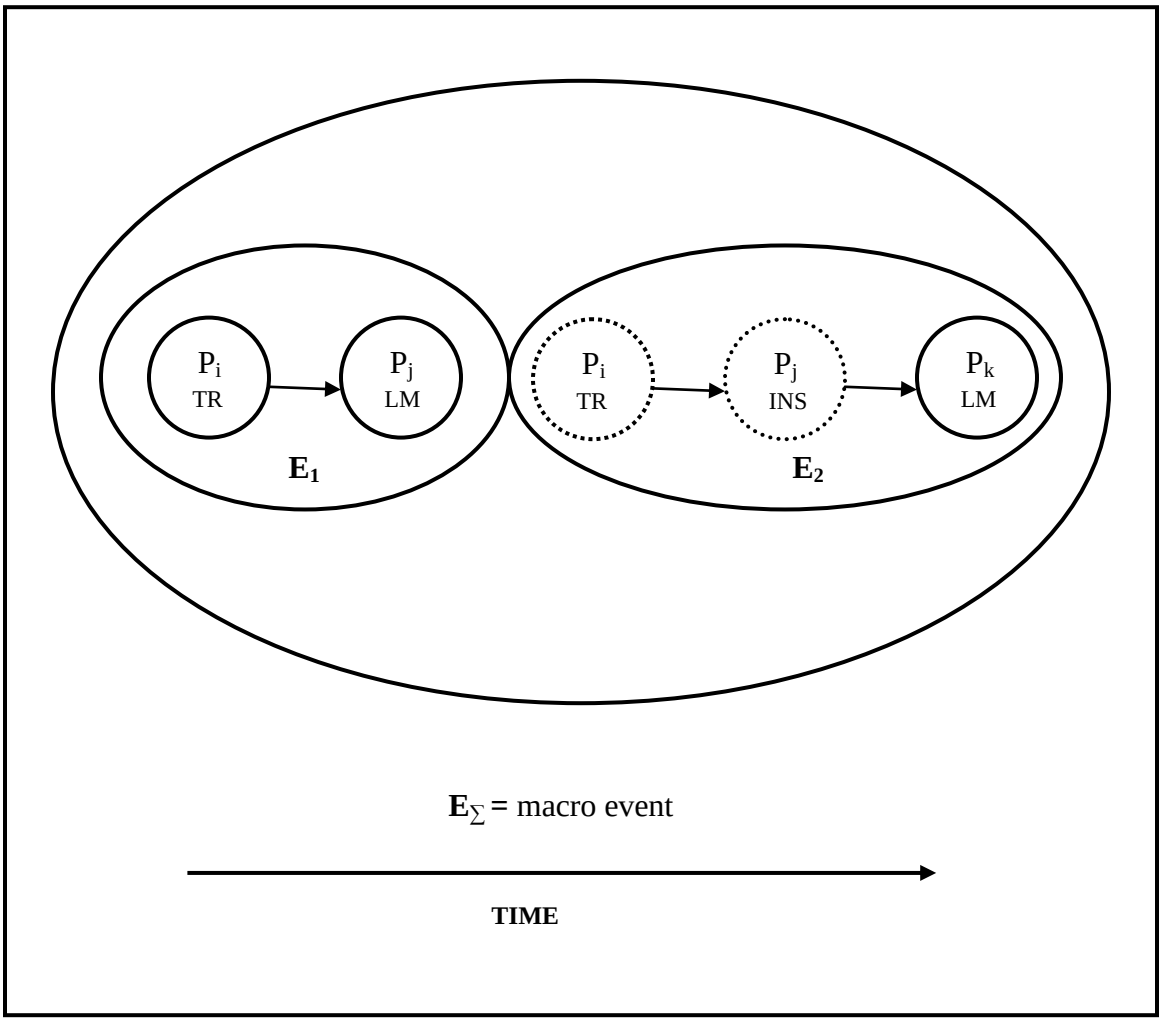


Figure 5.6 Schematic representation of instrument constructions

Figure 5.6 shows that the two participants (Pi and Pj) in $EVENT_1$ (E1) also occur in $EVENT_2$ (E2), which indicates they are identical. The two dashed circles in E2 indicate that Pi and Pj in E2 are elided syntactically, but are very much present semantically. The two events are connected through the instrument (INS) in the way that the instrument is involved in both events. The first sub-event which represents a preparatory phase is about taking up or using the instrument and the second sub-event which represents a core phase specifies achieving something with the instrument. The big oval encompassing the two small circles suggests that $EVENT_1$ and $EVENT_2$ conceptually comprise one unified macro event.

5.1.7 Shared Object Constructions

Multi-verb constructions with shared objects are what Baker (1989) defines as double-headed constructions. In this kind of construction, the two verbs establish a tight purposive relationship. The basic form of MVCs with shared objects is [V_1 $NP_{OBJ\text{-}V1/OBJ\text{-}V2}$ V_2]. In shared object constructions, an intervening object is shared by V1 and V2 as the two examples in (110) and (111) illustrate.

(110) *Wo* *gai* ***shao*** *fan* ***chi*** *le*
I should **cook** rice **eat** PRT
'I should cook rice (to) eat.' (LCMC)

(111) *Ta* ***zhong*** *cai* ***mai***.
3SG **plant** vegetable **sell**
'S/he planted vegetables (to) sell.' (Liu 1991)

In examples (110) and (111), the first part forms the canonical structure SVO. However, for the second verbs *chi* 'eat' in (110) and *mai* 'sell' in (111), even though the profile of the second verb requires a landmark (expressed as an object), each lacks an NP

complement following them to serve as their objects since any coreferential participants are elided. The elision of the post-verbal object of the second verb in shared object constructions signals to the speaker/hearer that the object of the second verb is shared with the first verb, indicating a tight conceptual connection between the two events. There exists a relationship of situational interdependence between the two verbs in this kind of MVC. The first event serves as the means for the second event or the first event is conducted for the purpose of enabling the execution of the second event. In (110) *shao fan* 'cook rice' is for *chi* 'eating'; if the subject doesn't cook rice it is likely that he has no rice to eat. In (111), the purpose of *zhong cai* 'plant vegetables' is *mai cai* 'sell vegetables'; if the subject does not plant vegetables he has no vegetables to sell. So constructions with both a shared subject and a shared object are actually like "tight" purposive clauses. In fact, the case of shared object constructions reflects a kind of iconicity. There is a fundamental iconicity "between the syntax and the semantics of clause linkage: the closer the semantic relationship between two propositions is, the stronger the syntactic link joining them is" (Van Valin & LaPolla 1997: 480). Van Valin and LaPolla (1997) argue that the tightness of the semantic relationship between two units in an expression is mirrored in the closeness of the syntactic relationship between them. Thus, for two VPs the more related semantically, the more integrated/conflated structurally (Foley & Van Valin 1984; Van Valin & LaPolla 1997). Compared to (111), the sentence in (100) is semantically less related.

(112) *Ta* ***zhong*** *cai* ***mai*** *luobo*.
3SG **plant** vegetable **sell** carrot
'S/he planted vegetables and sold carrots.'

Sentence (112) describes two separate events, planting vegetables and selling carrots and the two events do not necessarily enjoy an obvious semantic relation. Unlike (111) in which planting vegetables is unambiguously for the purpose of selling the vegetables later, sentence (112) does not suggest a purposive relation between the two events and, thus, it is structurally less integrated/conflated with the presence of the second object.

The schematic representation of MVCs with shared objects can be illustrated in Figure 5.7:

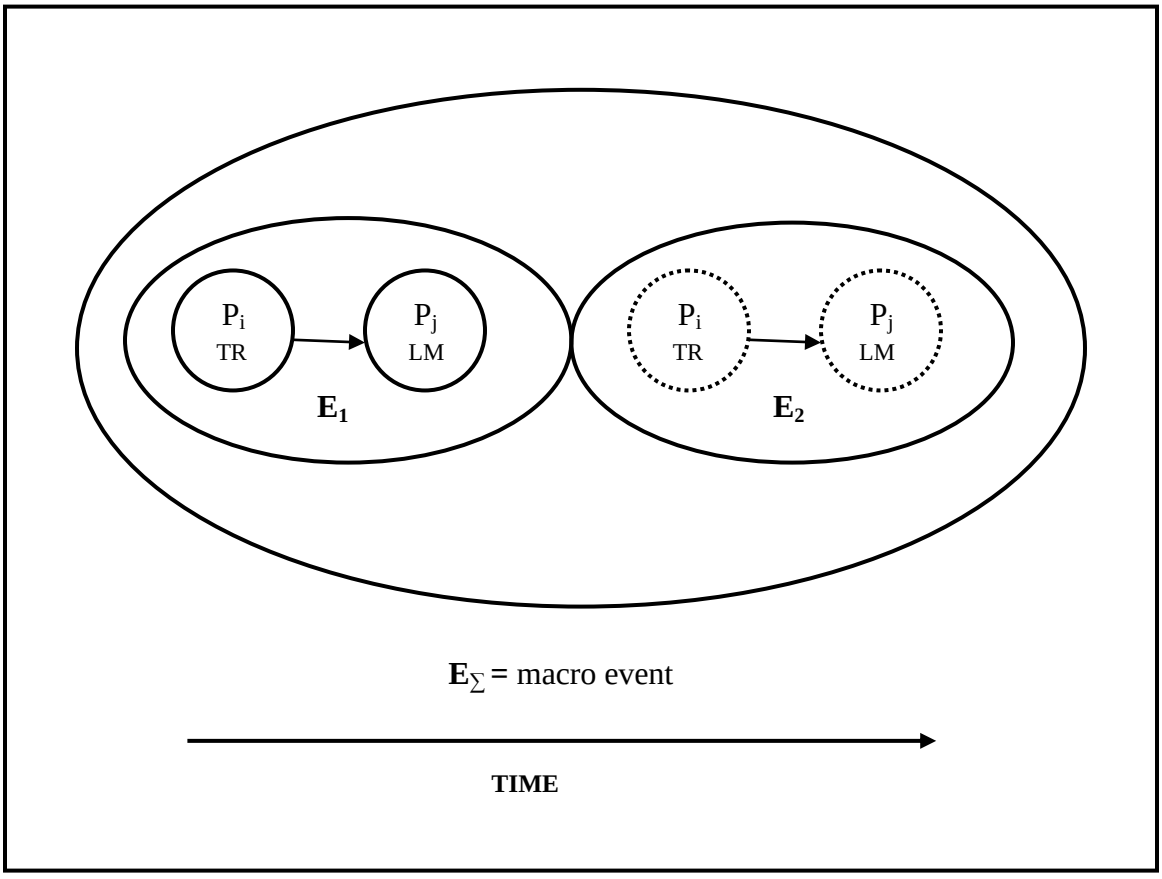


Figure 5.7 Schematic representation of shared object constructions

Figure 5.7 illustrates a shared subject and shared object construction. Figure 5.7 indicates that the two participants in $EVENT_1$ (E1) are co-indexed to those in $EVENT_2$ (E2), which suggests that the trajeoctor (TR) and landmark (LM) of E1 are identical to those in E2. The big oval encompassing the two smaller ovals suggests that $EVENT_1$ and $EVENT_2$ conceptually comprise one unifying event—the macro event with two semantic related phases. The two circles in dashed lines in $EVENT_2$ suggest that the two participants are elided syntactically, which leads to a construction with a shared subject and a shared object as well. The main difference between shared object constructions and pivotal constructions is that the intervening participant between V1 and V2 in a shared object construction acts as an object for both V1 and V2, while in a pivotal construction the shared participant functions as an object for V1 and a subject for V2.

5.1.8 Symmetrical Shared Subject Constructions

From the corpus data, we can see that there is one kind of multi-verb sequence, which does not belong to any of the constructions discussed so far. In this kind of multi-verb sequence, the only participant that is shared by V1 and V2 is the subject. In contrast to the constructions just discussed, both V1 and V2 are varied and no verbs are particularly attracted to one position or another in this type of multi-verb construction. On the basis of lexical openness or restrictedness, multi-verb constructions can be classified into symmetrical multi-verb constructions and asymmetrical multi-verb constructions. If verbs show a preference for occupying one position in a multi-verb sequence over the other and if the set of verbs in one position is more restricted than the set in the other position, then this type of multi-verb sequence probably suggests a somewhat tight degree of event integration and will be considered here as a somewhat idiosyncratic asymmetrical multi-

verb construction. By contrast, if verbs in multi-verb sequences show no particular positional preference and are not lexically restricted, we will consider the sequence to be an open, symmetrical multi-verb construction. Thus, the open symmetrical case is just a kind of simple and fully productive syntactic pattern. One type of symmetrical multi-verb construction is the SYMMETRICAL SHARED SUBJECT CONSTRUCTION (hereafter referred to as simply "shared subject construction") as in (113), which has the form [NP V1(open) V2(open)] and in which both verbs are unrestricted. Such an open symmetrical multi-verb construction subsumes one region of the continuum of event-integration down at the low end.

(113) *ta* *tian* *tian* ***chang*** *ge* ***xie*** *xin*
3sg day day **sing** song **write** letter
'Everyday s/he sings songs and writes letters.' (Li & Thompson 1981: 595)

The schematic representation of shared subject constructions can be illustrated in Figure 5.8.

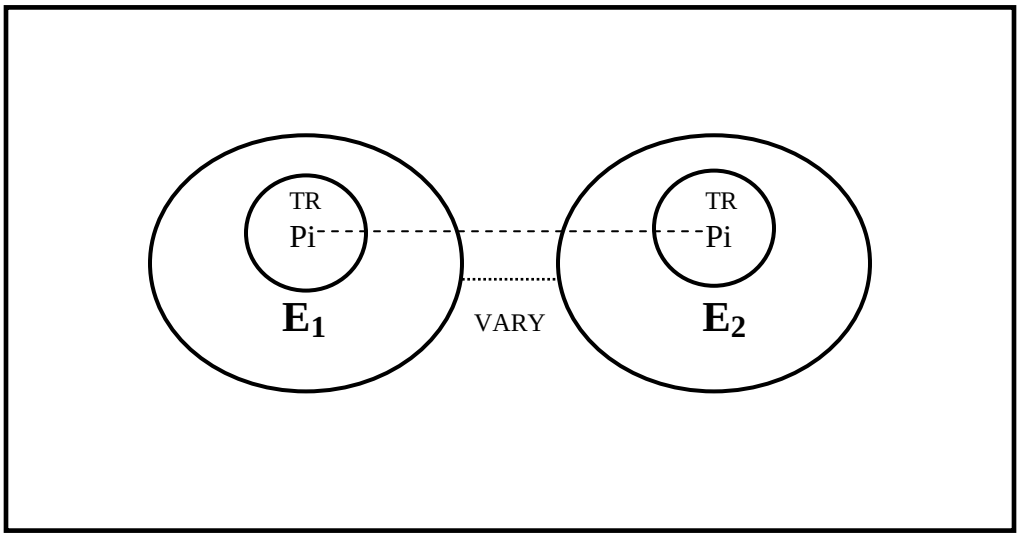


Figure 5.8 Schematic representation of shared subject constructions

Figure 5.8 illustrates a shared subject construction. The dashed line which connects the two participants (in the present case, expressed as subjects) indicates that they are identical and shared by both V1 and V2. The dashed circle in EVENT2 suggests that the trajector is elided at its syntactic realization. The dotted line between $EVENT_1$ and $EVENT_2$ indicates that the two events are integrated to varying degrees.

In the corpus data, we can see that there are two major sub-types which belong to this shared subject construction, based on lexical fixedness by position as well as on degree of semantic inter-relatedness of the two events. There are instances of multi-verb sequences in which two verbs share a subject and each verb profiles an individual event to form a PLAIN COORDINATE CONSTRUCTION. In plain coordinate constructions (e.g., Croft 2001; Lin 2001), there is only a weak semantic relation without any tight causal or purposive relationship between them. The following examples from the LCMC illustrate a plain coordinate expression with a shared subject.

(114) a. *Anying*、*Anqing* *yu* *dongshi* *yi* *jia* *lao* *shao*
Anying, *Anqing* with Dong's family one family old young
tong ***chi*** *tong* ***zhu***
together **eat** together **live**
'Anying, Anqing ate together (and) lived together with Dong's family of the old and the young'.

b. *jiajia* ***zhu*** *xin* *fang* ***mai*** *dianshi*
every.family **live** new house **buy** TV
'every family lived in a new house (and) bought a TV'

c. *ta* ***shuowan*** ***kankan*** *shoubiao*
3SGM **speak.over** **look** watch
'He finished his speaking (and) had a look at the watch'

In (114a), the two events *tongchi tongzhu* 'eat together (and) live together' happened simultaneously while the two events in (114b) and (114c) seem to be in a sequential

relation. However, the two verbs in each of these examples are relatively independent and they do not stand in a main/subordinate relationship. The two events denoted by the two events in these examples do not hold a purposive or causal relation.

Another sub-type of shared subject construction is the PURPOSIVE CONSTRUCTION (e.g., Tai 1985; Chan 1997). In such a case, the two events bear a purposive relationship to each other and the second event denoted by V2 specifies the purpose of the first event denoted by V1. Purposive constructions are understood to have a tighter integration between their two events than plain coordinate constructions do.

(115) a. *Zhibanyuan* ***tai*** *tou* ***kan*** *rili*.
person.on.duty **raise** head **look** calendar
'The person on duty raised his head (to) look at the calendar.'
(LCMC)

b. *women* ***zhao*** *ge* *jiulou* ***he*** *liang* *bei*
we look.for CL wine.house drink two glass
'We look for a bar for drinking a couple of glasses of (wine).' (LCMC)

In (115a), the purpose of raising the head is understood to be so the calendar can be looked at, while in (115b) finding a bar is necessary for drinking a couple of glasses of wine there. These sentences have a purposive interpretation whereby the first event is performed in order to achieve the execution of the second. For a multi-verb sequence to invite a purposive interpretation, it is important that the purpose often be realizable in relatively the same time frame as the V1 (Chan 1998). Tai (1985: 50) claims that multi-verb constructions like purposive constructions or resultative constructions abide by the principle of temporal sequence, which holds that "the relative word order between two syntactic units is determined by the temporal order of the state which they represent in the conceptual world". Mandarin is a near isolating language with very few markers of tense or temporal relations. Semantic functions are largely indicated by word order. Even

without overt temporal markers, Mandarin sentences can be interpreted appropriately because the default interpretation is based on the iconicity of temporal sequence (Chan, 1997). In purposive constructions, the first event is conducted before the second and, accordingly, EVENT_1 is chronologically and syntactically ordered before EVENT_2. Thus, the temporal sequence between two verbal phrases in purposive constructions mirrors the chronological order of their temporal phases. In (115a) and (115b), the first event precedes the second and the performance of the first event is critical to enable the execution of the second. Nevertheless, not a lot of time passes between the execution of the first and second events and they are considered to be inter-related.

5.1.9 Syntactic and Semantic Characteristics of Multi-verb Constructions

In this chapter, I have discussed the many types of multi-verb constructions which were returned from the corpus search. Note that these constructions are greater in number than the garden-variety "coordinating", "subordinating", and "serializing" syntactic structures that have been the focus of much of the Chinese linguistics literature, as discussed in Chapter Two. Table 5.2 summarizes the syntactic and semantic characteristics of these major construction types. Table 5.2 shows that a particular construction is linked to particular meanings. Constructional meanings largely determine what kind of verb is compatible with the construction. Lexical restrictedness can be operationalized by measuring type/token ratios (the number of different verb types/number of total verb tokens), which will be discussed in detail in Chapter 6. There are often specific lexical affinities associated with particular types of multi-verb constructions. Lexical affinity or attraction is reflected in *attraction scores* (the raw frequency of occurrences of a lexical

item in a pattern divided by the total occurrences of the pattern), a measure which will be explored in detail in Chapter 7.

Construction Type	Syntactic Representation	Schematic Meaning
Motion Construction	$V1_{MOTION}$ V2	a motion event denoted by V1 is carried out for the purpose of conducting another event
Directional Construction	$V1_{MOTION/ACTION}$ $V2_{DIRECTION}$	the second verb signifies the path or direction of the first verb
Resultative Construction	$V1_{ACTION}$ $V2_{RESULT}$	the second verb indicates the result or end state of the action of the first verb
Pivotal Construction	V1 $NP_{OBJ\text{-}V1/SUBJ\text{-}V2}$ V2	a participant acts as the landmark for the first event and the trajectory for the second event; the two events have a causal relation
Complement Construction	V1 $V2_{COMPLEMENT}$	the second event is backgrounded and serves as the landmark (complement) for the first event
Instrument Construction	V1 $NP_{INSTRUMENT}$ V2	a shared instrument is involved in both events and the second event serves as the purpose of the first event
Shared object construction	V1 $NP_{OBJ\text{-}V1/OBJ\text{-}V2}$ V2	two events share a second participant and the second event is the purpose of the first event
Shared subject construction	SUBJ V1(open) V2(open)	two more or less co-equal events are integrated to varying degrees

Table 5.2 Construction types and their syntactic and semantic characteristics

Now that the syntactic and semantic characteristics of the major construction types have been discussed, it will be interesting to look at the relative frequency of different types of multi-verb constructions that have been discussed in this chapter. I turn to these comparisons next.

