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A Cognitive Approach To Mandarin Conditionals

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in the

Graduate Division

of the

University of California, Berkeley

Committee in charge:

Professor Eve Sweetser, Chair

Professor George Lakoff

Professor Jerome Feldman

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A Cognitive Approach To Mandarin Conditionals

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By

Fan-Pei Gloria Yang

Abstract

A Cognitive Approach To Mandarin Conditionals

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Fan-Pei Gloria Yang

Doctor of Philosophy in Linguistics

University of California, Berkeley

Professor Eve Sweetser, Chair

This dissertation provides a description of some of the common Mandarin conditional constructions, with a focus on describing the contributions of the linking devices to the conditional interpretations and their interactions with other elements in constructions. The analyses are based on corpus data and include studies on the pragmatic uses of conditionals. The discussion endeavors to show how cognitive structures link to linguistic structures and how spaces are built and frames evoked. Consequently, the research does not just provide a syntactic description, but offers an in-depth discussion of epistemic stance and grounding of information indicated by the linking devices.

The analysis here shows that cognitive approaches such as Construction Grammar, Theory of Mental Spaces, Gestalt psychology, and Embodied Construction Grammar can successfully describe the subtle semantic nuances of constructional meaning, and the different reasoning processes evoked by different conditional constructions. I examine semantic differences between the variants of particular Mandarin conditional constructions, which have not been captured before in previous analyses. Since English conditionals have been completely analyzed in terms of mental spaces, I systematically contrast Mandarin conditionals with English ones. This analysis includes the

unambiguous conditional constructions, the exceptive conditional constructions, and the counterfactual constructions. Using Embodied Construction Grammar notation, this research provides the first formalized grammar of Mandarin conditional constructions. In this formalized grammar, the constructions are represented in such a way that semantic features can be separated and linked to cognitive structures such as image schemas and mental spaces and are potentially implementable by computers.

Professor Eve Sweetser
Thesis Committee Chair

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Chapter 1 Introduction

1.1 Overview

This dissertation offers both a description of the commonest Mandarin conditional constructions and an exploration of the link between conceptual and linguistic structures, which is the focus of cognitive approaches pursued by previous scholars (Fillmore 1976, 1982; Fillmore, Kay, and O'Connor 1988; Fillmore and Kay 1999; Lakoff and Johnson 1980; Lakoff 1987; Langacker 1987, 1991, 1999). The Mandarin conditional constructions discussed here are defined as the complex sentences composed of the subordinate clause (P, the antecedent clause, or the protasis) and the main clause (Q, the consequent clause, apodosis.) Both subordinate and main clauses can be marked by linking devices.

The analysis in the dissertation will focus on providing an explanation of the contributions of the linking devices to the conditional interpretations and their interactions with other elements in the constructions and in context. The present study treats every aspect of the structure in question as contributing significantly to its overall interpretation, an approach governed by linguistic convention and which follows the framework of cognitive linguistics. There have been several insightful studies on conditionals using the cognitive approach (Dancygier 1998, 2002; Dancygier and Sweetser 1996, 1997, 2000, 2005; Fauconnier 1985, 1996; Fauconnier and Sweetser 1996; Fillmore 1986, 1990; Fujii 1993, 1997; Kay 1990; Sweetser 1990, 1996a, 1996b). The cognitive approaches used in the present study include Mental Spaces theory (Fauconnier

1985), Construction Grammar (CG) (Fillmore 1988; Goldberg 1995), and Embodied Construction Grammar (ECG) (Bergen and Chang 2003; Feldman and Narayanan 2004). These tools of analysis will be discussed in section 1.3.

In this first chapter, I will identify the characteristics of Mandarin conditionals, and describe the phenomena of interest. In Chapters 2-5 I will give mental spaces analysis of the *ruguo* conditional, the *jiu* and *cai*-marked conditionals, the exceptive conditional and the counterfactual conditional, and in Chapter 6 I will present a formal representation of the constructions discussed in previous chapters.

1.1.1 Characteristics of Mandarin conditional constructions

This section describes the properties of Mandarin conditionals that differ from English conditionals. Comrie (1986) proposes a list of parameters for the description of conditionals in terms of the form of a conditional (e.g., clause order, markers of the protasis and apodosis) and in terms of a conditional's meaning (e.g., hypotheticality, the relation holding between the protasis and the apodosis, temporal reference). Using his parameters for conditional forms, an unambiguous Mandarin conditional construction can be characterized as a complex sentence with the following properties (as described in (a) ~ (c)):

- (a) The protasis canonically precedes the apodosis except in afterthoughts. This means that the clause order of a Mandarin conditional is iconic for the temporal sequence of the described events or situations.

The following example illustrates a construction which I term the canonical *ruguo* conditional:

(1) (A surgeon talks about the latest development in the skills of reattaching severed limbs. He describes the usual time constraints on the surgical possibilities in the following sentence)

<i>ruguo</i>	<i>zhege</i>	<i>yige</i>	<i>duanxialaide</i>	<i>zhiti</i>
if	this	one	severed	limb
<i>likai</i>	<i>yuanti</i>	<i>chaoguo</i>	<i>liuge</i>	<i>zhongtou,</i>
leave	body	over	six	hours
<i>jiu bunen zai</i>		<i>huo</i>		<i>le</i>
JIUunable anymore		survive		A_par ¹

'If a severed limb is detached from the body for over six hours, the severed limb will not be able to survive.'

(Academia Sinica Corpus 007)

As shown in (1), the clause order is iconic for the sequence of the events.

Canonical Mandarin conditionals all have this type of order.

The non-canonical apodosis-protasis order often occurs in a situation where a speaker uses the protasis to provide supplementary information for clarification or emphasis. Consider the example:

(2) (A mother talks about her son's interaction with her and her husband)

<i>womende</i>	<i>ganqing</i>	<i>xian</i>	<i>xiongdijiemei,</i>		
our	feelings	like	siblings		
<i>yingwei</i>	<i>ta</i>	<i>oher</i>	<i>hui</i>	<i>dui</i>	<i>women</i>
because	he	sometimes	will	to	us
<i>quan-da-jiao-ti</i>					
fist-hit-foot-kick					

'Our son's feelings for us are like feelings for siblings because he would sometimes hit or kick us (as if he hits or kicked his siblings).'

¹ The gloss convention of this dissertation is as follows: A_Par: Attitudinal Particle, CL: Classifier, Perf: Perfective Marker, Rel: Marker of Relative Clause.

<i>Ruguo</i>	<i>ta</i>	<i>bugaoxing</i>	<i>de-shihou</i>
If	he	unhappy	of-time

'If he is unhappy.'

(Academia Sinica Corpus 314)

(2) shows that the *ruguo* clause is added to the complete sentence. The *ruguo* clause is used to supplement the explanation as to why her son hits or kicks his parents. This protasis in this case is an afterthought used for clarification. This non-canonical usage is not very common in corpora.

(b) An unambiguous Mandarin conditional construction is marked in both clauses. As indicated in (1), the protasis of a *ruguo* conditional (usually translated as an *if* conditional) is marked by *ruguo* and the apodosis is marked by *jiu*. Briefly, the function of *ruguo* in a conditional construction is to indicate the unassertiveness of the propositions in the construction, and *jiu* functions to indicate that there is a causal relationship between the protasis and the apodosis. (I will further discuss *ruguo* in Chapter 2 and *jiu* in Chapter 3.)

Like many other languages, Mandarin has sentences without conditional linking devices that can be interpreted conditionally (see also Herforth's (1994) work on conditionals in Old Chinese). Comrie (1986), in his typological study of conditionals, categorizes Chinese as a language with such optionally marked conditional sentences. In order to support his claim, he provides the following example:

(3)	<i>Zhangsan</i>	<i>he</i>	<i>jiu,</i>
	Zhangsan	drinks	wine

<i>wo</i>	<i>(jiu)</i>	<i>ma</i>	<i>ta</i>
I	(JIU)	scold	him

'If Zhangsan drinks/drank, I will/would scold him.'

‘When Zhangsan drinks/drank, I will/would scold him.’
‘Zhangsan drinks/drank, and I will/would scold him.’

This sentence can be interpreted representing either as a conditional or temporal relation between two events. This suggests that sentences lacking conditional linking devices in both clauses are ambiguous. It also suggests that the conditional in Chinese is bi-clausal with linkers playing an important role in formation the conditional. In addition to indicating the unassertiveness or causal relationship of propositions, these linkers evoke the alternatives associated with the expressed conditions. More precisely, the linking device in one of the clauses suggests that the alternative spaces are brought into consideration.

(c) Mandarin conditionals are polysemous.

Many studies have observed that it is common for constructions to be polysemous (Bolinger 1977,; Brugman 1984, 1988; Pederson 1991, Kemmer 1993; Lakoff 1987; Hopper and Traugott 1993; Langacker 1987/1991a, b; Fillmore 1997[1971]). This dissertation will also discuss the polysemous and seemingly idiosyncratic uses of constructions marked with conditional linking devices. In these cases, the meanings of the linkers are not obvious since the typical associated conditional interpretations are not the primary concern of the interlocutors. For instance, a *ruguo* conditional construction does not have an obvious hypothetical interpretation in a context where a speaker presents a topic for evaluation or comment, as illustrated in the following example.

(4) *xianxiaren* *duoduoshao* *bijiao tu*
country people more or less more naïve

‘People living in the country are somewhat more naïve’

ruguo shuo chengshi de-hua,
if say honesty of-case

dou hen nage *la*
all very quite A_par

‘As for honesty, (country people) are all quite naive’
(Putonghua A 05_06)

This example shows that the protasis marker *ruguo* is used to introduce a topic. The topic and comment are not hypothetical situations but components of the speaker’s belief. The casual relation that typically holds between the antecedent clause and the consequent clause does not hold in this case. Therefore, the linker *ruguo* is not an indicator of hypotheticality, and the construction cannot be regarded as a typical conditional sentence. In this idiosyncratic construction, *ruguo* performs the discourse function of introducing a topic for evaluation. In addition, there are many instances of the Mandarin exceptive conditional construction where the linking devices are used to show the speakers’ attitudes and demands. These cases deserve our attention because they exhibit how the alternative spaces involved in the constructions can be interpreted to achieve pragmatic and discourse functions. This shows that the same cognitive structure is flexible enough to be employed in different ways for various communicative purposes while still using similar linguistic structures. Therefore, a discussion of the rhetorical functions of Mandarin conditionals contributes more than a mere description of idiosyncratic uses of the constructions. It provides broader observations on the nature of conditional linking devices, conditional protases and apodoses, and the types of phenomena that can share with conditionals the same underlying cognitive structure.

1.1.2 The importance of studying Mandarin conditional constructions

The previous section mentioned that Mandarin conditionals are typically marked in both antecedent clause and consequent clause. This paired-linking property is also characteristic of other Mandarin complex sentences. In other words, Mandarin complex constructions have linkers in both the subordinate clause and the main clause. For example, a sentence expressing a causal relation is presented in the form of *yingwei... suoyi* 'Because... so'. Another common construction that also requires paired-linking to indicate a complicated relation between two propositions is *suiran... danshi* 'Although... but'. Though these constructions seem to be marked redundantly, this phenomenon is so common in Mandarin that it certainly implies a difference in understanding for Mandarin speakers from the kind of understanding implied by single-marked constructions with similar readings. This property has been noted in previous studies (Li & Thompson 1981) but has not been analyzed in terms of cognitive processing. The investigation of Mandarin conditional constructions in the present study is the first step towards explaining this phenomenon. The proposed analysis describes the function of linking devices in terms of figure-ground distinctions and mental spaces and thus accounts for the semantic differences that result from different choices of linkers. Therefore, this discussion provides a different perspective from previous studies and may provide a new direction for future work on Mandarin complex constructions.

The study of Mandarin conditionals also has typological value. In the typological study of conditionals in Comrie (1986), Mandarin is described as a language that can be marked either in protasis or apodosis, or not marked at all. Therefore, he categorizes Chinese as a language that optionally-marks conditionals, making it typologically

different from English and other languages. Though it is true that Mandarin conditionals can appear in such variant forms, this type of phenomenon is found in many languages in the world and cannot be regarded as a typological difference. It is not appropriate to claim that Mandarin conditionals should be categorized as ‘optionally marked;’ Mandarin is probably more accurately described as having a basic bi-clausal conditional as well as constructions marked by variant forms such as modals. Linkers are important components in the formation of the conditional in Chinese.

In addition, Mandarin does not employ past tense morphology to indicate counterfactuality. Instead, the negation compound ‘*bushi*,’ which is often used to falsify propositions, marks the negative stance of the conditional propositions. Mandarin can be compared and contrasted with languages that use similar mechanisms, which can shed light on the cognitive processing of complex constructions for speakers of languages without past tense morphology.

1.2 Goals

Given the phenomena described in previous sections, the present study has several goals. First, I hope to provide a clear descriptive analysis of the syntax and semantics of Mandarin conditional constructions, emphasizing the ways they differ from the English constructions that have similar meanings. Next, I would like to analyze the interaction of the linking devices with other linguistic elements in the construction. In addition, I show how the linguistic structures reveal the reasoning processes involved in processing Mandarin conditionals. My final purpose is to formalize a description of conditionals in

a way that manages to illustrate the connection of conditional forms with abstract cognitive structures such as mental spaces and schemas.

These goals can be translated into the following concrete questions. How are conditional meanings expressed in Mandarin through grammatical constructions? What roles do the linking devices play in constructing conditional meanings? What are the cognitive phenomena underlying conditional clause-linking mechanisms? What are the essential ingredients for a proper representation of conditional constructions? Finally, what does the analysis of Mandarin conditional constructions tell us about cognitive processing of hypothetical situations and related alternatives?

1.3 Conditionals

1.3.1 From logic structure to cognitive structure

The traditional analysis of conditionals has been deeply influenced by the logical semantic tradition. It equates the truth conditions of the natural-language conditional with those of the logical conditional (Jackson 1991). In logic, a conditional (material implication) is defined as a relation between two propositions, i.e., protasis (P) and apodosis (Q). A conditional is true if P and Q are both true, or P is false and Q is true, or P is false and Q is false. The possibility of P being true while Q is false is excluded. Scholars who use this approach claim that conditional sentences in natural language can indeed be interpreted in congruence with the range of possibilities allowed in mathematical conditionals (Akatsuka 1997; Comrie 1986). They acknowledge that there is some pragmatic relation which holds between the two propositions in natural-language

conditionals, but deny that there is any necessary connection between those propositions of material conditionals and natural-language conditionals.

However, some researchers in formal semantics oppose the idea that conditionals in natural language should be analyzed in terms of material implication (Kratzer 1986, 1991). Instead, Kratzer (1986) and others (von Stechow 1994; Iatridou 1994a) develop a system of operators in a possible world semantics to analyze conditionals. They treat *if*-clauses as clauses that restrict operators such as adverbs of quantification (*always*, *sometimes*), epistemic modals (*must*, *should*) and quantificational determiners (*some*, *every*). If the sentence does not have an overt operator, a covert operator is posited. More precisely, the *if*-clause is a restrictor and the embedding clause is its nuclear scope. The *if*-clause restricts the domain of quantification over which implicit or covert quantifiers quantify. The covert quantifier in a conditional sentence is usually a universal quantifier.

Consider the example:

(5)(from Hole 2004)

- a. If it rains I don't go jogging.
- b. If it rains I never go jogging/It is always the case that I don't go jogging if it rains
- c. If it rains I sometimes don't go jogging/It is sometimes the case that I don't go jogging if it rains.

Under the quantificational-operator account, when one says (5a), one actually means (5b). This is to say that when an overt quantificational operator is absent from a conditional, an implicit universal operator is posited. (5c) shows that the embedding

clause is within the scope of existential quantification when an overt operator *sometimes* is present. This approach is accepted by some scholars who work on Chinese conditionals (Biq 1988; Hole 2004; Cheng & Huang 1996), which will be discussed in 1.3.4.

Other researchers who also follow the logic tradition focus on the association of probabilities with conditionals (Lewis 1976, 1986; Kaufmann 2001). They discuss the objective values of conditionals using a probabilistic system with values ranging between 0 and 1. They claim that this approach is useful because the truth values of predictive conditionals are as non-deterministic as the processes governing the world.

The formal approaches discussed so far do not pay much attention to the interaction of discourse context with the conditional constructions (Schwenter 1997). For evidence of this interaction, see my discussion of the pragmatic uses of the *chufei* construction and the *yao-bushi* construction in Chapter 4 and 5. To address this weakness, some functionalists focus on the functions of conditionals in discourse (Fillenbaum 1986; Ford 1993; Ford & Thompson 1986; Haiman 1978). Haiman's claim that conditionals are topics provides the starting point for the investigation of discourse functions of conditionals in written and spoken English. Ford and Thompson (1986) study the position of the *if*-clause (initial or final) in relation to strategies for bringing referents into the discourse and to provide background information. Fillenbaum's research (1986) indicates that speech acts such as inducements and deterrents are performed by conditional constructions.

Cognitive linguists have focused on the cognitive structure underlying language use. For instance, Fauconnier's (1994) Mental Spaces theory analyzes conditional antecedents and *if* as mental space builders. The space builders set up spaces in which

states or events described in protasis and apodosis can be interpreted or elaborated. Since then, there have been quite a few studies on conditionals using this approach (Dancygier 2002; Dancygier and Sweetser 1996, 1997, 2000, 2005; Fauconnier and Sweetser 1996; Sweetser 1996a, 1996b). This approach will be discussed in the section of 1.4.2.

The approach taken here is a cognitive one. Conditionals are considered as form-meaning pairs; components in the construction contribute to the interpretation of the construction. A form-meaning pair at all levels can be considered a construction, which can be as small as a morpheme or as large as a sentence.

In the following sections, I will discuss previous research on *then* (in 1.3.2), *if* (in 1.3.3) and Chinese conditionals (in 1.3.4).

1.3.2 The role of *then*

This section provides a brief explanation of some of the varying approaches to the understanding of the role of *then*. Traditionally, *then* has been considered to make no semantic contribution to conditionals, based on the fact that it is optional. However, Iatridou (1994a) challenges this idea. She proposes that the presence of *then* in a conditional brings a presupposition into consideration in addition to the assertion expressed in the construction. Her proposal can be represented in the following formula:

(6) (from Iatridou 1994a: 197)

- a. Statement: if p, then q
- b. Assertion: O [p] q
- c. Presupposition: \sim O [\sim p]q

(6) can be translated as follows: if p, then q , in addition to asserting O[p]q, presupposes O[_p]q, where 'O' is the operator restricted by the if-clause 'p'. The assertion is that in every case in which p is true, q is true. The presupposition is that not in every case in which p is not true is q true. She gives the following examples to illustrate the point:

(7) (from Iatridou 1994a; 172)

- a. If it's sunny, then Michael takes the dog to Pastorious Park.
- b. In some cases in which it isn't sunny, Michael doesn't take the dog to Pastorious Park.
- c. There are some cases in which it isn't sunny and in which Michael doesn't take the dog to Pastorious park.

The examples show that due to the meaning of *then*, (7a) carries the presuppositions of (7b) and (7c). Iatridou argues that the presence of this presuppositional in some cases where not P, not Q can explain a lot of constraints on the distribution of *then*. For instance, *then* cannot be used in a conditional where protases are disjunctive or concessive. *Then* is prohibited when the protasis is a presupposition of the consequent. In addition, she examines several options that may account for the exclusion of *then* in *only if* sentences. She finds that none of these explanations provide satisfactory solutions. In sum, she argues that *then* contributes the meaning that, in some/all of the cases, when the antecedent is false, the consequent is also false. The incompatibility between this meaning and the intended reading of the conditional results in the unacceptability of *then* in certain conditionals.

Though accepting the meaning of *then* proposed by Iatridou, von Stechow (1994) claims that the restriction of the use of *then* arises from its syntax. He terms *if...then* as a “correlative dislocation structure.” He argues that this structure confers topic status on the *if*-clause. This means that one must consider alternatives to the antecedent (all $\sim p$ cases). This is tantamount to saying that *then* is associated with an implicature that alternatives to the antecedent do not satisfy the main clause proposition.

In another approach, Dancygier and Sweetser (2005) start with the semantics of *then* in their investigation of its role in conditionals. *then* is considered a component that makes a compositional semantic contribution to the conditional constructions. The conditional *then* is proposed to be related to the deictic sense of then, both in the temporal and discourse use. In support of this argument, they mention Schiffrin’s observation (1992) that *then* has anaphoric reference in all of her attested spoken data. The point that Dancygier and Sweetser want to make is that *then* in apodoses refers to a time or a set of situations identified with regard to the condition described in protasis.

Using the terminology of Mental Spaces theory (Fauconnier 1994), they propose that *then* in a conditional points to a particular mental space and ‘locates the event or state described in the apodosis in that mental space.’ By doing this, *then* gives rise to an inference that the apodosis content does not hold in other spaces. The deictic property of *then* is compatible with conditional constructions in which several alternative mental spaces are under consideration. They argue that the restrictions on *then* in certain conditionals is due to its incompatibility with the meaning of the particular constructions. More specifically, *then* is unacceptable in some conditionals because its deictic function clashes with the meaning of other aspects of the construction. For instance, *then* is

prohibited in *only if* constructions because *then* and *only* indicate uniqueness through different discourse frames.

Then does not occur in *even if* conditional, as in *Even if he committed a crime, they would vote for him*. This is because the semantics of *even if* construction clashes with the normal sequentiality between P and Q as well as the uniqueness of the protasis condition indicated by *then*. The concessive conditional explicitly set up an abnormal relationship between P and Q. That is, Q does not naturally follow from P. In saying *Even if he committed a crime, they would vote for him*, the speaker suggests that normally people do not vote for a candidate who commits a crime. However, due to the semantics of *then*, *then* is most natural in a conditional where there is a normal sequential or causal relationship between P and Q. In addition, *Even if P, Q* suggests that Q holds not only in P space but that it also holds in other spaces. This means that Q does not follow uniquely in P. Looking at the same example, we can infer that there are other conditions in addition to P under which people vote for the referred candidate. As a result, *then* is inappropriate in a concessive conditional.

Then also seems odd in true generic conditionals, as in *If Mary bakes a cake, she gives a party*. This is due to the fact that the apodosis of the construction refers to a class of situations instead of an individual one, while *then* deictically points to a particular individual situation.

1.3.3 Structural issues of the *if*-clause

This section provides a brief discussion of three topics in the structure of *if* conditionals. The first topic is height of attachment of the *if*-clause. The second concerns

the location of *if* in the structure tree. The third is the link between the conditional construction and the interrogative construction.

In studying the attachment of the *if*-clause, Iatridou (1991) proposes that sentence-initial *if*-clause involve IP-adjunction and sentence-final *if*-clauses are associated with VP-adjunction. The evidence that supports the claim that sentence-initial *if* clauses are adjoined to IPs is that the *if*-clause can take interrogative and exclamative clauses as their consequent clauses in conditionals, which is illustrated in (8).

(8) (from Bhatt & Pancheva 2004)

- a. If it rains, what shall we do?
- b. If it rains, are we going to leave?
- c. If he is right, what a fool I've been.

A VP-topicalization test supports the proposal that sentence-final *if*-clauses are adjoined to VPs is, as shown in (9).

(9) (from Bhatt & Pancheva 2004)

I told Peter to take the dog out if it rains

- a.... and take the dog out if it rains, he will.
- b.... and takes the dog out he will, if it rains

The fact that VP and the *if*-clause can switch positions reveals that the sentence-final *if*-clause is adjoined to VP. However, Bhatt & Pancheva (2004) argues against this claim using evidence from the interaction of negation and *if*-clause. Their point is that sentence-final *if*-clauses “interact scopally with negation.”

The second topic of interest is the location of *if*. *If* has been assumed to be a complementizer and located in the CP domain. The question that syntacticians are concerned about is the location of *if* in the CP domain. One method of investigation is to examine the interrogative complements marked by *if*, based on the claim that the conditional *if* and interrogative *if* (as in *I asked if he would come*) are the same (Kayne 1991; Bhatt & Pancheva 2004). Under this account, *if* in conditionals and interrogatives takes the same position. Therefore, the behavior of interrogative *if* in grammaticality tests reveals the position of conditional *if* in the CP domain. Contrasting government of PROs by *if* and *whether*, Kayne (1991) argues that *if* occupies the C' position. More evidence supporting this proposal comes from studies on conditional inversion (Pesetsky 1989; Iatridou & Embick 1994). The presence of *if* prevents the occurrence of conditional inversion (e.g., *Were I to have a child...*). In other words, they are in complementary distribution. The analysis of Iatridou and Embick (1994) is that conditional inversion requires movement from I to C. *If* takes the C'' position and therefore it blocks conditional inversion. However, Bhatt and Pancheva (2004) points out that there is no conclusive evidence in favor for the claim that *if* occupies the C'' position, after critiquing previous researchers' work.