5.2 Frequency and Event Integration of Multi-verb Sequences

In the literature regarding Mandarin multi-verb sequences, focus is placed either on what types of multi-verb sequences can be considered eligible SVCs or on whether they involve structures of coordination or subordination or both. The full spectrum of multi-verb sequences has not been adequately explored. The distribution and the function of particular types of multi-verb constructions and the lexical attraction/affinity or repulsion between individual verbs and individual constructions has been largely ignored. The corpus results from the LCMC inform us of the actual distributions of multi-verb constructions in real language data. Figure 5.8 reflects the distributions of type frequencies of verbs and token frequencies of the constructions just discussed involving two-verb sequences.

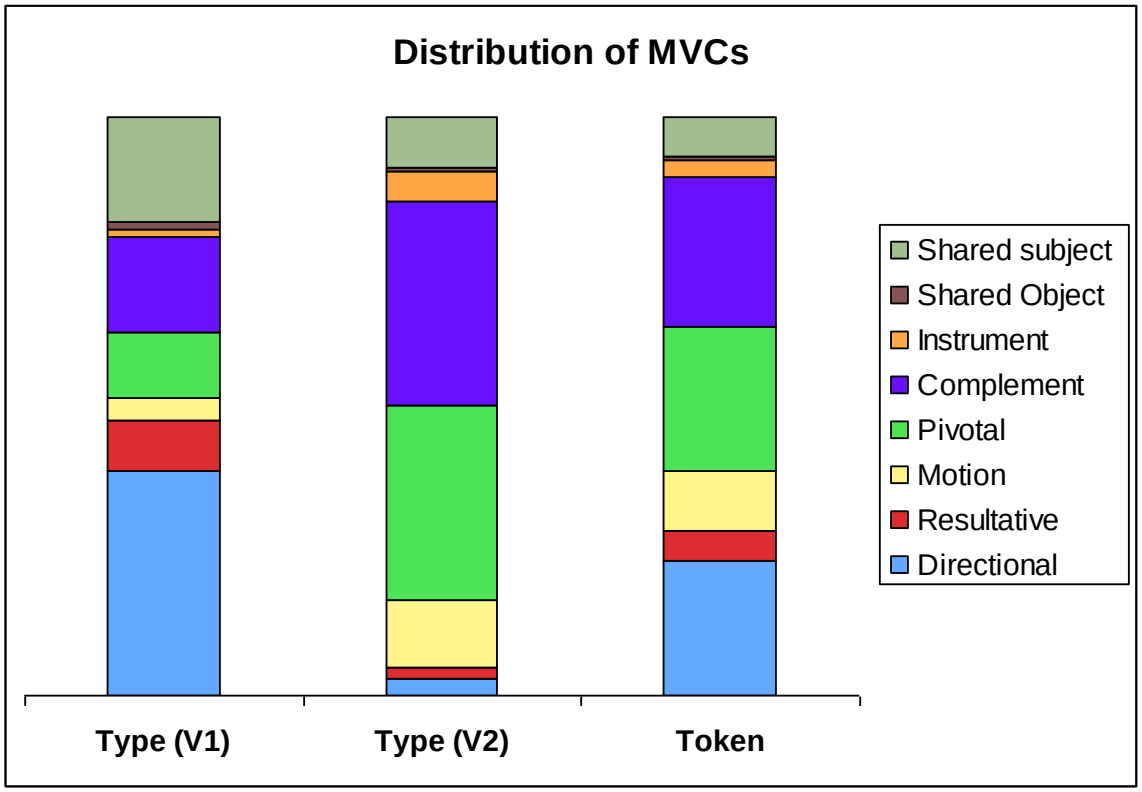


Figure 5.9 Distribution in the LCMC of type frequencies of verbs and token frequencies of multi-verb constructions in two-verb sequences

Figure 5.9 indicates that, generally, there is a kind of imbalance between type frequencies of V1 and those of V2; that is, there are more verb types in one position than in the other in certain multi-verb constructions. This kind of imbalance will be addressed in detail in Chapter Six. It can be seen from the distribution of token frequencies in Figure 5.9 that the three most common types of multi-verb constructions in two-verb sequences are directional constructions, pivotal constructions and complement constructions. Motion constructions are also used frequently. Though pivotal constructions are highly frequent in Mandarin Chinese, most linguists have dismissed such a common multi-verb construction in their discussions about SVCs. The reason for

the exclusion of this construction from other SVCs is that it is commonly believed that the pivotal construction has distinctive characteristics from other SVCs since, in pivotal constructions, one participant (the pivot) is shared by V1 as its object and by V2 as its subject. Nevertheless, the sharing of an intervening participant by two verbs is not unique to pivotal constructions. There are other multi-verb constructions which also have an intervening participant shared by the two verbs. For example, in shared object constructions there is an intervening participant which is shared by both V1 and V2 as their object. However, in the Mandarin Chinese linguistic literature on SVCs, the shared object construction is often considered to be the quintessential—if not the only—type of serial verb construction (e.g. Chang 1990; Liu 1991). It seems to me that there is no justification in excluding one type of multi-verb sequence (in which an intervening participant functions as the object of V1 and also the logical subject of V2) from the category of SVCs, while including another (in which an intervening participant acts as an object for both V1 and V2) as a typical case of SVCs. In the literature (e.g. Chang 1990; Dai 1990; Paul 2004), the inclusion or exclusion of one type of multi-verb sequence in the SVC category seems rather arbitrary.

In Figure 5.9, we see another surprising result from the corpus queries: the infrequency of the shared object construction. In much of the literature regarding SVCs, the shared object construction is discussed both extensively and intensively, if not exclusively. Some linguists argue that this kind of multi-verb construction is the only kind of SVC in Mandarin Chinese or any other language. However, the corpus results indicate that this construction is not common at all. As will be shown in Chapter Seven, verbs in shared object constructions are largely limited to a small set of possible verbs. If

the shared object construction is the only type of SVC in Mandarin Chinese as some linguists claim it to be, there is no justification at all to call Mandarin Chinese a verb-serialized language since the corpus results indicate that shared object constructions are not at all common, at least not in written Mandarin Chinese.

Figure 5.9 shows that complement constructions have the highest frequency among all V1–V2 sequences returned from the corpus query. Chinese lacks complementizers and the sharing of participants by predicates is quite common. If a matrix verb and a subordinate verb which serves as its complement share the same subject in Mandarin, a tight implicational sequence is likely to be inferred and the overall V–V sequence is likely to be analyzed as some kind of multi-verb construction. The pivotal construction is the second highest in frequency, as shown in Figure 5.8. In the causative pivotal construction, a kind of causal relationship exists between V1 and V2 while in the non-causative pivotal construction, a purposive relationship often holds between V1 and V2. Talmy (2000) claims that Mandarin Chinese is a satellite-framed language and verb satellites such as directional satellites are very productive in Mandarin. It is not surprising that the directional construction is also quite high in frequency in Mandarin Chinese. In directional constructions, the second verb indicates the real or abstract directional path of the motion or action expressed by V1. Motion verbs also regularly participate in multi-verb constructions and there is usually a tight semantic relation inferred between V1 and V2 in this kind of construction. Therefore, it is often the case that the two sub-events in multi-verb constructions are integrated to varying degrees. In short, there is a general iconicity that obtains between structural adjacency or proximity and meaning integration. Verbs in sequence in Mandarin are expected to be

closely linked semantically. However, when we add the factor of lexicality (which particular verbs can co-occur and in which positions), we find a wide range of discernible constructions emerging from the plethora of multi-verb sequences.

From the discussion of construction types, their frequency, and lexical openness or restrictedness, it can be found that there is a tendency for multi-verb sequences in Mandarin to encode a single but complex event or two phases of one overall macro event rather than two separate events, as might be expected by the presence of two verbs. Moreover, there are just not many instances of multi-verb sequences without purposive or other semantic interpretations in the corpus data. In fact, in those multi-verb constructions which have been traditionally considered SVCs in the literature, mostly V1 and V2 bear a kind of semantic relation such as a causal, purposive, or consequential relationship. Thus, multi-verb sequences in Mandarin Chinese are frequently employed to code one overall event with two phases or two related sub-events under one semantic umbrella though the degree and nature of event integration can vary widely from construction to construction.

Multi-verb sequences found in the LCMC display a continuum of event integration/independence between two extremes. Among multi-verb constructions, plain coordinate constructions seem to be the limiting case of full event independence on one end of the scale, while directional constructions could be taken as the limiting case of full event integration on the other end. Purposive constructions display tighter event integration than plain coordinate expressions do. In coordinate constructions, there is no obvious semantic relation or only a weak one between the two verbs. In contrast to coordinate constructions, purposive constructions do signal a sense of purposive relation between the two events denoted by the two verbs. Like purposive constructions, shared

object constructions also manifest a purposive relation between the two verbs. However, shared object constructions, in which the object is shared by both verbs, suggest a tighter purposive relation than pure purposive expressions do. The instrument construction in which the instrument is involved in both events signals a tight purposive relation as well between its sub-events. However, instrument constructions in which the two sub-events happen more or less simultaneously display tighter event integration than shared object constructions in which two events happen sequentially. In instrument constructions, the first verb *yong* 'use' might be in the process of grammaticalizing into an instrumental marker. Pivotal constructions and complement constructions seem to be in the middle of the continuum of event integration. Pivotal constructions in which two events have a causal relation and complement constructions in which the main event subsumes the subordinate event suggest tighter degrees of event integration of their (sub)-events than shared object constructions or instrument constructions do. Complement constructions in which EVENT_2 denoted by the subordinate verb is not quite dependent on EVENT_1 denoted by the main verb and the integration results from the subordination of EVENT_2 to the profile of EVENT_1 display lower event integration characteristics than pivotal constructions. The event integration of pivotal constructions and complement constructions is not as tight as that of motion constructions. In motion constructions, two verbs which are typically *lai* 'come' or *qu* 'go' are frequently contiguous, reflecting a high degree of event integration. In some cases, *lai* 'come' or *qu* 'go' in motion constructions is more likely to express fictive motion rather than real motion to indicate purposefulness or intentionality. The event integration expressed in resultative constructions and directional constructions places them at the highly integrated end of the

continuum. In these two constructions, V1 and V2 are usually immediately adjacent to one another. Directional constructions in which a tiny subset of V2 motion verbs have grammaticalized to some extent to indicate direction or path are the limiting case of event integration among MVCs. The continuum of event integration/independence reflected in various MVCs is illustrated in Table 5.3. Degrees of event integration manifested in various multi-verb constructions will be further explored in the next chapter in this dissertation when the correlation between lexical type/token ratios by position in a construction and event integration of the overall construction is investigated.

Event Integration Scale	**Construction Type**
Event Interdependence	Directional construction
↕	Resultative construction
	Motion construction
	Pivotal construction
	Complement construction
	Instrument construction
	Shared object construction
	Shared subject construction
	Purposive construction
Event Independence	*Coordinate construction*

Table 5.3 Degrees of event integration/independence manifested in various multi-verb constructions

Chapter Six

Correlation between Type/Token Ratios and Event Integration in MVCs

In this section, I will explore the lexical type/token ratios of verbs participating in multi-verb sequences containing two verbs. Multi-verb sequences with two verbs are the most frequent and, moreover, they represent the simplest and most straightforward case for deciding which position, V1 or V2, a verb in a multi-verb sequence is in, as well as the identity of the overall construction type. In multi-verb sequences with three or more verbs, things are more complicated. For example, the sentence *Wo yong dao ge rou chi* 'I use knife cut meat eat' contains two kinds of MVCs: the instrument construction and the shared object construction. In this example, the shared object construction (*ge rou chi* 'cut meat eat') is nested in another MVC. The verb *ge* 'cut' can be analyzed as V1 in the shared object construction, but it can also be treated as V2 in the instrument construction. In multi-verb sequences with two verbs, there is no such problem of nesting or embedding. Therefore, in this chapter I will focus on the multi-verb sequences with two verbs occurring in the 15,000 returns which form the basis of my corpus analysis for this dissertation. More specifically, I will discuss the relation between the degree of event integration and the type/token ratios of verbs in particular positions in multi-verb constructions. I will argue that the type/token ratio of verbs correlates with the degree of

integration of various multi-verb constructions and that this ratio can become an indicator, if not a metric of being considered as a relatively specific construction.

It has been noticed that, in general, there are fewer verb types in one position than in another in multi-verb constructions. In most multi-verb constructions, verbs used as V1 are more restricted while verbs used as V2 are more open and productive. This fact reflects a kind of asymmetry within multi-verb constructions in terms of the lexical density of verb types. More verb types in verb positions equate with more lexical diversity and a more schematic type of construction. On the other hand, fewer verb types for given verbal positions signal more lexical rigidity and suggest that the construction is more fixed, idiosyncratic, and probably conveys stronger semantic meanings and pragmatic associations because of the tighter link between the construction type and a small set of verbs. Table 6.1 links the types of multi-verb constructions discussed in the previous chapter and the ratio of type frequency over token frequency for V1 position of these multi-verb constructions. This ratio was obtained by dividing type frequency (number of different verbs) of V1 verbs by token frequency (all occurrences of different verbs) of V1 verbs. Each verb is counted as a type and every occurrence of that verb as a token. A higher type/token ratio suggests more lexical diversity and structural openness while a lower ratio suggests more lexical fixedness and a stronger specific constructional identity.

Construction Type	Type Freq	Token Freq	Ratio of V1 types over V1 tokens
Directional construction	150	371	0.40
Resultative construction	34	84	0.41
Motion construction	15	165	**0.09**
Pivotal construction	43	397	**0.11**
Causative construction	7	226	0.03
Communicative pivotal construction	6	132	0.05
Complement construction	64	414	**0.16**
Instrument construction	5	45	**0.11**
Shared object construction	5	10	0.50
Shared subject construction	70	110	0.64
Coordinate construction	18	24	0.75
Purposive construction	46	73	0.63

Table 6.1 Construction types and the ratio of type frequency over token frequency for V1 in two-verb sequences

Table 6.1 indicates that verbs in V1 position for the four multi-verb constructions, motion constructions, complement construction, instrument constructions and pivotal constructions, are quite restricted lexically. In all of these constructions, on average out of ten instances fewer than two different verbs occur in the V1 position. On the other hand, the shared subject construction has the highest type/token ratio and the range of lexical items occupying V1 in this construction is diverse and the least restricted. This is why the construction gets characterized in syntactic terms ("shared subject") rather than on semantic grounds. Simply put, it lacks a concrete, specific functional identity.

Compared with verbs in the V1 position, verbs in the V2 position for the multi-verb constructions under study here are not so restricted. However, verbs in the V2 position are quite fixed in directional or resultative constructions, as Table 6.2 indicates.

This is because in these two constructions, it is often the case that there is a small set of motion or achievement/phase verbs in the V2 position and these verbs frequently specify direction (path) or they indicate result. On the other hand, verbs in the V2 slot in instrument constructions are quite open as the type/token ratio suggests, which indicates that the purpose of using instruments to perform actions or conduct activities is quite varied.

Construction Type	**Type Freq**	**Token Freq**	**Ratio of V2 types over V2 tokens**
Directional construction	21	371	0.06
Resultative construction	12	84	0.14
Motion construction	82	165	0.50
Pivotal construction	237	397	0.60
Causative construction	149	226	0.65
Communicative pivotal construction	103	132	0.75
Complement construction	246	414	0.59
Instrument construction	37	45	**0.82**
Shared object construction	5	10	0.50
Shared subject construction	61	110	0.56
Coordinate construction	19	24	0.79
Purposive construction	37	73	0.51

Table 6.2 Construction types and the ratio of type frequency over token frequency for V2 in two-verb sequences

The type/token frequency results from the corpus data displayed in Table 6.1 and Table 6.2 suggest that lexical density/diversity in the verb positions display three major patterns: (1) non-restrictedness in both V1 and V2 positions; (2) restrictedness in the V1 position; (3) restrictedness in the V2 position. Figures 6.1 to 6.3 represent a

schematization of the different lexical ranges available in the V1 and V2 positions, respectively.

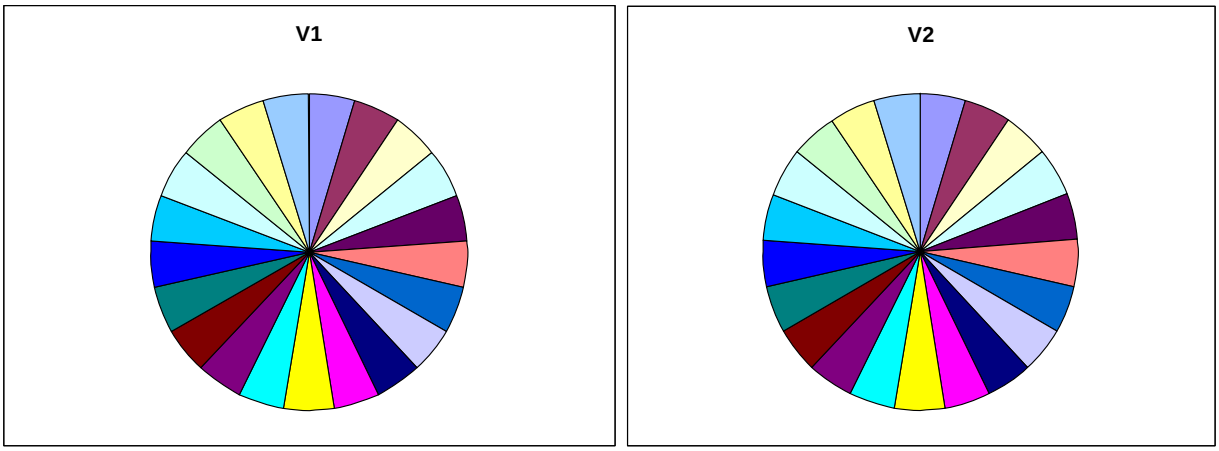


Figure 6.1 Schematization of non-restrictedness in both V1 and V2 positions

Figure 6.1 illustrates one type of lexical density typically associated with shared subject constructions. The two pie diagrams schematically represent different degrees of lexical diversity or fixedness in the V1 and V2 slots, respectively. The pies are divided into sections with different colors and each color represents one lexical type. The more sections, the higher the lexical density and the less fixed or entrenched the construction is likely to be. In shared subject constructions, the two pies display roughly the same pattern; that is, there are many verb types in both the V1 and V2 slot. This suggests that verbs in shared subject constructions are quite open and that there is little restriction on which verbs can enter into such constructions. It also explains why it is difficult to characterize such constructions semantically.

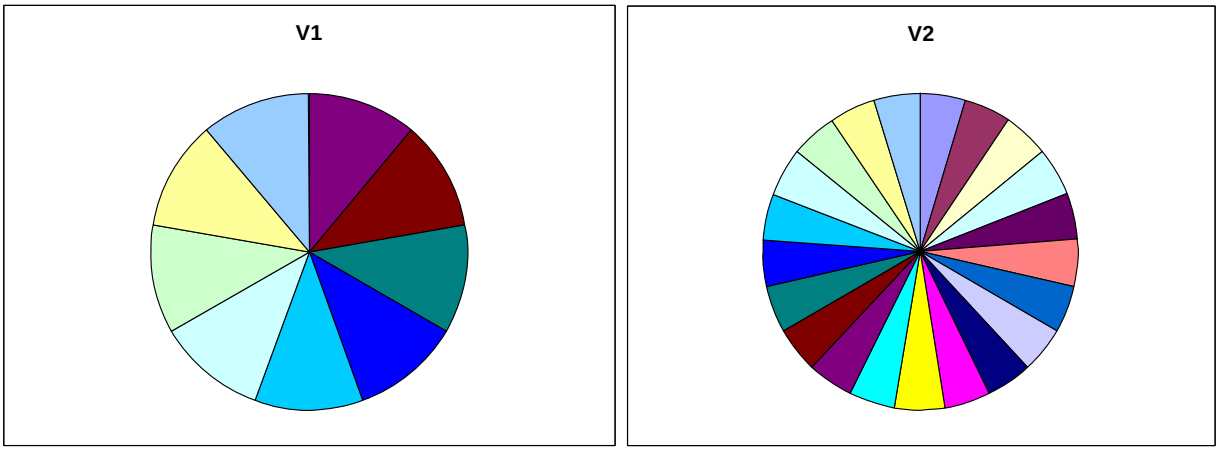


Figure 6.2 Schematization of restrictedness in the V1 position

In Figure 6.2, there are many more colored sections representing distinct verb types in the V2 slot than in the V1 slot, which suggests that verbs in the V1 position are more restricted and verbs in the V2 position are more open. This pattern is associated with multi-verb constructions like complement constructions, in which the V1 position only allows those verbs which require other verbs to serve as their landmarks, and pivotal constructions, in which verbs in the V1 position are mainly causative verbs or requesting verbs. Figure 6.2 illustrates those asymmetrical multi-verb constructions with V1 being relatively fixed and dependent.