The third topic regarding the structure of conditionals is the link between conditionals and interrogatives. As mentioned above, the interrogative complementizer use of *if* is considered the same as the conditional complementizer use of *if* in English. Similarly, Cheng and Huang (1996) have compared Chinese *dou*-conditionals with interrogatives due to the WH-ever meanings of the *dou*-conditionals. Their research suggests that Mandarin conditional constructions are related to interrogative structures. In

addition to the structural similarity, other arguments that support the conditional-interrogative link are movement and free relative clauses. Iatridou and Embick (1994) have shown in their analysis that languages that have I-to-C movement in conditionals also have this kind of movement in interrogatives. Izvorski (2001) argues that the interpretations of free relative clauses (e.g., *Whatever she eats, she will gain weight*) depend on the structure of questions and the conditional meanings available to adjuncts. All of these studies suggest that interrogative adjunct clauses should be treated as conditional clauses.

Research in the cognitive realm also suggests a connection between the conditional *if* and interrogative *if*. Dancygier (1998) claims that both *if*'s mark the assertion within their scopes as non-assertive and that the propositions are unmarked for epistemic stance. The neutral epistemic stance presupposes non-assertiveness of the propositions. One piece of evidence is that the embedding verbs preceding the interrogative *if* are 'verbs of incertitude'. The verb introduces the speaker's uncertainty. This explains why the function of *if* in embedded questions is similar to that of *if* in conditional constructions.

1.3.4 Chinese Conditionals

One of the most influential studies of Chinese conditionals is Cheng and Huang (1996), in which they classify conditional constructions into two types in Mandarin based on their interaction with a phenomenon termed "donkey anaphora": one type contains *ruguo* conditionals (cf. (10)) and *dou* conditionals (cf. (11)) also known as "type I"; the

other type is “bare conditionals” (cf. (12)) also known as “type II.” Donkey anaphora is a reference to the literature analyzing sentences such as *if a farmer owns a donkey, he beats it* in terms of how the indefinites in the first clause relate to anaphors in the second clause; such sentences seemingly conceptualize each participant as a single definite individual despite the fact that the sentence describes a generic situation. (Discussions on English donkey sentences date back to Heim (1982) and Kamp (1981). Since the current discussion only concerns Mandarin conditionals, I omit the details of studies on English donkey sentences here.)

The difference between type I Chinese conditionals and type II Chinese conditionals is that the former prohibits a WH-anaphor in the consequent clause whereas the latter requires a WH-anaphoric element identical with the WH-word in the antecedent clause. This difference is illustrated in examples (7) ~ (9).

Type I

(10) (from Cheng and Huang 1996)

Ruguo conditional

- a. *ruguo ni kandao shei,*
 if you see who
- qing jiao ta/[e]/na-ge ren lai jian wo*
 please tell **him/[e]/that-CL person** come see me

'If you see someone, please ask him/her/that person to see me.'

- b. *ruguo ni kandao shei,*
 if you see who
- qing jiao *shei lai jian wo*
 please tell **who** come see me

Intended: 'If you see someone, please ask him/her/that person to see me.'

(10a) and (10b) indicate that *ruguo* conditionals do not need anaphors in the consequent clause. If there is an anaphor, the construction only allows anaphoric elements such as pronouns and definite NPs but not WH-anaphors. Similarly, the *dou* conditionals in (11) exhibit this constraint.

Type I

(11) (from Cheng & and Huang 1996)

Dou conditional

a. *ni* *jiao* *shei* *jinlai*,
 you tell who enter

 wo *dou* *jian* *ta/na-ge ren/[e]*
 I all see **him/that-CL person/ [e]**

'Whoever you ask to come in, I'll see him/her/that person.'

b. *ni* *jiao* *shei* *jinlai*,
 you tell who enter

 wo *dou* *jian* **shei*
 I all see **who**

Intended: 'Whoever you ask to come in, I'll see him/her/that person.'

So far we have seen Type I conditionals prohibit the WH-anaphors in the consequent clauses. This is in contrast to the type II conditions, also termed as “bare conditionals.” This type of conditional involves two WH-variables in both clauses as shown in (12).

(12) a. *ni* *xihuan* *shei*
 you like **who**

 shei (*jiu*) *daomei*
 who JIU unlucky

'If you like X, X is unlucky.'

- b. *ni* *xihuan* *shei*
 you like who
- **ta/[e]/na-ge ren* *daomei*
 him/[e]/that-CL person unlucky

Intended: 'If you like X, he/she/that person is unlucky.'

The above example exhibits the following characteristics:

- (a) *Jiu* is optional in the consequent clause.
- (b) The WH-word in the antecedent clause has to be exactly the same as the Wh-word in the consequent clause. WH-words that can occur in bare conditionals include *sheme* 'what', *shei* 'who' and *zeme* 'how'.
- (c) Translations of English equivalents are sentences with free or indirect relatives (Hole 2004).

Following Kratzer (1981), Cheng and Huang assume that the Mandarin antecedent clause restricts a quantificational operator such as a modal and adverb of quantification. They argue that the WH-words are polarity items that need to be licensed (see also Cheng 1995). In the case of *ruguo* conditionals, the WH-words are licensed by *ruguo*. In bare conditionals, the WH-words are licensed by the covert universal quantifier.

We have seen that bare conditionals require identical WH-variables in both clauses, disallowing other anaphoric elements, whereas the *ruguo* conditionals or *dou* conditionals exhibit the opposite restriction. To account for this difference, Cheng and Hunag propose that the bare conditionals are cases of unselective binding as had been discussed in earlier work (Heim 1982; Kamp 1981). In contrast, *ruguo* conditionals and *dou* conditionals are best analyzed with the traditional pronoun strategy of Evans (1980).

Since their discussion of bare conditionals, the meaning of Chinese WH-words has been a topic of inference (see more discussion in Lin 1999). Finally, they do not consider bare conditionals as “instances of a Chinese version of the correlative construction.” One of their arguments is that true correlatives only permit the asymmetric reading while both symmetric and asymmetric readings are available for Chinese bare conditionals.

Following the terminology of Kadmon (1987, 1990), the symmetric reading is the one according to which the adverb is anchored to both a farmer and a donkey, i.e., to minimal situations where exactly one farmer owns exactly one donkey. The subject-asymmetric reading is the one in which the adverb is anchored to situations that are minimal with respect to the farmer only (exactly one farmer owns one or more donkeys). The object-asymmetric reading is the one in which the adverb is anchored to a donkey (exactly one donkey which is owned by one or more farmers). Another piece of evidence is that Chinese bare conditionals do not bear any structural resemblance to any Chinese relative constructions. Additionally, Chinese bare conditionals are very restricted in tense and aspect, while relatives are not limited in this aspect.

Following the assumption that Chinese conditionals exhibit a variable quantificational force, Chierchia (2000) analyzes WH-variables in Chinese conditionals with Discourse Representation Theory (DRT) and Dynamic Semantics. He points out that in *ruguo* and *dou* conditionals, the variables behave like indefinites and follow the novelty condition in DRT. However, in bare conditionals the WH-words in the antecedent clause observe the novelty condition, while the WH-variables in the consequent clause do not. He claims that a certain version of Dynamic Semantics can predict the behavior of the WH-words in Chinese conditionals. Under this account,

indefinites can be viewed as items with existential force. According to him, “their existential force can be overridden by operators in their local environment,” making the novelty condition no longer necessary in the consequent clause of Mandarin bare conditionals. Lastly, he compares the Chinese WH-words with the indefinite pronominals of other languages such as Italian *si* and English *one* .

1.4 Approaches used in the present study

The present study combines several cognitive approaches such as Construction Grammar, Mental Spaces theory, Embodied Construction Grammar and Gestalt Psychology for maximum explanatory power. More specifically, Construction Grammar is used because it is able to capture the interaction among linguistic elements in conditionals by considering the bi-clausal structure as a whole functional unit. Mental Spaces theory is employed to represent the expressed and implied alternatives under consideration for the conditional interpretation. Embodied Construction Grammar is an ideal tool to formalize the constructions and illustrate the involved cognitive and formal constraints. Lastly, the notion of figure-ground alignment in Gestalt Psychology helps to exhibit how linking devices introduce background information and highlight the salient information against the background. The figure-ground opposition and its relation to conditional constructions will be discussed in Chapter 2. All other theoretical frameworks are briefly reviewed in this section.

1.4.1 Construction Grammar

The analysis that I am going to present draws on the work in Construction Grammar (Brugman 1988; Croft 2001; Filip 1993; Fillmore 1986, 1988, 1990; Fillmore and Kay 1999; Fillmore, Kay, Michaelis & Sag 2003; Fillmore, Kay, O'Connor 1988; Fujii 1993; Goldberg 1995; Kay 1990; Lakoff 1987; Michaelis 1993). Grammatical constructions in Construction Grammar represent pairings of formal properties of syntax, morphology, and phonology. The meaning structure comprises "all of the conventionalized aspects of a construction's function" (Croft 2001). These aspects include not only semantic and pragmatic properties associated with the utterance, but also properties of discourse where the utterance is situated.

An important claim of Construction Grammar is that a grammatical unit is considered as a construction if some aspects of its form or meaning cannot be predicted from its component parts or other existing constructions. Based on this notion, Goldberg (1995) defines a construction as follows:

C is a CONSTRUCTION iff_{def} C is a form-meaning pair $\langle F_i, S_i \rangle$ such that some aspect of F_i or some aspect of S_i is not strictly predictable from C 's component parts or from other previously established constructions.

By this definition, a phrasal pattern is regarded as a construction if one or more of its properties are not strictly predictable from its components. As a result, idioms can be analyzed with the Construction Grammar approach, while they cannot be discussed in any theory that insists on a strictly componential analysis and posits that the meaning of a linguistic unit is a sum of the properties of its components, especially if these components are taken to include only words and UG.

In Construction Grammar, constructions are considered to be the basic units of language. A construction is a form-meaning pair that ranges from a morpheme to a sentence. Based on this view, the bi-clausal structure of a conditional is a construction that has its own meaning and form indicated by the linking devices. This means that the meaning of a linker in a bi-clausally marked Mandarin conditional has to be determined from the other linker that interacts with it in the construction. This point will be elaborated and supported by the discussion of the exceptive conditional in Chapter 4. The brief story is that the meaning of the antecedent clause linker *chufei* is indeterminate in an exceptive conditional. When it occurs with *fouze* ‘otherwise’, the whole construction is translated as ‘unless...’. However, when it is paired with *cai* ‘only,’ the whole sentence means something like ‘Only if....’

The major attractions of the Construction Grammar approach are its flexibility and generality. The theory allows us to analyze the idiosyncratic uses of the conditional constructions as well as their semantic and pragmatic properties. It maps forms onto meanings at every level including morphemes, words, sentences and discourses. In short, as Fujii (1993) points out, the advantages of the Construction Grammar approach for analyzing clause-linking mechanisms are three: first, we can provide an account of syntactic, semantic, and pragmatic properties related to the linking mechanisms as a whole; second, we can capture the mutual dependencies between the two clauses; third, this approach is suitable for describing non-compositional properties of bi-clausal constructions.

There are other variations of Construction Grammar that are not discussed here as not being directly relevant. One is Croft’s (2001) Radical Construction Grammar, which

aims to provide analyses of constructions from the perspective of cognitive linguistics and typological studies. Another version of Construction Grammar recently proposed by Fillmore, Kay, Michaelis and Sag (2003) uses the HPSG representation. Although there are lots of variations of Construction Grammar, I find Embodied Construction Grammar to be the most useful. The ECG approach, which I will introduce in the next section, formalizes aspects of cognitive linguistics such as schema and mental spaces as well as the form-meaning pairs. I find Embodied Construction Grammar to be most lucid and comprehensive for my analysis of Chinese conditionals among all variations of Construction Grammar. Besides, the properties of constructions and cognitive structures are formalized in a way that is potentially implementable with computational methods. This allows the analysis of cognitive linguistics to be linked with the industry of Artificial Intelligence.

1.4.2 Embodied Construction Grammar

Embodied Construction Grammar (ECG) is a formalism that is “designed specifically for integration into a simulation-based model of language understanding” (Bergen and Chang 2005). Similar to other versions of Construction Grammar, ECG characterizes linguistic units as pairings of form and meaning, namely, constructions. Constructions are associated with interrelated cognitive structures such as schemas, mental spaces, and frames. Constructions serve to map the relations between the forms and the conceptual representations.

ECG takes many insights from the construction-based approaches outlined in the previous section (Goldberg 1995; Kay & Fillmore 1999; Lakoff 1987; Langacker

1991; Croft 2001). In contradistinction to other variations of Construction Grammar, ECG provides a formal notation for the deep conceptual structure of the construction in its formalism. This emphasis is based on the belief that understanding an utterance involves not only determining the intended meaning of the utterance, but also inferring relevant information. Making inferences requires consideration of interactions with knowledge in the world, in discourse, and in situational context. Thus the model regards language understanding as an on-line dynamic process, a process that involves two steps: analysis of an utterance in context as a set of linked embodied schemas and mental simulations of the schemas to produce inference.

To illustrate the operations of ECG, Feldman and Narayanan (2004) provide the example of “on the table.” The meaning of “on” in ECG is an instance of the *support* schema. After recognizing this image schema, the parser places a *support* schema in the semantic-specification (Sem-Spec) with two roles. One of the roles is the **supported item** and the other is the **supporting item**. “The table” is a potential candidate for the supporting item, both because of its position in the phrase and because of its semantics as a device dedicated to being a **supporting item**; therefore the parser unites “the table” with the role of supporting item. The result of the unification is a composed Sem-Spec element.

The ECG formalism provides an interface between the processes and conceptual structures required for analysis (i.e., the process of determining constructions and schemas evoked by an utterance) and simulation. The model is also precise enough for a computational implementation. To achieve a precise definition, ECG employs several representational devices (which I will explain further in Chapter 6). By

combining findings from linguistics, psychology, biology and computer science, the ECG model represents the ways that language and thought may be realized in the brain. The computer program using the ECG model is able to demonstrate the required behavior while maintaining features that are consistent with findings from different disciplines (cf. Feldman 2006). The ECG model of English-speaking children's language acquisition has been computationally implemented (Chang 2007). Equally complex constructions in adults' language have also been implemented by an analyzer written by Bryant (2004). The analyzer was applied to a set of English argument structure constructions including common types of motion (self-motion, caused-motion, joint-motion) described in Dodge's (2006) analysis. For the time being, the models for both English and Chinese conditionals have not been computationally implemented.

In brief, ECG has provided a method of representing the deep cognitive structures involved with the constructions in question. The advantage of an ECG analysis is that it enables us to see how the intended meaning of a given construction is achieved through complex interactions of knowledge from different sources (e.g., world knowledge, knowledge in discourse, etc.) and how inferences are drawn from the information represented in the interrelated conceptual structures (e.g., mental spaces and schemas).

Recently, there have been several studies using the model of Embodied Construction Grammar. Some studies focus on action constructions using this framework (Chang, Feldman, and Narayanan 2004; Bergen, Chang, Narayan 2004). Mok, Bryant and Feldman (2004) and Yang (2005a, b) work on English and Chinese conditionals respectively. Chang (2004) has used the approach to model children's construction learning. There are some other general discussions on how this formalism can

incorporate information of conceptual structures to serve as the basis for scalable deep understanding systems (Chang, Feldman, Porzel and Sanders 2002; Feldman and Narayanan 2003). Still more, a few studies use the formalism to bridge the gap between frames and inference (Chang, Narayanan, and Petruck 2002; Narayanan, Fillmore, Baker and Petruck 2002).

1.4.3 Theory of Mental Spaces

According to Mental Spaces theory proposed by Fauconnier (1985, 1996, 1997), a mental space is a cognitive construct that is developed when a discourse is elaborated (Fauconnier 1996). This dissertation uses Mental Spaces theory as a framework for analysis because it permits a discussion of the interpretation of the *chufei* construction in all its various categories, which is impossible in other approaches.

The diversity of the *chufei* construction is not unusual. In general, conditional constructions serve a variety of functions. Dancygier and Sweetser (2005) have claimed that mental spaces allow us the possibility of attributing this functional diversity to a small number of parameters of mental spaces. According to their proposal, mental spaces can illustrate various kinds of contingent relations between the antecedent and the consequent. The different types of conditional constructions mark such contingent relations (Sweetser's (1990) classification of conditional constructions based on cognitive domains will be discussed in Chapter 2). For instance, in a speech act conditional (Sweetser 1984, 1999)², the speaker sets up a discourse context, a speech act space wherein her speech act is taking place. The construction marks the contingent relation as

² This is also termed as Relevance conditional in Iatridou (1991). An example of this type of conditional is: *If you are hungry, there's food on the table.*

one that holds between the possible scenario described in the antecedent and the speaker's speech act. In contrast, in an epistemic conditional (Sweetser 1984, 1990)³, the speaker sets up an epistemic space wherein her belief is portrayed and her conclusion is extended from her belief space. The construction marks the contingent relation between the speaker's belief and conclusion. Briefly, the mental spaces represent the cognitive states of the speaker and the form-meaning pair indicates the mental states that are accessible to the speaker in context.

The space representation also illustrates how the linking devices function as space builders and indicators of attentional sequence. In this mental-space analysis, the proposition expressed in the protasis along with the proposition expressing the consequences of the protasis are placed in one space, whereas the alternatives are located in the alternative space. This alternative space structure is the shared property of the three types of Mandarin conditional constructions discussed in the dissertation. This alternative structure, stored in speakers' minds, allows them to draw inferences from what is expressed in the construction and to place emphasis on a particular situation out of two alternatives.

Dancygier and Sweetser (2005) have provided a thorough study of English conditionals in a variety of forms by means of Mental Spaces theory. Their analysis shows that various functions of conditionals and their interactions with context can be understood in terms of the workings of spaces. Their research is a good model for studying how understanding conditionality can be achieved through linguistic devices that indicate building and embedding of spaces.

³ An example of this type of conditional is: *If the light is on, he must be home.*

1.5 Data

Most of the data used in the present study are from Mandarin corpora composed largely of data collected in Taiwan. Therefore the Mandarin discussed in my research is Taiwanese Mandarin instead of the Mandarin spoken in Hong Kong, Singapore, Mainland China, or other Chinese-speaking regions. I have managed to balance the proportions of spoken and written Mandarin data. In this section, I briefly introduce the source of data, length of the data base, and style (spoken vs. written) in which the data exists for each individual corpus .

The primary data source for written Mandarin will be the “Academia Sinica Balanced Corpus of Modern Chinese” (simplified as Sinica Corpus), which contains about 5 million words. The Sinica Corpus was designed to incorporate a variety of written data in modern Chinese as used in Taiwan. The data are collected from several different sources, including formal texts such as government official letters, research chapters, and newspaper articles, as well as informal texts such as narratives, novels, instruction manuals, etc. Every text in the corpus is segmented and each segmented word is tagged with its part-of-speech. Texts are classified according to five criteria: genre, style, mode, topic, and source. The speaker can select the type of data they want to obtain from the corpus by setting the parameters by which the data are classified (genre, style, mode, topic, and source). The numbers of words and articles in of each kind of topic are summarized in the following table:

Topic	Number of Words	Number of Articles
Literature	777050	1385
Daily Life	858750	2301
Society	1610997	3246
Science	629838	994
Philosophy	439955	695
Art	474340	518
Other	101394	89
Total	4892324	9228

Table 1.1 Number of words and articles in the Academia Sinica Corpus

Four corpora of spoken Chinese are used in the research. The first one is the “Taiwanese Putongua Speech and Transcripts,” which was gathered by San Duanmu, et al. (1998) and published by Linguistic Data Consortium, Philadelphia. The data were collected from forty speakers. There were five two-speaker dialogues and thirty single-speaker monologues with each dialogue lasting about twenty minutes and each monologue about ten minutes. The speakers could choose any topics, shift topics at will, or had no topics at all during the dialogue or monologue. Since speakers are asked to talk freely in conversation style, there are variations in speech style among the speakers. The second corpus of spoken Chinese used is the “Su I-wen Corpus of Spoken Chinese” collected by Su, et al. (2003) at National Taiwan University. This corpus contains four types of spoken data: radio shows, face-to-face conversations, monologues, and TV talk

shows. The radio shows are recorded from conversations between a host and a guest invited to the show with topics focusing on events in the life of the guest, who is usually a singer. The face-to-face conversations refer to spontaneous conversations among two or more participants. The monologues are recorded from radio shows or talks given in church gatherings. The TV data are recorded from a talk show hosted by a professor discussing topics in education and family. The conversations and monologues in this corpus range from about four minutes to about twelve minutes. This corpus provides a good sampling of style and register variations in that some data in the talk-show settings are formal and other data from casual conversations are informal.

The third source for spoken Mandarin is the National Taiwan University Corpus of Spoken Chinese," gathered by Huang, et al. (2001) at National Taiwan University. The corpus is composed of two types of speech: one set comes from naturally occurring face-to-face two party and multi-party conversations (179:40 minutes in total), and the other, interviews and a call-in on radio show (totaling 58:27 minutes). These two sets of data represent a kind of continuum from informal and unplanned to more formal and planned interaction. They were taped via audio cassettes and transcribed into intonation units, i.e., sequences of words combined under a single unified intonation contour, usually preceded by a pause (for discussion, see Cruttenden 1986 and Chafe 1987). The group of participants of these conversations is diverse, composed of students, colleagues, housewives, and so on, and take place in a variety of situations such as at a dormitory, work, or home.

The fourth corpus of spoken Chinese is the "Call Home Mandarin Transcript Corpus" which was collected and released by Linguistic Data Consortium. The

transcripts are produced based on recordings of 120 telephone talks between native speakers of Mandarin. The speakers came from Taiwan and mainland China. All calls originated in North America and were placed to locations overseas. The calls varied in length and lasted up to 30 minutes.

In addition to corpus data, I use a few examples that I find through the internet and examples used in previous relevant studies. In brief, the data used in the current research include Mandarin in different styles from various sources. The diversity and amount of the data provide strong empirical support for the present study. Therefore, the analysis that I am going to propose is an empirical discussion of Mandarin constructions in dynamic contexts.

1.6 Organization

This first chapter has introduced the phenomena of interest, the goals, the theoretical frameworks used in the analysis, the data, and a synopsis of the dissertation. Chapters 2, 3, 4 and 5 cover the individual constructions specifically (as I explain below) with each construction bearing similarity in alternative space structure and the figure-ground alignment phenomenon.

Chapter 2 discusses the linker *ruguo* in relation to topics such as topicality, figure-ground distinction and typology of conditionals.

Chapter 3 investigates the linking devices *jiu* and *cai* in the *ruguo...jiu* construction, which is often translated as the *if* construction, and the *ruguo...cai* constructions, which is translated as the *only if* construction. The main contribution of this chapter is that the meaning difference between these two constructions are analyzed

in terms of different mental space set-ups, instead of attributing the difference to the lexical meaning of *jiu* or *cai*. The analysis that I propose is based on the view that the intended meaning and associated implicatures are results of interaction among components in construction and context. It is in this chapter that I show my analysis to be superior to previous ones. I also relate the meaning of *jiu* and *cai* in conditionals with those in non-conditionals to show their compositional meaning contributions to conditional interpretations.

Chapter 4 discusses Mandarin exceptive conditional constructions, whose English translations may be ‘unless...’ or ‘only if....’ In this chapter I show that the linking device in the consequent clause plays the role of choosing a particular situation as foregrounded from the containing backgrounded exceptive and default spaces. I also relate my discussion to important topics in linguistics such as polarity and conditionals as correlative structures.

Chapter 5 analyzes two types of counterfactual constructions in Mandarin: counterfactual conditionals and counterfactual wishes. The main point in this chapter is that Mandarin exploits several means to indicate counterfactuality and these markings call for the set-up of alternative spaces, where one contains the real state-of-affairs and the other has the counterfactual counterparts. In the case of a counterfactual conditional, negation is used to indicate the falsehood of the proposition and suggests the existence of the factual situation. In a counterfactual wish, the linker *ruguo* and a fixed phrase that means ‘would be nice’ indicate the expressed proposition is counterfactual and implies the factual situation.

In Chapter 6, I formalize these constructions with Embodied Construction Grammar. The present study is the first to use a formalized construction grammar to represent Mandarin conditional constructions. Finally, Chapter 7 concludes the dissertation.

Chapter 2 *Ruguo* Conditionals

2.1 Introduction

The unambiguous Mandarin conditional construction is a bi-clausal construction composed of a subordinate clause introduced by *ruguo* and a main clause marked by *jiu* or *cai*. Both clauses in an unambiguous Chinese conditional are marked (which is similar to Old English conditionals as discussed in Traugott's study in 1982). The unmarked order of the two clauses is that the subordinate clause precedes the main clause. Iconicity is expressed by this clause order. This unambiguous Mandarin conditional constructions are illustrated in the following examples:

- (1) *ruguo* *tianqi* *hao*, *women* ***jiu*** *qu* *luying*
RUGUO weather good we **JIU** go camping

'If the weather is fine, we will go camping.'

- (2) *ruguo* *tianqi* *hao*, *women* ***cai*** *qu* *luying*
RUGUO weather good we **CAI** go camping

'Only if the weather is fine will we go camping.'

'(lit. if the weather is good, we only-then go camping).'

A conditional sentence marked by the pair of *ruguo...jiu*, as in (1), is translated as an *if* sentence in English. A conditional sentence linked by *ruguo...cai*, as in (2), has an 'only if' interpretation. *Ruguo* marks the non-assertive status and the neutral epistemic stance of the propositions in the construction, and *jiu* and *cai* indicate that there is a causal relationship between the two propositions. This can be supported by the fact that in the absence of *ruguo*, sentences marked only with *jiu* and *cai* are ambiguous. There are

several interpretations of a sentence only marked with *jiu* or *cai*, one of which is conditional. Consider (3) and (4):

(3) (revised from Biq 1988)

<i>Zhangsan</i>	<i>lai</i>	<i>Lisi</i>	<i>cai</i>	<i>qu</i>
Zhangsan	come	Lisi	CAI	go

'Lisi will go only if Zhangsan comes.'
'Lisi will go only when Zhangsan comes.'
'Lisi will go only after Zhangsan comes.'

(4) (revised from Biq 1988)

<i>Zhangsan</i>	<i>lai</i>	<i>Lisi</i>	<i>jiu</i>	<i>qu</i>
Zhangsan	come	Lisi	JIU	go

'Lisi will go if Zhangsan comes.'
'Lisi will go when Zhangsan comes.'
'Lisi will go after Zhangsan comes.'

As demonstrated, (3) and (4) are ambiguous. The listener depends on the context to determine whether *jiu* or *cai* expresses either a conditional or temporal connection between the two clauses. These sentences differ from the real Mandarin conditionals, such as (1) and (2), in that the pseudo-conditionals, such as (3) and (4) only indicate that there is a relation between Zhangsan's coming and Lisi's going, a relation which is optionally conditional.. However, the relation holding between the two clauses in (1) and (2) can only be conditional.

In a note on terminology, in the following discussion I use a general term 'linker' or 'linking device' instead of conjunction or adverb to refer to both the antecedent marker (such as *ruguo* and *yao-shi*) and the consequent marker (such as *jiu* and *cai*). This term 'linker' is most appropriate because it captures the linking function and interacting nature of these words in that the meaning of the conditional construction is only complete when

the semantics of the two linked clause are considered. Even more, by using the general term ‘linker,’ one does not have to assign a fixed grammatical category to the antecedent linkers, which has been a problem in previous studies of Chinese complex sentences. The status of *ruguo* and *yao-shi* as conjunctions has been questioned due to their occurrence either immediately after the subject or in sentence-initial position (Chao 1961). But since defining the grammatical category of these words is not my primary concern in this chapter, this chapter uses the more general terms: *Ruguo* is termed as an antecedent linker, and *jiu* and *cai* are termed consequent linkers.

2.1.1 Past approaches to *ruguo*

Previous scholars have observed the paired-linking property of the Mandarin conditional construction (Chao 1968, Li & Thompson 1981). Li & Thompson (1981) have focused on the linking properties of *ruguo*, *jiu* and *cai*. They term *ruguo* a forward-linking connective since the meaning of the *ruguo*-marked clause is only complete by considering the following clause. In contrast, *jiu* and *cai* are termed backward-linking connectives because the main clause marked by *jiu* or *cai* depends on the preceding clause for the completion of its meaning. Their analyses of these words as conditionals are further supported by the semantics of the lexical uses. In Dancygier and Sweetser (2005), this conditional grammatical function is derived from other uses of these ‘conditionals’ in non-conditional constructions. In this chapter, the focus will be relating the conditional linking function to other lexical uses.

Several studies have investigated *jiu* and *cai* in conditional sentences (Alleton 1972; Biq 1984, 1988; Cheng 1983/4; Hole 2004; Lai 1995, 1996, 1999; Paris 1981) and

have limited their discussion to those sentences that are only marked with *cai*, as in (3), or *jiu*, as in (4). Under such an account, *jiu* and *cai* determine the interpretation of the conditional sentence. Although a sentence marked with only a consequent linker can be interpreted conditionally given a certain context and clause order, there is more to be said about the antecedent *ruguo*. An account of Chinese is not comprehensive enough if we ignore the antecedent linker *ruguo*'s significant role in contributing to the meaning of the construction. As already been pointed out, *ruguo* does affect the meaning of the construction. Sentences marked only with *jiu* or *cai* are ambiguous and can also signify sequentiality or simultaneity. In contrast, *ruguo...jiu* and *ruguo...cai* constructions are unambiguously conditional if the constructions are not used as topic-evaluation constructions (see section 2.3). This means that *ruguo* makes some contribution to the conditional meaning by adding non-assertiveness or hypotheticality to the construction.

Many scholars have also observed that the functions of *ruguo* overlap significantly with those of the English *if* (Chao 1961; Li & Thompson 1981). In their studies, *ruguo* is translated as *if* in all cases. This chapter would like to point out that *ruguo* does not overlap with *if* in all cases. Sometimes *ruguo* means 'what if' and sometimes *ruguo* only introduces a situation in an antecedent clause that is about to be evaluated in the consequent clause. In short, its use cannot be understood and translated as *if* in all contexts.

2.1.2 Goal

The primary goal of this chapter is to investigate the semantic contribution of the antecedent linker *ruguo* to conditional construction and its role in cognitive structure. I will show that the semantics of *ruguo* varies with context and that non-assertiveness is the essential component of its meaning in conditionals. Another goal is to discuss the organization and nature of the cognitive structures (mental spaces), which set up for the use of the *ruguo* conditional. I will examine the *ruguo* space from both the perspective of frame topicality and the figure-ground distinction.

2.1.3 Organization

This chapter has five main sections. The next section, 2.2, analyzes how *ruguo* contributes meaning in conditionals. Section 2.3 investigates the topical status of the *ruguo*-marked clauses when in both conditional and non-conditional constructions. Specifically, conditional *ruguo* and non-conditional *ruguo* are considered members of a radial category whose members connect to each other through the ‘topicality’ property. Section 2.4 discusses the figure-ground alignment in *ruguo* conditional sentences and section 2.5 provides a mental space analysis of the *ruguo* conditional and explains the cognitive models that structure the mental spaces.

2.2 The meaning of protasis marker

This section proposes a general meaning for *ruguo* in all types of conditionals. First, in 2.2.1, it is important to discuss some typological distinctions of conditionals and consider the diverse relations that may hold between the protases and apodoses. These distinctions are crucial for the analysis of *ruguo*'s meaning, allowing us to see the roles of the protasis in conditional constructions. Later in 2.2.2, previous approaches to the protasis marker will be examined. And finally, in 2.2.3, this chapter will present the “non-assertive” account for an analysis of *ruguo* as a preferred alternative to the “irrealis” account.

2.2.1 Classification of conditionals

The traditional classification of conditionals is proposed by Taylor (1997) on the basis of the epistemic relationship(s) between the antecedent clause and the consequent clause as well as based on the speaker's evaluation of reality. Using this method, conditionals are classified into three types: factual, hypothetical, and counterfactual conditionals. In a factual conditional, the content of the *if*-clause is assumed to be true to some situational reality, whereas the content of the *if*-clause in a counterfactual conditional is taken to be contrary to the real state-of-affairs. A hypothetical conditional stands somewhere between the previous two with the content assessed to be possible by the speaker. Overall, this approach to classification is useful in understanding a speaker's

epistemic stance toward the content of the antecedent clause, but it does not address the relationship holding between the antecedent clause and the consequent clause.

Sweetser (1990) proposes a three-way distinction for conditionals which is based on the cognitive domain in which the conditionals are interpreted. I illustrated these three types using Mandarin examples.

1. Content Conditional

- (5) *ruguo* *mingtian* *xiayu*,
 RUGUO tomorrow rain,

 ta *jiu* *bu* *qu* *pashan*
 He JIU not go climb mountain

‘If it rains tomorrow, he will not go mountain-climbing.’

In (5), the speaker makes a prediction about the world. The protasis represents the speaker’s postulation.

2. Speech act conditional

- (6) *ruguo* *ni* *xianzai* *you* *qian*
 RUGUO you now have money

 jie *wo* *yibai* *kuai*
 lend I one hundred dollars

‘If you have money now, lend me one hundred dollars.’

In (6), the speaker performs a speech act in the consequent clause and uses the antecedent clause to make the request relevant.

3. Epistemic conditional

- (7) *ruguo* *jiali* *deng-lian-* *zhe*
 RUGUO house light-bright-progressive asp.

<i>ta</i>	<i>jiu</i>	<i>zai</i>	<i>jia</i>
She	JIU	at	home

‘If the light is on in her house, she is at home’

In (7), the speaker makes an inference in the consequent clause based on the information presented in the antecedent clause.

In the recent work of Dancygier and Sweetser (2005), they provide an even finer classification of conditionals. According to their scheme and based on their corpus data, some speech act conditionals can be divided into three sub-types of conditionals. (This chapter will later present examples of each type from both Mandarin and English.)

4. Metalinguistic Conditional

(8) If we were speaking Spanish, he would be your uncle.
(from Dancygier and Sweetser 2005)

The speaker knows that, in her English dialect, the father’s cousin is usually termed ‘cousin,’ not ‘uncle.’ The speaker is imagining that the role of father’s cousin receives the Spanish label, which is used for both ‘cousin’ and ‘uncle.’ (8) illustrates how the speaker predicts the choice of labels on the basis of the correlation between language and labels. Dancygier and Sweetser explain the meaning of (8) by pointing out that there is an English-speaking space with a corresponding label and also a Spanish-speaking space with its own corresponding label—the speaker in (8) is toying with this contrast. Metalinguistic conditionals deal with such alternative spaces that are set up by the pairing of a content space with a language space.

5. Metaphorical conditional

(9) *ruguo* *bali* *shi* *faguo de* *xinzan,*
RUGUO Paris is France of heart

<i>luenduen</i>	<i>jiu</i>	<i>shi</i>	<i>yingguo</i>	<i>de</i>	<i>xinzan</i>
London	JIU	is	UK	of	heart

'If Paris is the heart of France, London is the heart of the United Kingdom.'

This sentence is based on the metaphor CAPITAL CITY OF A COUNTRY IS HEART OF A HUMAN. The place in the protasis shares a particular relation 'capital-country' with those in the apodosis.

6. Meta-spatial Conditional

- (10) If Utah is your sister, are you Wyoming or Nevada?
(from Dancygier and Sweetser 2005)

The speaker assumes that there is a correlation between names of family members and names of states.

This chapter uses Sweetser's (1990) classification of conditionals because this approach is very useful in understanding the relationship between the protasis and the apodosis. The possible relation between the two clauses is a focal point in the discussion on *ruguo* conditionals and other semantically similar conditionals.

2.2.2 Previous account of protasis marker's general meaning

In an attempt to find the relationship that holds between conditional clauses, several scholars have tried to propose a general meaning for *if* and *if*-like words across all kinds of conditionals (Akatsuka 1985, 1986; Dancygier 1998; Schwenter 1996; Palmer 1986; Smith and Smith 1988). Some scholars propose that *if* marks the irrealis status of the conditional propositions (Akatsuka 1985, 1988; Smith and Smith 1998; Palmer 1986), whereas others argue that *if* indicates non-assertiveness and non-positive epistemic stance

of the propositions (Dancygier 1998, Dancygier and Sweetser 2005). To clarify some terms, non-assertion means that the speaker does not have enough grounds for asserting P as a factual statement and that the speaker may not believe P to be true (Dancygier 1998). Non-positive epistemic stance refers to the a speaker’s neutral or negative stance about the truth of the proposition.

The irrealis claim was most clearly elaborated in Akatsuka’s (1985, 1986) work. Akatsuka (1985) creates an epistemic scale that ranges between the two poles of Realis and Irrealis, which is based on the example of conditionals and other sentences involved with epistemic stance. The scale is presented as follows:

(11) Epistemic scale for conditionals (from Akatsuka 1985)

REALIS	IRREALIS		
know (exist X) ↑	get to know (exist X) ↑	not know (exist X) ↑	know not(exist X) ↑
positive conviction	newly-learned information	uncertainty	negative conviction

The speaker’s cognitive status with respect to the conditional information determines the level of irrealis. When a speaker has just come to know the reality of the conditional at the time of utterance, as in (12), the sentence is located at the “newly-learned information” section at the IRREALIS level.

(12) A: *che huai le*
car broken Particle

‘The car is broken.’

B: *ruguo che huai le*
RUGUO car broken Particle

<i>women</i>	<i>jiu</i>	<i>bunen qu</i>	<i>luying</i>
we	JIU	cannot go	camping

'If the car is broken, we cannot go camping'

A predictive conditional such as (13) is categorized as a conditional that indicates a speaker's uncertainty.

(13)	<i>ruguo</i>	<i>mingtien</i>	<i>xiayu</i>
	RUGUO	tomorrow	rain
	<i>women</i>	<i>jiu</i>	<i>bunengqu</i>
	we	JIU	cannot go
			<i>pashan</i>
			mountain-climbing

'If it rains tomorrow, we will not go mountain-climbing.'

A conditional expressing a current state-of-affairs that is contrary to a past state-of-affairs is said to exhibit a speaker's "negative conviction." This is illustrated in (14):

(14)	<i>ruguo</i>	<i>ni</i>	<i>mei</i>	<i>jiu</i>	<i>Zhangsan</i>
	RUGUO	you	not	save	Zhangsan
	<i>ta</i>	<i>jiu</i>	<i>yan-si</i>	<i>le</i>	
	he	JIU	drown-dead	Perfective	

'If you had not saved Zhangsan, he would have been drowned.'

Akatsuka claims that all *if*-marked protases belong to the domain of irrealis. Even when a piece of information is newly-learned, a speaker treats it as "unreal." In other words, information acquired for the first time should be considered irrealis. Since the epistemic scale is a continuum, such a case is located at the borderline between the irrealis and the realis. Once the "newly-learned information" is taken to be true by the speaker, the proposition's status can move from irrealis to realis. The following examples illustrate this phenomenon.

(15) (from Akatsuka 1985)

A: I'm going to the LSA.

B: If you're going to the LSA, I am going too.

(B learnt that A is going for the first time.)

If in this example is acceptable because the *if*-clause is only used to echo with A's assertion that is newly acquired. However, Akatsuka mentions that *if* would be unacceptable if B calls C and tells C that she is going due to the fact that A is going.

Consider (16):

(16) B: I am going to the LSA *if/because A is going.

In (16), *because* marks a realis proposition. These examples indicate that the change of cognitive status influences the possibility of linking devices in conditionals. *If* strictly marks irrealis information, while *because* has to be used as the information obtains realis status. In response to Akatsuka's argument, Schwenter (1999) comments that one could also make a circular claim that the choice of linking devices determines the epistemic status of the proposition in the subordinate clause. He proposes that the (un)acceptability of *if* or *because* lies in different ways of packaging. He uses the following example to illustrate this point:

(17) (after telling C about (16), B goes on to talk to friend D)

B: A is going to the LSA and if she's going, I'm going too.

According to Schwenter, in (16), the information is asserted in a *because*-clause, which is part of a larger assertion that A's going to the LSA enables B's going. In contrast, in (17), B only takes the fact of A's going as a ground and frames it in an *if*-

clause that profiles its relevance to her announcement of a desire to go. Simply put, the causal relationship in a *because*-clause is asserted whereas, in an if-clause, such a relationship is merely implied.

Non-assertiveness is another proposed general meaning for *if*. Dancygier (1993, 1998) argues against the irrealis approach and proposes that conditionals should be viewed as speech acts. The speech act performed by a conditional indicates that the propositions involved are not asserted. Dancygier cites Horn's (1985, 1989) works on negation and claims that a conditional, similar to negation, indicates that a speaker refuses to assert the truth of the propositions involved. This claim finds support in Spanish as well as in English conditionals. In studying the pragmatics of *si* conditionals in Spanish, Schwenter (1996) proposes that one meaning of *si* indicates uncertainty, which is tantamount to saying that the protasis marker expresses non-assertiveness of the propositions. This chapter takes a cognitive approach and accepts the "non-assertive" analysis for at least some Mandarin conditionals. It is important to remember that this non-assertive meaning does not hold for all types of *ruguo* constructions. (Cases where the non-assertive meanings cannot be applied are discussed in section 2.3.)

2.2.3 Contribution of *ruguo* in Conditionals

So far, there have been no studies on the meaning of Chinese protasis markers. This gap is due to two points-of-view of Mandarin conditional constructions. One is the view that Chinese does not mark the protasis overtly (Comrie 1986, Dancygier 1998) despite cases that show that Mandarin can mark protasis overtly with *ruguo*. The other view is that the apodosis markers *jiu* and *cai* themselves express the conditional meaning, as opposed to just suggesting conditionality in particular contexts (Alleton 1072; Biq

1984, 1988; Cheng 1983/4; Lai 1995, 1996, 1999). These two views deeply influence the direction and focus of the research on Mandarin conditional constructions. The result is that researchers don't find the semantic contribution of the protasis marker. However, as I have pointed out in the section of 2.1.1, *ruguo* is a component that contributes the “non-assertive” meaning to the conditional sentence compositionally. I will support this claim in the next section by contrasting *ruguo*-marked conditional with conditionals minus *ruguo* in addition to examining different types of *ruguo* conditionals using the classification proposed by Sweetser (1990).

The proposal that *ruguo* marks the non-assertive nature of the subordinate clause proposition finds support in the “disambiguating” effect of marking sentences with *ruguo*. Specifically, a *ruguo*-marked sentence is an unambiguously conditional form whereas a sentence without the explicit marker *ruguo* derives its conditional interpretation solely from context. It was mentioned earlier in this chapter that in the absence of *ruguo*, sentences only marked with *jiu* and *cai* are ambiguous. For reference (3) and (4) are repeated here.

(3) (revised from Biq 1988)

<i>Zhangsan</i>	<i>lai</i>	<i>Lisi</i>	<i>cai</i>	<i>qu</i>
Zhangsan	come	Lisi	CAI	go

‘Lisi will go only if Zhangsan comes.’
 ‘Lisi will go only when Zhangsan comes.’
 ‘Lisi will go only after Zhangsan comes.’

(4) (revised from Biq 1988)

<i>Zhangsan</i>	<i>lai</i>	<i>Lisi</i>	<i>jiu</i>	<i>qu</i>
Zhangsan	come	Lisi	JIU	go

‘Lisi will go if Zhangsan comes.’
 ‘Lisi will go when Zhangsan comes.’
 ‘Lisi will go after Zhangsan comes.’

As explained before, events in both (3) and (4) can be interpreted as causally-linked, temporally-linked, or conditionally-linked events. A listener depends on the context to determine which the case is. The epistemic stances involved with these two constructions are neutral and can only be inferred from context. The apodosis clause linker *jiu* and *cai* only suggest that there is a causal relationship between the two clause propositions. In contrast, once *ruguo* is present in these constructions, the sentences can only be interpreted conditionally since the *ruguo*-clause propositions are marked as “hypothetical” or non-assertive. Sentences (18) and (19) below are the hypothetical counterparts of (3) and (4).

(18) (revised from Biq 1988)

<i>ruguo</i>	<i>Zhangsan</i>	<i>lai</i>	<i>Lisi</i>	<i>cai</i>	<i>qu</i>
RUGUO	Zhangsan	come	Lisi	CAI	go

‘Lisi will go only if Zhangsan comes.’

(19) (revised from Biq 1988)

<i>ruguo</i>	<i>Zhangsan</i>	<i>lai</i>	<i>Lisi</i>	<i>jiu</i>	<i>qu</i>
RUGUO	Zhangsan	come	Lisi	JIU	go

‘If Zhangsan come, Lisi will go.’

Although *ruguo*-marked constructions are unambiguously conditional sentences, the relations between holding between the protasis and apodosis are diverse. Dancygier (1998) in her book on English conditionals observes five types of relations between clauses in conditionals: sequentiality, causality, epistemic/inferential relations, speech act relations, and metatextual relations. Among these relations, sequentiality and causality are the common relations that connect content conditionals using the classification by Sweetser (1990). Similar to English *if*-conditionals, *ruguo* conditionals can possess the above-mentioned five types of relations between the two clauses. This property of *ruguo*

conditionals distinguishes the *ruguo* constructions from other conditionals marked with linkers indicating only one relation. For instance, a conditional marked with *dan* (translated as a *when*-conditional in English) can only exhibit the sequentiality between the two described events, as shown in (20).

- (20) *dan* *wo* *buruyi* *de-shihou*
 when I unlucky of-time
- wo* *hui* *hui-tou* *kan* *wode* *guoqu*
 I will turn-head see my past
- ‘When I am unlucky, I look back at my past.’
 (from Internet)

In (20), events in the two clauses happen in sequential order or simultaneously. The linker *dan* ‘when’ indicates the temporality of the relation in the conditional. Due to the meaning of *dan* ‘when,’ the type of conditional it can mark is limited to those with a salient temporal relation. *Dan* in (20) indicates the positive epistemic stance and non-assertive nature of the propositions involved. In this example, *dan* can be replaced by *ruguo* since *ruguo* is a general linker indicating non-assertiveness. However, *ruguo* cannot be freely replaced by *dan* in a conditional where the epistemic stance is unmarked. For example, in an epistemic conditional, only *ruguo* can be used as the linker, as shown in (21).

- (21) *ruguo*/**dan* *ta* *ban* *ni* *da* *zuoye*
 RUGUO/*when he help you type homework
- ta* *jiu* *shi* *xihuan* *ni*
 he JIU is like you
- ‘If/*when he typed your homework, he likes you.’

In (21), *ruguo* marks the proposition as non-assertive and as neutral-stanced. Using the non-assertive *ruguo* construction, the speaker of (21) refuses to assert the truth

or falsehood of the propositions. The epistemic stance expressed in the *ruguo* sentence is neutral because the speaker does not assert the claim of his loving the addressee to be true or false. Regardless of the type of relation between the two conditional clauses, the protasis describes a non-assertive event or state. In the following discussion, I will present examples of different types of conditionals to prove that *ruguo* indicates the non-assertive nature of the conditional propositions and the neutral epistemic stance of the speaker. We first look at a *ruguo*-marked speech act conditional. Consider the following example:

- (22) *ruguo ni huan le fanzi ban-xinjia,*
 RUGUO you change Perf house move-new house

jide qing wo he-yi-bei
 remember treat me drink-one-cup

‘If you buy a new house and move, remember to invite me over for a drink.’

(National Taiwan University Corpus of Spoken Chinese Neighbor. Txt)

In this example, the speaker tries to make the addressee promise a drinking event after moving. The speaker may or may not be certain about whether the moving is about to take place, and has no idea whether there will be a get-together. Therefore, the speaker’s epistemic stance toward the events described in a *ruguo* conditional is non-positive or neutral. This also softens the speaker’s demand of a get-together. The demand sounds more like a request than a command when in the form of a *ruguo* construction; it is the neutral epistemic stance of *ruguo* that softens the speech act in a potentially problematic context. The speaker does not have enough grounds to assert the protasis, i.e., buying a new house and move, to be true, thus, the non-assertive meaning of *ruguo* fits well in this context.

In a predictive content conditional, a speaker uses a *ruguo*-marked clause to present a situation that she is uncertain about as in (23). In other words, this speaker does not know the truth value of the proposition and has a neutral epistemic stance. She does not have enough reasons or grounds to assert P to be true and thus her claim is non-assertive.

(23) (A and B are discussing the hostility against female secretaries from their male bosses' wives. They say that female secretaries are seldom promoted because their bosses' wives oppose the promotion out of jealousy.)

A. *ruguo* *wo* *yi* *jing* *gongsi*
 RUGUO I once enter company

jiushi *zhuangmen* *ban* *laoban* *chuli shiqing*
 is just specially help boss handle things

‘If my job is especially restricted to assisting the boss,’

B. *na* *jiu* *hui* *hen* *mafan*
 then JIU will very trouble

‘Then you will be in big trouble’.

(National Taiwan University Corpus of Spoken Chinese Boss.txt)

I have shown that *ruguo* indicates both the non-positive epistemic stance and the non-assertive nature of the protases in an epistemic conditional, as in (21), and a speech act conditional, as in (22), and finally a content conditional as in (23). These examples suggest that *ruguo* contributes its compositional meaning to the conditional construction.

So far, the *ruguo* conditionals presented in the above discussion can all be translated as *if*-sentences. One might be tempted to equate *ruguo* with *if* based on these examples. However, I would like to point out that *ruguo* is not always translated as ‘if’ in all contexts and thus should not be regarded as the Chinese equivalent of *if*. In some cases, *ruguo* construction has the ‘what if’ meaning and has the intonation pattern of a

question. This construction is used to express a doubt as opposed to a previously mentioned point. In this context, the speaker of the construction evaluates a proposed idea to be infeasible and points out an unexpected outcome that invalidates the point.