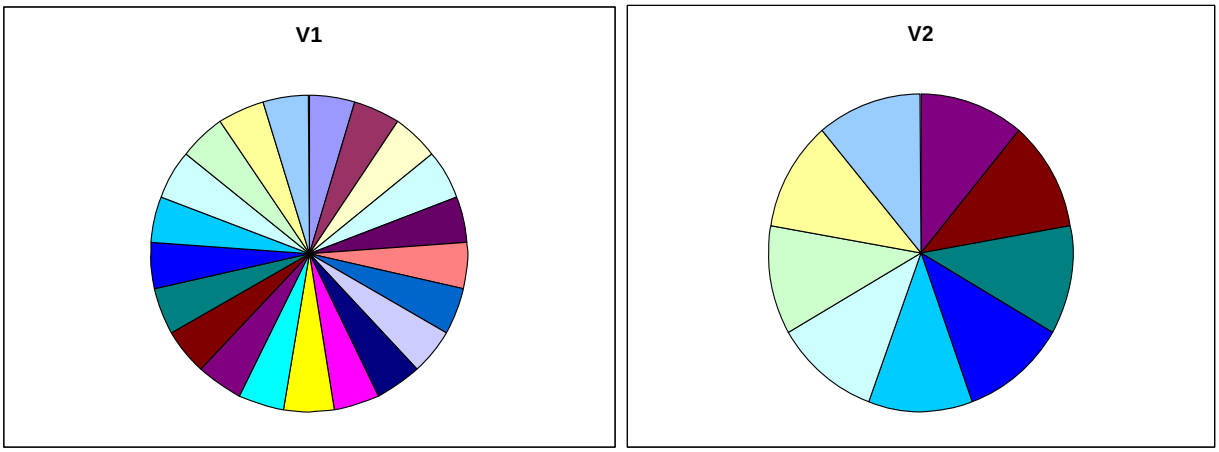


Figure 6.3 Schematization of restrictedness in the V2 position

In Figure 6.3, there are more sections in the V1 slot than in the V2 slot, which suggests that verbs in the V1 slot are more lexical diverse and open, while verbs in the V2 slot are quite fixed for some multi-verb constructions. Among the different MVC types, it is with directional constructions and resultative constructions that the verbs in the V2 position are rather narrow semantically. In the former case, V2 is basically occupied by motion verbs and, in resultative constructions, the V2 position is mainly comprised of achievement or phase verbs. Figure 6.3 illustrates those asymmetrical MVCs showing V2 being the more dependent and restricted position.

Figures 6.1 to 6.3 illustrate major patterns of lexical density in multi-verb constructions. Lexical restrictedness can be useful for determining if a certain type of multi-verb sequence is more likely to be a specific construction or a general one. Constructions with multi-verbs typically display a kind of asymmetry in the way that the range of verbs in one slot is more restricted while the verb options for the other slot are

more open. This asymmetry is reflected whenever there is an imbalance of type frequency for the two verbal slots.

Table 6.3 illustrates the cumulative ratio of type frequency over token frequency of V1 and V2 in two-verb sequences and this ratio reflects a kind of degree of lexical restrictedness.

Event Integration	**Types**	**Cumulative Ratio of V1 and V2**
Event Interdependence	Directional construction	0.46
	Resultative construction	0.55
	Motion construction	0.59
	Pivotal construction	0.71
	Causative construction	0.68
	Communicative pivotal construction	0.80
	Complement construction	0.75
	Instrument construction	0.93
	Shared object construction	1.0
	Shared subject construction	1.2
	Purposive construction	1.14
Event Independence	*Coordinate construction*	1.54

Table 6.3 Construction types and cumulative ratio of type frequency over token frequency of V1 and V2 in two-verb sequences

Table 6.3 indicates that multi-verb constructions in Mandarin display a continuum between fixedness and freedom in their selection of lexical items to fill the two verb slots. One extreme case is the shared subject construction in which we can find nearly any verb in both the V1 and V2 position; this multi-verb sequence pattern displays a high type/token ratio for both verbs (symmetrical), which indicates a high degree of lexical diversity and a low degree of constructional integrity. The other extreme case is the

directional construction in which the second verb is always a motion verb, typically *chulai* ‘come out’, *qilai* ‘get up’, *lai* ‘come’, or *qu* ‘go’, though these motion verbs can also be found in the V1 position. In directional constructions, motion verbs in the V2 position often do not specify literal motion but express an abstract motion or they indicate path or direction. Directional constructions display a low type/token ratio for both verbs though verbs in the V2 position are much more restricted (asymmetrical). Between shared subject constructions and directional constructions, there is the middle ground in which we find strong preferences for certain verbs in one position or big imbalances between V1 and V2 in terms of lexical density. It is often the case that a restricted set of verbs presumably with high token frequency occur in one position but a wider range of verbs are allowed in the other position. Small sets of verbs in these asymmetrical MVCs are usually associated with a single semantic field (e.g., communication or cognition) and they often have become grammaticalized to some extent (e.g., inceptive or completive verbs). These semantically restricted verbs, as have emerged from the corpus results, often indicate causation, or express directional, instrumental, or aspectual meanings. Generally, multi-verb constructions show a certain lexical affinity. Lexical restrictedness, as measured in type/token ratios of verbs, can be regarded as a symptom of being a relatively specific construction, whereby the structural frame is tightly linked to specific lexical items and the entire string is associated with a specific semantic or pragmatic meaning. A multi-verb sequence type is more likely to be thought of as a specific construction which assumes a tight form-meaning pairing if it is lexically restricted, but more likely to be deemed a general syntactic pattern (schematic or abstract construction) if it is more lexically unrestricted.

Table 6.3 also indicates that the type/token ratios displayed in these multi-verb constructions forms a continuum. There is a link between the cumulative ratio displayed in Table 6.3 and a cline of event-integration manifested in various MVCs, which was established in the previous chapter. The continuum of type/token ratios seems to be correlated with the relative degree of event-integration with lower ratios correlating with higher degrees of event integration and lexical fixedness and with higher ratios correlating with higher degrees of event independence and lexical diversity.

Figure 6.4 illustrates the type/token ratios of V1, V2 and the cumulative type/token ratios of V1 and V2 for different types of constructions.

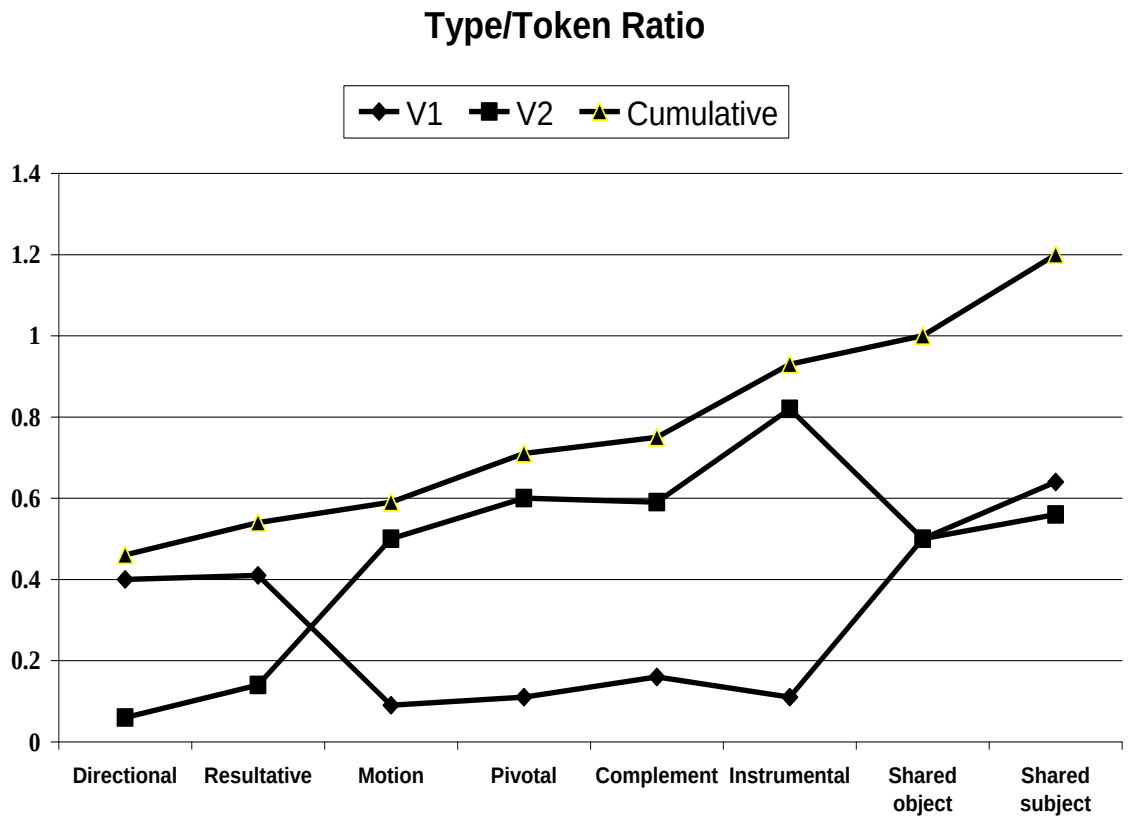


Figure 6.4 Construction types and type/token ratios of V1, V2 and the cumulative type/token ratios of V1 and V2

The data points in Figure 6.4 are ordered by ascending cumulative type/token ratios. The graph indicates that, mostly, V1 and V2 reflect a kind of asymmetry in the way that V1 is more restricted and draws verbs from a smaller lexical pool while V2 is more open and has more freedom to choose verb types. It can be seen that most asymmetrical multi-verb constructions are "V1-dependent" and that motion constructions, pivotal constructions, complement constructions, and instrument constructions belong to this class of V1-dependent MVCs. In motion constructions, the verb in V1 expresses motion, either real or abstract. When V1 is used in an abstract motion sense, it often signifies intentionality or serves as a purposive marker. In pivotal constructions, V1 is mostly comprised of causative verbs or requesting verbs. In complement constructions, the verb in the V1 position often marks the inceptive phase such as *kaishi* 'begin' or functions as a kind of modal verb to express some sort of desiderative force such as *xiang* 'think, want'. When *xiang* 'think' is used in complement constructions, this verb is not interpreted as 'think' any more but expresses a kind of desiderative meaning. In instrument constructions, V1 is prototypically the verb *yong* 'use', which acts like a sort of instrumental marker. However, in terms of directional constructions and resultative constructions these two types of MVCs are both "V2-dependent", in which case V2 is more restricted and mainly functions to indicate direction or result, or to express some kind of aspectual meaning. As for shared object constructions, both V1 and V2 are neither quite open nor quite restricted. Since in this construction type, both verbs need to share both their subjects and objects, there are some subcategorizational and semantic restrictions on the verbs filling the V1 and V2 positions. In shared subject constructions, the type/token ratios display a similar pattern

and both V1 and V2 are quite open. Among shared subject constructions, coordinate constructions, enjoy the greatest freedom of lexical selections. Both V1 and V2 in coordinate constructions can fill their slots with the most diversified types of verbs.

The asymmetrical lexical distribution for verbs in V1 and V2 shows that often a small set of verbs are attracted to one position only. When there is a heavily preferred type of verb in one position, the verbs that fill that slot may be well on their way towards auxiliarization or grammaticalization, in ways similar to what we already know happened with coverb constructions in Mandarin, which developed from special types of multi-verb sequences (Chao 1968; Li & Thompson 1981; Sun 1996). The verbal lexicon is the usual source for aspectual markers, passive markers, auxiliaries, and adpositions in Mandarin (Chao 1968; Li & Thompson 1981; Sun 1996; Lin 2001; Yin 2005). Even though it appears on the surface that we are dealing with multi-verb sequences, the two (or three) verbs in these sequences are not contributing equally semantically to the overall expression. Verbs that occur frequently and almost exclusively in one position are likely to be performing grammatical functions more than conveying lexical meanings.We can easily see that there is a kind of asymmetry of *function* for the verbs occupying V1 and V2 in many cases. One verb may function to mark a sub-event such as setting the stage for action, bringing an event to its conclusion, or signaling the path of motion, while the other verb is left to mark the core event. In MVCs, it is often the case that there is a division of labor between the verb slots such that one is filled by more concrete and more open lexically verbs at the same time the other is reserved for more schematic, more grammatical, and a more restricted set of verbs.

The imbalance between the type/token ratios of V1 and V2 makes it clear that certain types of constructions are V1-dependent and certain constructions are V2-dependent, which means that some MVCs show tighter restrictions on V1 and others on V2. The position-specific patterns of type/token frequency are responsible for the resulting event structures and meanings that we associate with particular types of MVCs. The position-specific patterns of type/token frequency largely correspond to different phases in the conceptual structure of events and reflect which phase is a core phase and which one is a non-core phase. In asymmetrical MVCs, the verb position which has a lower type/token ratio tends to represent a non-core phase such as an inceptive, preparatory, or resultative phase and the verb position which has a higher type/token ratio tends to represent a core phase. In motion constructions, pivotal constructions, complement constructions, and instrument constructions, there is a large difference between the type/token ratio of V1 and that of V2. Very often the first event in all these constructions is a non-core phase while the second event constitutes a core phase. In directional and resultative constructions, V2 displays a much lower type/token ratio than that of V2. Accordingly, in these two constructions the event denoted by V1 is a core phase and the event denoted by V2 represents a terminative or resultative phase. Therefore, the position-specific patterns of type/token frequency readily reflect conceptual structures we associate with different kinds of MVCs in terms of the core phase and other phases of the macro event.

The numeric value of the type/token ratio is the measure which can be used to determine the relative freedom with which the position can be filled by types. A high type/token ratio or large degree of lexical freedom means increased lexical diversity, less

semantic specificity for the overall construction, and more independence between the verbs. By contrast, a low type/token ratio or low degree of lexical freedom suggests lexical fixedness, possible grammaticalization or auxiliation of one of the verbs, increased semantic specificity for the overall construction, and greater dependence between the verbs. Lexical restrictedness measured by the type/token ratio suggests fixed interpretations where one verb or a small set of verbs contributes to most of the variation. A high token frequency and low type frequency of verbs may indicate some degrees of grammaticalization or a kind of entrenchment. The corpus results indicate that there is a continuum of degree of type/token ratio for the component verbs in MVCs. Such a continuum is correlated with the continuum of event integration/independence.

In terms of the continuum of event integration of the verbal sub-parts of multi-verb constructions, directional constructions and coordinate constructions anchor the two ends of the scale of event integration/independence. Directional constructions have the lowest type/token ratio which corresponds to the highest degree of event integration among MVCs. The resultative construction also has a low type/token ratio which is lower than that of any other construction except the directional construction. The type/token ratio in the resultative construction accords with their degree of event integration since this construction displays the second highest degree of event integration among all the multi-verb constructions. Motion verbs in motion constructions are typically *lai* ‘come’ or *qu* ‘go’ and the two verbs in such constructions are frequently contiguous to reflect a high degree of event integration, which correlates with their type/token ratio in the continuum. The type/token ratios for pivotal constructions and complement constructions are in the middle ground of the continuum of type/token ratios and degrees of event

integration for these two constructions seem to be localized in the middle portion of the continuum of event integration. Both pivotal constructions in which two verbs share an intervening participant (e.g. *shi wo xiao* 'make me laugh') and complement constructions in which one verb usually subsumes another verb (e.g. *ta shuo zuo cuo le* 'he said [he] did something wrong') illustrate a kind of tight event integration.

On the other end of event integration/independence, coordinate constructions display the lowest degree of event integration or the highest degree of event independence, which correlates with the type/token ratio. Although the cumulative ratio of type/token frequency in purposive constructions is not as high as that in coordination constructions it is still high. In contrast to coordination constructions which often do not have a causal or purposive semantic relation, purposive constructions manifest a purposive relation between the two verbs. Like purposive constructions, shared object constructions also have a purposive relation between two verbs. The main difference between the two is that shared object constructions share a second participant as an object by the two verbs in addition to sharing a subject and thus, shared object constructions display higher event integration than purposive constructions. Compared with purposive constructions and shared object constructions, instrument constructions have a lower type/token ratio, which correlates with a higher degree of event integration. In instrument constructions, the two verbs have a tighter purposive relation with the first verb affecting the instrument to perform another action or activity and the two events denoted by the two verbs happen simultaneously while in purposive constructions and shared object constructions the two verbs are not so restricted and two events denoted by the two verbs usually happen consecutively.

The cumulative type/token ratios of verbs in different positions of multi-verb constructions display a continuum which I have argued correlates with a continuum of event integration displayed in multi-verb constructions, with directional constructions being the extreme case of event integration and with coordinate constructions being the extreme case of event independence among multi-verb constructions. However, most multi-verb constructions lie somewhere between the extremes of event integration and event independence. It is often the case that two events in MVCs may be causally, purposefully, consequentially, or otherwise related to different extents. Multi-verb constructions in Mandarin Chinese do not form a homogeneous category, but reflect a graded set of phenomena. By analyzing multi-verb constructions from the perspective of a continuum of event integration/independence, the goal of providing a unified account for all types of multi-verb constructions in Mandarin Chinese can be achieved.

In this chapter, the relation between event integration of multi-verb constructions and restrictedness of verbs in V1/V2 pairs was addressed. I showed that there is a correlation between event-integration, as determined by CG semantic analyses of MVCs and verb type/token ratios calculated over the subset of the LCMC, which forms the basis of my analyses for this dissertation. In the next chapter, I will explore the lexical affinity of certain verbs to particular constructions in detail and the link between lexical restrictedness and event integration construction-by-construction. I will demonstrate that there are noticeable interactions between lexical items and construction types.

Chapter Seven

Interaction between Lexical Items and the Construction Types

The corpus results have demonstrated that there is a clear interaction in many cases between certain lexical items and the construction types they enter into. The results also show that there are degrees of *attraction* of verbs to different multi-verb constructions. In this chapter, I will explore the association of lexical items with particular constructions in order to determine with more precision which verbs enter into a given construction, as shown by the corpus data. I will go through each major construction discussed in Chapter Five and look at V1 and V2 in two-verb sequences to investigate this lexical-constructional attraction. All the MVCs which will be discussed in this chapter are two-verb sequences. The discussion of interactions between lexical items and construction types will be ordered on the basis of the construction types associated with the highest degree of event integration to the lowest. Before addressing interactions between lexical items and construction types, however, I will introduce and discuss the term "attraction", first introduced by Schmid (2000).

"Attraction" is one of many measures corpus linguists use to determine how expected or unexpected a certain lexical item is when found in a particular syntactic pattern. Attraction is a simple proportion and is calculated by dividing the frequency of occurrence of a lexical item in a pattern by the total frequency (the raw number of occurrences) of the pattern in a corpus as follows (Schmid 2000: 54):

$$\text{Attraction} = \frac{\text{frequency of a lexical item in a pattern x 100}}{\text{total frequency of the pattern}}$$

As Schmid (2000) suggests, the value of this division is that it can be used to measure the degree to which a construction attracts a particular lexical item. From the attraction equation, it can been seen that the denominator of the fraction is the same for all lexical items occurring in a construction, so the scores for attraction are directly proportional to the frequencies of all the lexical items in the construction. Schmid (2000) believes that the measurement of attraction can facilitate the comparison of the relative importance of individual lexical items for a construction since different verb types can be ranked according to their scores for attraction by focusing on how and how often the verb slots in a construction are filled. By focusing on this measure, the attraction method provides a way of capturing the interaction between lexical items and constructions by revealing which lexical items are more highly associated with a given construction than others (Schmid 2000; Schmid in press).

7.1 Directional Constructions

Directional constructions which have the form [$V1_{MOTION/ACTION}$ $V2_{DIRECTION}$] are very frequent among all types of MVCs in Mandarin. In the search results, there are 371 cases of this construction, which involve directional verbs in the V2 position to indicate real or metaphorical path or direction of motion, or even final endpoint (especially result). The examples of directional constructions in (116) are from the LCMC.