Consider the example:

(24)

L: *wode jinzi yao fan nali*
My gold should put where

‘Where should I put my gold?’

...

nimen juede fan bixian zemeyang
You feel put fridge how

‘How do you feel about putting it in the fridge?’

J: *na ruguo xiaotou kouke dakai ni jia binzian*
Filler what if burglar thirsty open your home fridge

he shui ne
Drink water particle

‘What if the burglar gets thirsty and opens yours fridge to get some water to drink?’

(National Taiwan University Corpus of Spoken Chinese Theft.txt)

In this example, L and J discuss where to hide valuables at home where burglars normally do not rummage. After several suggestions and refutations, L proposes hiding her gold in the fridge because she believes that burglars usually do not steal from refrigerators. However, J estimates that there is still a possibility that a burglar would open the fridge and find the gold. In order to justify her idea, she brings up an alternative situation where a burglar becomes thirsty and opens the fridge. The new alternative

challenges L's belief that burglars don't open the fridge in any case. In J's utterance, there is no wh-word. The 'what' meaning is inferred from the intonation, the context and the sentence-final particle *ne* that often occurs in questions.

2.3 Topicality and givenness

Haiman (1978) claims that all conditional protases are topics. To support his proposal, using data from several languages, he defines a topic as old or given information, a definition which can be traced to previous studies conducted by Chafe (1972, 1976), Dressler (1974) and Firbas (1964). Since then, several scholars have responded to his claim. For instance, Comrie (1986) argues that conditional protases are not necessarily topical, particularly in the cases where protases do not occur in the sentence-initial position, Akatsuka (1986) provides a different analysis of the *Hua* examples that are considered as suggestive of topicality, and Jacobson (1992) shows that Japanese conditional protases should not be analyzed as topics. Akatsuka (1992) also observes that Japanese conditionals indicate the speaker's affect in addition to epistemic stance and information status. Dancygier (1998) makes a similar observation in English. She refers to sentences such as conditionals as "contextually bound" and so are able to mark epistemic distance but not shared knowledge (i.e., given topics). Even more, Sweetser (1990) points out that conditional protases in English, which are obviously topics, are not good instances of conditionals.

Based on the corpus data, I propose that Mandarin conditional protases are topical. First of all, the fact that protases in canonical conditionals are sentence-initial fits well in the topic-comment structure. This is to say that using the sentence-initial position as a criterion for the topical status, Mandarin protases can be considered a topic.

Secondly, the protasis can often be marked with a topical marker *de-hua* ‘of-case.’ We can take any *ruguo* conditional and add the topical marker to the end of the protasis. For instance, (1) is repeated here with the addition of *de-hua*.

(25) *ruguo tianqi hao de-hua women jiu qu luying*
RUGUO weather good of-case we **JIU** go camping

‘If the weather is fine, we will go camping.’

Thirdly, the *ruguo* construction can be used non-conditionally to introduce a topic in the absence of the topical marker *de-hua*. In this topical *ruguo* construction, the non-assertive meaning is not salient. In fact, the speaker is quite certain about the propositions involved. The assertive *ruguo* construction is often used to express a comment or an opinion. The *ruguo* clause presents a topic and the main clause presents a comment. Therefore, *ruguo* should be translated as ‘in the case of’ or ‘as far as...is concerned’ instead of ‘if’. Consider the following example:

(26) (A tells B that his family are farmers and he used to live in the country. B says that A must have been corrupted since A now lives and works in the city. A says the following to emphasize that he is still a morally good person)

A: *xianxiaren duoduoshashaoshao*
 Country people more or less

bijiao tu
 more naïve

‘People living in the country are somewhat more naïve.’

ruguo shi chengshi de-hua
RUGUO is honesty of-case

dou hen nage la
 all very quite A_Par

‘As far as honesty goes, (people living in the country) are all quite honest.’

<i>zhongtuen</i>	<i>de</i>	<i>haizi</i>	<i>bu</i>	<i>hui</i>
farm	Rel	children	not	will
<i>bian</i>	<i>huai</i>			
become	bad			

‘Children of farmers will not become bad people.’ (Putonghua A05_06)

In this example, A in this example stresses that his family background makes him an honest person and prevents him from turning into a bad person. The *ruguo* clause brings up the topic of honesty, and the main clause fleshes out A’s belief that all country people are naturally more honest than city people and that, therefore, he will never become a bad person. The proposition of the *ruguo* construction is asserted to be true by the speaker. This assertion is used to argue against a previously established claim, i.e., city life corrupts a person. It is worth noting that there is a clause-final phrase *de-hua* ‘of case’ in the *ruguo* clause. This phrase is a topic marker. This phrase also suggests that the *ruguo* construction introduces a topic. The topical marker *de-hua* in this use is obligatory.

The most severe criticism against Haiman’s work is the assumption that conditional protases are given regardless of the clause order. Sweetser (1996) proposes that P-clauses are only given in the contexts in which the conditionals are situated. This is to say that a conditional construction is given in its conditional context, but is not necessarily given in a larger discourse.

Akatsuka (1992) argues that in Japanese the *nara*-marked conditionals should be distinguished from other conditionals in that the *nara* can be replaced by a contrastive topic marker whereas other conditional markers such as *tara* cannot and, therefore, Japanese conditionals can be contrastive topics. However, contrastive topics can be new

information and, based on this fact, she opposes Haiman's claim that conditionals are always given topics.

Other linguists seek the answer to the question of conditionals as given topics in corpus data. Ford and Thompson (1986) conduct a study on a corpus of spoken and written English to compare the ratio of preposed protasis to postposed protasis. Their findings indicate that the protasis-apodosis order occurs three times more often than the apodosis-protasis order. Ford (1993) in her study of adverbial clauses shows that 26 out of 44 conditionals in the corpus are preposed and 18 are postposed. Ford also observes that the sentence-initial protasis plays a pivotal role in communicative organization. These *if*-clauses serve as a grounding for the following discourse and provide options to explore and organize the utterance in relation to the preceding context. Schiffrin's (1992) work investigates the function and position of the *if*-clause in terms of constructing and maintaining topics. She also discusses the ways in which givenness and topicality can be related in conditional constructions. She agrees with Ford that sentence-initial protases serve as pivotal points in discourse by relating the speaker topic to the text topic. Thus, *if*-clauses can be regarded as given in relation to the preceding text. In question-answers sequences, the givenness arises from the contrasting choices suggested by the questions. In contrast to Ford's finding that postposed *if*-clauses do have to play particular roles in discourse, Schiffrin proposes that postposed *if*-clauses can also serve as topics and some of these topics are given. Therefore, her research confirms Haiman's assumption that *if*-clauses are topics irrespective of their position. In addition, she indicates that initial protases are given based on the principle that old information comes before new information.

Dancygier (1998) also assumes that the notion of topicality applies to all *if*-clauses regardless of their position in the construction. However, she argues that in the discussion of conditional protases, “shared accessibility” instead of “shared knowledge” (i.e. given or old information) is a more appropriate term for the status of the protases. This means that the content of the protasis is accessible to the speaker and the hearer only in relation to the apodosis.

I have already shown that Chinese *ruguo*-clauses are topical above; the question now is whether *ruguo*-clauses always present given information. The data from my corpora indicate that the topics in the *ruguo*-clause can be old or new. The following is an example in which the protasis introduces a new topic, as shown in (27).

(27) (A and B are college students. A tells B that there is a singer coming to A’s school to give a talk on astrology. A and B discuss the educational background of the singer.)

B: *ruguo* *shi* *wo*,
 RUGUO is I

 wo *cai* *bu* *qu* *ting* *ta* *yanjiang*
 I CAI not go listen to her talk

‘If it was the case that I was (in your school and the singer came to give a talk), I would not go to her talk.’
 ‘(lit. If it was me, I would not go to listen to her talk.)’

A: *jiang* *xinzu*
 talk about horoscope

 ‘talking about horoscopes...’

B: *mei* *sheme* *neihan*
 No what content

‘The talk lacks real/meaningful contents’
 (National Taiwan University Corpus of Spoken Chinese College. Txt)

In this example, before the *ruguo* construction, the conversational participants only talk about the background of the singer. The *ruguo* sentence operates to open a new discourse topic that the singer's talk is not worth attending, which is followed by the speaker's criticism that a talk on horoscopes is not meaningful. The *ruguo* conditional expresses speaker B's opinion on an astrology talk by placing the speaker in an imaginary situation. Her expected behavior (i.e., not going) reflects her attitude toward this kind of talk. The construction can be interpreted as a counterfactual contextually since there is no explicit form that indicates the negative epistemic stance. The counterfactual situation is based on the real situation and thus the conditional is given in this limited context. However, viewed within the larger discourse, the *ruguo* clause is not a given topic; instead, it introduces a new discourse topic.

This section has sought to demonstrate that *ruguo*-clauses are topical and not always given in the larger discourse. It has also been pointed out that the *ruguo* construction can be used non-conditionally to present a topic. One might wonder about the relation between the topical *ruguo* construction and the conditional *ruguo* construction. Should the *ruguo* in these two constructions be treated as two separate lexical items or one lexeme with two senses? In response to this question, I propose that the *ruguo* construction can be considered a radial category, a notion that goes back to the work of Lakoff (1987). In this category of *ruguo* construction, members all share the property of "topicality." The central member, i.e., the conditional *ruguo*, possesses the "non-assertiveness" feature in addition to the shared property. The peripheral member, i.e., the non-conditional *ruguo*, has only the "topicality" feature. In this way, the two

types of *ruguo* constructions are related in terms of topicality and are yet distinct in their assertive value.

2.4 Conditionals as figure-ground alignment

In Gestalt psychology, the notion "figure-ground phenomenon" refers to the characteristic organization of perception into a figure that 'stands out' against an undifferentiated background. Langacker defines ground as "a locus of conception and viewing platform." In the language domain, things placed in the ground may include "the speech event, its participants, and its immediate circumstances" (Langacker n.d.a:12). For him, figure designates the foregrounded entity in the trajector/landmark—sometimes termed figure/ground—profile of a grammatical relation. Simply put, in the field of mental perception, some elements that are selected as salient are placed at the level of figure, whereas others that provide the reference points serve as the ground⁴.

Talmy (1978) was the first to point out that conditional constructions can be described in terms of the figure-ground distinction. He observed that, in natural languages, two related events are generally presented by describing the reference point first and then second the event that needs to be referenced. In a conditional construction, the protasis serves as the reference point and the apodosis functions as the referenced event. More precisely, the protasis provides ground whereas the apodosis performs the function of figure. The central idea of the figure-ground analysis is that against the background of the protasis, the apodosis picks up some elements that the speaker

⁴ In this discussion of Mandarin conditional constructions, ground is sometimes termed "background" and figure is termed "foreground."

considers to be salient information. Treating conditionals with the figure-ground distinction is a well-established approach in the tradition of cognitive linguistics (Croft 1994). Croft's (2001) recent work on radical construction grammar also considers this opposition a property of English conditionals.

Other studies on English conditionals also confirm that the protasis provides a background for a prediction represented in the apodosis (Dancygier 1993, 1998; Dancygier and Sweetser 1996, 1997, 2005; Fauconnier 1985, 1994; Sweetser 1990). According to Fauconnier (1994 [1985]), the *if*-clause is employed as a vehicle to build or evoke a "mental space." Within the space, the speaker makes a prediction about an alternative state or event in the apodosis. The apodosis is interpreted within the ground set up by the protasis, as noted by Dancygier (1993). A conditional marker such as *ruguo* not only builds a space that contains the situation described in the protasis but may also set up an **alternative space** where the condition of the protasis is not met. In addition to the alternative space, a **base space** may also be under consideration, and can be understood as the space that contains the facts or state of affairs that are necessary for the interpretation of the conditional in question. In other words, the protasis sets up a conditional or hypothetical space and the apodosis chooses the elements that are worth the speaker's attention within the space.

The protasis sets up a space by specifying a particular part of the world, which means that the antecedent clause delimits a space. The conditional linker is a space builder, and the space built is a search domain or a point of reference. The things that need to be referenced are located in the space, which are expressed in the consequent clause. Consider the following example:

(28)If you wish to talk to him, you may come tomorrow.
(from Tabakowska 1997)

The protasis marker builds a mental space, restricting the situation to the one described in the protasis. This limited space is specified as ‘you wish to talk to him.’ The apodosis instructs the addressee to pick up the permission ‘you may come tomorrow’ in the space. In the ground where the addressee wishes to talk to the referred person, the permission is the salient information that the speaker expects the addressee to locate.

The figure-ground distinction has also been used in the study of Polish conditional constructions (Tabakowska 1997). She observes that Polish conditionals are marked by linking devices in both the antecedent clause and the consequent clause, similar to Mandarin unambiguous conditionals. In Polish, the antecedent clause linker varies but the consequent clause linker has to be *to*. *To* originated as a deictic marker in locative constructions, and she proposes that in these locative constructions, the search domain or ground is defined by the context and the element selected as the figure is indicated by the deictic marker. The lexical item *to* is thus considered a figure marker. This word obtains the function of indicating figure in the conditional construction through metaphorical extension. Similarly, in my discussion of the *ruguo...jiu* conditional construction, *jiu* is also analyzed as a figure marker. However, *jiu* does not have a deictic origin. Instead, it has an origin in a verb that means ‘move towards (some location)’ from archaic Chinese (Liu 1997) and also has to do with locating some entity in the perceptual field. Although the historical details concerning this marker are outside the scope of this chapter, it is interesting to note that this spatial property might have been a trigger for *jiu* to function as a figure marker with the figure marker in the physical space becoming a marker in mental space. At any rate, Tabakowska’s study provides a good discussion of paired

linking and figure-ground alignment in Polish conditional constructions that can serve as comparison and contrast to Mandarin conditional constructions.

2.5 Mental Spaces in the *ruguo* conditional

The current research assumes *ruguo* to be a space builder that supplies a ground for the interpretation of the content of the apodosis. In constructing the meaning of a *ruguo...jiu* or *ruguo...cai* construction, *ruguo* sets up a space where the antecedent proposition holds. This space serves as a basis for the building of the consequent space. The meaning of the whole construction is only complete when the space set-up is finished. This section will explain the structure and content of the space set up by *ruguo* in terms of its internal organization and will also discuss the figure-ground distinction in relation to the mental space construction. Additionally, this section aims to show that the *ruguo*-marked protasis space is a background and that the apodosis space is a foreground

It should be emphasized that the protasis markers such as *ruguo*, *if*, and *si* build ‘spaces’ not semantic ‘frames.’ In studying the meaning of the conditional marker *si* in Spanish, Schwenter (1996) claims that the protasis marker sets up a “frame” for the apodosis in all types of conditionals but this analysis could benefit from being more precise with the terminology. A frame is a cognitive model that structures a situation in context. For instance, a sentence *I bought a book with \$20* evokes a cognitive frame ‘Commercial Transaction’. A mental space, on the other hand, is a partially structured understanding of the situations in the world. Schwenter finds that, in a speech act conditional, the protasis builds a frame for the speech act and, in an epistemic conditional, the antecedent clause creates a frame for the conclusion described in the

consequent clause. Although it is true that, in epistemic conditional, protasis marker builds an epistemic frame, in other types of conditionals, the protasis markers only help to set up the background spaces.

From a cognitive perspective, what is termed a “frame” can be more accurately understood as “ground” or “space.” The background spaces are not equivalent to the frames and are rather structured by them. This is viewed as a type of schematic mapping (Fauconnier 1997). Fauconnier cited the frame for commercial transaction from Fillmore (1982, 1985) to illustrate how this mapping works. This frame has frame elements such as a buyer, seller, merchandise, currency and price, and a set of inferences about ownership, exchange, and so on. In the mental space created by the sentence *Jack buys gold from Jill*, the elements such as Jack, gold and Jill are mapped onto the frame elements such as buyer, merchandise and seller in the frame. This chapter prefers to make use of these understandings of ‘frame’ and ‘space’.

The point that a mental space is not equivalent to a frame can also be supported by the fact that the numbers of frames and spaces involved in a construction are not the same. In addition, in a cognitive structure activated by a construction, some spaces remain in the background while others that are overtly expressed by the construction occupy the foreground. In contrast, frames are always structures that only provide background information. To illustrate the distinction between these two conceptual structures, consider an example provided by Fauconnier (1997):

(29) In France, Watergate wouldn't have done Nixon any harm.

To interpret this example, one has to know two frames: “Western democracy frame” and the “break-in frame.” The first frame has the roles in an idealized democracy

model such as the president, the political party, public reaction, and so on. The second frame includes the roles such as break in and the instigator. Sentence (29) also builds up three spaces. The initial space contains information about the American political system (structured by the western Democracy frame), information about Watergate itself (structured by the break-in frame), as well as the outcome of the break-in, with this final space serving as the background since it is not expressed in the construction. The phrase *in France* brings in two spaces. The first space contains information about the French political system (structured by the Western Democracy frame). The second space is a counterfactual one that contains a situation which is contrary to current knowledge. The roles in the above three spaces are mapped to one another. The counterfactual space is a blend of the initial space (American political system, Watergate and result) and the space containing French political system. Among these three spaces, only the counterfactual space is foregrounded because it is explicitly expressed in the construction. Again, it is important to point out that the number of spaces and frames are not equal and that these two concepts cannot be confused as equivalent even as they may interact with each other.

The following example shows how *ruguo* builds spaces in a conditional construction and can shed light on the workings of spaces and frame and the figure-ground alignment. Consider the (27) again:

(27) (A and B are college students. A tells B that there is a singer coming to A's school to give a talk on astrology. A and B discuss the educational background of the singer.)

B:	<i>ruguo</i>	<i>shi</i>	<i>wo</i> ,				
	RUGUO	is	I				
	<i>wo</i>	<i>cai</i>	<i>bu</i>	<i>qu</i>	<i>ting</i>	<i>ta</i>	<i>yanjiang</i>
	I	CAI	not	go	listen to	her	talk

‘If it was the case that I was in your school and the singer came to give a talk, I would not go to her talk.’
 ‘(lit. If it was me, I would not go to listen to her talk.)’

A: *jiang xinzuo*
 talk about horoscope

‘talking about horoscopes...’

B: *mei sheme neihan*
 No what content

‘The talk lacks real/meaningful contents’

(National Taiwan University Corpus of Spoken Chinese College. Txt)

The space set-up of this example can be illustrated as follows:

Speech act space

Base/Present Space

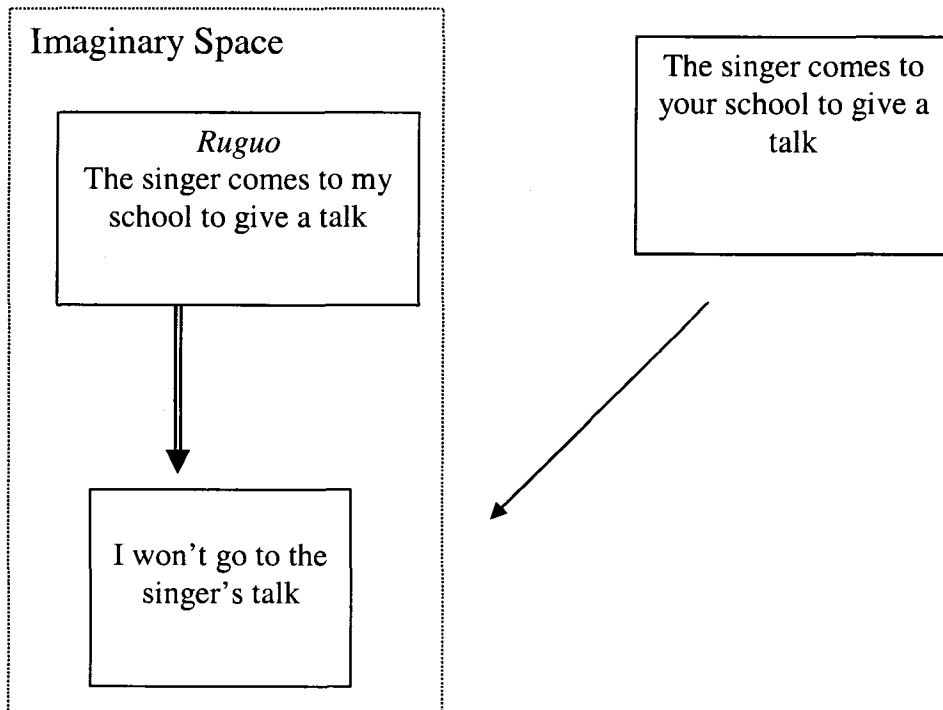


Figure 2.1 The space representation of a conditional

To interpret the *ruguo* sentence in (8) as a counterfactual construction, one has to build up the factual space (which is also the base space) and an alternative space in which

B is in A's school and the singer comes to give a talk. These pieces of imaginary information are represented in the antecedent clause. The roles such as the singer, the school, and the talk etc., of the base space are mapped onto those of the imaginary/unreal space. This imaginary space along with the base space are under the speaker's consideration. In terms of the figure-ground distinction, *ruguo* sets up a portion of background knowledge, i.e., the imaginary state of affairs, for the interpretation of the construction. Note that this sentence is a speech act conditional. The speaker intends to show her attitude toward the talk given by the singer. By imagining herself being in the addressee's situation, she makes her claim of not going seem to be more relevant to the topic in discussion, expressed by her following comment on the talk on horoscope. In terms of figure-ground alignment, the *ruguo* clause sets up the ground for the prediction of the following main clause. The figure/foreground is performed by the consequent clause. More specifically, the protasis sets up a background space where B is in a position to decide if she is going to the talk and the consequent clause locates the figure in the background space, which is her intention of not going.

This example also illustrates the interaction between the space-structuring frames and the building of background space. There are two frames involved with the *ruguo* sentence in (8). The first is ACTIVITY frame which takes the semantic roles agent (speaker B and the singer), Place (the school), and Activity (listening to the talk and giving the talk), among others. This frame structures the events of B's going to the talk and the singer's talk. Another frame is ASSESSING, which has roles assessor (speaker B), phenomenon (the talk), and feature (content of the talk). The ACTIVITY frame

structures both the base and imaginary spaces while the ASSESSING frame structures the figured space embedded in the imaginary space.

2.6 Conclusion

This chapter first discussed the semantic contribution of *ruguo* in *ruguo* conditionals and proposed that *ruguo* indicates the non-assertive nature of the propositions in the conditional construction. This proposal can be supported by the fact that *ruguo* constructions are unambiguously conditional in contrast to other ambiguous constructions that derive their conditional interpretations from context. The *ruguo* construction in relation to topicality and givenness was also investigated and it is found that while all *ruguo* constructions are topical, in discourse, they are not always given or receive shared knowledge. The *ruguo* construction was only analyzed in terms of the figure-ground opposition and mental spaces. The claim here is that the *ruguo*-clause sets up the ground or space for the interpretation of the main clause proposition and that the apodosis identifies the figure within the space. This analysis is consistent with previous analyses of English conditionals (Croft 2001; Dancygier 1993, 1998; Dancygier and Sweetser 1996, 1997, 2005) and Polish conditionals (Dancygier 1992; Tabakowska 1997).

Chapter 3 *Jiu* and *Cai* in Conditionals

3.1 Introduction

In the previous two chapters, it has been mentioned that *jiu* and *cai* both function to indicate connections between protases and apodoses. This probes further into this topic. This discussion includes the unambiguous *ruguo...jiu* and *ruguo...cai* conditionals as well as ambiguous sentences with conditional interpretations marked with only *jiu* or *cai* with the hope of presenting a complete picture of the roles of *jiu* and *cai* in conditionals. This will again be analyzed in the framework of mental spaces and construction grammar and rely on a cognitively motivated figure-ground distinction. In addition, conditional use of *jiu* and *cai* will be related to their non-conditional uses in order to explain certain implications of some *jiu*-conditionals and *cai*-conditionals, such as expectation and scale.

It is important to review some of the important studies on the Mandarin linkers *jiu* and *cai*. Many studies have analyzed these linking devices in terms of focus-background structure (Biq 1984, 1988; Hole 2004). These scholars claim that *jiu* and *cai* in the main clause interact with a focused constituent of a subordinate clause, which can be as large as the whole subordinate clause or as small as a word in the clause. (This approach will be discussed more in section 3.2.3.) Another type of study of these linkers has focused on the description of their distributions and meanings in different constructions in order to assign them a category (Chao 1968; Li & Thompson 1940 [1989]). Chao (1968) observes that conditionals are marked by adverbs such as *jiu* and *cai* as well as “if-like” words

such as *ruguo*, *jiaru* (lit ‘false-like’). Li and Thompson (1940 [1989]) categorize *jiu* and *cai* as “no-manner adverbs” as opposed to adverbs that signal in which way the notion of the verb phrase is carried out. They note that *jiu* is a common sentence-linking element meaning ‘then,’ and that *cai* has two meanings ‘only-then’ and ‘just now.’ Their discussion, while having a high descriptive value is not integrated with any particular theory. Still another type of approach uses the notion of scale to analyze these two linkers (Lai 1995, 1996, 1999). According to Lai, a conditional involves an informativeness scale on which all alternatives related to the protasis are ranked. *Cai* indicates that the asserted conditional ranks higher than other expected alternatives on the informativeness scale, whereas *jiu* shows that the asserted condition ranks lower than other expected alternatives. (Her work will be discussed further in section 4.1.)

This current discussion uses mental spaces to analyze *jiu* and *cai* in conditionals. Although the focus-background distinction is already widely accepted and is able to explain these linkers in a variety context, there is still more to be investigated about these linkers’ role in conditionals. For example, mental spaces—as opposed to the scale approach—can best illustrate the interaction between the antecedent linker *ruguo* and the consequent linker *jiu* and *cai*. And while the scale approach is more powerful for sentences with quantifying words, it is not so enlightening for cases without quantity. In view of this problem, the current research considers the phenomenon of scalar interpretation to be one arising from the inferential context.

The analysis of *jiu* and *cai* in this chapter is a cognitive one that integrates Mental Space Theory, construction grammar, and focus-ground alignment. However, this chapter also reviews several approaches taken by formal linguists such as sufficiency of

conditions (as in section 3.2.2) and focus-background-quantification (as in section 3.3). The purpose of the review is to show that it is inappropriate to analyze Mandarin conditionals with logical notions and formulas. For example, section 3.2.2 demonstrates that *jiu*-conditionals and *cai*-conditionals cannot be considered as instances of material conditionals and therefore not markers of sufficient condition and necessary condition. In section 3.3, it is shown that the logic rule provided by Biq (1988) does not really match the meaning of the linker and is potentially contradictory.

In section 3.2, this discussion investigates the semantic contributions of *jiu* and *cai* in conditionals based on a mental space analysis and including the topics of sufficiency-ascription and bi-conditionality. In section 3.3, a focus-background analysis that has been used by previous scholars is also reviewed in this section (Biq 1984, 1988; Hole 2004). Section 3.4, addresses the question of scalar implicature in relation to the meaning of uniqueness in the *cai*-conditional as opposed to the *jiu*-conditional and, finally, section 3.5 concludes this chapter.

3.2 The general meaning of *jiu* and *cai*

3.2.1 *Jiu* and *Cai* in mental spaces and figure-ground alignment

The approach used here is able to exhibit what alternatives are considered and rejected in understanding a conditional. It is also capable of representing the roles of *jiu* and *cai* in pointing to particular alternatives. The theory of mental spaces can provide figures that represent the contents of conditions expressed and implied in conditionals, as well as the association of linkers with evoked alternatives and profiled alternatives.

In the present study, an alternative situation is represented in a space. Unlike the quantificational analysis that posits an unlimited set of alternatives, the mental space approach proposes that a *ruguo* conditional only sets up relevant spaces, normally the P space and the \sim P space. These two spaces remain in the background when the protasis is uttered. The apodosis creates the effect space caused by the protasis as the foreground. *Jiu* and *cai* both points to the effect space caused by the *ruguo* clause, but differ in the suggestion of existence of \sim P and \sim Q spaces. More precisely, the difference can be phrased as follows:

(a) In a *ruguo...jiu* construction, *jiu* indicates that there is a causal relationship between the protasis space and the apodosis space. Due to the alternativity structure of the content conditional, the \sim P space and the \sim Q space are evoked. Since the protasis in a *jiu* construction is not a unique condition, other conditions may also satisfy the apodosis. The *ruguo* space and the *jiu* space are built by the construction and the \sim P space and the \sim Q space are implied.

(b) In the *ruguo...cai* construction, *cai* indicates that the *ruguo* space proposition is a **unique** condition for the *cai* space proposition. In addition, *cai* means that the \sim P space and the \sim Q space also exist in the speaker's mind. This is because the *ruguo...cai* construction means 'only if...' and *only if P, Q equals not P, not Q*. These differences between the space set-ups of the *ruguo...jiu* construction and the *ruguo...cai* construction can be illustrated by Figure 3.1 and Figure 3.2.

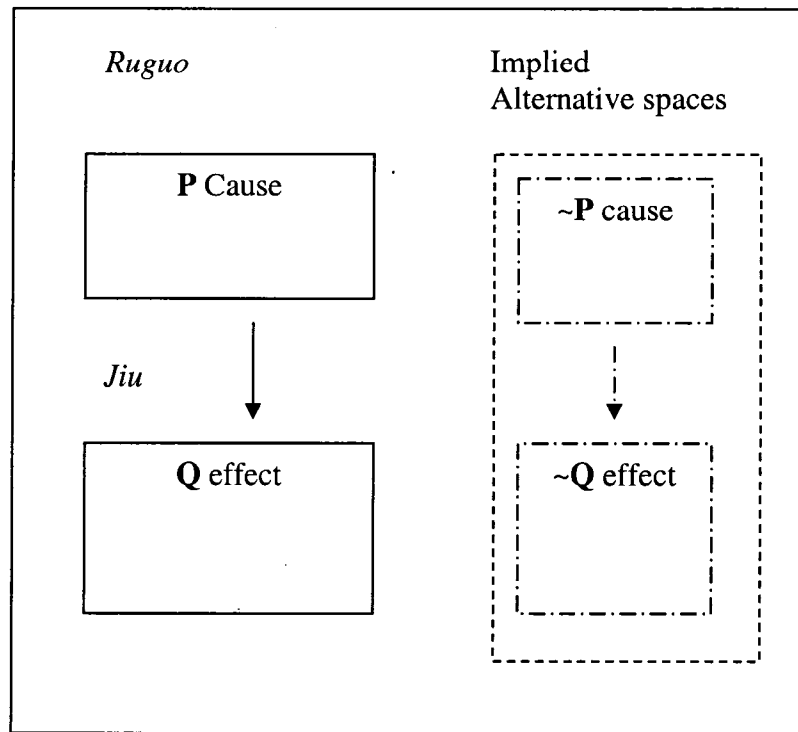


Figure 3.1 Space representation of a *ruguo...jiu* construction

In Figure 3.1⁵, P represents the protasis and Q represents the apodosis. ~P and ~Q are the alternatives. As shown in the figure, only the *ruguo*-space (P), *jiu*-space (Q) and their alternatives (~P and ~Q) exist in the speaker's mind.

The space set-up of the *ruguo...cai* construction is illustrated in Figure 3.2:

⁵ The dashed boxes are the implied spaces. The dashed arrows indicate that there is an implied causal relation between the ~P and ~Q spaces, and the regular arrow marks an overtly marked causal relationship between the *ruguo* space and the *jiu* space.

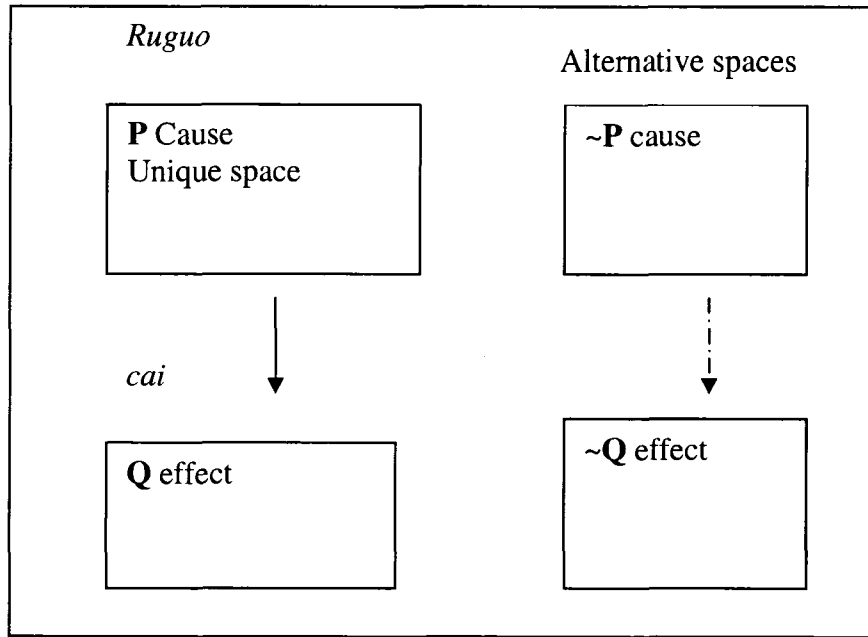


Figure 3.2 Space representation of a *ruguo...cai* construction

Due to the meaning of *cai*, the content of the P space is an unique condition for the Q space. Saying that P is unique condition to Q is equivalent to saying that $\sim P$ implies not Q. Therefore, the alternative spaces here are not implied, but rather a part of the construction's meaning.

So far, we have analyzed the functions of *jiu* and *cai* in building mental spaces by using abstract representations to emphasize the differences. From here, the similarity of the *ruguo...jiu* construction and the *ruguo...cai* construction will be discussed in terms of the figure-ground distinction.

The two constructions are similar in that they both set up the P space in the background. This space serves as the search domain or reference point. The apodosis indicates foreground, which is the important information located from the search domain. Also, alternative spaces are set up for both constructions. In constructing the conditional constructions, *jiu* and *cai* play the same role in choosing Q space as the foregrounded

space instead of any of the other three spaces (i.e., P, ~P, and ~Q). The following examples demonstrate the similarity and difference of the two constructions:

(1) (J is talking to K about his career plans. J comes from the South but he is currently working in the North. K asks J if he misses home and wants to find a job in the South. J says that he is waiting for a chance such as the Southern Science Park that is being planned by the government right now).

(1)K: *ni* *shi* *shuo*,
you are saying

ruguo nanbu kexue yuanquchengli,
if South science park set up

ni *jiu* *yao* *qu* *nabien* *le*
you **JIU** will go there A_Par

‘You are saying that if the Southern Science Park is set up, you will go there.’
(Putonghua A16-17)

In this example, K assumes that once the Southern Science Park is set up, J will find a job in the park and move to the South. The *ruguo* clause builds two spaces: one where the park is set up and the other where the park is not set up. These two spaces serve as the background for the speaker to make her main point. The important information here is that J will move back to the South and work there. This is expressed in the *jiu* clause and is represented in a foregrounded space. In the meantime, *jiu* indicates that there is a causal relation between the protasis and the apodosis. Other alternatives may also cause J to move to the South (e.g., J gets sick, or quits). These other alternatives

are not represented in spaces in the speaker's mind as they are not relevant to the current construction in the discourse. The space set-up of (1) is illustrated as follows⁶:

⁶ A **base space** contains the facts or state of affairs that are necessary for the interpretation of a conditional in question. In the figure below, the stated relations and the overtly mentioned spaces are represented by regular arrows and boxes. The implied spaces and relations are represented by dashed boxes and arrows. The extension relation (e.g., the *ruguo* space and the alternative space are extended from the base space) is represented by the regular arrows.

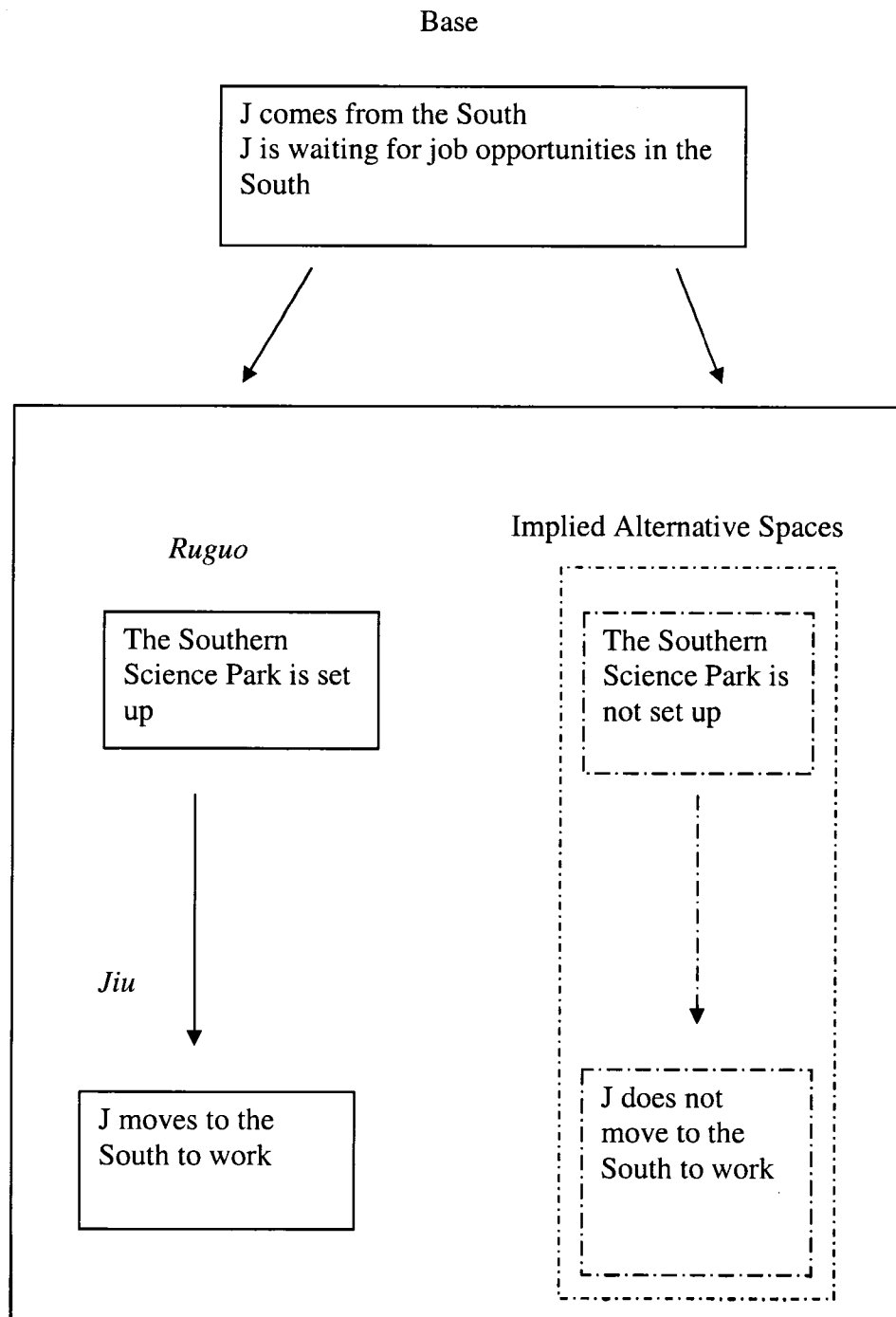


Figure 3.3: The space representation of a *ruguo...jiu* sentence

In Figure 3.3, the base space encompasses the known facts that J comes from the South and he is waiting for job opportunities in the South. These facts are the basis for

Speaker K to make the hypothesis expressed by the *ruguo...jiu* sentence. In this figure, the alternative spaces are only implied. Compared with the *ruguo...jiu* construction, the *ruguo...cai* construction requires the alternative space to be present in the speaker's mind. A revised example and its space representation are presented as follows:

(2) (J is talking to K about his career plans. J comes from the South but he is currently working in the North. K asks J if he misses home and wants to find a job in the South. J says that he is waiting for a chance such as the Southern Science Park that is being planned by the government right now)

K: *ni* *shi* *shuo*,
 You are saying

ruguo nanbu kexue yuanqu *chengli*,
 if South sciencepark set up

ni cai *yao qu nabien le*
 you **CAI** will go there A_Par

'You are saying that only if the Southern Science Park is set up, you will go there.'
(revised from Putonghua A16-17)

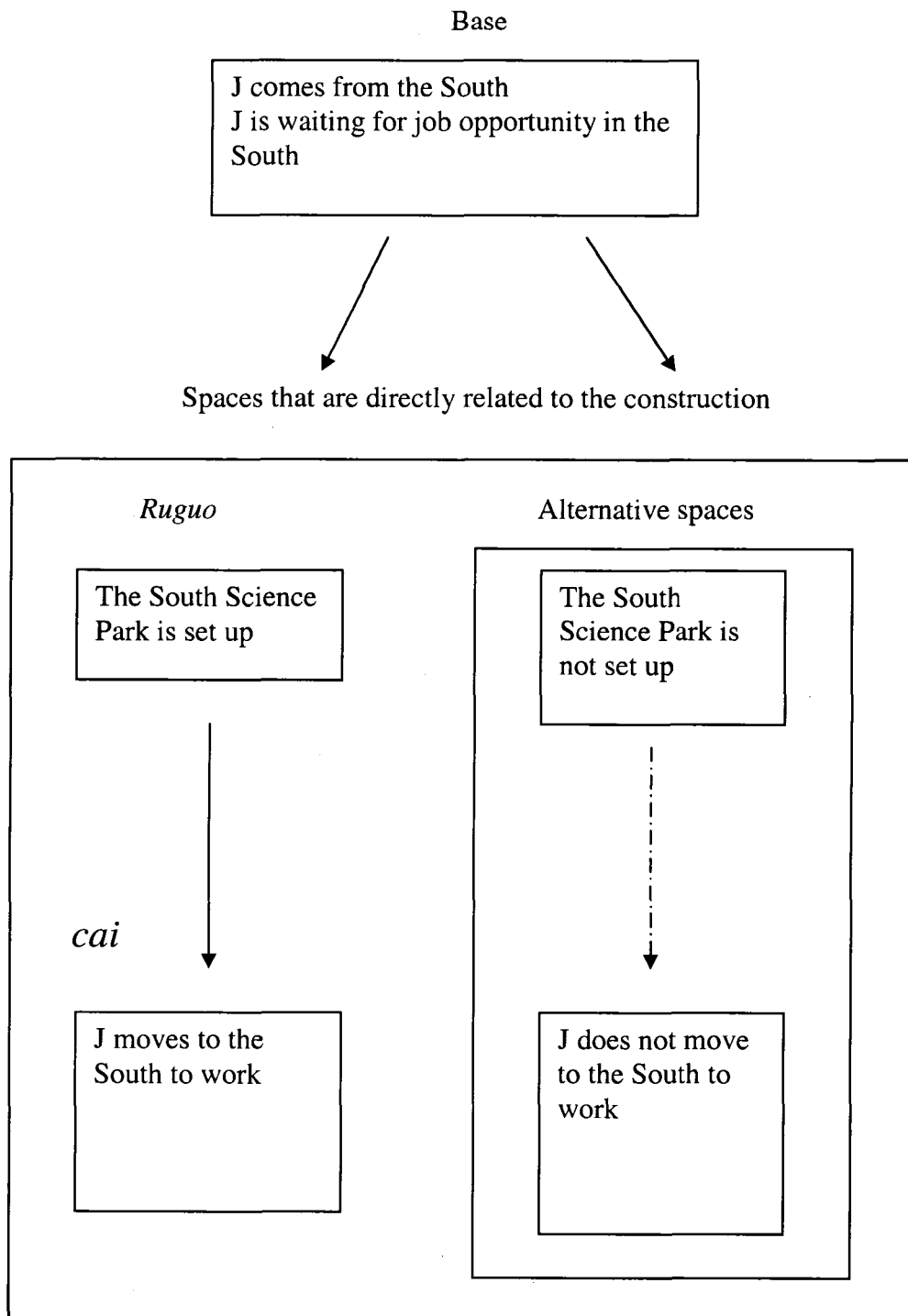


Figure 3.4 The space representation of a *ruguo...cai* sentence

In saying (2), speaker K assumes that establishment of the Southern Science Park is the unique condition for J's moving back to the South. This unique interpretation arises

from the meaning of *cai*. In other words, *cai* not only points to the effect of the situation described in the *ruguo* space, but it also marks the *ruguo* space a unique space. In indicating figure-ground alignment, *cai* in a conditional construction chooses the apodosis space as the foregrounded space.

In seeing how *jiu* and *cai* function to mark the figure space, we see that the mental space representations are useful for representing spaces/alternatives under consideration.

3.2.2 Sufficiency or necessity of conditions

This section investigates the claim that conditional markers indicate the sufficiency of the protasis. The present study does not use the notion of “sufficient condition” as it is understood in a logic tradition. Instead, the protasis is considered “sufficient” in the sense that the protasis is an explicitly expressed context within which the apodosis holds (following Sweetser (1990)). The purpose of the discussion on *jiu*-conditionals and *cai*-conditionals in logic terms is to demonstrate that these two conditionals should not be regarded as instances of material conditional.

Several studies have argued that the protasis marker such as *if* in English and *si* in Spanish indicates that P is a sufficient condition for Q (van der Auwera 1985, 1997a; Sweetser 1990; Schwenter 1999). In order to understand the role of the marker in signaling the conditional connection, Schwenter (1999) looks at what objections to usages of conditionals in discourse actually refer to. He provides the following content conditional (3), epistemic conditional (4) and speech act conditional (5) as examples.

- (3) A: *Si llueve, van a cancelar el partido.*
'If it rains, they're going to cancel the game.'

- B: *No es verdad.*
'That's not true.'
- (4) A: *Si su coche está allí, está en casa.*
'If his car's there, then he's home.'
B: *No es verdad.*
'That's not true.'
- (5) A: *Si tienes hambre, hay galletas en la cocina*
'If you're hungry, there are cookies in the kitchen.'
B: *No es verdad.*
'That's not true.'

He observes that, in (3) and (4), the speakers object to the relationship obtaining between the antecedent clause and the consequent clause. The objection is targeted toward the 'purported sufficiency' of P for Q. In (3), for example, B objects to the causal link between raining and cancellation of the game, instead of the truth of either raining or cancellation. In (4), B is opposed to the validity of A's conclusion based on the premise expressed in the antecedent clause. In both cases, the objection applies to the relationship holding between the two conditional clauses and not of the propositions in isolation. However, he points out that, in (5), the objection is not applied to the relationship between P and Q. Instead, B objects to the proposition in the consequent clause, or, more specifically, B tries to invalidate the claim that there are cookies in the kitchen. In explaining these examples, he emphasizes that in (3) and (4) the objection is to P as sufficient for Q, instead of to the meaning of the conditional marker. This is to say that speaker B does not object to the use of *si*, but to the claim that P is sufficient for Q. Furthermore he explains that the connection in the epistemic conditional in (5) cannot be objected to because the relationship in the speech act conditional is constructed at a higher discourse pragmatic level. As a result, the relationship is not as direct as that of

content and epistemic conditionals. However, he argues that the protasis in (5) creates a sufficient context for the speech act in the apodosis so that the protasis is sufficiently relevant to the speech act performed in the apodosis (see also Dancygier 1997). He concludes that ascribing sufficiency is one of the meanings of the protasis marker for all types of conditionals.

In Mandarin, the function of indicating sufficiency is performed by the apodosis marker *jiu* or *cai*, instead of the protasis marker *ruguo*. Again, here the term “sufficient” indicates that the protasis is an explicitly expressed context within which the apodosis is claimed to be true, which differs from the notion of sufficient conditions in logic where conditionals are analyzed as realizations of the logical relation of material implication. Several previous studies on *jiu* and *cai* take the logic definition and claim that *jiu* signals sufficient conditions and *cai* marks necessary conditions (Alleton 1972, Biq 1988; Eifring 1995; Lai 1995, 1996, 1999; Paris 1981, 1983, 1985). Their claim is a consequence of translational fact. *Jiu*-marked conditionals are often translated as *if*-conditionals into English.; conditionals marked with *cai* are usually translated as *only-if* sentences in English. *If*-conditionals have a long tradition of being treated as realizations of material implication and, in this view, a *jiu*-marked sentence is considered to be true except in the case of a true protasis and false apodosis. The following example belongs to this context:

(6) *ruguo mingtian tianqi hao,*
 if tomorrow weather good

wo jiu qu luying
 I JIU go ramping

‘If the weather is fine tomorrow, I will go camping.’

In cases of good weather, the speaker of (6) will go camping. Although it is not very likely that the speaker will go camping in cases of bad weather, this cannot be concluded from the sentence. Thus, the sentence might also be considered as true in this situation. (6) is certainly considered to be true when the weather is not good tomorrow and the speaker does not go camping. This sentence is only regarded as a false statement when the weather is good tomorrow (true protasis) and the speaker does not go camping (false apodosis). Therefore, the propositions of (6) follow the conditional-truth behavior of material implication.

Since *cai*-marked conditionals are often translated as *only-if*-conditionals into English, many studies on the semantics of *cai* take for granted that indicating necessary conditions is one of *cai*'s functions. In the logic tradition, necessary conditions are defined as the propositions at the pointed end of the arrow representing the material conditionals relation. This expression is illustrated as follows:

- (7) a. $P \rightarrow Q$
 b. $Q \rightarrow P$

The expression in (7a) is used to represent *if*-conditionals and (7b) is taken to be a representation of *only-if*-conditionals. Traditionally, *if*-conditionals are considered expressions of material implication with subordinate *P*'s whereas *only-if*-conditionals are taken to represent material implications with subordinate *Q*'s. (7a) and (7b) are equivalent in that they have identical truth values in material conditional and, based on this logical notion, the *if*-conditional and the *only-if*-conditional should be equivalent. In the following, the Mandarin examples are translated from a classic example in English, as used in von Stechow (1994).