(116) a. *Dengzihui deng tongzhi qinzi **pao** **lai** le*
Dengzihui etc. comrade in.person **run** **come** PERF
'Dengzihui and other comrades run here in person'

b. *ta da bu xiang chezhan fangxiang **zou** **qu***
3SGM big step toward station direction **walk** **go**
'he walked away in big steps toward the station'

c. *conglai* *bu* *he* *jiu* *de* *Wangshiwei* ***mai*** ***lai***
always not drink wine POSS Wangshiwei **buy** **come**
yi *guanzi* *tian* *jiu*
one jar sweet wine
Wangshiwei who has never drunk wine bought (here) a jar of sweet wine'

d. *ni* *weishenme* *jiu* *bu* *neng* ***jianchi*** ***xiaqu***
you why then not can **insist** **descend.go**
'why then can't you insist on?'

Motion verbs can appear in both the V1 position and the V2 position in directional constructions as the examples in (116a) and (116b) show. However, if there is only one motion verb in such a construction, it usually takes up the V2 position as in (116c) and (116d). Verbs in the V2 position in (116a-c) specify real direction while the V2 verb in (116d) indicates direction only metaphorically.

Table 7.1 lists the frequency of verbs (for those with a frequency greater than 3), attraction scores, and type/token ratios for the verbs found in directional constructions. There is no significance in the pairing of V1 and V2 in Table 7.1 and in similar tables thereafter. I have merely arranged the verbs in order of descending frequency by position (with information about V1 in the left-hand section and information about V2 on the right) in order to save space. From Table 7.1, it can be seen that the most frequent verb used as V1 is the motion verb *zou* 'walk'. The two most frequent verbs in the V2 positions are *qilai* 'come up', which is commonly used to express inceptive meaning and *chulai* 'come out', which is mostly used metaphorically to express result. Other motion verbs used commonly as V2 are *lai* 'come', *qu* 'go', and *chu* 'exit'. Table 7.1 indicates that in directional constructions, V1 is more open lexically for a variety of verb types than V2, while V2 is much more restricted lexically.

Freq	V1	Freq	Attraction	V2	Freq	Attraction
> 100				***qilai* 'rise (come)'**	**108**	29.11%
20 - 100	***zou* 'walk'**	**35**	9.43%	***chulai* 'come out'**	**70**	18.87%
				***lai* 'come'**	**56**	15.09%
				***qu* 'go'**	**38**	10.24%
				***chu* 'exit'**	**30**	8.09%
10 - 19	*dai* 'bring, take'	18	4.85%	*xialai* 'come down'	14	3.77%
	xiao 'smile, laugh'	16	4.31%	*shang* 'ascend, go up'	11	2.96%
	zhan 'stand'	16	4.31%			
	zhao 'search,find'	14	3.77%			
	zuo 'sit'	14	3.77%			
	jiao 'shout, call'	10	2.70%			
6 - 9	*shuo* 'say'	9	2.43%	*qi* 'rise'	6	1.62%
	xiang 'think, want'	8	2.16%	*xiaqu* 'go down'	6	1.62%
	chi 'eat'	8	2.16%			
	kan 'look'	8	2.16%			
	hui 'return'	7	1.89%			
	xie 'write'	7	1.89%			
	shi 'lose'	6	1.62%			
	mai 'buy'	6	1.62%			
	da 'beat, call'	6	1.62%			
	ku 'cry'	6	1.62%			
4 - 5	*ting* 'listen'	5	1.35%	*guoqu* 'go over'	5	1.35%
	hua 'draw'	4	1.08%	*guolai* 'come over, cross'	5	1.35%
	jiang 'tell, speak'	4	1.08%			
	chansheng 'produce, make'	4	1.08%	*xia* 'descend	4	1.08%
				jin 'enter'	4	1.08%
Sum of the above		211			357	
Others (Freq <4)		160			14	
Types		150			21	
Tokens		371			371	
Type/token ratio		0.40			0.06	
Cumulative type/token ratio of V1 & V2			**0.46**			

Table 7.1 Frequency of verbs (freq > 3), attraction and type/token ratio of verbs in directional constructions

It can bee seen from Table 7.1 that most directional constructions contain the motion verb *lai* 'come' or *qu* 'go' or double (bi-morphemic) complements with *lai*

'come' or *qu* 'go' in the V2 position. In fact, all the directional constructions which take double complements in the V2 position contain *lai* 'come' or *qu* 'go' in their final slots. Although the frequency for either *lai* (freq = 2093) or *qu* (freq = 1079) in the LCMC is much higher than that of *qilai* (freq = 685) or *chulai* (freq = 414), the most frequent verbs used in the V2 position in directional constructions are *qilai* and *chulai* as Table 7.1 indicates.

Li and Thompson (1981) claim that the motion verb *lai* 'come' or *qu* 'go' can combine with 7 other directional motion verbs to form bi-morphemic motion complements (satellites), as illustrated in Table 7.2.

	jin 'enter'	*chu* 'exit'	*hui* 'return'	*guo* 'cross'	*qi* 'rise'	*shang* 'ascend'	*xia* 'descend'
lai	*jinlai* 'come in'	*chulai* 'come out'	*huilai* 'come back'	*guolai* 'come over'	*qilai* 'get up'	*shanghai* 'come up'	*xialai* 'come down'
qu	*jinqu* 'go in'	*chuqu* 'go out'	*huiqu* 'go back'	*guoqu* 'go over'	****qiqu***	*shangqu* 'go up'	*xiaqu* 'go down'

Table 7.2 Combination of *lai* 'come' or *qu* 'go' with seven other directional motion verbs to form bi-morphemic complements

In fact, not all these combinations are possible as Li and Thompson (1981) claimed. Xiao and McEnery (2004) state that the combination *qi* 'rise' with *qu* 'go' (*qiqu* 'rise go') is not possible. As displayed in Table 7.3, *qiqu* 'rise go' is missing from the search results of the LCMC.

Pinyin	Gloss	Freq	Pinyin	Gloss	Freq
lai	'come'	56	*qu*	'go'	38
qilai	'get up'	108	****qiqu***		0
chulai	'come out'	70	*chuqu*	'go out'	1
xialai	'come down'	14	*xiaqu*	'go down'	6
guolai	'come over'	5	*guoqu*	'go over'	5
huilai	'come back'	2	*huiqu*	'go back'	3
jinlai	'come in'	1	*jinqu*	'go in'	2
shanglai	'come up'	1	*shangqu*	'go up'	2
lai total	'come' (alone or in final position)	**257**	*qu* total	'go' (alone or in final position)	**57**

Table 7.3 Frequency of *lai* 'come' and *qu* 'go' and their combinations with seven other directional motion verbs used as satellites

The directional verbs in Mandarin form a closed class (Xiao & McEnery 2004: 164). They can serve as mono-morphemic (i.e. *lai* or *qu* alone) or bi-morphemic complements. When they are bi-morphemic, their final positions are always filled by the directional verbs *lai* 'come' or *qu* 'go'. In the case of *lai*, most of the directional complements are bi-morphemic compounds. However, the pattern in the case of *qu* is reversed; that is, most of the directional complements are mono-morphemic rather than bi-morphemic, as Figure 7.1 indicates. As will be explained later in this section, in Mandarin Chinese there are far more bi-morphemic directional complements with *lai* 'come' than with *qu* 'go'. This is largely due to the fact that Mandarin tends to form directional compounds with *lai* rather with *qu* and the resulting complexes with *lai* go on to indicate result or express inceptive and other phase or aspectual meanings. This robust compounding pattern suggests a high degree of grammaticalization of the *lai* morpheme in Mandarin.

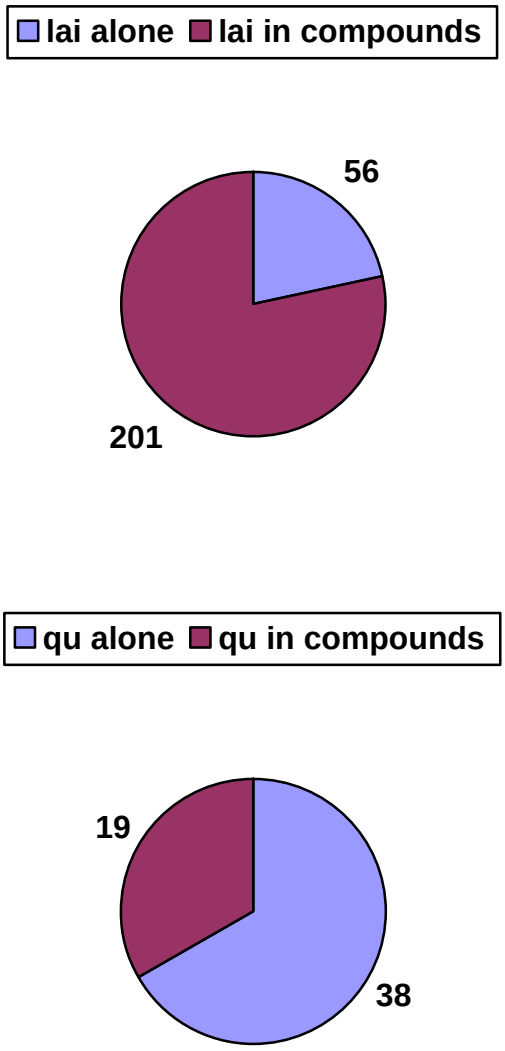


Figure 7.1 Comparision of *lai*/*qu* ‘come/go’ alone and *lai*/*qu* ‘come/go’ in compounds as directional complements

In terms of compounding forms functioning as bi-morphemic directional complements, forms with the directional verb *lai* ‘come’ are much more frequent than those with the directional verb *qu* ‘go’, as Figure 7.2 shows. When the frequency of individual complements is examined, we find that the imbalance of frequency between

compounding forms with *lai* ‘come’ and those with *qu* ‘go’ is mainly due to the frequency distribution of two pairs of compound satellites.

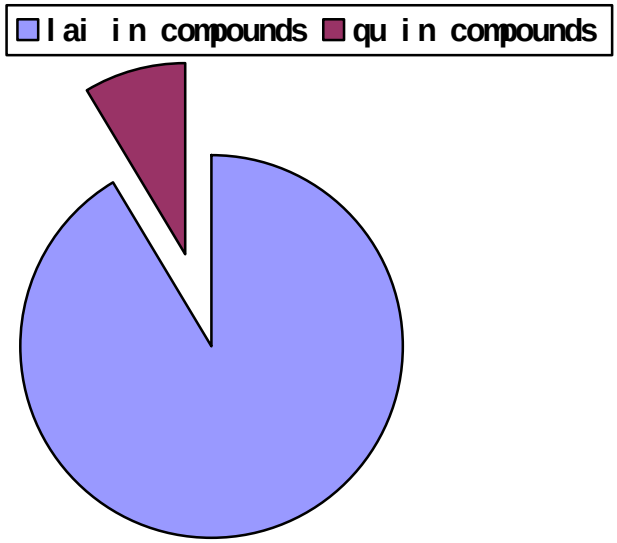


Figure 7.2 Frequency of bi-morphemic compounding forms of *lai* ‘come’ and those of *qu* ‘go’ as directional complements

In Table 7.3, the frequency of *chulai* ‘come out’ is 70 while the token frequency for *chuqu* ‘go out’ is only 1. The frequency of *qilai* ‘get up’ is 108, but there are no instances of its counterpart *qiqu*. Then, why is there so much difference in frequency between these two pairs of complements (satellites)? Explanations for the imbalance of their frequency are in order.

In Mandarin Chinese, *chulai* ‘come out’ can be used with either real motion verbs or non-motion verbs. Table 7.4 shows collocating verbs (frequency >1) in the V1 position with *chulai* ‘come out’.

V1					V2
Pinyin	gloss	Freq	Specify Direction?	Signify Result?	*chulai* 'exit come, come out'
zou	walk	7	yes		
kan	look	5		yes	
shou	say	5		yes	
zhao	find	4		yes	
tu	spit	3	yes		
zhan	stand	3	yes		
chengxian	appear	3		yes	
shan	flash	2	yes		
fang	release	2	yes		
xianshi	show	2		yes	
xianlu	expose	2		yes	
jiao	call	2		yes	
hua	draw	2		yes	
ti	mention	2		yes	
pao	run	2	yes		
liu	flow	2	yes		
biaoxian	perform	2		yes	
fanying	reflect	2		yes	

Table 7.4 Frequency of collocating verbs (freq >1) in the V1 position with *chulai* 'exit come, come out' in the V2 position

When *chulai* 'come out' is used with a motion verb, this compound verbal satellite specifies the direction of motion. However, when it is combined with a non-motion verb, it is usually used idiomatically or metaphorically to express event phase meanings such as "the result-state and completion/finality of an action" (Xiao & McEnery 2004: 165). Some examples are given in (117).

(117) a. *renhe* *qiji* *dou* *hui* ***chuangzao*** ***chulai*** *de*
any miracle all can **create** **exit-come** PRT
'any miracle can be created (out)' (LCMC)

b. *Ta* *na* *pian* *lunwen* ***xie*** ***chulai*** *le*.
she that CL thesis **write** **exit-come** PERF
'S/he has finished writing his/her thesis.' (Xiao & McEnery 2004: 165)

In these two sentences, *chuangzao* 'create' and *xie* 'write' are not motion verbs and the directional constituent *chulai* 'come out' does not indicate a spatial trajectory. It clearly expresses the success of obtaining a result. It also adds a telic reading to an otherwise atelic verb. Cases of *chulai* used to indicate result are a common sub-type of directional construction. This construction has the form [V-NON-MOTION *CHULAI*], in which the first verb is a non-motion verb and the second verb is the directional verb *chulai*. Here, this directional verb has been extended to function as a kind of resultative marker. The meaning of this construction is that the action or activity denoted by the non-motion verb has been achieved.

Out of 70 occurrences of *chulai* 'exit come, come out' in the corpus search, 33 indicate direction for literal motion events, while the remaining 37 cases express the resultative phase of figurative motion. However, the one instance of the compound *chuqu* 'go out' as V2 found in a directional construction involves the signaling of direction in a literal motion event. There are no instances of *chuqu* 'go out' used with a non-motion verb to indicate a resulting state in two verb sequences in the corpus. In Mandarin, it is not common at all to use *chuqu* to indicate result.

While the corpus results show that there are no instances of *chuqu* 'go out' indicating a resulting state, they also show that direction of motion is much more likely to be encoded by *chulai* 'come out' than by *chuqu* 'go out'. In fact, Li and Thompson (1981) group both directional complements of real motion and non-motion verbs into one category: resultative complements. Zhang (1995) argues that directional complements

have functions similar to those of resultative complements in that they also imply a resulting state, except that with motion events, the resulting state is a new location. One may ask, however, why *chulai* 'come out' rather than *chuqu* 'exit go, go out' is more likely to indicate both a final location as well as a resulting state? The analysis of the semantics of *lai* 'come' and *qu* 'go' may shed some light on this phenomenon.

Motion can be characterized as having a starting point and an ending point, an "origin" (source) and "destination" (goal). The intervening states between the source and goal can be called "path" or "trajectory" (Fillmore 1997). But the expression of motion is rarely neutral and usually strongly deictic. Deixis is the linguistic phenomenon by which speakers impose an explicit or implicit reference point, usually anchored to the position of the viewer/speaker. Mandarin *lai* 'come' and *qu* 'go', like basic motion verbs in most languages, are strongly deictic; that is, they reference motion along a path in terms of the location of the speaker—whether the speaker is at the start (origin) or end (goal) of the path. The 'come' verb *lai* denotes motion towards the speaker or motion from the viewpoint of the subject of the sentence who is at the end destination (goal) of a path. In contrast, *qu* 'go' denotes motion away from the speaker or motion from the viewpoint of the subject of the sentence who is at the starting point (source) of a path. Usually the motion denoted by literal *lai* 'come' is strongly bounded by the goal endpoint because the verb is deictic and strongly references the fact that the speaker or the subject of the sentence is at the end of the path. When motion verbs are used figuratively to indicate not movement along a path but the unfolding of an event (action is often construed metaphorically like motion along a path), they frequently take on aspectual properties, signaling degree of event realization rather than location along the path.

Motion in the real world is a basic human concept and organizing schema for a host of more abstract expressions. Spatial motion involves space and time, which are basic cognitive domains (Langacker 1987, 1991). Physical motion in the spatial domain is so prominent and productive as a cognitive schema that its linguistic expression gives rise to many non-literal or "fictive" motion expressions, in which no concrete movement of objects is involved (Talmy 2000). This is certainly true for *lai* and *qu* in Mandarin Chinese.

In Mandarin, *lai* 'come' marks centripetal motion and *qu* 'go' marks centrifugal. In the basic meaning of *lai* 'come', the destination (goal) is profiled (because it is where the speaker is and is highly salient), while in the central meaning of *qu* 'go', the profiled element does not usually include the destination (because motion away from the speaker need not take any set direction nor include a final goal). The extension of the motion verb *lai* 'come' to indicate a result state is motivated by domain shifting from the spatial domain to a fictive and abstract domain on the basis of some perceived commonalities and it is largely based on the metaphor OBTAINING RESULTS ARE REACHING DESTINATIONS (Lakoff & Johnson 1980; Lichtenberk 1991). This may provide an explanation why Mandarin is much more likely to use *chulai* 'come out' rather than *chuqu* 'go out' to signal a resulting state or goal.

Another factor contributing to the imbalance of frequency between compounding forms of *lai* and those of *qu* is that there are quite a few instances of *qilai* 'rise-come, get up' but there are no instances of *qiqu* 'rise-go, get down' in the search results. This imbalance in frequency between *qilai* and *qiqu* could be construed as evidence indicating that bi-morphemic complements like *qilai* and *chulai* are, in fact, conventionalized or

lexicalized compounds (single lexical items with distributions independent of the distribution of their component parts) with, in effect, lives of their own in the language. Table 7.5 shows the collocating verbs (frequency >1) in the V1 position with *qilai* 'rise come, get up' as V2.

V1					V2
Pinyin	**gloss**	**Freq**	**Freq in LCMC**	**Rank according to LCMC Freq**	*qilai* 'rise come'
xiao	smile/laugh	14	382	5	
zhan	stand	13	283	8	
zuo	sit	6	309	7	
ku	cry	6	131	11	
jiao	call	4	547	2	
xiang	think	3	975	1	
chi	eat	3	477	3	
hua	draw	2	144	10	
da	beat	2	410	4	
lianhe	joint	2	94	13	
kaizhan	carry out	2	184	9	
jianli	establish	2	312	6	
tiao	jump	2	106	12	
huoyue	be active	2	55	14	

Table 7.5 Frequency of collocating verbs (freq >1) in the V1 position with *qilai* 'rise-come' in the V2 position

By examining actual returns from the corpus search, it can be seen that the compound *qilai* 'rise-come' has three different sub-uses when it appears as V2 in a directional construction. It can indicate the direction of upward movement (118a), express the result of an event (118b), or signal the aspectual meaning of inceptiveness (118c), as these examples from the LCMC show.

(118) a. *nu* *bianji* *zhongyu* ***zhan*** *le* ***qilai***
woman editor finally **stand** PERF **rise-come**
'the woman editor finally stood up'

b. *ta* *meiyou* ***xiang*** ***qilai***
3SGF NEG.have **think** **rise-come**
'he could not recall it'

c. *yushi* *ta* *tongku* *di* ***ku*** *le* ***qilai***
Therefore s/he miserably PRT **cry** PERF **rise-come**
'therefore, he began to cry miserably'

Most of the instances with *qilai* signal the aspectual meaning of inceptiveness. In such uses, *qilai* does not specify the direction or endpoint of real motion, but instead indicates that a situation has just started and will continue as in *xiao qilai* 'began to laugh' and *ku qilai* 'began to cry'. We have a sub-type of directional construction here. This construction has the form [V1 $qilai_{\text{INCEPTIVE}}$], in which the directional verb *qilai* indicates the inceptive phase of (usually) affective or emotive events such as *xiao* 'smile/laugh' and *ku* 'cry'. In this sub-construction, *qilai* clearly does not mean 'rise-come'. It should, thus, be treated as an idiosyncratic lexical item because the compound takes on a construction-specific meaning. Here, this directional verb has been extended to function as an inceptive marker. The meaning of this construction is that the action denoted by the verb in the V1 position has started and there is no real spatial directional meaning is involved. On the other hand, in the search results there is no instance of its counterpart *qiqu* being used as an inceptive marker. There is not even a single instance of *qiqu* being used to indicate the resulting state of an event. This lengthy illustration of the divergent behaviors and meanings of directional compounds with *lai* 'come' and *qu* 'go' is important because it underscores the fact that morphemes grammaticalize in constructions (Bybee & Hopper 2001). Constructions can actually coerce certain

extended meanings out of a lexical item. Moreover, those extended meanings and functions of a lexical item are usually only evident when the item occurs in a specific construction.

Table 7.5 also indicates that the ranking of the observed frequency of the collocating verbs does not mirror the ranking of the overall frequency of these verbs in the corpus. For example, in Table 7.5 none of the top four verbs according to frequency in the LCMC is in the top four verbs ranked according to frequency in the [V1 *qilai*$_{\text{INCEPTIVE}}$] construction. In Table 7.5, it can be seen that two kinds of verbs, emotion verbs and posture verbs, are used most frequently as V1 in this directional sub-construction. They constitute the first 4 verbs in the list. These verbs are likely the preferred occupants of the V1 position not simply due to their overall frequency. The two emotion verbs *xiao* 'smile/laugh' and *ku* 'cry' and the two posture verbs *zhan* 'stand' and *zuo* 'sit' make up 62% of all the collocating V1 verbs in Table 7.5. Perhaps we are witnessing the emergence of two sub-constructions for the directional construction, [V1$_{\text{MOTION/ACTION}}$ V2$_{\text{DIRECTION}}$], described at length in Chapter Five (§5.1.2). These two sub-sub-constructions might be schematized as follows: [V$_{\text{EMOTIVE}}$ *qilai*$_{\text{INCEPTIVE}}$] and [V$_{\text{POSTURE}}$ *qilai*].

When *qilai* is preceded by a posture verb such as *zhan qilai* 'stand up' or *zuo qilai* 'sit up', it indicates the direction or endpoint of motion for that change-of-posture verb (up in the case of 'stand' from 'sit' and up in the case of 'sit' from 'lie'). [V$_{\text{POSTURE}}$ *qilai*] could be considered a robust sub-type of the directional construction. The construction [V$_{\text{POSTURE}}$ *qilai*] conveys the meaning that the change of posture is accompanied by an upward direction. In the case of *zhan qilai* 'stand up', it usually indicates the change of

posture from sitting to standing while in the case of *zuo qilai* ‘sit up’, it often specifies the change of posture from lying to sitting. In either of these two cases – from lying to sitting or from sitting to standing, upward movement is involved. In the corpus, there are no instances of *tang* ‘lie’ being used together with *qilai* and it is not compatible with the semantics of this posture verb since *tang* only involves downward movement when it is used to indicate change of posture from either sitting or standing.

Another example of a directional verb functioning aspectually, this time as a continuative aspectual marker, involves *xiaqu* ‘go-down’ as in *huo xiaqu* ‘live on’. In Table 7.3, there are 6 instances of *xiaqu* ‘go-down’ used as a directional satellite in literal directional constructions. *Xiaqu* ‘go down’ in directional constructions may be used as a verb complement to indicate spatial direction (119a) or as an aspect marker (119b).

(119) a. *Xiangzhen* ***zuo*** *le* ***xiaqu***
Xiangzhen **sit** PERF **descend-go**
‘*Xiangzhen* sat down’ (LCMC)

b. *ta* *meiyou* *rang* *wo* ***shuo*** ***xiaqu***.
3SGM NEG.have let me **talk** **descend-go**
‘he did not let me continue talking’ (LCMC)

Xiao and McEnery (2004) claim that *xiaqu* ‘descend-go, go down’ began to signal aspectual meaning when it was gradually extended from a spatially downward movement to the temporal domain. When *xiaqu* functions as a continuative aspectual marker, it is only being profiled against the temporal domain not the spatial, and it signals a meaning of continuing, going on (Xiao and McEnery 2004). In modern Mandarin Chinese, *xiaqu* ‘descend go’ is frequently used as a continuative aspect marker (Chao 1968; Dai 1997; Kang 1999). In the 6 instances of *xiaqu* ‘descend-go, go down’ in the search results, 2 of them mark the direction of spatial motion and 4 mark aspect.

Many directional satellites contain *lai* or *qu* in the V2 position. Directional satellites other than *lai* and *qu* in V2 slots are also common, though their frequency is not as high as that of *lai* and *qu*. Table 7.6 reflects the frequency of these other directional satellite verbs when found in the V2 position.

Pinyin	**Gloss**	**Freq**	**Pinyin**	**Gloss**	**Freq**
chu	'exit, out'	30	*xia*	'descend, down'	4
shang	'ascend, up'	11	*jin*	'enter, in'	4
qi	'rise'	6	*hui*	'return'	2
guo	'cross, over'	1			
Total		58			

Table 7.6 Frequency of motion verbs other than *lai* 'come' and *qu* 'go' in directional constructions

Talmy (2000) terms the path or directional verbs in Table 7.6 as satellites to main verbs. In Mandarin Chinese, certain verbs, typically verbs of displacement (e.g., *hui* 'return', *zou* 'walk', *guo* 'cross') and dislocation (e.g., *na* 'take', *ban* 'remove') can serve as the main verbs (V1) in directional constructions. Many of these verbs conflate movement with some other activity such as manner or cause. The satellites usually denote path or direction. The prototypical satellite verbs functioning as directional satellites are *lai* 'come' and *qu* 'go', which have been previously discussed at length. However, as illustrated in Table 7.6, there is a set of other verbs which can also serve as satellites of direction verbs or resulting state verbs.

In Table 7.6, the most frequently used satellite is *chu* 'exit, out'. Compared with the frequency of *chu*, the frequency of its counterpart *jin* 'enter, in' is quite low; there are only 4 cases of *jin* in V2. The frequency of the collocating V1 verbs with *chu* 'exit, out' and *jin* 'enter, in' are listed in Table 7.7.

Freq of collocating V1 verbs with ***chu*** as V2 **(30)**		Freq of collocating V1 verbs with ***jin*** as V2 **(4)**	
zhao 'search'	5	***xie* 'write'**	1
***xie* 'write'**	5	***ting* 'listen'**	1
zou 'walk'	4	***dai* 'take'**	1
shuo 'say, speak'	4	*da* 'fight'	1
chansheng 'produce'	4		
***ting* 'listen'**	2		
qing 'ask'	1		
jiang 'tell'	1		
xiao 'smile/laugh'	1		
xiang 'think'	1		
***dai* 'take'**	1		
fazhan 'develop'	1		
Total	30		4

Table 7.7 Frequency of collocating verbs with *chu* 'exit' and *jin* 'enter' as V2

The three verbs *xie* 'write', *dai* 'take', and *ting* 'listen' collocate with both *chu* and *jin* in the corpus. Based on the 30 instances of *chu* from the search results, we can see that most are used to indicate resulting state, while only 5 cases specify actual physical direction. Out of the 4 cases involving *jin*, 2 indicate direction of real motion. The remaining 2 signal abstract path (*ting jin* 'accept (the advice)'; *xie jin* 'write into') and none of them are used aspectually to signal resulting state. It seems that the frequency imbalance between *chu* and *jin* is chiefly due to the fact that Mandarin Chinese prefers *chu* to *jin* to indicate resulting state, a highly grammaticalized notion and a productive grammatical function for *chu* which clearly boosts its overall frequency. Here is another case where distributional frequency is a by-product of the lexical semantics and/or grammatical function of an item. When a verb can be used both lexically and grammatically, its overall frequency is likely to rise dramatically. And with higher overall frequency in a specific position in a multi-verb construction, that verb is likely to become strongly identified with the construction and the construction with it.

In directional constructions, the type/token ratio of verbs in V1 and V2 is the lowest in all of the MVCs, which means that this construction shows the most lexical restrictedness among multi-verb sequences. It seems that both V1 and V2 are not quite open. However, verbs in the V2 position are much more restricted. In fact, only those motion verbs which can be used to indicate direction are allowed as V2 in this construction. The four verbs *lai*, *qu*, *qilai* and *chulai* are quite attracted to the construction. The attraction scores for these four verbs are quite high. In fact, out of 4 instances of this construction 3 involve one of these four verbs. Among all of the MVCs, directional constructions exemplify the extreme case of event integration and the highest degree of lexical restrictedness in their verb slots.

7.2 Resultative Constructions

In the resultative construction, which has the form [$V1_{ACTION}$ $V2_{RESULT}$], the V2 indicates the result or end state of the V1. As in directional constructions, in resultative constructions verbs in the V2 position are also quite restricted, drawing mainly from phase or achievement verbs. The examples in (120) illustrate some resultative constructions from the LCMC.

(120) a. *yi* *ge* *lao* *taitai* *shun* *zhe* *qianggen* ***qiao***
one CL old granny along PROG wall.edge **knock**
kai *le* *boli* *chuang*
open PERF glass window
'along the wall edge an old granny knocked the glass window open'

b. *ta* *cengjing* ***zhao*** *bu* ***dao*** *yi* *fen*
3SGM once **search** NEG **arrive, reach** one CL
shihe *ta* *fazhan* *de* *lixiang* *weizhi*
suitable 3SGM develop POSS ideal position
'He once could not find an ideal position which was suitable for his development'

c. *Liulianren* ***mo*** ***diao*** *lianshang* *de* *lei* *zhu*
Liulianren **wipe** **drop** on.the.face POSS tear droplet
'Liulianren wiped away her tear droplets on the face'

Table 7.8 shows the frequency of V1 and V2 ($F \geq 2$), attraction scores, and type/token ratios for verbs participating in resultative constructions. The table indicates that in this construction V1 is more open lexically and V2 is much more restricted as shown by the asymmetrical type/token ratios. In Table 7.8, the most frequent verb used as a resultative satellite is *dao* 'get to, reach', which has the highest attraction score (55%) in this construction. Not surprisingly, it is also the most prototypical V2 associated with the resulative construction. The top five V2 verbs ranked according to attraction scores make up 83% of all the V2 verb tokens in this construction. As Table 7.8 shows, the type/token ratio of verbs in this construction is quite low, which indicates a high degree of lexical restrictedness. In fact, the lexical restrictedness measured by the type/token ratio in resultative constructions is the second highest of all constructions right after the directional constructions. As discussed in Chapter Five, semantic analyses of MVCs reveal that the degree of event integration in resultative constructions is also quite high, second only to that of directional constructions. Thus, as in the case of the directional construction, the type/token ratio of verbs displayed in the resulative construction is clearly correlated with the degree of event integration of sub-parts of this construction.

Freq	V1	Freq	Attraction	V2 (motion verbs)	Freq	Attraction
≥ 10				***dao* 'reach, get to'**	**46**	54.76%
5 - 9	*chi* 'eat'	7	8.33%	*zou* 'walk leave'	8	9.52%
	kan 'look'	7	8.33%	*zhu* 'hold on'	6	7.14%
	da 'beat, call'	6	7.14%	*chengwei* 'turn into'	5	5.95%
	zhao 'search, find'	5	5.95%	*wan* 'finish'	5	5.95%
	ting 'listen'					
	jiao 'shout, call'	5	5.95%			
		5	5.95%			
4	*fazhang* 'develop'	4	4.76%	*cheng* 'become'	4	4.76%
	shou 'receive'	4	4.76%			
	zhan occupy	4	4.76%			
3	*tan* 'talk'	3	3.57%	*diao* 'drop, away'	3	3.57%
	zuo 'sit'	3	3.57%			
	da 'reach'	3	3.57%			
	shou 'say, speak'	3	3.57%			
2	*kai* 'drive, open'	2	2.38%	*chuan* 'penetrate'	2	2.38%
	che 'withdraw'	2	2.38%	*jian* 'see'	2	2.38%
	yanbian 'change'	2	2.38%			
	ganjue 'feel'	2	2.38%			
Sum of the above		67			81	
Others (Freq <2)		17			3	
Total types		34			12	
Total tokens		84			84	
Type/token ratio		0.41			0.14	
Cumulative type/token ratio of V1 & V2			**0.55**			

Table 7.8 Frequency of verbs (freq >1), attraction and type/token ratio of verbs in resultative constructions

Table 7.9 reflects the collocating verbs with *dao* in resultative constructions. It can be seen from Table 7.9 that verbs of sense, communication, come-into-possession and searching collocate commonly with *dao*. The total token frequency for these 4 types of verbs is 34, which makes up 74% out of the 46 instances. Sense verbs are the most frequent verb type used with *dao*.

	Freq of V1			V2
Sense Verbs:	**13**	**Communication Verbs:**	**8**	*dao*
kan 'look'	6	*jiao* 'call'	3	'get to,
ting 'listen'	3	*tang* 'speak'	3	reach'
ganjue 'feel'	2	*shuo* 'tell, speak'	2	
jian 'see'	1			
pie 'have a glimpse'	1	**Come-into-possesion Verbs:**	**8**	
		zhan 'occupy, take up'	4	
Searching Verb	**5**	*shou* 'receive'	4	
zhao 'search look for'	5			
Miscellaneous Verbs:	**13**			
da 'reach'	3			
chi 'eat'	3			
zhuo 'pick up by mouth'	1			
dai 'take'	1			
kai 'drive'	1			
xiang 'think'	1			
chengshu 'ripen'	1			
song 'send'	1			

Table 7.9 Frequency of collocating verbs used with *dao*

In Mandarin, the need for resultative complements is due to the fact that many Mandarin action verbs only convey the meaning of the action phase but not the result phase (e.g. Talmy 2000). Thus, such action verbs often require other verbs as complements to specify realization or fulfillment. The example in (121) is entirely acceptable in Chinese but sounds strange in English:

(121) *Wo* ***sha*** *le* *zhu* (*keshi* *mei* ***sha*** ***si***).
I **kill** PERF pig (but NEG **kill** **die**)
*'I killed the pig but it didn't die.'

(122) *Wo* ***sha*** ***si*** *le* *zhu*.
I **kill** **die** PERF pig
'I killed the pig.'

The semantics of the examples in (121) and (122) can be explained as follows. In (121), the first clause means that the speaker performed the action with the intention of killing the pig and the second clause in parentheses indicates that the action did not achieve the goal, i.e. success in killing the pig. In contrast, with the confirmational satellite *si* 'die' in (122), the sentence is now an undeniable assertion that the speaker succeeded in killing the pig.

Thus, the English verb *kill* used to gloss the Chinese verb *sha* does not correspond fully in meaning. Therefore, a sentence gloss like 'I killed the pig but the pig didn't die' is really contradictory in English but thus incorrectly represents the non-paradoxical Mandarin Chinese original. The original meaning is that 'I performed the action with the intent to kill, but the pig didn't die.' English verbs such as *kill*, *open*, *kick* are generally construed to refer to a simplex action of the fulfilment type and they specify the attainment of a certain final state (Talmy 2000).

In Mandarin Chinese, the concept covered by a typical English verb such as *kill* is divided into two parts: the final outcome, usually conformed by a verb satellite (complement) and an action performed with the intent to lead to that outcome, which is signalled by the main verb. As a result, the unitary concept of an English verb often has a counterpart in Mandarin Chinese with two-part conceptualization expressed by a verb plus another verb (satellite).

Thus, in Mandarin Chinese, unlike in English, some action verbs often do not specify the results by themselves. It is often verbal complements in the V2 position that specify the result-state. As Table 7.8 shows, the most frequent resultative complement is *dao*. With *dao* being used together with action verbs, the results of the action verbs are

signalled. For example, when *ting* ‘listen’ is used with *dao* ‘reach, get to’, the resulting construction is interpreted as ‘hear something’ (the result of the action of listening has been achieved).

In resultative constructions which have been just discussed, there is an obvious lexical asymmetry between V1 and V2 in the way that the V1 slot draws its verbs from a larger lexical pool while verbs in the V2 slot are much more restricted. In this construction, V2 mostly functions to signal that the result has been achieved. Resultative constructions in which one verb is tightly integrated into another exemplify a high degree of lexical restrictedness and a high degree of event integration as well among MVCs.

7.3 Motion Constructions

In motion constructions which have the form [$V1_{MOTION}$ V2], typically the first verb is a motion verb which indicates real or abstract movement. The sub-event denoted by V1 is the preparatory phase for the sub-event denoted by V2 as the examples in (123) from the LCMC illustrate.

(123) a. *ni* *jingchang* ***lai*** ***zhao*** *wo*
you often **come** **look.for** me
‘you often come to look for me’

b. *zhangfu* ***qu*** ***mai*** *cha* *ye*
husband **go** **buy** tea leaves
‘the husband went to buy tea leaves’

c. *Zhuliangcai* ***qu*** *Shaoguan* ***zhao*** *Zhude budui*
Zhuliangcai go Shaoguan **look.for** Zhude troops
‘Zhuliangcai went to Shaoguan to look for Zhude’s troops’

d. *22.7%* *de* *zhangfu* *jingchang* ***shangjie*** ***mai*** *cai*
22.7% POSS husband often **go.to.street** **buy** groceries
‘22.7% of the husbands often go to street to buy groceries’

There are 165 cases of motion constructions returned from my query of the LCMC for V1 + V2 sequences. Table 7.10 displays the frequency of V1 and V2 (frequency > 2) in these 165 cases of motion constructions.

Frequency	V1	Freq	Attraction	V2	Freq	Attraction
> 50	***qu* 'go'**	**88**	53.33%			
20 - 50	***lai* 'come'**	**36**	21.82%	***zhao* 'look for'**	**21**	**12.73%**
10 - 19	*dai* 'take'	16	9.70%	(*gou*)*mai* 'buy, purchase'	14	8.48%
	dao 'reach, get to'	13	7.88%	*kan* 'look'	13	7.88%
				zuo 'do, make'	10	6.06%
6 - 9						
4 - 5				*xuexi* 'study'	5	3.03%
				yanjiu 'study, do research'	5	3.03%
				qu 'go'	4	2.42%
				chi 'eat'	4	2.42%
2-3	*jin* 'enter'	2	1.21%	*jinxing* 'conduct'	3	1.82%
				qing 'ask'	3	1.82%
				kanwang 'visit'	3	1.82%
				tigao 'raise'	2	1.21%
				dao 'reach/get to'	2	1.21%
				lai 'come'	2	1.21%
				xie 'write'	2	1.21%
				wan 'play'	2	1.21%
				xunzhao 'search'	2	1.21%
				ting 'listen'	2	1.21%
				gongzuo 'work'	2	1.21%
				song 'send'	2	1.21%
				da 'beat, call'	2	1.21%
Sum of the above		155			105	
Others F <2		10			60	
Total types		15			82	
Total tokens		165			165	
Type/token ratio		0.09			0.50	
Cumulative type/token ratio of V1 and V2			**0.59**			

Table 7.10 Frequency of verbs (freq > 1), attraction and type/token ratio of verbs in motion constructions

In motion constructions, the first verb is always a motion verb and the second verb indicates the purpose of the motion. The two most frequent verbs used in the V1 position are the two general motion verbs *lai* 'come' and *qu* 'go'. These two verbs make up 75% of all the verb tokens in the V1 position in this type of MVC. The two general motion verbs indicate motion and deixis without giving any other specification such as manner or cause. In fact, some motion verbs encode co-events in Mandarin Chinese and express MOTION + MANNER or MOTION + CAUSE. For example, verbs *fei* 'fly' and *hua* 'slide' encode co-events of both motion and manner. The corpus data show that the token frequency of typical Mandarin motion verbs to express MOTION + MANNER such as *pao* 'run' and *tiao* 'jump' is generally low. The three most frequent verbs used in the V2 position are *zhao* 'search, look for, try to find', *kan* 'look, watch', and *mai* 'buy'. The corpus results indicate that verbs used in the V1 position in motion constructions are quite restricted while verbs used in the V2 position are relatively unrestricted.

Table 7.11 lists the collocating verbs (frequency >1) in the V2 position with *lai* and *qu*. Table 7.11 indicates that the verb *qu* 'go' collocates much more frequently with *zhao* 'look for, search' than with other verbs. The other general-purpose verb *lai* 'come' also collocates frequently with *zhao*. A common goal for coming or going is *zhao* 'look for, search'. Here, we get a sub-type of motion constructions, the LAI/QU-TO-FIND CONSTRUCTION. It has the form [LAI/QU (NP) ZHAO NP]. This construction expresses the concept that coming/going (to a place) is for the purpose of looking for or finding something. Table 7.11 also suggests that the observed frequencies of collocating verbs with *qu* and *lai* in motion constructions do not replicate the overall frequency of these verbs in the LCMC corpus.

V1	V2				
	Pinyin	Gloss	Freq	Freq in LCMC	Rank according to LCMC
qu 'go'	***zhao***	**'look for, search'**	**15**	426	6
	zuo	'do, make'	7	676	3
	mai	'buy, purchase'	6	342	8
	kan	'look, visit'	6	1159	1
	kanwang	'visit'	3	21	12
	ting	'listen'	2	521	4
	chi	'eat'	2	477	5
	goumai	'buy, purchase'	2	66	11
	da	'beat, call'	2	410	7
	wan	'play'	2	89	9
	xunzhao	'look for, search'	2	81	10
	jinxing	'conduct'	2	791	2
lai 'come'	***zhao***	**'look for, search'**	**4**	426	3
	yanjiu	'study, do research'	4	593	2
	xuexi	'study'	3	313	6
	tigao	'raise, improve'	2	426	3
	qing	'ask, invite'	2	304	7
	xie	'write'	2	357	5
	kan	'look'	2	1159	1

Table 7.11 Collocating verbs (freq >1) in the V2 position with *lai* 'come' and *qu* 'go'

Another sub-type of motion construction which can be identified from the corpus is the $\text{PREP}_{\text{NON-SPATIAL}}$-LAI/QU-V construction. In this construction, the motion verb *lai* or *qu* precedes a verb and follows a non-spatial prepositional phrase. The motion verb in this construction does not signal real motion but indicates abstract motion or purpose. The meaning of this construction is that X adopts or uses the manner specified by PREP (preposition) in order to do something. Table 7.12 lists the frequency of individual prepositions and collocating verbs with *lai* and *qu* in the $\text{PREP}_{\text{NON-SPATIAL}}$-LAI/QU-V construction.