(8) a. *ruguo zhe dongwu shi burulei*
 if this animal is mammal

ta jiu you jizhui
 it JIU has spine

‘If this animal is a mammal, it has a spine.’

b. *ruguo zhe dongwu you jizhui,*
 if this animal has spine

ta cai shi burulei
 it CAI is mammal

‘only if this animal has a spine is it a mammal.’

Using the logic approach, *jiu*-marked conditionals and *cai*-marked conditionals are also boiled down to the expression of material interpretation since they are considered Mandarin equivalents of *if*-conditionals and *only-if*-conditionals. It follows, then, that *jiu* conditionals and *cai* conditionals are considered equivalent too.

But is (8b) really an equivalent of (8a)? A closer look at both examples reveals that they do not mean exactly the same thing. (8b) can only be an equivalent of (8a) when there is a modal of possibility present in the *ruguo* clause. In other words, the real equivalent to (8a) should be (8c), which is shown as follows.

(8c) *ruguo zhe dongwu you jizhui*
 if this animal has spine

ta cai youkeneng shi burulei
 it CAI has-possibility is mammal

‘Only if this animal has spine, is it possible that it is a mammal.’

By comparing (8a) and (8c), we can get a clear idea that a mammal certainly has a spine but an animal with a spine is not necessarily a mammal. Thus, (8b) is too strong to be the paraphrase of (8a). However, (8c) captures the asymmetric relation between the

two conditional propositions in (6a). Hole (2004) uses the classic English example to prove this point. Using the possible-worlds account and the canonical meaning of *only*, von Fintel (1994) also concludes that it is impossible to maintain the meaning equivalence of (6a) and (6b) and analyze *only-if*-sentence as one indicating a necessary condition. As seen in the above discussion, the necessary condition is inappropriate for describing the *only-if*-conditionals in English as well as the *cai*-conditional in Mandarin.

Recently, researchers have started to challenge the claim that *if*-clause propositions express sufficient conditions and *only-if*-clause propositions express necessary conditions. Van der Auwera (1997) argues that *only-if*-clause propositions should be analyzed as necessary and sufficient conditions whereas *if*-clauses express sufficient conditions. In addition, using the model-theoretic semantics theory, Lewis (1975) and others (Kamp 1981; Heim 1982; Iatridou 1994a; Kratzer 1991; Von Fintel 1994) have argued that the *if*-clauses without other overt quantifiers (as in “sometimes”) restrict the domain of quantification over which implicit (universal) quantifiers quantify. More specifically, if a person says *if it rains, the game will be cancelled*, she actually means *it is always the case that the game will be cancelled if it rains*. This account of conditionals has nothing to do with material implication. The interpretations of *if*-sentences just happen to be compatible with the logical relation of material implication in that the quantifiers give rise to the material implication. The universal quantifier gives us the following inferences: It is true that the game will never be cancelled if it does not rain. It is also true that the game may or may not be cancelled if it does not rain. Nothing is entailed about cancellation of the game when it does not rain. In this way, these inferences fit the truth conditions of material implication.

Beyond the formal paradigm, there are other analyses of *if*-conditionals and *only-if* conditionals (Athanasiadou & Dirven (eds) 1997; Dancygier 1998; Dancygier and Sweetser 2005; McCawley 1974; Sweetser 1990; Traugott et al. (eds) 1986). Among these studies, McCawley first proposes a componential analysis of *only-if* conditionals. Dancygier and Sweetser (2005) also treat *only* and *if* as components that make compositional semantic contribution to the overall constructions. In their analysis, the “uniqueness” meaning of *only* explicitly modifies the internal structure of conditional space building. In an *only-if* sentence the compositional meaning is that Q holds only in the case of P. This is tantamount to saying that the condition set up in the P-defined space is an exclusive setting for Q. Their analysis also has nothing to do with the truth conditions of material implication.

This discussion also claims that *cai* and *jiu* should be considered as parts that form compositional meanings of constructions. The logical terms “sufficient conditions” and “necessary conditions” are not used to characterize the meanings of *jiu* and *cai*. Instead, as mentioned in the beginning of this section, both consequent clause markers can be understood to indicate that the protases provide sufficient contexts for the apodoses to hold. The sense of “sufficient” here can be interpreted as “relevant” in the case of speech act conditionals. For content conditionals, the protasis offers a sufficient ground for the prediction presented in apodosis and, in epistemic conditionals, the protasis serves as a sufficient basis for a speaker to draw conclusion.

3.2.3 Biconditionality and Conditional Perfection

Due to the alternativity associated with the content conditionals, *jiu*-conditionals and *cai*-conditionals are often interpreted biconditionally. This phenomenon of non-overtly marked biconditionality, also called “conditional strengthening,” is one of the most widely cited implicatures in pragmatics. According to Horn (2000), this implicature was first discovered by the French linguist Ducrot (1969). But it was not until Geis and Zwicky (1971) created a special term “conditional perfection” for it that this phenomenon received mainstream linguistic interest.

In studying invited inferences, Geis and Zwicky point out that *if*-conditionals often give rise to two inferences (1) $\sim P, \sim Q$ (2) *if and only if* P, Q . They give the following example to illustrate the point:

- (9) a. If you mow the lawn, I'll give you five dollars.

According to their proposals, this sentence suggests:

- (9) b. If you don't mow the lawn, I won't give you five dollars.
c. If and only if you mow the lawn, I'll give you five dollars.

They also claim that (9b) and (9c) are pragmatic implicatures in that they are cancelable by addition of an adverb as in (10a) or another condition as in (10b).

- (10) a. If you mow the lawn, I will give you five dollars, and if you don't, I'll give you five dollars anyway.
b. If you mow the lawn, I will give you five dollars. But I will also give you five dollars if you wash the windows.

(from Schwenter 1999)

In both examples, the additional adverb and sentence help to cancel the unique condition (i.e., mowing the lawn for the payment). Similar to English *if*-conditionals, *jiu*-

marked conditionals have the implicatures of $\sim P$, $\sim Q$ and *if and only if P,Q*. Consider the example:

- (11) *ruguo ta lai*
 if he comes

wo jiu zou
 I JIU leave.

‘If he comes, I will leave.’

The speaker of (11) implies that *I will not leave if he doesn't come* and that *I will leave only if he comes*. In contrast, *cai*-marked conditionals have these two interpretations as parts of their meanings instead of their implicatures, as shown in (12).

- (12) *ruguo ta lai,*
 if he comes

wo cai zou
 I CAI leave

‘I will only leave if he comes.’
 ‘Only if he comes will I leave.’

Although conditional perfection is common and automatic in many cases, it does not arise in all types of conditionals. For instance, speech act conditionals rarely give rise to conditional perfection, as illustrated in (13).

- (13) *ruguo ni eh le,*
 if you hungry Particle

zhuo-shang you fan
 table-on has rice

‘If you are hungry, there is rice on the table.’

This sentence does not suggest that *if you are not hungry, there is no rice on the table* or *there is rice on the table if and only if you are hungry*. In other words, your hunger does not affect the presence of the rice on the table. This is because the protasis in

this case is used to provide a ground or reason for the speaker to utter the apodosis—the protasis is relevant to the apodosis contextually but not causally affect the apodosis.

Based on this restriction, Dancygier and Sweetser (1996, 1997) claim that biconditionality is restricted to content conditionals about predictions. From the cognitivist point-of-view, a prediction based on alternatives is more helpful than a prediction without an alternative-basis: one based on alternatives helps us to “set up plans of actions or to choose ways to responding to events or situations,” as pointed out by Dancygier and Sweetser in their 2005 book. According to them, a predictive conditional sets up correlational parameters that structure mental spaces. One depends on the correlational of events to make a prediction about one event/situation. Under this condition, one is invited to imagine the alternatives. This correlation is most useful for prediction when exclusive or unique, therefore, people tend to automatically obtain the *if* and *only if* meaning from a predictive conditional.

Horn (2000) objects to Dancygier and Sweetser’s claim that conditional prediction is restricted to conditionals involving prediction by offering speech act conditionals with biconditional interpretations, as in (14)

- (14) a. One false move and I’ll shoot
b. If you can’t stand the heat, get out of the kitchen
(from Horn 2000)

These two examples obviously invite people to consider the $\sim P$, $\sim Q$ and *if and only if* P , Q . It seems that both cases involve a causal relationship, that is, (14a) indicates that your moving will cause me to shoot, and (14b) expresses that your inability to tolerate the heat is reason enough to leave the kitchen. Here, the speech act conditional sets up a correlation (i.e., a causal relationship) for the spaces, as predictive conditionals

do. The addressees of (14a) and (14b) have to compare possible outcomes of alternatives in order to make plans for action. Therefore, conditional perfection arises in these two cases.

Epistemic conditionals also rarely have the reversed implicature since their contents are often factual (Schwenter 1999). Schwenter uses other factual conditionals such as *since*-conditionals and *given-that*-conditionals to support this claim. The general idea is that in the conditionals with factual protases, the apodoses are inevitable. Thus, it is unnecessary to evoke other alternatives. He concludes that only those conditionals that cause one to imagine the $\sim P$ alternative are candidates for conditional perfection.

3.2.4 Focus-background structure

This section reviews two linguists' analyses of *jiu* and *cai* in a formal focus-marking system (Biq 1984, 1988; Hole 2004). Their approach is not used in the present study. However, the integration of quantification and focus-marking in this analysis provides insights for some uses of *jiu* and *cai* in quantificational contexts. Since their focus of study is on a unified account for all uses of *jiu* and *cai*, their research does not discuss much about the contribution of *jiu* and *cai* in all types of conditionals.

Biq (1984, 1988) proposed that *cai* marks denying-expectation focus and *jiu* marks simple focus. In her analysis, the semantic properties of *cai* are represented in semi-logical notation as illustrated in (15).

- (15) $cai(S') = P(K) \ \& \ \forall Y [P(Y) \ \& \ \text{expected}'(Y) \rightarrow Y \neq K]$, $K \in D$, $Y \in D$
 S' = the 'sentence' combined with *Cai*
 P = the relevant properties ascribed to the domain of quantification
 K = the asserted value
 Y = any member of the domain of quantification

D = domain of quantification

(15) says that when *cai* combines with a sentence, K is asserted as the value which has the relevant defining properties chosen from the domain of quantification, and K is not one of those “expected” values which also has the relevant defining properties in the domain (Biq 1988: 87). The following example can illustrate her point. (The capitalized words are the focus of the sentence.)

(16) ZHANGSAN LAI, Lisi cai qu
Zhangsan come, Lisi CAI go

‘Lisi will go only if Zhangsan comes.’ (from Biq 1988)

The focus element in this sentence is ‘Zhangsan comes.’ (16) asserts that ‘Zhangsan comes’ has the defining property of satisfying the condition under which ‘Lisi goes’ will hold, and that it is not one of the expected values in the discourse background. Using her notation, ‘Zhangsan comes’ is P(K) and the other expected values are (Y). *Cai* indicates that all the expected values in the discourse background are not “endorsed” by the speaker and only ‘Zhangsan comes’ is the asserted (and endorsed) right value. Therefore, *cai* marks a denying-expectation focus.

She represents the semantic properties of *jiu* with the following notation:

(17) $jiu(S') = P(K) \ \& \ \exists Y[P(Y) \ \& \ Y \neq K], \ K \in D, \ U \in D$
S' = the ‘sentence’ combined with *jiu*
P = the relevant properties ascribed to the domain of quantification
K = the asserted value
Y = any member of the domain of quantification
D = domain of quantification

In natural language, (17) says that the sentence with *jiu* is true with the focus value, and it is also true that there is some alternative to the focus value which is not identical to the focus value and which yields a true sentence if used instead of the focus value.

Consider the example:

(18) ZHANGSAN LAI, Lisi jiu qu
Zhangsan come, Lisi JIU go

‘Lisi will go if Zhangsan comes.’ (from Biq 1988)

(18) says that ‘Zhangsan comes’ is the asserted value and is recognized as one of the alternatives in the discourse background. There are other alternatives that are recognized but not endorsed by the speaker. However, the speaker does not make a value judgment as to any alternatives. Accordingly, *jiu* is analyzed as a simple focus marker. Based on the proposed core meanings, she manages to explain all uses of *jiu* and *cai* with pragmatic principles such as scalar implicature, the relevance principle and the informativeness principle. Although the value of her focus-background analysis is generally acknowledged by other linguists who also use the formal framework, not all agree with every part of her explanation. For example, Lai (1999) points out that Biq’s argument does not match the logical notation of *jiu*. Particularly, the rule for *jiu* is more like that for ‘also,’ but *jiu* certainly does not mean ‘also.’ Hole (2004) also observes that her rule leaves room for the possibility that there is no assumption in the discourse background at all, and that the whole logical expression can be contradictory.

Despite his disagreement with Biq’s rule, Hole takes the focus-background approach for the discussion of *jiu* and *cai*. He offers his own focus-rule for these two words based on their obligatory presence in some sentence with foci as illustrated below:

(19) *Cai* must be used if an *only*-focus (*zhiyou* focus) precedes the structural position of *cai*. *Jiu* is used if and only if a *zhiyao*-focus or *zhiyao*-Contrastive topic precedes the structural position of *jiu*. A case where *cai* must be used is presented as follows:

(20) (Revised from Hole 2004)

<i>zhiyou</i>	<i>ni</i>	<i>NULI</i> ,	
only	you	work hard	
<i>ni</i>	<i>cai</i>	<i>hui</i>	<i>chenggong</i>
you	CAI	will	succeed

‘Only when you WORK HARD will you succeed.’

In this example, *zhiyou* ‘only’ requires a focus in the subordinate clause. He describes the background of the verbal complex *hui chenggong* ‘will succeed’ as “agreeing with” the focus *NULI* ‘work hard’, since both main and subordinate clauses are obligatorily redundantly marked with the same focus information. In other words, *cai* obligatorily agrees with the uniqueness indicated by *zhiyou*.

Jiu is obligatory in a *zhiyao* sentence, as shown in the following example:

(21) (Revised from Hole 2004)

<i>zhi-yao</i>	<i>NI</i>	<i>LAI</i> ,	<i>wo</i>	<i>jiu</i>	<i>qu</i>
only-need	you	come	I	JIU	go

‘If you come, I will go.’

‘In order for me to go, you only have to come.’

In this example, *zhiyao* is composed of two characters *zhi* ‘only’ and *yao* ‘need,’ which give rise to the meaning ‘only have to.’ Hole (2004) argues that *zhiyao* requires a focus in its c-command position. This means that a focus is ensured before the *jiu* clause when *jiu* occurs in a *zhiyao...jiu* construction. The background of verb *qu* ‘go’ in the consequent clause agrees with the focus *ni lai* ‘you come.’ Thus, in this sentence *jiu* indicates this focus agreement. *Jiu* can also be used in sentences without *zhiyao*. *Zhiyao* in (21) is optional.

Based on (21) and other examples, he modifies the generalization of *jiu*:

Jiu is an agreement marker; the verbal background agrees with a semantically specific focus or contrastive topic.

This is tantamount to saying that when there is a focus or contrastive topic in the subordinate clause, whether explicitly marked by *zhiyao* or not, *jiu* must be present to indicate the connection of the focus or contrastive topic with the verbal complex in the main clause which is part of the discourse background. If we look at (19)–(21) again, we see that *cai* differs from *jiu* in that *cai* marks the interaction of an *only*-focus with the background verbal complex in the main clause; *jiu*, on the other hand, marks the interaction of any semantically-specific focus with the background verbal complex in the main clause.

In addition to the focus-background distinction, Hole uses the notions of universal quantifier and existential quantifier to account for the difference between *jiu* and *cai*. I revise his focus quantificational system as follows:

(22) If D' is the domain of alternatives minus the asserted alternative K , *Cai* involves a negated existential quantification over the domain of D' , and *jiu* involves a negated universal quantification over the domain of D' .

This statement can be elaborated as follows (Hole 2004):

(a) Among all possible alternatives to *cai*-sentences that only differ with regard to the focus value, only the pragmatically relevant set of non-trivial alternatives is considered, and all of them are entailed to be wrong.

(b) Among all the possible alternatives to *jiu*-sentences whose propositions only differ with regard to the focus or the (implicit) C-topic value, the pragmatically relevant set of alternatives is considered, and it is presupposed that at least one of these alternatives is

wrong, or would be wrong. One of these alternatives is wrong in those cases in which the alternatives are not counterfactual; it would be wrong in those cases in which counterfactual alternatives are considered.

Hole's focus-quantification system is tested against the background of entailments and other relations holding among the assertions that instantiate the use of focus-marking. Particularly, the different quantificational types of *jiu* and *cai* can be illustrated by the entailment relation in subalternate sentences. Subalternate sentences display one-way entailments. For example, *No student is lazy* ($\sim\exists$) entails *Not all students are lazy* ($\sim\forall$), and *All students are lazy* (\forall) entails *Some student(s) is(are) lazy* (\exists). The reverse is not true. In Mandarin, the focus semantics of *cai*-sentences ($\sim\exists$) should entail the focus semantics of *jiu*-sentences ($\sim\forall$), and the reverse is not true. The following example illustrates this one-way entailment.

- (23) a. MEIJUN LAI-de shihou wo cai kaishi shao fan
 Meijun come-when I CAI begin cook rice
 'I did not start cooking until MEIJUN CAME.'
 'I only started cooking when MEIJUN CAME.'
- b. MEIJUN LAI-de shihou, wo jiu kaishi shao fan
 Meijun come-when I JIU begin cook rice
 'I started cooking when MEIJUN CAME.'
- (From Hole 2004)

(23a) entails (23b) and this is due to the fact that the time adverbials (i.e., "when Meijun comes") in the subordinate clause quantify over domains of alternatives in ways that amount to negated existential quantification. This occurs in the case of *cai* sentence as in (23a), and, in a *jiu* sentence, manifests as negated universal quantification as shown in (23b).

3.3 Scale, quantity, and context

This section deals with scalar inference sentences. Scalar implicature is certainly not unique to Mandarin *cai*-conditionals, which are often translated into English as *only-if* conditionals. English *only-if* conditionals also have this type of interpretation in scalar inferential context due to the uniqueness meaning of *only* (Dancygier and Sweetser 2005).

Also due to the “uniqueness” meaning of *cai*, *cai*-marked conditionals often have antecedents that indicate that other enabling alternatives are exhausted. This type of sentence seems to suggest that *cai* marks a protasis that is located at an extreme end of a scale. *Jiu*, in contrast, cannot occur in this type of context. This constraint is illustrated in the following example:

- (24) *ruguo quanshijie meiyou qitade nanren*
if the whole world there are no other men
there are no other men in the world’
- wo cai/*jiu gen ni jiehun*
I CAI/*JIU with you marry
lit. ‘I will only-then marry you’
‘Only if there are no other men in the world will I marry you.’

The condition in the antecedent ‘there are no other men in the world’ suggests that marrying the addressee is the last thing the speaker wants to do. Hence, any alternatives other than the unique condition are not sufficient for the apodosis. This extreme/unique condition is compatible with the semantics of *cai*, but is not congruent with the meaning of *jiu*.

The question we need to address here is whether reference to a scale should be part of the meanings of *cai* and *jiu*. Some of the previous scholars working on *jiu* and *cai* propose that scales are an essential component of the semantics of these linkers (Paris 1981; Lai 1995, 1996, 1999). This section will first discuss Lai's work and criticism in response to her claim, followed by this chapter's claim based on Dancygier and Sweetser's (2005) analysis on English *only-if* conditionals.

3.3.1 Lai (1995, 1996, 1999): Scalar Adverbs

Lai argues that 'scale' is the abstract semantic structure that links the various uses of *jiu* and *cai*. In studying the association of *jiu* and *cai* with protases, she proposes that the nature of protases is to provide a potentially infinite set of alternatives that fulfill the apodoses (cf. Haiman 1978; Chafe 1976) and that *jiu* and *cai* are associated with different sets of alternatives. More precisely, the *jiu* and *cai* constructions differ in the number of ordered alternative protases to the conditionals. The important claim of her study is that conditionals are considered related to protases that are informationally ordered. That is to say that all protases form an alternative set based on their informativeness. The alternatives in the set are ordered on what she terms as "paths." The higher a protasis is on the path, the less informative it is. As a result, a conditional statement is weaker than a similar, non-conditional statement and ranked lower on the path. This point is illustrated by the following example.

(25) (from Lai 1999)

- a. John will go jogging tomorrow.
- b. If tomorrow is Sunday, John will go jogging.
- c. If tomorrow is Sunday, and if the weather is fine, John will go jogging.

As shown in (25a)~(25c), the more informative the protasis of a conditional construction is, the weaker the statement is. (25a) ranks as the lowest on the informativeness path, (25b) is the second, and (25c) ranks as the highest. (25a) is also the strongest statement, and if a speaker uses the less strong (25b), she is suggesting that she is not sure that tomorrow is Sunday. The statement is weakened by the condition presented in the protasis. If a speaker uses (25c), she does not know that tomorrow is Sunday or if the weather will be nice.

The main point of the previous two paragraphs is that a protasis not only introduces the condition presented in the conditional sentence, but also entails a set of alternatives that are ordered in scales or paths based on their informativeness. *Cai* and *jiu* are associated with the protases since they respectively suggest different number of alternatives that are ordered lower and higher than the conditions presented in the constructions. *Cai's* semantic contribution to a conditional construction is to indicate that alternatives that rank lower than the protasis (or that do not belong to the same path) cannot satisfy the apodosis. The lower-ranked alternatives might otherwise have been expected from the general principles or context, but the only satisfying alternative is asserted to be the protasis. This means that the asserted condition is located higher on the informativeness path than the expected alternatives. This is illustrated in the following example:

(26) *ruguo Lisi lai, wo cai qu*
 if Lisi come, I CAI go

'I only go if Lisi comes.'

The *ruguo* clause (the protasis) not only describes the condition that is asserted to satisfy the *cai* clause (the apodosis) but also suggests a list of expected alternatives on the same informative path as ‘Lisi comes’ as well as alternatives on different paths. One of the expected alternatives on the same path may include {Lisi considers coming}. Due to the meaning of *cai*, this expected alternative that ranks lower than the asserted condition on the informativeness scale is rejected. In addition to the asserted proposition, the alternatives that rank higher than the asserted condition such as ‘Lisi comes and Zhangsan comes’ and ‘Lisi comes, Zhangsan comes, and ‘I am in a good mood’ can satisfy the apodosis. The bottom line is that the utterance ‘Lisi comes’ is necessary to satisfy the apodosis. Any alternatives in lack of ‘Lisi comes’ are located either lower on the informativeness path or are on other paths.

In contrast, *jiu* in a conditional construction indicates that expected alternatives that rank lower than the asserted condition may or may not cause the consequent clause proposition to come true. Consider the following example:

(27) *ruguo* *Lisi* *lai,* *wo* *jiu* *qu*
 if Lisi comes, I *JIU* go

‘If Lisi comes, I will go.’

Jiu in this example expresses that the apodosis is true when the protasis holds. The alternatives that rank higher than ‘Lisi comes’ also definitely cause the consequence, but those lower than the asserted alternative cannot cause the consequence. The construction does not specify whether alternatives on different paths can satisfy the apodosis or not. On the informativeness path, the asserted condition ranks further down than many expected alternatives. This gives rise to the implication that many expected

situations can satisfy the apodosis since ‘Lisi comes’ is a relatively low-ranking enabling condition.

So far, this section has reviewed Lai’s discussion on *cai* and *jiu* in terms of the nature of protases and the contribution of *cai* and *jiu*. This can be summarized as follows:

- (a) A protasis suggests a set of informationally ordered alternatives that satisfy the apodosis.
- (b) *Cai* indicates that the asserted condition ranks higher than all other expected alternatives on the informativeness scale; and *jiu* shows that the asserted condition ranks lower than some other expected alternatives.

In response to Lai’s claim that *jiu* and *cai* have to be analyzed in terms of values on scales, Hole (2004) argues that it is undesirable and unnecessary to assume every use of *cai* and *jiu* is related with scales. He demonstrates with the following examples that uses of *cai* can be completely independent from scalar facts:

(28) *Xiao Wang chi SAN-ge pingguo*
 Little Wang eat 3-CL apple

ta cai neng jinru chengbao
 (s)he CAI can enter castle

‘Only if Little Wang eats THREE apples can he enter the castle.’
 (from Hole 2004)

(29) *Xiao Wang CHI-LE PINGGUO*
 Little Wang eat-ASP apple

ta cai neng jinru chengbao
 (s)he CAI can enter castle

‘Only if Little Wang HAS EATEN APPLES can he enters the castle.’
 (from Hole 2004)

At first, (28) may appear to be a case of a sentence in which *cai* must relate to a scale, i.e. a scale of numbers of apples eaten by Little Wang. (This sentence may be plausible in some fairy-tale context in which Little Wang cannot get into the castle without eating three magic apples first.) Hole claims that, in this example, *cai* does not necessarily relate to a scale. A scale is involved in the reading of (28) in a context where eating one or two apples would not be enough, but eating a fourth magic apple would not do any harm. In an alternative situation, eating exactly three apples is the only way. Eating two apples is not enough, but eating the fourth will likewise keep Little Wang out of the gate. In this situation, eating exactly three apples is the unique condition. Therefore, the minimum number of apples is irrelevant to the consequent clause proposition.