Preposition	Freq	NP	*lai* or *qu*	V2
cong ‘from’	5	*fanmian* ‘aspect’	*qu*	*tixian* ‘reflect, embody’
		fanmian ‘aspect’	*qu*	*kan* ‘look, view’
		jiaodu ‘angle’	*lai*	*yanjiu* ‘study’
		jiaodu ‘angle’	*qu*	*xiang* ‘think, consider’
		zhengtishang ‘the whole’	*qu*	*bawo* ‘grasp’
yi ‘with, relying on’	3	*zhentong* ‘orthodox’	*lai*	*paiju* ‘expell’
		shuangchong de shenfen ‘dual identity’	*qu*	*duidai* ‘cope with’
		laoqian de duoxiao ‘how much money got’	*lai*	*hengliang* ‘measure’
tongguo ‘through, by’	2	*guanli* ‘management’	*lai*	*tigao* ‘raise, improve’
		fangmei ‘visiting America’	*lai*	*tigao* ‘raise, improve’
anzhao ‘according to, relying on’	1	*sheji* ‘design’	*qu*	*zuo* ‘do’

Table 7.12 Frequency of individual prepositions and collocating verbs with *lai* ‘come’ and *qu* ‘go’ in the $\text{PREP}_{\text{NON-SPATIAL}}$-LAI/QU-V construction

The verb *lai* or *qu* in Table 7.12 indicates abstract motion or serves as a kind of purposive marker instead of expressing real motion. In the $\text{PREP}_{\text{NON-SPATIAL}}$-LAI/QU-V construction, the preposition *cong* ‘from’ does not specify spatial location but indicates an abstract source and it is used commonly with the NPs *fanmian* ‘aspect’ or *jiaodu* ‘angle, viewpoint’. In other cases of this construction, the motion verb *lai* or *qu* is mainly used to indicate a purposive relation between the means and the action which follows *lai* or *qu*. For example, in *tongguo fangmei lai tigao tade diwei* ‘through visiting America come raise his position’, the verb *lai* indicates that the purpose of visiting America is to raise his position.

Unlike directional constructions and resultative constructions which are V2-dependent, motion constructions are V1-dependent. The attraction scores for some motion verbs in the V1 position are high while none of the verbs in the V2 position has a

high attraction score. The attraction scores for the top four V1 verbs in motion constructions is 93%, which means that 93 out of 100 tokens in this construction contain one of these four verbs in the V1 position. In particular, the motion verbs *lai* and *qu* which are overwhelmingly used in the V1 position in motion constructions have the highest attraction scores and these two verbs attribute much to the low verb type/token ratio. The type/token ratio in motion constructions is lower than that in any other construction except for that in the directional construction or in the resultative construction. As discussed in Chapter Five, the degree of event integration in motion constructions is not as tight as that in either directional constructions or resultative constructions. Thus, for motion constructions there is a correlation as well between the degree of event integration and the degree of lexical restrictedness as shown in the verb type/token ratio.

7.4 Pivotal Constructions

In the pivotal construction, which has the form [V_1 NP(OBJ-V_1/SUBJ-V_2) V2], the intervening participant between V1 and V2 logically serves both as the object of V1 and the subject of V2. The two events denoted by V1 and V2 in this construction have a causal relation. Examples of pivotal constructions from the LCMC are given in (124).

(124) a. *Fanyu* ***song*** *Liuli* ***qu*** *chezhan*
Fanyu **send** Liuli **go** station
'Fanyu sent Liuli to go to the station'

b. *ta* ***rang*** *youguan* *bumen* *renzhen* ***tianxie***
he **let** relevant department seriously **fill.in**
jiaoxue *kapian*
teaching card
'he let the relevant departments seriously fill in the teaching cards'

c. *muqin…* ***qing*** *tamen* ***chi*** *fan*
mother… **ask** them **eat** meal
'Mother… asked them to eat (have) a meal'

d. *tamen* ***shi*** *zongjiao* ***chengwei*** *yi* *zhong* *wanzheng*
they **make** religion **become** one CL complete
de *shijie* *guan*
POSS world view
'they made religions become one complete world view'

Pivotal constructions are very common among Mandarin MVCs. Table 7.13 displays the frequency (> 2) of V1 and V2, attraction, and type/token ratio of verbs in pivotal constructions from the search results. In pivotal constructions, five verbs are used frequently as V1. Among them, two verbs *shi* 'make' and *rang* 'let, make' are causative verbs though they do not specify manners of causing. These two verbs are most attracted to pivotal constructions as their attraction scores indicate and, in fact, more than half of the tokens of this construction take either *shi* 'make' or *rang* 'let, make' in the V1 position. The other three verbs belong to another semantic group and they are communicative verbs (*qing* 'ask, invite', *youjiu* 'demand, require', and *jiao* 'call, ask'). The overall frequency for these five verbs is 347, which makes up 87% of all the verb tokens used as V1 in pivotal constructions.

Freq	V1	Freq	Attraction	V2	Freq	Attraction
≥ 100	*shi* 'make'	135	34.01%			
50 - 99	*rang* 'let, make'	86	21.66%			
	qing 'ask, invite'	76	19.14%			
10 - 49	*yaoqiu* 'demand, require'	32	8.06%	*chengwei* 'become'	25	6.30%
	jiao 'call, ask'	18	4.53%	*chansheng* 'bring about, come into being'	14	3.53%
				fasheng 'happen, take place'	11	2.77%
				juyou 'possess, have'	10	2.52%
				zuo 'do'	10	2.52%
6 - 9				*you* 'have'	8	2.02%
				jiang 'tell, speak'	8	2.02%
				zuo 'sit'	8	2.02%
				qu 'go'	7	1.76%
				bian 'change, become'	7	1.76%
				chi 'eat'	7	1.76%
				xuexi 'study'	7	1.76%
				gandao 'feel, realize'	6	1.51%
				kan 'see'	6	1.51%
				fazhan 'develop'	6	1.51%
4 - 5				*lai* 'come'	4	1.01%
				gaosu 'tell'	4	1.01%
3	*quan* 'persuade'	3	0.76%	*mai* 'buy'	3	0.76%
	pei 'accompany'			*shuo* 'say'	3	0.76%
	zuzhi 'organize'	3	0.76%	*jizhu* 'remember'	3	0.76%
				tigao 'raise, improve'	3	0.76%
		3	0.76%			
Sum of the above		356			160	
Others (Freq <3)		41			237	
Total types		43			237	
Total tokens		397			397	
Type/token ratio		0.11			0.60	
Cumulative type/token ratio of V1 and V2			**0.71**			

Table 7.13 Frequency of verbs (Freq > 2), attraction and type/token ratio of verbs in pivotal constructions

Verbs in the V1 position in pivotal constructions are quite restricted and this kind of lexical restrictedness is reflected in the type/token ratio. The cumulative verb type/token ratio of pivotal constructions is higher than that of any of these three constructions: directional constructions, resulative constructions or motion constructions; but lower than other multi-verb constructions. In pivotal constructions, the verb type/token ratio (which is a measure of lexical restrictedness) correlates with the degree of event integration of this construction since its event integration is lower (looser) than directional constructions, resultative constructions or motion constructions, but higher (tighter) than other MVCs.

It can be seen from Table 7.13 that, in pivotal constructions, V1 verbs are mainly causative verbs or communicative verbs. According to the semantic groups of V1 verbs, pivotal constructions can be classified into two major sub-types: CAUSATIVE CONSTRUCTIONS and COMMUNICATIVE PIVOTAL CONSTRUCTIONS. I will discuss each in turn next.

7.4.1 Causative Constructions

In a causative construction, V1 causes V2 to happen and the causing event is usually left vague. In this construction, manners of causation of pre-pivotal verbs such as *shi* 'cause, make', *rang* 'let, cause' and *bi* 'force' are generally unspecified. Table 7.14 displays the frequency (> 2) of V1 and V2 in causative constructions from the search results.

V1	Freq	Attraction	V2	Freq	Attraction
shi ‘cause, make’	135	59.73%	*chengwei* ‘become’	23	10.18%
rang ‘let, cause’	86	38.05%	*chansheng* ‘bring about, come into being’	14	6.19%
			juyou ‘possess, have’	9	3.98%
			fasheng ‘happen, take place’	7	3.10%
			bian ‘change, become’	6	2.65%
			gandao ‘feel, realize’	6	2.65%
			kan ‘see’	4	1.77%
			you ‘have’	4	1.77%
			zuo ‘do’	3	1.33%
			zuo ‘sit’	3	1.33%
Sum of the above	221			79	
Others (Freq <3)	5			147	
Total types	7			149	
Total tokens	226			226	
Type/token ratio	0.03			0.65	
Cumulative type/token ratio of V1 and V2			**0.68**		

Table 7.14 Frequency of verbs (freq > 2), attraction, and type/token ratio of verbs in causative constructions

In causative constructions, verbs in the V1 position are very restricted and there is a large difference in type/token ratios between V1 and V2. The two causative verbs *shi* ‘cause, make’ and *rang* ‘let, cause’ make up 98% of all the verbs in position V1. Table 7.14 shows the collocating verbs in the V2 position with the causative verb *shi* ‘cause, make’.

V1	V2	Gloss	Freq	Freq in LCMC	Rank according to LCMC
shi 'cause, make' (135)	*chengwei*	'become'	21	365	5
	chansheng	'bring about, come into being'	11	361	6
	juyou	'possess, have'	8	376	4
	fasheng	'happen, take place'	6	343	7
	gandao	'feel, realize'	5	248	9
	bian	'change'	5	301	8
	you	'have'	4	5045	1
	shou	'receive, get'	2	111	10
	fazhan	'develop'	2	1434	2
	tigao	'raise, improve'	2	426	3

Table 7.15 Collocating verbs in the V2 position with the causative verb *shi* 'cause, make'

Table 7.15 indicates that the frequency of collocating verbs with *shi* does not reflect their overall frequency in the LCMC. The most frequent collocating verb with *shi* 'cause, make' is *chengwei* 'become', although its overall frequency in the corpus is not quite as high. In fact, becoming or happening verbs (*chengwei* 'become'; *chansheng* 'bring about, come into being'; *fasheng* 'happen, take place') are used frequently with the verb *shi* 'make'. There is a sub-type of causative constructions that has the form [*shi* NP(PIVOTAL) $V_{HAPPEN/BECOME}$]. The general meaning of this construction is 'to cause someone to become something' or 'cause something to happen'. In the case of *rang* used as V1 in causative constructions, its collocating V2 verbs are quite varied and none of them has a frequency greater than 3 in the corpus data.

7.4.2 Communicative Pivotal Constructions

In communicative pivotal constructions, typically the first event occurs before the second one, for instance in the sentence: *Wo qing ni lai* 'I ask you to come', my asking occurs

first and your coming takes place afterward if the event (your coming) is to apply. Table 7.16 shows the frequency (>1) and type/token ratios of V1 and V2 in communicative pivotal constructions. Table 7.16 also indicates that the verb *qing* 'ask, invite' is used much more frequently than other verbs in the V1 position though its overall frequency in the corpus is ranked lower than either *yaoqiu* 'demand, require' or *jiao* 'call, ask'. There is no particular verb which is used frequently in the V2 position.

V1	Freq	Attraction	V2	Freq	Attraction
qing 'ask, invite'	76	57.58%	*chi* 'eat'	5	3.79%
yaoqiu 'demand, require'	32	24.24%	*jiang* 'tell, speak'	5	3.79%
jiao 'call, ask'	18	13.64%	*gaosu* 'tell'	4	3.03%
quan 'persuade'	3	2.27%	*you* 'have'	3	2.27%
haozhao 'call on'	2	1.52%	*zuo* 'sit'	3	2.27%
			jizhu 'remember'	3	2.27%
			likai 'leave'	2	1.52%
			ti 'raise, put forward'	2	1.52%
			xuexi 'study'	2	1.52%
			shuo 'say, speak'	2	1.52%
			lai 'come'	2	1.52%
			fasheng 'take place'	2	1.52%
			tantan 'talk'	2	1.52%
			guo 'cross'	2	1.52%
			shang 'ascend'	2	1.52%
			xiangxiang 'think'	2	1.52%
			jin 'enter'	2	1.52%
			zuo 'do'	2	1.52%
Sum of the above	131			47	
Others (Freq <3)	1			85	
Total types	6			103	
Total tokens	132			132	
Type/token ratio	0.05			0.75	
Cumulative type/token ratio of V1 and V2		**0.80**			

Table 7.16 Frequency of verbs (freq > 1), attraction and type/token ratio of verbs in communicative pivotal constructions

As in causative constructions, verbs in the V1 slot in communicative pivotal constructions are much more limited lexically, while verbs in the V2 slot in such constructions are quite open. The cumulative type/token ratio of V1 and V2 in pivotal constructions is low and this construction provides another example of the correlation between low type/token ratios and tight event integration.

7.5 Complement Constructions

Complement constructions are very common among multi-verb constructions. There are 414 instances of complement constructions from the search results. In the complement construction, which has the form [V1 $V2_{COMPLEMENT}$], the second event is backgrounded and serves as the landmark (complement) for the first event. Some examples of complement constructions from the LCMC are given in (125).

(125) a. *Zhongguo… **xiwang** **jiaqiang** geguo renmin*
China… **hope** **strengthen** all.countries people
zhijian de hezuo
among POSS cooperation
'China…hopes to strengthen the cooperation among people of all countries'

b. *Zuoquan **kaishi** **zou** xiang shehui*
Zuoquan **begin** **walk** towards society
'Zuoquan began to walk towards the society'

c. *dangshi ta ji **xiang** **chengwei** "shiren"*
at.that.time 3SGM very.much **want** **become** "poet"
'at that time he wanted to become a "poet" very much'

d. *wo youqi **ai** **ting** "xinli weisheng"*
I especially **love** **listen** "psychological hygiene"
yi ke
one lesson
'I especially love to attend the lesson of 'psychological hygiene'

e. *ta shenzhi bu **zhidao** gai ruhe **yingfu***
he even NEG **know** should how **handle**
'he even did not know how (he) should handle (it)'

In complement constructions, the first sub-event (denoted by V1) serves as the main event and the second sub-event (denoted by V2) serves as the complement of V1; that is, the second of the two sub-events bears a subordinate relationship. Table 7.17 shows the frequency ≥ 5 for the most common verbs occupying the V1 and V2 positions.

Freq	V1	Freq	Attraction	V2	Freq	Attraction
> 50	***kaishi* 'begin, start'**	**115**	27.78%			
	***xiang* 'think, want'**	**66**	15.94%			
16 - 50	*xuyao* 'request, need'	42	10.14%	*jiaqiang* 'strengthen'	16	3.86%
	yaoqiu 'require'	21	5.07%			
	jinxing 'be going on, conduct'	18	4.35%			
	tichu 'put forward'	16	3.86%			
10 - 15	*zhidao* 'know'	12	2.90%	*you* 'have, there be'	15	3.62%
	shi 'be'	12	2.90%			
	renwei 'think, hold the view'	12	2.90%	*chuxian* 'appear, come into being'	12	2.90%
				xie 'write'	10	2.42%
				zuo 'do, make'	10	2.42%
5 – 9	*shuo* 'say'	9	2.17%	*fazhan* 'develop'	9	2.17%
	jixu 'continue'	9	2.17%	*chengwei* 'become'	9	2.17%
	dedao 'get, obtain'	7	1.69%			
	xihuan 'like, love'	5	1.21%	*ting* 'listen'	7	1.69%
				zou 'walk'	7	1.69%
				fasheng 'happen'	7	1.69%
				chi 'eat'	7	1.69%
				tigao 'raise'	7	1.69%
				yanjiu 'study'	6	1.45%
				jinxing 'be going on, conduct'	6	1.45%
				shi 'be'	5	1.21%
Sum of the above		344			133	
Others (Freq <5)		70			281	
Total types		64			246	
Total tokens		414			414	
Type/token ratio		0.16			0.59	
Cumulative type/token ratio of V1 and V2				**0.75**		

Table 7.17 Frequency of verbs (freq ≥ 5), attraction and type/token ratio of verbs in complement constructions

In complement constructions, the verb occupying the V1 slot is much more restricted in terms of lexical choice than V2 and, consequently, V2 is more varied. The type frequency of verbs in V1 is much lower than that of V2. Two verbs, *kaishi* 'begin, start' and *xiang* 'think, want', are especially frequent as V1 and these two verbs occupy more than one third (40.7%) of all the verb tokens used in the V1 position. In analysing what kinds of verbs are used as V1 and their relative frequency, it has been found that there are certain kinds of verbs which are used more frequently than others, as Table 7.18 indicates.

Types of V1	**Freq**
Starting or (continue to) conduct verbs	**142**
kaishi 'begin, start'	115
jinxing '(continue to) conduct'	18
jixu 'continue, go on'	9
Thinking or communicative verbs	**93**
shuo 'say'	66
xiang 'think'	12
renwei 'think, hold'	9
other communicative verbs	6
Requesting or asking verbs	**66**
xuyao 'require'	42
yaoqiu 'request, demand'	21
(zhui)wen 'ask further'	3
Psychological verbs	**17**
xiwang 'hope, wish'	5
xihuan 'like'	5
ai 'love, like'	4
pai 'fear'	1
taoyan 'be loath'	1
danxin 'be worried'	1
Putting forward, proposing verb	
tichu 'put forward, proposing'	16
Knowing verb	
zhidao 'know'	12
Total Frequency	**346**

Table 7.18 Types of V1 and their frequency for complement constructions

In the V1 position of complement constructions, inchoative/inceptive verbs, continuative verbs, and thinking and communicative verbs are used most frequently. Requesting or asking verbs also easily enter into the V1 slot of complement constructions. The six types of verbs listed in Table 7.18 make up 82.8% of all the verb tokens in the V1 position. The corpus results indicate that verbs in the V1 position in complement constructions are quite restricted.

Next, I would like to address collocating verbs in the V2 position for complement constructions. Table 7.19 and Table 7.20 display collocating V2 verbs (frequency > 1) with the two most frequent verbs in the V1 position.

V1	V2	gloss	Freq
kaishi 'start, begin' (115)	*chuxian*	'appear, come into being'	7
	bian	'change'	2
	fasheng	'take place'	2
	yanjiu	'study, research'	2
	zou	'walk, leave'	2
	fazhan	'develop'	2
	gongzuo	'work'	2
	you	'have, there be'	2
	jinxing	'conduct'	2
	shishi	'enforce'	2
	chengren	'admit'	2
	huisheng	'rise back'	2
Sum of the above			31
Others (Freq = 1)			84
Total Frequency			**115**

Table 7.19 Collocating V2 verbs (freq > 1) with the V1 verb *kaishi* 'start, begin' for complement constructions

V1	V2	gloss	Freq
xiang ‘think, want’ (66)	*chengwei*	‘become’	6
	zuo	‘do, make’	3
	chi	‘eat’	3
	zuo	‘sit’	3
	shangxue	‘go to school’	3
	zhidao	‘know’	3
	ting	‘listen’	2
	ku	‘cry’	2
	zhao	‘search’	2
	lai	‘come’	2
	zou	‘walk, leave’	2
	wan	‘play’	2
Sum of the above			39
Others (Freq = 1)			27
Total Frequency			**66**

Table 7.20 Collocating V2 verbs (freq > 1) with the V1 verb *xiang* ‘think, want’ for complement constructions

It can be seen from Tables 7.19 and 7.20 that there is no particular verb which typically collocates with any of the two verbs *kaishi* ‘start, begin’ and *xiang* ‘think, want’, which suggests that the verbs in the V2 position in complement constructions are more varied lexically. However, in the case of *kaishi* ‘start, begin’, there is one verb, *chuxian* ‘appear, come into being’, which is used more frequently as V2 than any other verb is. *Chengwei* ‘become’ is more likely to collocate with the verb *xiang* ‘think, want’. There are a variety of verbs which collocate with *kaishi* ‘start, begin’ or *xiang* ‘think, want’ and the two verbs are quite productive in forming complement constructions.