(29) is more clearly a case where a scale is not involved. The natural reading of (29) is one in which Little Wang has to figure out how to get in the castle and finds that the only thing that helps is eating apples. One does not need the concept of scale to understand this sentence in this particular context. Without the quantity words, it is hard to imagine a scale that is related to this sentence.

3.3.2 Dancygier and Sweetser (2005): *only if* and scalar inferential context

Using Hole's examples, the previous section shows that *cai* in *cai*-conditionals does not have to contain scale in its semantic structure. The scalar reading arises from the interaction of particular contexts and terms of quantity. This observation is also true for English *only-if* conditionals according to Dancygier and Sweetser's analysis (2005). In

discussing the relationship between *only if* and scalar inferential contexts, they provide the following example to show how the scalar implicature arises:

(30) They insist B.C will be able attract new nurses to alleviate the scarcity only if the government pays them \$38 an hour.

Since the speaker says that nurses can be attracted only if they are paid at an hourly rate of \$38, we can infer that nurses won't accept any wages lower than \$38 and they will take any offers that are more than \$38. Using the theory of mental spaces, Dancygier and Sweetser claim that the scalar implicature along with the predictive conditional structure give rise to the interpretation that nurses will not be recruited in any space where a payment is lower than \$38 per hour. They also point out that such scalar interpretation does not clash with the uniqueness meaning of *only*. The uniquely sufficient space (i.e., the *only if* space) where nurses are paid \$38 along with other spaces where nurses get more than \$38 form a large class of spaces. Spaces set up by payment lower than \$38 are located on the downward scale. Therefore, the alternativity and uniqueness semantics of *only* is still preserved in the scalar inferential context.

Similar to Hole's, Dancygier and Sweetser's analysis makes an important point about the role of scale in the semantics of *only-if* sentences: an *only-if*-sentence does not necessarily evoke a scale, especially when there is no quantity expression present. They provide the following context as an example.

(31) I will not go to the early-morning meeting only if breakfast will be served.

Dancygier and Sweetser argue that the speaker does not necessarily have a scale in her mind, though she may mean that nothing less than breakfast will do but anything more than breakfast will be great. She also might just be comparing the options between breakfast and no-breakfast. It is important to note that the scalar interpretation arises from

context and words of quantity and common sense knowledge (in another example, we find this in the effect of pay's scale on the desirability of a job).

3.4 Conclusion

This chapter has discussed notions that have been traditionally been considered to be related with *jiu*-conditionals and *cai*-conditionals. The chapter investigates the claim that *jiu* marks sufficient conditions and *cai* indicates necessary conditions. This study's conclusion is that both *jiu* and *cai* indicate that the protasis is sufficient for the apodosis, but only in the sense of providing context for the apodosis rather than according to the logical definition of sufficient condition as in material implication.

The phenomenon of conditional perfection in Mandarin conditionals has also been discussed. According to the analysis here, *jiu*-conditionals are often associated with this implicature, whereas *cai*-conditionals already include in their meanings $\sim P, \sim Q$ and *if and only if* P, Q .

This chapter has also reviewed the focus-background approach that has been used in several previous studies on Mandarin conditionals (Biq 1984, 1988; Hole 2004). Though these studies provide insights for the constraints on the uses of these linkers, they do not investigate much into the linkers' role in conditional constructions. On the other hand, the mental-space analysis provided in this chapter is able to illustrate the linkers' functions of evoking alternative spaces, pointing to spaces, and specifying the nature of the condition represented in the space in question.

Lastly, this chapter addresses the relationship between scalar inferential context and scalar interpretation in *cai*-sentences. It has been shown that scale is not part of the

semantic structure of these linkers and that the scalar reading in *cai*-conditionals, similar to that in English, is inferred from the context and quantity expressions in the protasis, considered together with common-sense knowledge.

Chapter 4 The Exceptive Conditional Constructions in Mandarin

4.1 Introduction

The exceptive conditional is a construction that involves the conditional reasoning of two situations: one is exceptive and the other is default. A typical English example of the exceptive conditional is the *unless* construction. This construction tracks two sequences of events as shown in the following sentence:

- (1) Unless it rains tomorrow, the game will not be cancelled.

The raining event as expressed in the protasis (the subordinate clause), is an exceptive situation causing the cancellation of the game. The proposition described in the apodosis, however, is the effect of the default situation where it does not rain “tomorrow.” This can be illustrated by the following figure:

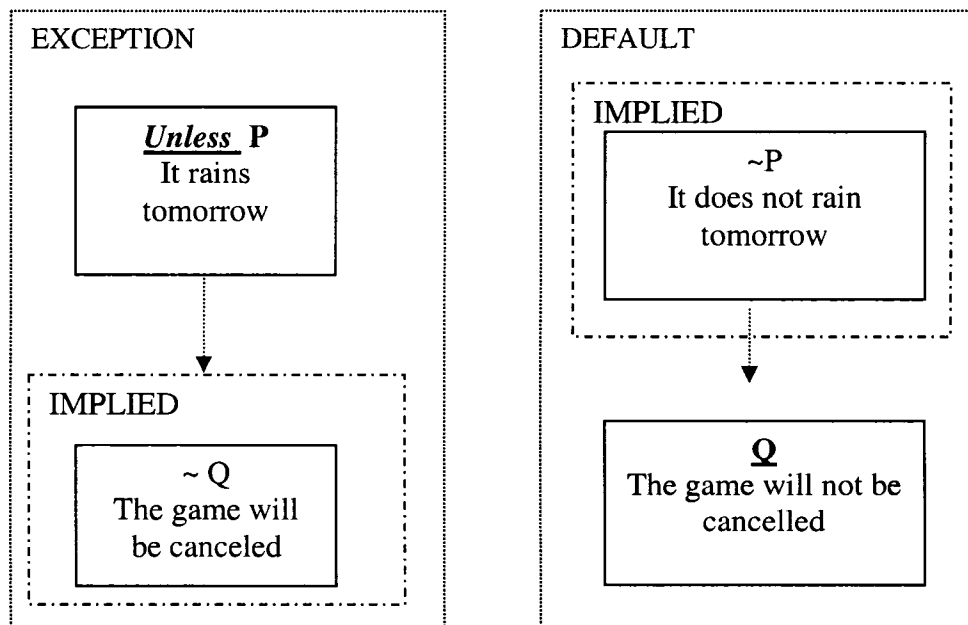


Figure 4.1: Representation of alternatives involved with the *unless* sentence

Although the Mandarin exceptive conditional also involves the reasoning of the exceptive and default situations, it is more syntactically constrained than the English *unless* construction. These constraints are exhibited by the choice of linking elements and the rigid clause order: the Mandarin exceptive conditional construction has to be marked by a pair of linking devices in both the protasis and the apodosis, not just the protasis as it is in English. While it is not uncommon to place the apodosis before the protasis in English, in Mandarin, the subordinate clause has to precede Q with some exceptions in very marked contexts.

The Mandarin exceptive conditionals are bi-clausal and marked by the protasis marker *chufei* (termed the *chufei* construction). There are two types of *chufei* conditionals. In one type, the apodosis linker *fouze* emphasizes the effect of the default situation as shown in (2).

- (2) *Chufei* *mingtien* *xiayu, bisai* *cai* *hui* *quxiao*
 CHUFEI tomorrow rain game CAI will cancel

‘The game will only be cancelled if the exceptive situation where it rains tomorrow happens.’

‘Only if it rains tomorrow will the game be cancelled.’

(lit. ‘There is an exceptive case that it rains tomorrow, the game will only-then be cancelled.’)

In (2), *chufei* indicates that the proposition in the protasis ‘raining tomorrow,’ is an exceptive situation (it causes the exceptive situation). *Chufei* also evokes a default situation in which it does not rain tomorrow. These two situations are stored in the background knowledge. *Cai* emphasizes that the effect of the exceptive situation ‘the game will be cancelled’ depends on the raining event. The *chufei...cai* construction shows that P is an exceptive situation and Q happens only because of P. This means that,

in (2), raining is an exceptive and abnormal situation and that the game is cancelled only when this exceptive situation happens. *Cai* not only emphasizes the exceptive case (cancellation of the game) but also indicates that this case is foregrounded.

The closest English translation for this construction is *only if*, but the two are not identical. The *chufei...cai* construction indicates the exceptive nature of the protasis in addition to marking the protasis as the unique condition to the apodosis.

The second type of exceptive construction uses the apodosis linker *chufei* or *buran* to highlight the effect in the exceptive situation. This is shown in (3).

(3) *chufei* women like *zuo hao yesheng* *dongwu*
 CHUFEI we immediately do well wild animal
baoyu gongzuo,
 conservation job

fouze jinji zhicai suishi hui jianglin
 otherwise economic sanction anytime will fall upon

‘Unless we do a good job of wild life conservation immediately, economic sanctions could hit us sometime soon.’

(Academia Sinica Corpus 004)

In (3), *chufei* again introduces the proposition in P as an exceptive event. Two sequences of situations are evoked for the interpretation of the sentence: the exceptive sequence contains doing a good job of wildlife conservation and prevention of the economic sanctions, and the default sequence contains failure to conserve wildlife and failure to prevent the sanctions. *Fouze* indicates that the event described in the apodosis is an effect of a default situation. In other words, *chufei* introduces the exceptive situation ‘doing a good job of wildlife conservation’ and *fouze* emphasizes the event ‘economic sanctions could hit us’ of the default situation. In this we see, *chufei* and *fouze* mark two opposite sequences of events.

This is different from the case in (2) in that *cai* emphasizes the consequence caused by P. In terms of figure-ground alignment, the linking pair of *chufei...cai*, as shown in (2), foregrounds the exceptive situation that is caused by the protasis; the pair of *chufei... fouze/buran*, as shown in (3), foregrounds the default situation that is not caused by the protasis.

Though paired linking is an important characteristic of Mandarin exceptive conditionals, previous studies have focused on finding the one and only English translation for the *chufei* constructions even though the semantically similar English constructions are single-marked (Chao 1968, Eifring 1996). For example, in Chao's analysis, sentences marked with *chufei* are all translated as *unless* sentences—due to their exceptive meanings—irrespective of the variations of *fouze* and *cai* in the apodosis. And Eifring's research, in contrast with Chao's, claims that all *chufei* sentences are equivalents of *only if* sentences, not *unless* sentences, since adverbs of necessity such as *yinggai* 'must' and *bixu* 'have to' often occur in the *chufei* construction.

These monosemous accounts fail to recognize the semantic difference associated with the two patterns that emerge with the *chufei* construction. This is an important point to make since conditional constructions as grammatical devices provide cues for cognitive processing and ignoring these cues misses the bigger picture of understanding human cognition through language. A constructional-propelled polysemous account can describe the two patterns associated with the *chufei* construction in describing how the linkers emphasize either the exceptive or the default situation.

By studying variations of the Mandarin exceptive construction, we can also see how Mandarin constructions differ from English constructions in how they place

emphases in exceptive- and default scenarios. This study differs from previous studies in that it discusses the construction based on theories of cognitive linguistics such as information structure, mental spaces and construction grammar. Instead of arguing for either strict translation as proposed in earlier works, this chapter investigates the role of the linking devices such as *chufei*, *cai*, and *fouze* in indicating figure-ground alignment and emphasis on particular situations, which can provide insights into the semantic nuances of the two types of the *chufei* construction. The goal here is to provide a descriptive analysis of the construction in terms of its meanings and functions.

This chapter will also examine how the syntactic constraints of exceptive conditionals—such as clause order (P, Q) and obligatory paired linking—are motivated by information structure. Similarly, such syntactic constraints are also motivated by semantic nuances: the use of one linker can emphasize the uniqueness of a situation (*cai*), the other, the defaultness of a situation (*fouze*). That is, we will investigate how the Mandarin language uses linking elements to indicate different directions of reasoning, providing the hearer with lexical cues for processing and interpreting the sentence.

To preface, section 4.2 discusses the semantics of the linkers in the *chufei* construction. Section 4.3 uses two approaches to analyze the differences among variations of the *chufei* construction: one is a formal approach that treats the *chufei* construction as a correlative structure and regards *chufei* as an exceptive operator and the other analyzes the construction in terms of mental spaces. Then, section 4.4 discusses the conversational functions of the *chufei* construction and section 4.5 examines the relation of polarity and exceptiveness. Finally, section 4.6 provides the conclusion.

4.2 Semantics of the Mandarin Exceptive conditional Construction

This chapter calls sentences marked by paired linkers ‘*chufei...fouze/buran*’ and ‘*chufei... cai*’ as exceptive conditional constructions. Each linker is composed of two characters, which each contribute to the linker’s meaning. This section gives an overview of the syntactic distribution and the semantic contribution of these conditional linkers.

4.2.1 The meaning of *Chufei*

Chufei consists of two characters *chu* 除 and *fei* 非. The character *chu* has an exceptive meaning and often combines with other characters such as *wai* ‘outside’ and *le* ‘perfective’ to form words that mean ‘except’ as in *chuwai* (‘except’) and *chule* (‘except/besides’).

Fei ‘not’ also often occurs in compounds. For example *fei-chang* 非常 literally means ‘not-ordinary’ and compositionally means ‘extraordinary.’ In consequence, this word is used as ‘very.’ However, in the case of *chufei*, the meaning of *fei* is bleached out—*chufei* only preserves the ‘exception’ meaning from *chu*. We see evidence of this in that *chufei* is sometimes paraphrasable with a discontinuous phrase that also means ‘except.’ The phrase *chule...yiwai* is interchangeable with *chufei* in the following examples.

- (4a) A: *yao dui yizhi you wanchuan wu-wu de liaojie,*
want toward site of remains have completely no-mistake of understanding
- sihu ying fan pian yizhi..., danshi you biantong*
seemingly should dig through site of remains but have accommodation
- fangfa yingci chufei yizhi hen xiao, fouze xuezhe shi*
measure therefore CHUFEI site very small otherwise scholars are

bu hui zheme zuo
not will this do

‘If we want to have a complete and unmistakable understanding of a site of remains, we seem to have to dig through the whole site... However, we have measures of accommodation. Therefore, **unless** the site is very small, scholar will not do (dig through) this.’ (Academia Sinca Corpus 024)

(4b) A: *yao dui yizhi you wanchuan wu-wu de liaojie,*
want toward site of remains have completely no-mistake of understanding

sihu ying fan pian yizhi..., danshi you biantong
seemingly should dig through site of remains but have accommodation

fangfa, yingci chule yizhi hen xiao yiwai fouze xuezhe
measure therefore **except** site very small **outside** otherwise scholars

shi bu hui zheme zuo
are not will this do

‘If we want to have a complete and unmistakable understanding of a site of remains, we seem to have to dig through the whole site... However, we have measures of accommodation. Therefore, **except the case that** the site is very small, scholars will not do this.’

Whereas *chufei* can only be used in conditionals, *chule...yiwai* can be used in hypotheticals and non-hypotheticals.

The meaning of *chufei* changes with context so one must look at the whole construction to determine its meaning. In (2), its meaning is closer to *if* with an implication that the proposition in P is exceptive. But, in (3), its meaning is similar to *unless*. (2) and (3) are repeated here to illustrate the semantic difference of uses of *chufei* in different constructions.

(2) **Chufei** *mingtien xiayu, bisai cai hui quxiao*
CHUFEI tomorrow rain game CAI will cancel

‘The game will *only* be cancelled if the exceptive situation where it rains tomorrow happens.’

‘Only if it rains tomorrow will the game be cancelled.’

(lit. ‘There is an exceptive case that it rains tomorrow, the game will only-then be cancelled.’)

- (3) *chufei* women like zuo hao yesheng dongwu
 CHUFEI we immediately do well wild animal
baoyu gongzuo,
 conservation job
fouze jinji zhicai suishi hui jianglin
 otherwise economic sanction anytime will fall upon

‘Unless we do a good job of wild life conservation immediately, economic sanctions could hit us sometime soon.’

(Academia Sinica Corpus 004)

In spite of the subtle semantic difference between the two uses of *chufei* as shown in (2) and (3), the exceptive nature of the protasis is indicated by *chufei* in both constructions.

4.2.2 The meaning of *fouze* and *buran*

Fouze and *buran* are very similar in the sense that the first character of the compound is a negator and the second is a result marker. Their only difference is in register: *fouze* more often occurs in formal language while *buran* occurs in informal context. The meanings of each character and compound words are listed as follows.

Fou 否: ‘not’

Ze 則: ‘therefore’, ‘so’

Fou-ze 否則: not-so, reanalyzed as ‘other-so’ and ‘otherwise’

Bu 不: not

Ran 然: therefore

Buran 不然: not-so, reanalyzed as ‘other-so’ and ‘otherwise’

The meaning ‘otherwise’ is formed compositionally from ‘not’ and ‘so.’ *Fouze* ‘not-so’ is reanalyzed as ‘other-so,’ and, as a result, the compound word means ‘otherwise.’ The meanings of the construction, realized as either *chufei...*, *fouze...* or *chufei...*, *buran...*, is interpreted compositionally. The English translation for the construction is: “there is an exceptive case that...; otherwise (default)...”.

4.2.3 The meaning of *cai*

Cai 才 is often translated as ‘only.’ It often occurs in complex sentences describing two related states of affairs or events. *Cai* indicates that when the *cai*-marked proposition is found, it is due to the proposition described in the previous clause. (A detailed discussion of *cai* has been provided in Chapter 3.) As demonstrated in Chapter 2, when *cai* occurs with an *if*-like protasis marker such as *ruguo*, the conditional construction has an ‘only if’ reading. This is seen in (4).

- (5) *ruguo zhangsan lai, wo cai zou*
 If Zhangsan come I CAI go

‘I will *only* go if Zhangsan comes.’
 ‘Only if Zhangsan comes will I go.’

When *cai* appears in an exceptive conditional, it shows that the exceptive situation described in the P is the unique condition to the Q marked by *cai*. (2) is repeated here:

- (2) *chufei mingtian xiayu, bisai cai hui quxiao*
 CHUFEI tomorrow rain game CAI will cancel

‘The game will *only* be cancelled if the exceptive situation where it rains tomorrow happens.’

'*Chufei...*, *cai...*,' in the above example, shows that raining is an exception (i.e., the speaker presupposes that it will not rain), and only when this exception happens, will the game be cancelled.

4.2.4 Compositionality

Almost all of the linkers occurring in the exceptive conditional have a negative component, such as *fei* in *chufei*, *fou* in *fouze*, and *bu* in *buran*. However, if we were to incorporate meanings of all negative components into the *chufei* clausal construction, the linkers seem to contribute too much negation to the meanings of the whole construction⁷. For example, the protasis marker *chufei* would mean 'except not.' Therefore, we cannot adopt a compositional approach including all the negative meanings in the semantics of the linkers. The easiest way to analyze the semantic contribution of the linkers is to regard each linker as a unit thereby preserving some of the meaning that their components have independently. With this view, each linker is reanalyzed as follows:

chufei 'if there is an exceptive case that'
(ignoring the negative meaning of *fei*)

fouze 'otherwise'
(taking the meaning of *ze* 'so' and reanalyzing *fou* as 'other' or 'alternative')

buran 'otherwise'
(taking the meaning of *ran* 'so' and reanalyzing *bu* as 'other' or 'alternative')

This analysis does not regard *chufei* as compositional internally, however, the pairings of *chufei...buran* and *chufei...fouze* should be seen as relatively compositional.

Rather than lump *chufei* and *fouze/buran* together and translate the whole construction as

⁷ Kai Von Fintel first pointed this out to me. Stefan Kaufmann suggested that *chufei* compositionally would mean 'except not' and probably a compositional view would not be appropriate after my presentation at ESPP55 conference.

‘unless’ or ‘only if,’ the linkers can be analyzed individually to show their compositional semantic contribution. So, *chufei* introduces an exceptive case in the protasis and implies the default case in the background, *fouze* or *buran* directs attention to the default case, and *cai* emphasizes the unique relation between the cause and effect of the exceptive case.

The analyses based on cognitive linguistic theories better describe these constructional phenomena than the monosemous approach used by previous scholars. One reason is that providing question as to degree of compositionality and to the linkers’ precise definitions are empirical questions that need to be explored. One can surely claim that the whole *chufei...fouze/buran* or *chufei...cai...* construction is equal to the *unless* construction (Chao 1968) or *only if* construction (Eifring 1993).

To summarize their points, Chao (1968) claims *chufei* itself means *unless* and *chufei...cai* expresses a necessary condition. He does not discuss how *cai* causes the whole construction to mean ‘only if,’ nor does he study the reasoning process from P to the *cai* clause. And, based on Chao’s work, Eifring (1993) argues that all of the *chufei* sentences should be translated as ‘only if.’ The reason for his claim is that *chufei* usually co-occurs with deontic modals such as *yinggai* ‘should’ and adverbs of necessity such as *yiding* ‘definitely.’ So, he proposes that the *chufei* construction is used to indicate the necessary condition of the protasis and that the presence of the deontic modals and the verbs of necessity echoes with the necessary relation between the protasis and the apodosis.

But this analysis fails to mention the exceptive quality of the *chufei* construction. The *chufei* construction indicates not only the uniqueness but also the non-defaultness of

the situation within *chufei*'s scope. Both analyses miss an important point in that the meaning of *chufei* by itself is indeterminate and only meaningful when the second clause is taken into consideration. *Chufei* itself only introduces an exceptive situation in the protasis. If a speaker uses the apodosis linker *fouze*, she emphasizes the default situation and the whole construction is translated as an *unless* sentence. However, when a speaker uses the apodosis linker *cai*, she emphasizes the uniqueness of the protasis, and the *chufei* sentence is translated as an *only if* construction. In this way, the *chufei* construction is more complicated than the *unless* construction or the *only if* construction. In addition, the two-step marking is closely related to the choice of foregrounding relations. *Chufei* verbally introduces an exceptive scenario and brings the exceptive and default scenarios into background (knowledge). The linker *fouze* or *buran* selects the effect of default chained events to be in the foreground while *cai*, in contrast, foregrounds the P-Q scenario rather than the $\sim P\sim Q$ situation.

4.3 Analysis of the *chufei* construction

Given the phenomenon of marking in both clauses of the *chufei* conditionals, what could be the possible explanations for the roles played by the linkers? To answer this question, section 4.3.1 discusses the unexplained Mandarin coindexing syntactic patterns as well as reviews studies on the similar English *if-then* construction. Section 4.3.2 provides a mental-space explanation for the functions of the linking devices in both clauses. The emphasis in this section is placed on how *chufei* sets up a protasis space in background and how *cai* or *fouze* points to an apodosis space in foreground.

Before studying the co-indexing phenomenon, we must first understand the syntactic properties of the protasis linker, i.e., whether the linker *chufei* is a subordinate conjunction or a coordinate conjunction. *Chufei* is a subordinate conjunction because it introduces a dependent clause, which is to say that *chufei* is attached to the protasis. One syntactic test in support of this claim is to switch the order of the protasis and apodosis. Suppose that the canonical order of the *chufei* construction is *chufei* P, Q: when the protasis is post-posed (i.e., Q, P), *chufei* still precedes the protasis (i.e., Q, *chufei* P), instead of preceding the apodosis (i.e., *chufei* Q, P). So, one can say: [*wo hui qu pashan*], [*chufei xiayu*] ‘I will go mountain climbing [**unless** it rains].’ In this case, *chufei* is attached to the protasis and has to be post-posed with the protasis. But one cannot say: *chufei* [*wo hui qu pashan*], [*xiayu*] ‘**unless** [I will go mountain climbing], [it rains].’ In this ungrammatical instance, *chufei* is not attached to any clause and remains in the sentence-initial position. This test indicates that *chufei* is a subordinate conjunction because *chufei* is attached to the protasis. Thus, only *chufei* P, Q (the canonical order) and Q, *chufei* P are acceptable.

4.3.1 The co-indexing phenomenon

To study the coindexing pattern of the *chufei* construction, we must investigate the function of the apodosis marker *fouze* and *cai*. It is worth reviewing studies on the English *then* in conditionals since the *if-then* construction is marked in both protasis and apodosis as the *chufei* construction. There are several discourse-oriented and cognitive approaches to the conditional *then*. Schiffrin (1992) observes that *then* is anaphoric to a set of circumstances associated with the proposition in the *if*-clause. Dancygier and

Sweetser (2005) propose that *then* deictically points to a particular protasis space and locates the apodosis space in that protasis space. This approach can provide an explanation for the obligatory presence of the protasis and apodosis markers in the *chufei* construction. *Chufei*'s exceptive meaning and the nature of content conditional prompt an alternative default space (~P space, ~Q space) in addition to the exceptive space (P space, Q space). The apodosis marker *fouze* or *cai* needs to be used to foreground the ~Q or Q space. More specifically, *fouze* locates the extended effect space within the default space, whereas *cai* selects the effect space within the exceptive space. The detailed discussion on the mental space set-ups will be provided in section 4.3.2.