The corpus evidence indicates that in complement constructions, there is an asymmetry between the two verbs in that V1 is much more restricted while V2 is much more open. The two verbs *xiang* ‘want’ and *kaishi* ‘begin, start’ are most attracted to the

V1 position in complement constructions, as their attraction scores in Table 7.17 indicate. The six verbs which have the highest attraction scores make up two thirds of all the tokens in the V1 position in this construction. The lexical restrictedness of V1 is reflected in its type/token ratio which is much lower than that of V2. The cumulative verb type/token ratio in complement constructions (0.75) is higher than that in pivotal constructions (0.71) and the event integration in pivotal constructions is tighter than that in complement constructions. A correlation relationship can be seen between the type/token ratio and the degree of event integration in complement constructions.

7.6 Instrument Constructions

In the instrument construction which has the form [V1 $NP_{INSTRUMENT}$ V2], the instrument or tool used for the purpose of doing something takes part in both sub-events. The first sub-event in such a construction usually involves an instrument or tool, which serves as the means for the second sub-event to happen, as the examples in (126) from the LCMC show.

(126) a. *fuqin bushidi* ***yong*** *shou* ***mo*** *yixia lian*
father from.time.to.time **use** hand **touch** once face
'from time to time father used his hand to touch his face'

b. *wo jiu...* ***na*** *ge tie pian* ***qiaokai*** *suo*
I then… **take** CL iron piece **pry.open** lock
'I then... took a piece of iron (to) pry the lock open'

c. *ta* ***yong*** *xiuzi* ***ca*** *le ca toushang de han*
3SGM **use** sleeve **wipe** PERF wipe head.on POSS sweat
'he used his sleeves to wipe his sweat on his head'

Table 7.21 displays the frequency of V1 and V2 (freq > 1) and the type/token ratios for instrument constructions. In instrument constructions, V1 is dominated by the verb *yong* although verbs which denote 'relying on', 'taking' can also be found. In the V1 position,

there are 42 cases (out of 45 instances) containing the verb *yong* or its compounds, which make up 93% of the total token frequency. It has been commonly believed that the handling verb *na* 'take' is widely used in instrument constructions. However, quite surprisingly, there is only one case of an instrument construction involving the verb *na* in my search returns. In the Chinese linguistics literature, *na* 'take' has been typically treated as a kind of instrument case marker. In fact, the corpus results indicate that *na* 'take' is rarely used to mark the instrument. Instead, the verb *yong* is the prototypical verb used with an instrument or a tool in instrument constructions in Mandarin Chinese.

V1	Freq	Attraction	V2	Freq	Attraction
***yong* 'use' and its compounds**	**42**		*zuo* 'do'	5	11.11%
yong 'use'	40	88.89%	*xie* 'write'	4	8.89%
V-*yong* (other verbs plus *yong*)	2	4.45%	*tidai* 'replace'	2	4.45%
ping 'rely on'	2	4.45%			
Sum of the above	44			11	
Others (Freq <2)	1			34	
Total types	5			37	
Total tokens	45			45	
Type/token Ratio	0.11			0.82	
Cumulative type/token ratio of V1 and V2		**0.93**			

Table 7.21 Frequency of verbs (freq > 1), attraction, and type/token ratio of verbs in instrument constructions

Quite different from V1, verbs in the V2 position are quite varied. In instrument constructions, a variety of verbs can denote different purposes and situations; however, most of the verbs acting as V2 are action verbs, such as *xie* 'write'. The verb *yong* 'use' is used overwhelmingly in the V1 position in instrument constructions, as its attraction score (89%) indicates. The very frequent use of this verb contributes much to the low type/token ratio of V1 in this construction. There is a large difference between the type/token ratio of V1 and that of V2, and this frequency asymmetry between V1 and V2

is indicative of an emerging fixed construction. The cumulative verb type/token ratio in instrument constructions is higher than that in most of MVCs but lower than that in shared subject constructions or shared object constructions. As established in Chapter Five, the degree of event integration in instrument constructions is tighter than that of shared subject constructions or shared object constructions but looser than those of other multi-verb constructions. The corpus data indicate that in instrument constructions the verb type/token ratio correlates with the degree of event integration of this construction.

7.7 Shared Object Constructions

In shared object constructions which have the form [V1 $NP_{OBJ\text{-}V1/OBJ\text{-}V2}$ V2], two verbs share the same overt object which shows up intervening between the two verbs. The two sub-events denoted by V1 and V2 bear a tight purposive relationship. The examples of this construction type in (127) are from the LCMC.

(127) a. (*tamen*) *yeli xia* *shan* ***wa*** *tudou* ***chi***
(they) at.night descend mountain **dig** potato **eat**
'at night (they) went down the mountain to dig potatoes to eat'

b. *Yangmaozi* *hui* *gei* *ta* *zhangren* ***chao***
Yangmaozi can give, for 3SG father-in-law **stir-fry**
kugua ***chi*** *ma*?
bitter.melon **eat** PRT
CanYangmaozi stir-fry bitter melons for his father-in-law to eat?

c. (*wo*) … *gei* *ta* ***mai*** *ji* *ke* *tang* ***chi***
(I)… give, for 3SGM **buy** a few CL candy **eat**
'(I)…buy a few candies for him to eat'

d. (*ta*) *jiu* ***zhao*** *cankao* *shu* ***kan***
(3SGF) just **look.for** reference book **read**
'(she) just looked for reference books to read'

e. *wo ...* ***you*** *biede* *shu* ***kan***
I… **have** other book **read**
I…have other books to read'

Some linguists (e.g. Baker 1989) claim that the shared object construction is the only true type of serial verb construction. However, shared object constructions are not common at all in Mandarin Chinese. There are only 10 instances of shared object constructions from my search of the LCMC for V1 + V2 sequences. Table 7.22 displays the frequency of V1 and V2 for these 10 cases.

V1	Freq	Attraction	V2	Freq	Attraction
you 'have, there be'	5	50%	*chi* 'eat'	4	40%
cooking verbs	**3**		*kan* 'look'	2	20%
shao 'cook'	1	10%	*chansheng* 'produce, make'	2	20%
chao 'fry'	1	10%	*gei* 'give'	1	10%
lao 'bake in a pan'	1	10%	*jiang* 'tell, speak'	1	10%
zhao 'look for, find'	2	20%			
Type	5			5	
Token	10			10	
Type/token ratio	0.5			0.5	
Cumulative type/token ratio of V1 and V2	**1.0**				

Table 7.22 Frequency of verbs, attraction and type/token ratio of verbs in shared object constructions

In the V1 position of shared object constructions for two verb sequences, *you* 'have, there be' and verbs which denote cooking are the only ones in evidence from the corpus returns. The collocating verbs with *you* 'have, there be' are quite varied. However, all the cooking verbs in shared object constructions only collocate with one verb, *chi* 'eat'. In the V2 position, the verb *chi* 'eat' stands out and it is exclusively used as V2, as Table 7.23 shows.

For the V2 verb *chi* 'eat', there are 3 instances of V1 which denote cooking. This is a clear example of the interaction or lexical co-dependency between the verbs that fill one slot in an MVC and those that fill the other. In real life, it is a common phenomenon that first we should prepare something in order for us to eat it later. Here, we have a sub-

type of shared object constructions and it has the form [$V_{\text{COOKING PROCESS}}$ NP_{FOOD} EAT]. The meaning of this sub-type of shared object construction is that 'X prepares N in manner V for the purposes of eating N'.

V1	Freq	V2	Freq
cooking verbs:	**3**	***chi* 'eat'**	**4**
shao 'cook'	1		
chao 'fry'	1		
lao 'bake in a pan'	1		
obtaining by means:			
zhao 'look for, find'	1		

Table 7.23 Collocations of V1 verbs with *chi* 'eat' as V2

In shared object constructions, verbs in both V1 and V2 positions are restricted to some extent. Verbs in the V1 position are mainly possessing or cooking verbs while verbs of eating are used frequently in the V2 position. The verb *you* 'have, there be' is most attracted to the V1 slot and the verb *chi* 'eat' is most attracted to the V2 slot in shared object constructions. The type/token ratio in the shared object construction is higher than those in other MVCs discussed so far in this chapter and its event integration is looser than those of other MVCs (except for shared subject constructions), which provides another example of the correlation between verb type/token ratios and the degree of event integration of multi-verb constructions.

7.8 Shared Subject Constructions

In shared subject constructions which have the form [SUBJ V1(open) V2(open)], verbs in both the V1 position and the V2 position are quite open lexically. Table 7.24 displays the frequency of verbs (freq > 1), attraction, and type/token ratios of verbs in this open construction. Table 7.24 indicates that both verbs in shared subject constructions are

varied. Symmetrical shared subject constructions display looser event integration than other major types of multi-verb constructions which were discussed in Chapter Five. In Chapter Five, two sub-types of symmetrical shared subject constructions were introduced. In this section, I will first discuss the coordinate sub-type.

V1	Freq	Attraction	V2	Freq	Attraction
zhao 'look for, search'	13	15.48%	*kan* 'look'	13	15.48%
zuo 'sit'	8	9.52%	*shuo* 'say, speak'	7	8.33%
ting 'listen'	6	7.14%	*mai* 'buy'	7	8.33%
hua 'spend'	4	4.76%	*zou* 'walk'	6	7.14%
xiao 'smile/laugh'	3	3.57%	*qu* 'go'	5	5.95%
dai 'bring'	3	3.57%	*xuexi* 'study'	5	5.95%
zhu 'live'	3	3.57%	*tanhua* 'have a talk'	4	4.76%
hui 'return'	3	3.57%	*zuo* 'do'	4	4.76%
tai 'raise'	2	2.38%	*chi* 'eat'	3	3.57%
chi 'eat'	2	2.38%	*zuo* 'sit'	2	2.38%
zhan 'stand'	2	2.38%	*da* 'beat, call'	2	2.38%
xie 'write'	2	2.38%	*xiao* 'smile/laugh'	2	2.38%
zhuan 'turn'	2	2.38%	*yanjiu* 'study, research'	2	2.38%
Sum of above	53			63	
Other verbs (freq<2)	57			47	
Token	110			110	
Type	70			61	
Type/token ratio	0.64			0.56	
Cumulative type/token ratio of V1 & V2		**1.20**			

Table 7.24 Frequency of (freq > 1), attraction and type/token ratio of verbs in symmetrical shared subject constructions

7.8.1 Coordinate Constructions

Among multi-verb constructions, coordinate constructions represent the limiting case of lexical freedom—non-integrated events expressed as separate clauses with no syntactic or semantic dependencies between them. There are 24 instances of coordinate constructions

with shared subjects in the corpus returns. The two events in this type of construction do not bear a strong (if any) purposive or causal relation between them. Examples in (128) are instances of coordinate constructions from the LCMC.

(128) a. *jiajia* ***zhu*** *xin* *fang* ***mai*** *dianshi*
every.family **live** new house **buy** TV
'every family lived in a new house and bought a TV'

b. *Ningshigao* ***tiao*** *guo* *jingwei* *de* *shiti* *da* ***jiaodao***
Ningshigao **jump** over bodyguard POSS corpse big **exclaim**
'Ningshigao jumped over the bodyguard's corpse and exclaimed loudly'

The two events in coordinate constructions do not bear a tight semantic relation and verbs in this type of construction do not seem at all restricted lexically. Table 7.25 shows the frequency of verbs (freq ≥ 1), attraction, and the type/token ratio of this construction.

V1	Freq	Attraction	V2	Freq	Attraction
xiao 'smile/laugh'	3	12.50%	*zou* 'walk'	4	16.67%
xie 'write'	2	8.33%	*shuo* 'say'	3	12.50%
zhu 'live'	2	8.33%	*dao* 'speak'	1	4.17%
chi 'eat'	2	8.33%	*kan* 'look'	1	4.17%
ting 'listen'	2	8.33%	*jiao* 'hand in'	1	4.17%
huan 'exchange'	1	4.17%	*fu* 'pay'	1	4.17%
dao 'reach, get to'	1	4.17%	*ku* 'cry'	1	4.17%
ku 'cry'	1	4.17%	*hui* 'return'	1	4.17%
xixiao 'smile happily'	1	4.17%	*zuo* 'sit'	1	4.17%
xiang 'think, want'	1	4.17%	*xuexi* 'study'	1	4.17%
zou 'walk'	1	4.17%	*da* 'beat, call'	1	4.17%
ti 'raise'	1	4.17%	*mai* 'buy'	1	4.17%
fang 'put in'	1	4.17%	*ling/ming* 'follow orders'	1	4.17%
jiang 'tell'	1	4.17%	*yanjiu* 'study, rearch'	1	4.17%
shuo 'say'	1	4.17%	*shui* 'sleep'	1	4.17%
diaocha 'investigate'	1	4.17%	*zhu* 'live'	1	4.17%
xiejue 'decline'	1	4.17%	*po* 'break'	1	4.17%
gongzuo 'work'	1	4.17%	*tiao* 'jump'	1	4.17%
			ma 'curse'	1	4.17%
Type	18			19	
Token	24			24	
Type/token ratio	0.75			0.79	
Cumulative type/token ratio of V1 & V2		**1.54**			

Table 7.25 Frequency of verbs, attraction and type/token ratio of verbs in coordinate constructions

Table 7.25 indicates that the verbs which fill either the V1 or V2 position in coordinate constructions are quite varied. The token frequency for the majority of the verbs in the V1 position and the V2 position is only 1 and, thus, the coordinate constructions do not appear at all restricted with respect to the verbs that they take. The attraction scores for both V1 and V2 are the lowest among all kinds of multi-verb constructions I have examined here and there is no particular verb which is quite attracted to this construction. In coordinate constructions, the cumulative type/token ratio of verbs is the highest and such constructions reflect the limiting case of lexical openness and event independence.

7.8.2 Purposive Constructions

In purposive constructions, the two events are understood to have a purposive relation, with the second event implying the purpose of the first event. Examples of purposive constructions in (129) are from the LCMC.

(129) a. *yixie* *qiye* *yuanyi* ***hua*** *qian* ***mai*** *jiaoche*
Some enterprises be.willing **spend** money **buy** car
'Some enterprises are willing to spend money to buy cars'

b. *Zouwenxuan* *jingchang* ***zhuchi*** *huiyi* ***yanjiu*** *jijian* *gongzuo*
Zouwenxuan often **chair** meeting **study, discuss** basic.construction work
'Zouwenxuan often chairs meetings to discuss the basic construction work'

c. *renmen* *bushide* ***tai*** *wan* ***kan*** *biao*
people from.time.to.time **raise** wrist **look** watch
'people raised their wrists to look at their watches from time to time'

Table 7.26 displays the frequency of verbs (freq > 1), attraction and the type/token ratio of verbs in purposive constructions from the LCMC search results. As Table 7.26 shows, verbs in purposive constructions are not quite restricted though they are not as varied as those in coordinate constructions. As in coordinate constructions,

attraction scores in purposive constructions are not high as well. It can be seen from Table 7.26 that no particular kind of verb is quite attracted to this construction. Lack of lexical restrictedness is reflected in its verb type/token ratio. The verb type/token ratio in purposive constructions is the highest among all the multi-verb constructions except for coordinate constructions. This ratio is correlated with its degree of event integration, which is lower than that of any other multi-verb construction except for that of coordinate constructions.

V1	Freq	Attraction	V2	Freq	Attraction
zhao 'look for, search'	13	17.81%	*kan* 'look'	12	16.44%
zuo 'sit'	7	9.59%	*mai* 'buy'	6	8.22%
hua 'spend'	4	5.48%	*qu* 'go'	5	6.85%
hui 'return'	3	4.11%	*tanhua* 'have a talk'	4	5.48%
tai 'raise'	2	2.74%	*shuo* 'say, speak'	4	5.48%
zhan 'stand'	2	2.74%	*zuo* 'do'	4	5.48%
zhuan 'turn'	2	2.74%	*xuexi* 'study'	4	5.48%
dai 'bring'	2	2.74%	*chi* 'eat'	3	4.11%
			xiao 'smile/laugh'	2	2.74%
			zou 'walk'	2	2.74%
Sum of above	35			46	
Others (freq<2)	38			27	
Token	73			73	
Type	46			37	
Type/token ratio	0.63			0.51	
Cumulative type/token ratio of V1 & V2			**1.14**		

Table 7.26 Frequency of verbs (freq > 1), attraction, and type/token ratio of verbs in purposive constructions

In shared subject constructions, the verbs in neither position are restricted and both V1 and V2 type/token ratios are high. There is no particular verb or particular kind of verb which is quite attracted to its verb positions as the attraction scores indicate. Shared subject constructions are what have been traditionally called open, lexically unrestricted syntactic patterns and their attraction scores of verbs are low. In terms of the

cumulative verb type/token ratio, shared subject constructions have the highest ratio among all the multi-verb constructions and correspondingly they display the loosest event integration.

7.9 Interaction between Lexical Items and Construction Types

Different kinds of multi-verb constructions and verbs which appear in these constructions from the LCMC have been discussed and the corpus results which were obtained suggest that there is an interaction between lexical items and the construction types they enter into and that different multi-verb constructions display various degrees of lexical restrictedness measured by verb type/toke ratios which have been shown to be correlated with degrees of event integration. It is usually the case that not all kinds of verbs are allowed in a particular construction. Generally, there is a strong lexical attraction or lexical affinity associated with a multi-verb construction. Certain verbs are easily attracted to a particular type of construction while others are largely excluded from a given construction (Stefanowitsch & Gries 2003).

In shared subject constructions, V1 and V2 are quite open lexically and virtually any kind of verb can be inserted. The attraction scores of verbs in shared subject constructions are low and there is no particular verb or particular kind of verb quite attracted to this construction as Table 7.27 shows. Table 7.27 displays the top three attraction scores of verbs (V1 or V2) for each construction. If, for a given construction, the cumulative top three attraction scores in one verb slot is higher than those in the other, the scores in the table will be those from the verb slot with the higher attraction score.

As can be seen from Table 7.27, the top three cumulative attraction scores (well below 50%) for shared subject constructions are much lower than those of any others. With any of the other types of multi-verb constructions, the three verbs with the highest attraction scores make up more than 50% of the total verb tokens in a particular verb slot. The high attraction of particular lexical items to V1 or V2 is one characteristic of a specific (rather than a general) construction which is tightly linked to specific lexical items and assumes a relatively tight form-meaning pairing. All types of multi-verb constructions listed in Table Table 7.27 except for shared subject constructions have relatively high attraction scores in V1 or V2.

Construction Type	Top Three Verbs	Attraction	Cumulative Attraction
Directional construction	*qilai* 'get up'	29.11%	63.07%
	chulai 'come out'	18.87%	
	lai 'come'	15.09%	
Resultative construction	*dao* 'reach, get to'	54.76%	71.42%
	zou 'walk, away'	9.52%	
	zhu 'hold on'	7.14%	
Motion construction	*qu* 'go'	53.33%	84.85%
	lai 'come'	21.82%	
	dai 'take'	9.7%	
Pivotal construction	*shi* 'make'	34.01%	74.81%
	rang 'let, make'	21.66%	
	qing 'ask, invite'	19.14%	
Complement construction	*kaishi* 'begin, start'	27.78%	53.86%
	xiang 'think, want'	15.94%	
	xuyao 'request, need'	10.14%	
Instrument construction	*yong* 'use'	88.89%	95.57%
	ping 'rely on'	4.45%	
	yunyong 'put into use'	2.23%	
Shared object construction	*chi* 'eat'	40%	80%
	kan 'look'	20%	
	chansheng 'produce, make'	20%	
Shared subject construction	*zhao* 'look for, search'	15.48%	32.14%
	zuo 'sit'	9.52%	
	ting 'listen'	7.14%	

Table 7.27 Construction types, top three attraction scores and their associated verbs

The verb type/token ratio in shared subject constructions is the highest, which indicates that shared subject constructions display the least lexical restrictedness among all the multi-verb constructions. The lowest degree of lexical restrictedness correlates with the lowest degree of event integration in shared subject constructions. In contrast to shared subject constructions, shared object constructions show a certain lexical restrictedness, in which both V1 and V2 are mainly transitive verbs. In this type of construction, both verbs act on or affect the same participant. A tight purposive relationship holds between the two verbs in this construction. The verb attraction scores in shared object constructions are higher than those in shared subject constructions. V1 verbs in shared object constructions are mainly possessing or cooking verbs and verbs of eating are used frequently in the V2 slot. The verb *you* 'have, there be' is most attracted to the V1 position while the verb *chi* 'eat' is most attracted to the V2 position in this construction. The type/token ratio in shared object constructions, which reflects the degree of lexical restrictedness, is lower than that in shared subject constructions and the degree of event integration in shared object constructions is tighter than that in shared subject constructions. We see this correlation between the lexical type/token ratio and the degree of event integration again and again across all of the constructions.

In instrument constructions, the degree of lexical restrictedness is higher than that in shared object constructions. The verb *yong* 'use' is used overwhelmingly in the V1 position in instrument constructions and its attraction score (89%) is very high. The frequent use of the verb *yong* 'use' contributes much to the low type/token ratio of V1 in this construction. The verb type/token ratio in instrument constructions is lower than that in shared subject constructions or shared object constructions but higher than that in any

other MVC. In terms of event integration, the degree of event integration in instrument constructions is tighter than that in shared subject constructions or shared object constructions but looser than those in other multi-verb constructions. Thus, there is a correlation between lexical restrictedness measured by the type/token ratio and the degree of event integration in instrument constructions.

In complement constructions, the V1 slot is lexically restricted, mainly to inceptive or psychological verbs, while the V2 slot is relatively open. Two verbs, *kaishi* 'begin, start' and *xiang* 'think, want', are especially attracted to this construction as V1 and the cumulative attraction scores for these two verbs are 40.7%, which means that the two verbs occupy more than two fifths of all the verb tokens used in the V1 position. In complement constructions, the cumulative verb type/token ratio (0.75) reflecting the degree of lexical restrictedness is lower than that in instrument constructions (0.93) and the event integration in complement constructions is tighter than that in instrument constructions. As in other constructions, in complement constructions the verb type/token ratio seems to correlate with the degree of event integration.

In pivotal constructions, the first verb is quite restricted, very frequently being a causative verb such as *shi* 'make' and *rang* 'let, make' or a communicative verb such as *qing* 'ask' and the second verb is quite open, usually indicating the purpose of the first verb. The three verbs *shi* 'make', *rang* 'let, make' and *qing* 'ask' are quite attracted to the V1 position in this construction, as their cumulative attraction scores (75%) indicate. The verbs in pivotal constructions are more restricted than those in complement constructions and as expected the degree of event integration displayed in pivotal constructions is higher than that of complement constructions. As in the case of the complement

construction, the pivotal construction shows a correlation relation as well between its type/token ratio and its degree of event integration.

In motion constructions, the first verb is a motion verb such as *lai* 'come' or *qu* 'go', while the second verb is quite open, indicating the purpose of the first verb. The two verbs *lai* 'come' and *qu* 'go' are highly attracted to the V1 position in motion constructions and the cumulative attraction score for the two verbs is 75%, which means that three quarters of the total tokens of V1 verbs are either filled by *lai* 'come' or *qu* 'go'. In this construction, the two verbs are very often sequenced without any intervening element suggesting a close interdependence between them. Motion constructions have a low verb type/token ratio and a high degree of event integration and this construction provides another example of the correlation between type/token ratios and degrees of event integration.

In resultative constructions, the V1 slot is relatively open while V2 is quite restricted lexically, mostly to achievement or phase verbs that indicate result. The most frequent verb in the V2 position in this construction is *dao* 'get to, reach', which has the highest attraction score (55%). The top five V2 verbs which have the highest attraction scores make up three quarters of all V2 verb tokens in this construction. The degree of the lexical restrictedness measured by the type/token ratio in resultative constructions is higher than that in any other construction except for directional constructions. In terms of event integration, it is tighter in resultative constructions than that in any other MVC except for directional constructions. Thus, the correlation between the type/token ratio and degree of event integration is also noticeable in resultative constructions. In directional constructions, the type/token ratio is the lowest in all of the MVCs, which

means that this construction shows the highest lexical restrictedness among multi-verb sequences.

In directional constructions, V1 is more flexible than V2. V2 in this construction is very restricted lexically and typically motion verbs such as *lai* 'come', *qu* 'go', *chuali* 'come out', or *chuqu* 'go out' occur in the V2 position to signify either real or abstract direction. The four verbs *lai, qu, qilai,* and *chulai* are heavily attracted to the construction. The cumulative attraction scores for these four verbs are quite high and 3 out of 4 instances of this construction involve one of these four verbs. Among the MVCs, directional constructions exemplify the highest degree of event integration and the highest degree of lexical restrictedness in their verb slots.

All in all, different multi-verb constructions display degrees of openness or restrictedness in their verb slots and it is often the case that a given type of verb can be attracted to one kind of multi-verb construction, but may be resistant to entering into another kind of MVC. Some types of verbs may easily enter into multi-verb constructions while other types of verbs may not be commonly used in MVCs. Lexical restrictedness can be measured by type/token ratios. A low type/token ratio reflects a high degree of lexical restrictedness while a high type/token ratio indicates a low degree of lexical restrictedness. It has been shown that verb type/token ratios reflecting degrees of restrictedness of verbs correlate with degrees of event integration in multi-verb constructions.

Chapter Eight

Conclusions

This dissertation has addressed different kinds of multi-verb constructions (MVCs) in Mandarin Chinese, seeking to solve a long-standing problem in Chinese linguistics, namely how to classify and account for the plethora of constructions that have been called serial verb constructions (SVCs) at one time or another. In the literature, many previous analyses have focused on one type or on a very limited set of multi-verb sequences and little effort was made to account for the whole range of multi-verb sequences in Mandarin. This dissertation has aimed to provide an integrated account for all types of MVCs. I have argued that such a goal can be achieved through the cognitive approach (e.g., Langacker 1987, 1991; Talmy 2000).

By proposing that multi-verb sequences display degrees of event integration and, indeed, vary primarily along this continuum, this dissertation has been able to account for all types of multi-verb constructions in Mandarin within the same conceptual framework and using the same operational criterion (density of lexical items by position in the sequence). I have been able to operationalize the notion of event integration by linking it to a lexical diversity measure for the verbs occupying one or another position in the multi-verb constructions. With regard to event integration, some MVCs express a single event encompassing multiple phases, while others express two distinct events each containing only a single phase. A coordinate contruction represents one limiting case (at the independence end of the event integration scale), while a directional construction represents the opposite limiting case (at the interdependent or wholly dependent end of the event-integration scale) among MVCs. However, most other types of multi-verb

constructions have interpretations which lie somewhere between the extremes of integration and independence of the events. The two events in many MVCs may be causally, sequentially, or otherwise related to varying degrees. I agree with previous accounts which have recognized that multi-verb sequences in Mandarin do not form a homogeneous category, but I hope to have shown here that MVCs of vastly different types could be localized along different portions of the same continuum of event integration.

In this dissertation, I showed that constructions can be characterized by particular patterns of diversity of lexical items as well as attractions of particlular lexical items (which may or may not have). One can track a certain MVC's lexical productivity (openness) or lexical restrictedness (fixed or preferred verbs in a particular slot). Determining which verbs have an affinity for a particular MVC helps us better understand the overall meaning and function of the particular constructional pattern. The focus of this dissertation was to determine which verbs are compatible with a given construction, in which position—V1 or V2—they tend to occur, and the particular semantics or functional value they take on or bring to the overall construction. Generally, MVCs examined in this dissertation show lexical restrictedness in V1 and/or V2 to varying degrees.

The degree of lexical restrictedness/openness was measured by a type/token ratio. In turn, the type/token ratio was assumed to be correlated with degrees of event integration. The numeric value of the type/token ratio, theoretically running from 0 to 1, measures the relative freedom with which the position can be filled by types. A high type/token ratio, especially for the verbs in both positions, equates with increased lexical

diversity, less constraint on lexical selection, and more independence between the two events expressed by the two verbs. By contrast, a low type/token ratio suggests lexical restriction leading to a kind of semantic fixedness, and greater assumed dependence between the two verbs, to the point that one verb seems to merely elaborate the main event expressed by the other verb. Indeed, in some of the constructions examined here, a single verb or members of a very small class of verbs have actually relexicalized (for example, as directional compounds) or grammaticalized (for example, as aspect markers or resultatives).The most extreme case of this kind of lexicalization occurs with verbal compounds which are largely idiomatic. The corpus results indicate that there is a continuum of type/token ratios displayed in the multi-verb sequences that I extracted from the LCMC. I showed that the type/token ratio continuum is correlated with the continuum of event integration/independence with lower ratios correlating with higher degrees of event integration and with higher ratios correlating with lower degrees of event integration (which could be restated as higher degrees of event independence).

The cumulative type/token ratios of verbs reflected in the many MVCs examined here show that directional constructions and coordinate constructions represent the most opposite cases in my dataset along the scale of lexical diversity. This cumulative type/token ratio scale potentially runs from 0 to 2 since it adds the ratios for positions V1 and V2 together. The MVCs I examined here had cumulative type/token ratios running from .46 to 1.54, a wide spread that gave the different MVCs ample space to distinguish themselves (cf. Table 6.3 and Figure 6.4). Directional constructions manifested the lowest cumulative type/token ratio (.46), which corresponds with a high degree of event integration of the verbal subparts. The next highest or second most integrated type of

MVC proved to be the resultative construction. Its cumulative type/token ratio was .55, which, again, maps onto the lower half of the theoretical scale between 0 and 2 or certainly the bottom end of the observed scale between .46 and 1.54. The motion verbs participating in motion constructions are typically *lai* 'come' or *qu* 'go' and the two verbs, V1 and V2, in such constructions are frequently immediately adjacent to one another, reflecting a high degree of event integration. This tight interdependence was also seen in their relatively low cumulative type/token ratio. The type/token ratios for pivotal constructions (.71) and complement constructions (.75) are in the middle of the continuum of observed cumulative type/token ratios, just as they are in the middle of the continuum of event integration. Both pivotal constructions in which two verbs share an intervening participant and complement constructions in which one verb usually subsumes another verb illustrate a kind of tight event integration.

On the other end of the cumulative type/token ratio continuum, we found that coordinate constructions display the highest ratio (1.54), which I take to correlate with a low degree of event integration and, thus, a high degree of event independence. There is no obvious relation (or only a weak one) between the two verbs in such coordinate clause constructions. The two events expressed by the two verbs are in effect independent of each other. The type of multi-verb construction with the next highest cumulative type/token ratio was that of purposive constructions (1.14). In contrast to coordinate constructions which often do not have an obvious semantic relation between the two verbs, purposive constructions do signal a sense of purposive relation between the two events predicated by the two verbs. The events in purposive constructions are more integrated than those in coordinate constructions, which is in keeping with the tighter

integration implied by their much lower cumulative type/token ratio (1.14). Like purposive constructions, shared object constructions also manifest a purposive relation between the two verbs. One of the main differences between shared object constructions and purposive constructions is that in shared object constructions, the two verbs share the object, in addition to (usually) sharing a subject. Thus, shared object constructions display tighter event integration than purposive constructions, which nicely corresponds to their different cumulative type/token ratios: 1.0 to 1.14.

Compared with purposive constructions and shared object constructions, instrument constructions have an even lower cumulative type/token ratio, .93, which corresponds to an increase in degree of event integration. In instrument constructions, the two verbs are obviously in a tight purposive relation with the first verb involving the instrument that is used to perform another action or activity. The two events denoted by the two verbs (handling an instrument in order to effect another event) happen more or less simultaneously, while in purposive constructions the two verbs are not so restricted and the two events denoted by the two verbs usually happen consecutively. In instrument constructions, the first verb *yong* 'use' might be in the process of grammaticalizing into an instrumental marker. It is been commonly thought that *na* 'take' is widely used in instrument constructions. However, quite surprisingly, there is only one case of an instrument construction involving the verb *na* as V1 out of all the corpus returns. Instead, my corpus search indicates that the verb *yong* is the most common and probably the most prototypical verb used in instrument constructions in contemporary Mandarin.

The correlation between the continuum of event integration in multi-verb constructions and the continuum of type/token ratios in specific verb positions implies

that there is a link between frequency, entrenchment, and event integration. A low type/token ratio in certain verb positions suggests lexical fixedness, high token frequency, and greater dependence between the verbs; while a high type/token ratio in certain verb positions indicates lexical freedom, low token frequency, and greater independence between the verbs. A greater degree of what Langacker calls *entrenchment* (i.e. cognitive routinization) results from higher frequency of a linguistic unit or pattern in a particular position. As Langacker claims (1987), every use of a linguistic structure has a positive impact on its degree of entrenchment and the cognitive processes related to representation. Thus, the frequency of occurrence of a linguistic unit correlates with some degree of entrenchment associated with it (Langacker 1987). When there are only two or three or a small group of verbs in a given verb position which all have similar meanings or belong to the same semantic field, this kind of multi-verb construction will have a greater degree of entrenchment. In such a case, the verbs in this position are likely to acquire a higher degree of schematicity and these verbs will heavily color the meaning of the entire construction. But when the verbs in both positions in a multi-verb construction are diverse and open (attached to no particular semantic field), it is hard to characterize this kind of multi-verb construction semantically and the two events tend to be less entrenched and more independent. The corpus results indicated that the relationship between frequency, entrenchment, and event integration is a kind of symbiotic relationship; namely frequency promotes entrenchment and, in turn, entrenchment promotes event integration. This dissertation has provided the empirical evidence to support one of the basic claims made by Langacker's Cognitive Grammar (1987, 1991)—that frequency plays a crucial role in leading to entrenchment of linguistic units.

In addition to correlating with event integration, type/token ratios for the participating verbs in MVCs indicate that certain types of constructions are V1-dependent, while others are V2-dependent. Some MVCs show tighter restrictions on V1 and others on V2. The position-specific patterns of type/token frequency are not unrelated to the event structures underlying MVCs. Such patterns reveal different phases in conceptual structure of events and largely reflect which phase is a core phase and which one is a non-core phase. In asymmetrical MVCs, the verb position which has a lower type/token ratio often represents a non-core phase of the event, such as an inceptive, preparatory, or resultative phase, while the verb position which has a higher type/token ratio often represents the core phase or main event. In multi-verb constructions such as motion constructions, pivotal constructions, and instrument constructions, there is a large difference between the type/token ratios of V1 and V2. It is often the case that the first event in these constructions signals a non-core phase while the second event constitutes the core phase. In resultative constructions and directional constructions, V2 displays a much lower type/token ratio than that of V1. Accordingly, in these two constructions the event denoted by V1 is the core phase and the event denoted by V2 represents a resultative or terminate phase. Therefore, the position-specific patterns of type/token frequency reflect the conceptual structures associated with different kinds of MVCs in terms of the core phase and other phases of the macro event.

The results from the LCMC search also suggest that, generally, there is a kind of asymmetry reflected in multi-verb constructions in that verbs used in one position are more restricted while verbs used in another position are more open. In most MVCs, the V2 slot draws its verb from a larger lexical pool than the V1 slot does. The imbalance

between V1 and V2 often reflects not only frequency asymmetry but also semantic asymmetry. In MVCs, the more restricted verbs often show a higher token frequency and express more schematic meaning while the less restricted verbs often show a lower token frequency and convey more concrete meaning. Restricted verbs in asymmetrical MVCs often get grammaticalized to function as a kind of modal verb to express some sort of deontic modality, act as a kind of purposive marker, indicate result or express deictic or aspectual meanings. So the more restricted verb is often doing grammatical work more than lexical work. The limiting case of grammaticalization is the coverb situation. Coverbs developed from lexical verbs and because of grammaticalization they lost their lexical meanings (e.g. Chao 1968; Li & Thompson 1981; Xiao & McEnery 2004). They do not lend aspectual force or profile processes but largely perform grammatical functions such as introducing participants or helping specify location. Thus, coverbs are even not interpreted as verbs any more because of their very fixed grammatical function.

By examining data from the corpus, it was found that multi-verb sequences without an implicational relationship between their component verbs are not at all common. The corpus data revealed that, in most multi-verb sequences, V1 and V2 generally bear a kind of causal, purposive, or sequential relationship to each other and that multi-verb sequences are mostly employed to encode one event or two phases of one overall event. The corpus results showed frequency distributions of different kinds of MVCs in Mandarin. Among MVCs, directional constructions are very common in Mandarin Chinese. In directional constructions, the second verb is highly conflated with the first verb, indicating direction of the first verb. Mandarin lacks complementizers and so the sharing of participants by two verbs is quite frequent. If sharing the subject

happens between a matrix verb and a subordinate verb functioning as its complement and if there is no complementizer between them, a multi-verb sequence will more often than not be formed. The complement construction is a very common type of multi-verb construction in which only the main clause is profiled and the complement clause is subordinate to the main clause. The pivotal construction is a participant-sharing construction as well, though it is a special kind, in which the object of V1 functions as the logical subject of V2. Most pivotal constructions are causative constructions, in which a causal or purposive relationship is held between V1 and V2. Motion constructions are also a frequent type of multi-verb construction and a tight relation exists between V1 and V2.

Another construction which bears a tight purposive relationship between two verbs is the shared object construction. The canonical (and, often only) type of serial verb construction as understood by Baker (1989) and as popularized in the generative literature of the day has to be the shared object construction. However, the corpus evidence indicated that this kind of construction is not typical at all and that the frequency of examples returned from the corpus search is very low.

The corpus results indicated that there is a clear interaction between lexical items and the construction types they enter into. The results also suggested that there are degrees of freedom and fixedness in the collocating verbs associated with different multi-verb constructions. In coordinate constructions, V1 and V2 are almost completely free lexically and virtually any kind of verb can be inserted into either position. There is no particular verb or particular type of verb attracted to this construction. Usually we cannot discern any tight situational dependence between the two VPs or the events they

designate. In purposive constructions, the V1 and V2 positions are relatively free but the two verbs should hold some purposive relationship to each other. In instrument constructions, the first verb is usually *yong* 'use' followed by an instrument, tool, or means as its complement, and the second verb is often a transitive verb to indicate the purpose or aim of the first verb. In clausal complement constructions, V1 is lexically restricted, being comprised mainly of inceptive or psychological verbs, while V2 is quite open. In pivotal constructions, the first verb is quite restricted and in most cases it is a causative verb or a communicative verb and the second verb is quite open. In shared object constructions, both V1 and V2 are mainly action and transitive verbs. They act on or affect the same participant. A tight purposive relationship can usually be inferred between the two verbs in this construction. In motion constructions, the first verb is always a motion verb and the second verb is quite open, indicating the purpose for the first verb. In such a construction, the two verbs are very often sequenced without any intervening element to indicate a close interdependence between them. In resultative or directional constructions, V1 is relatively open while V2 is quite restricted lexically and the verbs found in V2 are usually either phase/achievement verbs or motion verbs marking path or direction.

The findings from systematically exploring the corpus data revealed that it is usually the case that not all kinds of verbs are allowed in a particular construction. Usually there is a strong lexical attraction or affinity between certain verbs and the different slots of a multi-verb construction. Some verbs are easily attracted to a particular type of construction, while others are largely excluded from a given construction (Stefanowitsch & Gries 2003). The attraction scores indicated that some verbs are more

important than others for a given construction. All types of multi-verb constructions which have been examined in this dissertation except for shared subject constructions have high attraction scores in V1 or V2. The corpus results suggested that high attraction of particular lexical items to V1 or V2 is symptomatic of being considered a somewhat specific construction.

Cognitive linguistic approaches make a strong assumption of being usage-based. Cognitive Grammar, in particular, claims that the grammatical patterns, constructions, and rules that linguists posit should be abstracted from actual patterns of usage, rather than simply being the product of theorizing and model-building. However, actual usage and real language data from corpora have not been explored and utilized adequately in the cognitive literature (Newman & Rice 2004). This dissertation has sought to promote corpus linguistics in cognitive linguistics and has aimed to achieve a marriage between corpus-based and theory-driven (in the present study, Cognitive Grammar) approaches to linguistic analysis through exploring multi-verb constructions in Mandarin Chinese. The use of data from a corpus as input to this exploration of syntactic and semantic characteristics of multi-verb constructions is something new. Previous analyses of Mandarin Chinese multi-verb constructions have relied on constructed examples or on the intuition of speaker-linguists. There has been little systematic exploration of Mandarin multi-verb sequences from actual corpora. Mining data from a corpus has enabled me to obtain copious examples representing the full range of multi-verb sequences in order to achieve a more realistic and comprehensive analysis. Through the systematic scrutiny of corpus data, the relative robustness and productivity of different types of multi-verb constructions have been obtained. Without exploring real data, it

would be impossible to determine the frequency and distribution patterns of items in multi-verb sequences. The results obtained from the exploration of the LCMC are suggestive of the important role that actual usage plays in our analyses of linguistic phenomena.

This dissertation has provided evidence to support one of the basic CG assumptions that many linguistic units are of a graded phenomenon by demonstrating that multi-verb sequences in Mandarin Chinese do not belong to a homogeneous category but display varying degrees of event integration/independence. The cumulative type/token ratios of verbs in multi-verb constructions have been argued to correlate with degrees of event integration for the full range of multi-verb sequences observed in Mandarin. This dissertation has demonstrated that, by analyzing MVCs from the perspective of a continuum of event integration/independence, the goal of providing a unified account for all types of MVCs in Mandarin Chinese could be achieved.

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