Several formal linguists have studied the interpretive contribution of *then*. Among them, Iatridou (1991, 1994) proposes that *then* is associated with a particular presupposition that at least some of the ~P-cases are ~Q-cases. Simply put, *then* indicates that there are some cases when the Ps and the Qs are not true. This is illustrated in the following example given by Bhatt and Pancheva (2006).

- (7) If Stefan is happy, **then** he sings in the shower.
- a. In every case in which Stefan is happy, he sings in the shower.
 - b. Not in every case in which Stefan is not happy does he sing in the shower.

The conditional in (7) asserts (7a) and presupposes (7b), with the latter indicating that there is some case in which Stefan is not happy and he does not sing in the shower. *Then* in (7) is associated with this presupposition.

Based on the aforementioned cognitive and formal studies, *then* is shown to have an indexing property. That is, it is coindexed with the protasis. The behavior of *then* happens to bear similarity to that of correlative pronouns and several studies have

suggested that conditional constructions are related to correlatives (Geis 1985, von Fintel 1994, Izvorski 1997). A correlative construction consists of a free relative clause adjoined to a matrix clause and coindexed with a pronoun inside the matrix clause coindexing with the relative clause. (Srivastav 1991, Dayal 1996). The pattern of a correlative construction is as follows:

[free relative]_i [pronoun _i]

Consider the following Marathi example:

(6) (from Pandharipande (1997) and Bhatt & Pancheva (2006))

<i>dzo</i>	manus	tudzhya	sedzari	rahto
which	man	your	neighborhood-in	live-Prs.3MSg
<i>to</i>	manus	lekhak	ahe	
that	man	writer	is	

‘The man who lives in your neighborhood is a writer.’
 (lit. ‘Which man lives in your neighborhood, that man is a writer.’)

The correlative pronoun *to* ‘that’ coindexes with the first clause marked by *dzo* ‘which.’ Both correlative pronouns show that there is a relationship between the two clauses. Based on this definition, if we treat English *if-then* conditional constructions as correlative structures, *then* is a correlative pronoun.

Izvorski (1995) points out the connection between *if-then* construction and correlatives. She proposes that the conditional *then* is very similar to the correlative pronoun, which is linked with a presupposition that alternatives to the free relative clause do not make the matrix clause true. Von Fintel (1994) has a similar observation. For him, *then* triggers an implicature in which alternatives to the protasis do not satisfy the apodosis. He describes *if...then* as a ‘correlative dislocation structure.’ Von Fintel’s observation is similar to that of Dancygier and Sweetser (2005), which provides a mental-

space correlative analysis. Bhatt & Pancheva (2006) go further by claiming that treating conditionals as correlatives helps to explain the semantic contribution and syntactic behavior of *then* as well as constraints on stacked *if*-clauses.

We can also treat the apodosis linkers (*fouze*, *buran* and *cai*) as correlative markers, based on the function of referring to particular situation. There are two reasons for this treatment. First, the apodosis linkers suggest that there are more alternatives to the propositions represented in the sentence. Second, the apodosis linker *buran/fouze* and *cai* refer to particular situations individually. Among various possible situations, each linker points to a specific alternative. This function is close to the deictic property of a correlative pronoun.

The formal indexing approach considers an exceptive protasis marker such as *unless* as an exceptive operator on the subordinate clause of conditionals. Based on the account in which *then* is related to a presupposition, it is predicted that English *unless* conditionals prohibit the use of *then* (Iatridou 1991, Von Stechow 1974). A sentence like *unless p, q* can be paraphrased as *except if p, q*. There is an assertion associated with this: 'for all alternatives to p, q holds.' The assertion contradicts the presupposition related with *then* that some of the alternatives to the protasis(p) do not satisfy the apodosis (q). The *unless* sentence disallows *then* due to this contradiction.

Chufei is similar to *unless* in that it introduces an exceptive proposition. It seems natural to also treat it as an exceptive operator. The apodosis linkers such as *fouze*, *buran*, and *cai* behave like *then* in terms of their deictic property. However, the formal coindexing approach is problematic here since it does not predict the grammaticality of *chufei* sentences. If we apply the same formal analysis to the semantically similar *chufei*

construction, we find it incorrectly predicts that the *chufei* construction disallows linkers in the apodosis. In fact, the *chufei* construction requires the presence of a *then*-like linker in Q rather than prohibits it. This shows that *chufei* differs from *unless* and cannot be regarded as an exceptive operator as *unless*.

4.3.2 Mental spaces and exceptive conditionals

In terms of space building, *chufei* builds an exceptive P-Q space and a default \sim P- \sim Q space. Although P itself merely describes the cause within the exceptive space, the alternative default space is inferred. These spaces are always set up in pairs in the *chufei* sentence due to the basic alternativity involved in content conditionals, with default vs. exception as one example. Both exceptive P-Q and default \sim P- \sim Q spaces are backgrounded after the utterance of P, yet the situation (default or exceptive) to be foregrounded is not determined. The emphasized space is specified by the following main clause. The main clause is marked with a conjunction such as *buran* ‘otherwise’ or *fouze* ‘otherwise’ or an adverb *cai* ‘only.’ A *buran* clause presents the effect space that is not going to be caused by P. This is, *buran* points to the effect space within the default space. The *chufei-buran* construction is similar to the English *unless* construction as in *Unless it rains tomorrow, the game will not be cancelled* in that both sentence describe P, \sim Q. In contrast, a *cai* clause presents the effect space within the exceptive space that is only caused by P. In other words, in a *chufei-cai* construction, *chufei* marks the cause in an exceptive space and *cai* shows that the effect in the *cai* space is uniquely caused by the event described in the *chufei* space. The *chufei-cai* construction is similar to the English *only if* construction as in *Only if it rains tomorrow will the game be cancelled*—both

constructions describe P, Q. Let's consider an instance of *chufei-fouze* construction, which is repeated from (3).

(8) *chufei* women like *zuo* *hao* *yesheng* *dongwu baoyu*
 CHUFEI we immediately do well wild animal conservation

gongzuo,
 job,

fouze *jinji* *zhicai* *sueshi* *hui* *jianglin*
 otherwise economic sanction anytime will fall upon

'Unless we do a good job of wild life conservation immediately, economic sanctions could hit (us) anytime now.'

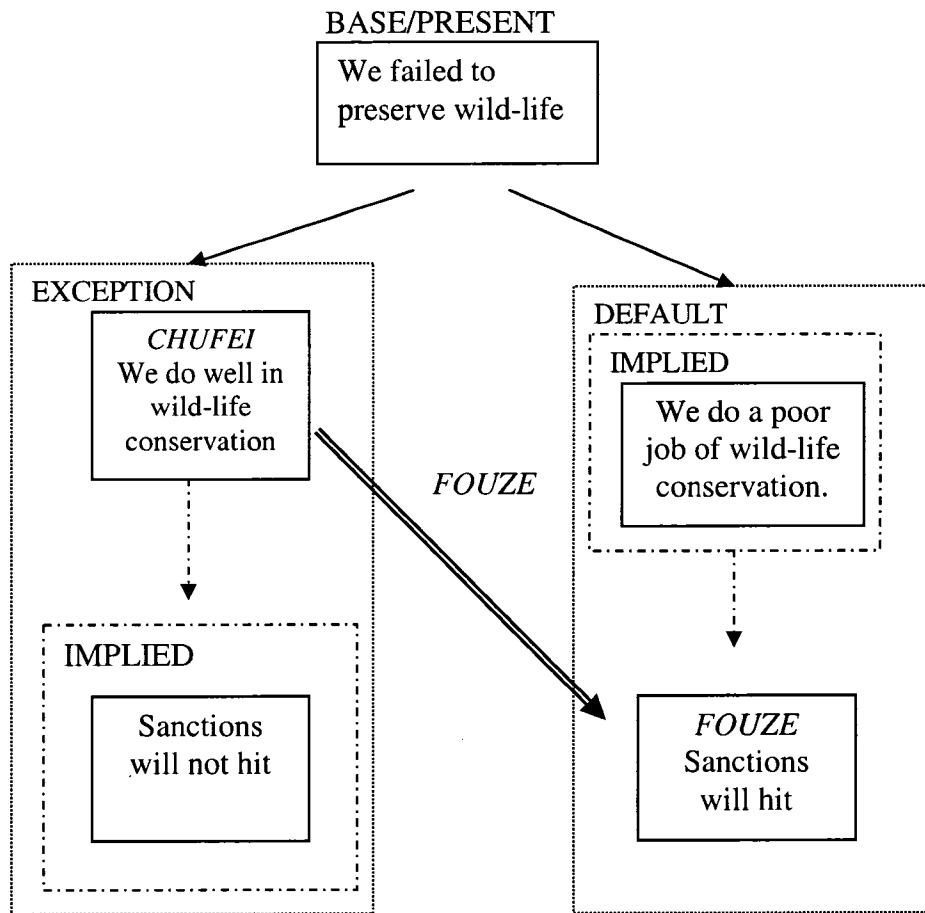
(Academia Sinica Corpus 004)

The proposition embedded in the construction of the above example can be represented as:

chufei[we do a good job of wild life preservation], *fouze* [economic sanctions could hit us]

Here *chufei* introduces the proposition of preserving wildlife as P, and *fouze* marks the the economic sanctions as ~Q. Wild-life conservation will prevent economic sanctions from hitting us; not preserving wild-life will cause economic sanctions. The situation denoted in the protasis prevents one described in the apodosis.

The space set-up of (8) is shown in the following figure:⁸



‘Unless we do a good job of wild life conservation immediately, economic sanctions could hit us anytime now.’

Figure 4.2: Representation of the *chufei-cai* construction.

The diagram shows that *chufei* sets up an exceptive space and a default space, after which the two spaces are stored in background. The details within each space are left to be elaborated by Q. The *fouze* clause places an emphasis on the effect in the

⁸ A **base space** contains the facts or state of affairs that are necessary for the interpretation of a conditional in question. In the figure below, the stated relations and the overtly mentioned spaces are represented by regular arrows and boxes. The implied spaces and relations are represented by dashed boxes and arrows. The extension relation (e.g., the exception space and the default space are extended from the base space) is represented by the regular arrows and the relation that is overtly expressed in the sentence is represented by a double-lined arrow.

default space and thus this effect space is foregrounded. The cause in the default space and the effect in the exceptive space are automatically implied.

The following example illustrates the *chufei-cai* construction:

- (9) *chufei* *mintien* *xiayu, bisai* *cai* *hui* *quxiao*
 CHUFEI tomorrow rain, game **only** will cancel

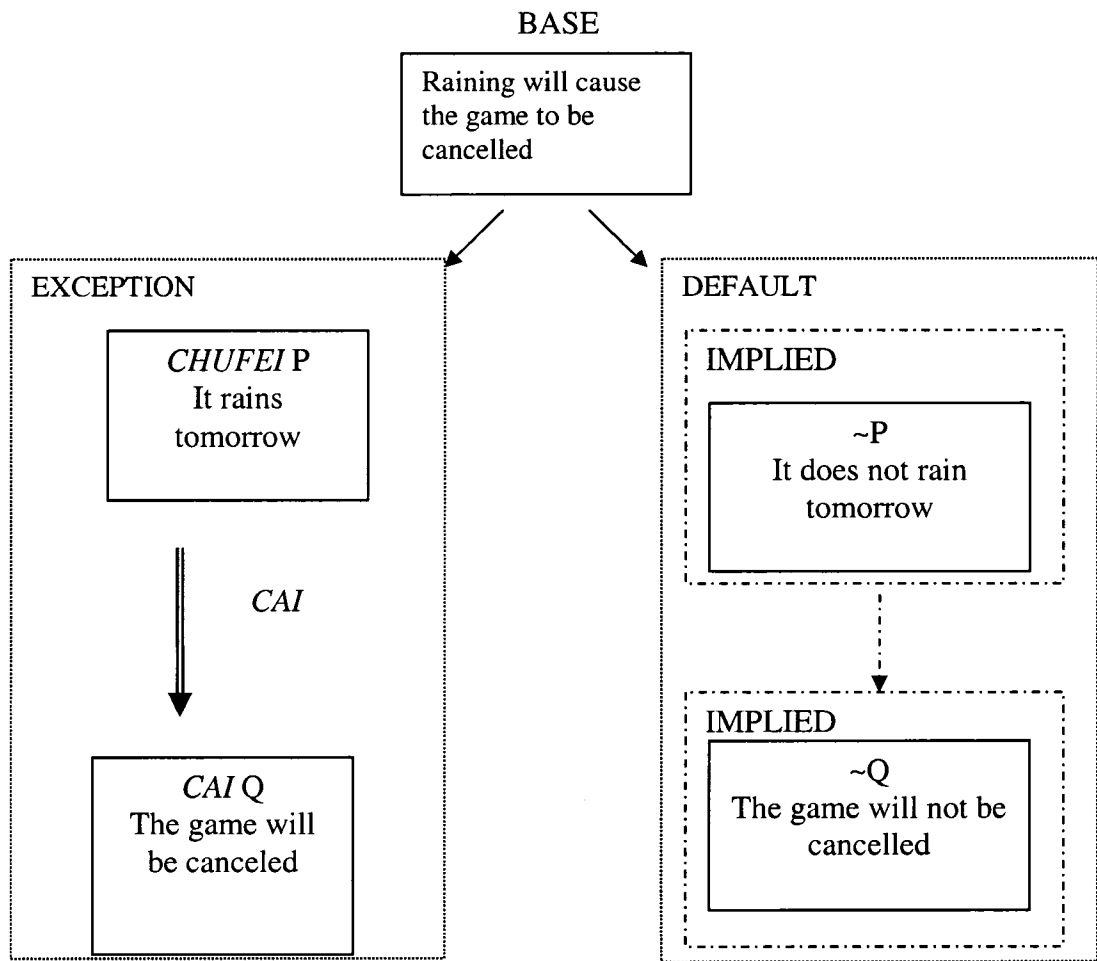
‘The game will *only* be cancelled if the exceptive situation where it rains tomorrow happens.’

‘Only if it rains tomorrow will the game be cancelled.’

(lit. ‘There is an exceptive case that it rains tomorrow, the game will only-then be cancelled.’)

The propositions in the *chufei-cai* construction can be represented as:
Chufei [it rains tomorrow], [The game _{cai} will be cancelled]

Chufei introduces the proposition of having rain tomorrow, and *cai* marks the proposition of cancellation of the game as a result of raining. This construction indicates that **only if** it rains will the game be cancelled. That is, the protasis necessarily causes the apodosis. The mental spaces related to this instance are presented as follows:



‘The game will *only* be cancelled if the exceptive situation where it rains tomorrow happens.’

Figure 4.3: Representation of the *chufeï-cai* construction

In the example, P sets up an exceptive space in which it rains tomorrow. A default space where it does not rain is also set up and both are backgrounded. The *cai* clause highlights the apodosis caused by P proposition. The effect space within the exceptive space is emphasized and foregrounded, and the cause and effect spaces in the default space are implied.

The two different types of constructions indicate two sequences of conditional reasoning process. The differences in the reasoning processes are represented by mental spaces. In these constructions, linguistic tokens, especially conditional linkers, indicate the choice of foregrounded space represented in the apodosis.

4.4 Uses of the *chufei* construction

After seeing the various syntactic patterns and semantic analysis of the *chufei* construction, one might wonder how this construction is used. This section is intended to describe uses of the *chufei* construction to illustrate how mental spaces are built to serve certain functions. Four case studies will be presented in this section, with emphasis on comparing the Mandarin *chufei* construction with English constructions with similar meanings. The alternativity structure (exceptive vs. default) serves as basis for the functions discussed in this section.

The studies of the conversational functions of the exceptive conditionals are relatively few compared with those on *if*-conditionals. Previous discussions on the use of *if*-clauses in text-based and conversational studies mostly revolve around the politeness function (Ford 1997, Ford and Thompson 1987). These studies have shown that the hypotheticality associated with *if*-clauses make them suitable vehicles for encoding information in a less assertive way. The *if*-conditionals serve interpersonal functions in conversations where “face” must be attended to (Ford 1997). Dancygier and Sweetser (2005) point out the use of conditionals as “threats.”

The exceptive quality in addition to hypotheticality of the exceptive conditional interacts with various speech acts in communication. Studies have noted that English

unless clauses are often used to present afterthoughts (Dancygier & Sweetser 2005). Like *unless*, *chufei* often introduces an afterthought when it marks a postposed proposition, (i.e., when Q precedes P). However, this usage is a limited and non-canonical sub-construction of the *chufei* construction. The functions of the canonical *chufei-buran* and *chufei-cai* patterns are certainly more versatile than presenting afterthoughts. A relevant work to this topic is Dancygier and Sweetser's (2005) discussion of the information structure involved with the use of the *unless* construction. The names of the functions discussed in the section are not adopted from previous research on conditionals in that there are no studies focusing on the classification of discourse functions of the exceptive conditionals. Ford (1997) has discussed some conversational functions of *if*-clauses, but those functions cannot be used in the analysis of Mandarin exceptive conditional constructions. The terms that I use in my discussion such as negotiation, attitude, and evasion of responsibility are conventionalized in the study of conversation analysis (Goodwin 1979; Schegloff 1992, 1999) and sociolinguistics (Goffman 1974, 1979; Gumperz 1982).

Mental spaces are useful in discussing the uses of the construction in different contexts (and, in most contexts, the construction has two alternative spaces—default and exceptive—in the background). However, in a scenario of negotiation, such alternative space structure is not necessary because fulfillment of a speaker's request is not an exceptive situation. (This will be discussed further in 4.3.)

4.4.1 Four instances of the *chufei* construction

The first case of *chufei* sentence involves a Q presenting a situation that is against the interest of the speaker, while P describes a very unlikely and wished situation. In this type of context, the construction is used to emphasize the unfortunate reality. The speaker is frustrated with the real state of affairs. This case is interesting because we can contrast the *chufei* construction with the *haihao* construction that emphasizes the fortunate reality. Consider the following example:

- (10) *chufei* *ni* *you* *yao-shi*,
CHUFEI you have keys,

buran *wo* *hui* *bu* *liao* *jia*
otherwise I return not Perf house

‘Unless you have the keys, I can’t get into my house.’
(adapted from a website)

In (10), the speaker uses the construction to emphasize the unfortunate fact that she does not have the keys for the house. This reading has to do with the meanings of unlikelihood and exception suggested by *chufei*. *Chufei* encodes the speaker’s wish and her belief that her wish is unlikely to come true. By placing P before Q, the speaker intends to express that ‘it is almost impossible that you have the keys, and it is a pity that the current situation is as it is.’ The situation described in Q is an undesired fact. This type of *chufei* construction usually expresses a speaker’s pessimistic attitude and disappointment, even when the state of affairs presented in Q is trivial. The space set-ups involved with this example are represented in the following figure:

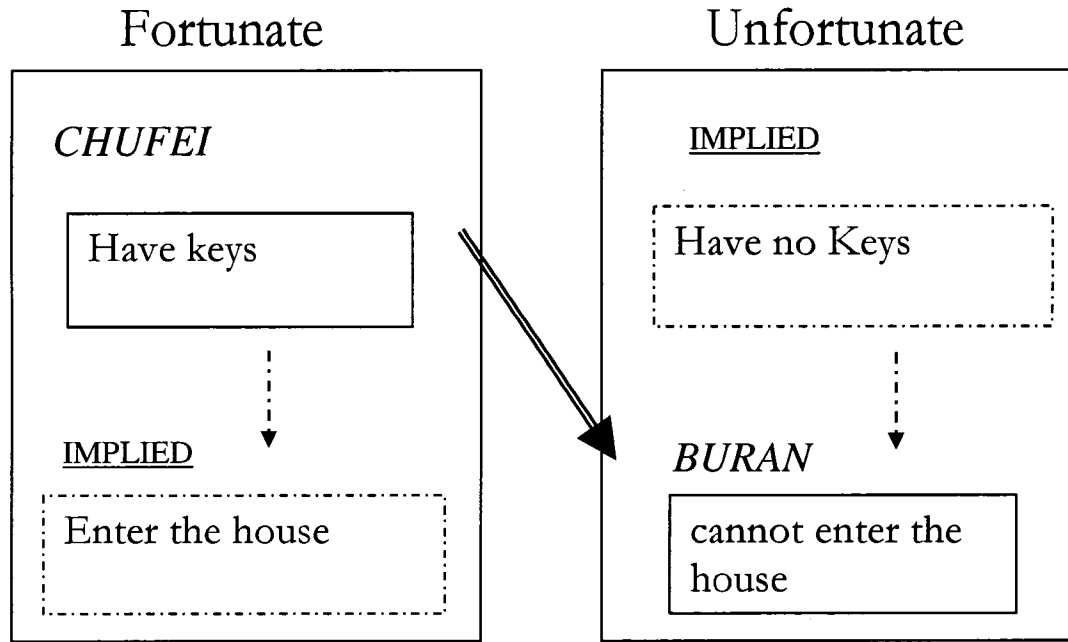


Figure 4.4: Representation of the *chufei* construction used to emphasize the unfortunate fact.

As shown in Figure 4, the linker *chufei* sets up two spaces: one fortunate and the other unfortunate. *Chufei* literally introduces the fortunate (exceptive) situation where the addressee has the keys. *Buran* introduces the effect in the unfortunate (default) space. The spaces present the contrast between the fortunate and unfortunate situations.

There are markers that emphasize fortunateness of the situation in Mandarin, such as *xinghao* ‘thanks to the fact that (lit. luck-good)’ and *hai-hao* ‘thanks to the fact that (lit. still good).’ These phrases serve as nice contrasts to *chufei* in that they indicate that the reality is desired whereas *chufei* implies that the reality is not desired. An example using *hai-hao* is shown in (11).

- (11) *hai-hao* *ni* *you* *yao-shi*,
still-good you have keys,

buran *wo* *hui* *bu* *liao* *jia*
otherwise I return not Pert house

‘Good thing you have the keys, or I couldn’t get into the house.’

The marker *haihao* ‘thanks to the fact that’ uses similar structure to *chufei* in two ways: P precedes Q with a conjunction meaning ‘otherwise’ such as *buran* and *fouze* being obligatory in Q. As shown in the sentences, the main clauses in (10) and (11) are identical. In addition to the similarity in syntactic structure, the point of semantic emphasis indicated by *haihao* and *chufei* is also the same (namely, the interest or disinterest to the speaker). *Haihao* focuses on the fortunate situation presented in the protasis, which is desired by the speaker, whereas *chufei* emphasizes the unfortunate state presented in Q in contrast to the speaker’s wish.

In a final comparison, it is also worth comparing the *hai-hao* construction with the English negative-stanced constructions since both constructions indicate the speakers’ epistemic stance toward P and Q. Consider the following examples:

- (12) a. If you didn’t have the keys, we couldn’t get in.
b. If you hadn’t had the keys, we couldn’t have gotten in.

The *hai-hao* construction in (11) and the English constructions in (12) share one similarity: the apodosis describes an undesired negative-stanced situation. This is to say that the undesired situation represented in Q is asserted to be false. The desired situation, i.e., having the keys, is positive-stanced.

Most broadly, as we can see from (10), the *chufei* construction is used to emphasize adversity of events or states. This phenomenon is related to the construction’s association with negative polarity, which will be discussed further in section 4.5.

Secondly, similar to speakers of other languages, Mandarin speakers often use the exceptive construction to demonstrate the speaker's uncompromising attitude. This use in Mandarin is first noted in Chao's (1968) research (though he does not assign a name to this function). In this kind of context, P introduces a completely impossible or even counterfactual proposition, followed by a main clause that can stand alone as a speech act.

This is illustrated by the example below.

- | | | | | | |
|------|---------------------------|-----------------------|---------------------------|-----------------------------|------------------------------|
| (13) | <i>chufei</i>
CHUFEI | <i>taiyang</i>
sun | <i>cong</i>
from | <i>xi-bian</i>
west-side | <i>chu-lai</i> ,
out-come |
| | <i>fouze</i>
otherwise | <i>wo</i>
I | <i>bu hui</i>
not will | <i>gaibian</i>
change | <i>zhuyi</i>
idea |

‘Unless the sun arises from the west, I will not change my mind.’
(Chao 1968)

In (13), P presents the sun's rising from the west as a precondition for the speaker's changing mind to take place. Since P proposition is indisputably impossible, changing her mind is indisputably impossible too. People use this pattern to show that their attitude will not change no matter what happens—this attitude is uncompromising and firm. From the speaker's point of view, the logical reasoning behind this construction is like this:

“My stance is expressed in the *fouze* clause, and I know you hope me to change that. There is only one exception that will make me change my stand. This exception is described in P. However, this exceptive case is impossible, and therefore nothing can make me change my stance.”

The space set-up of (13) is illustrated in the following figure.

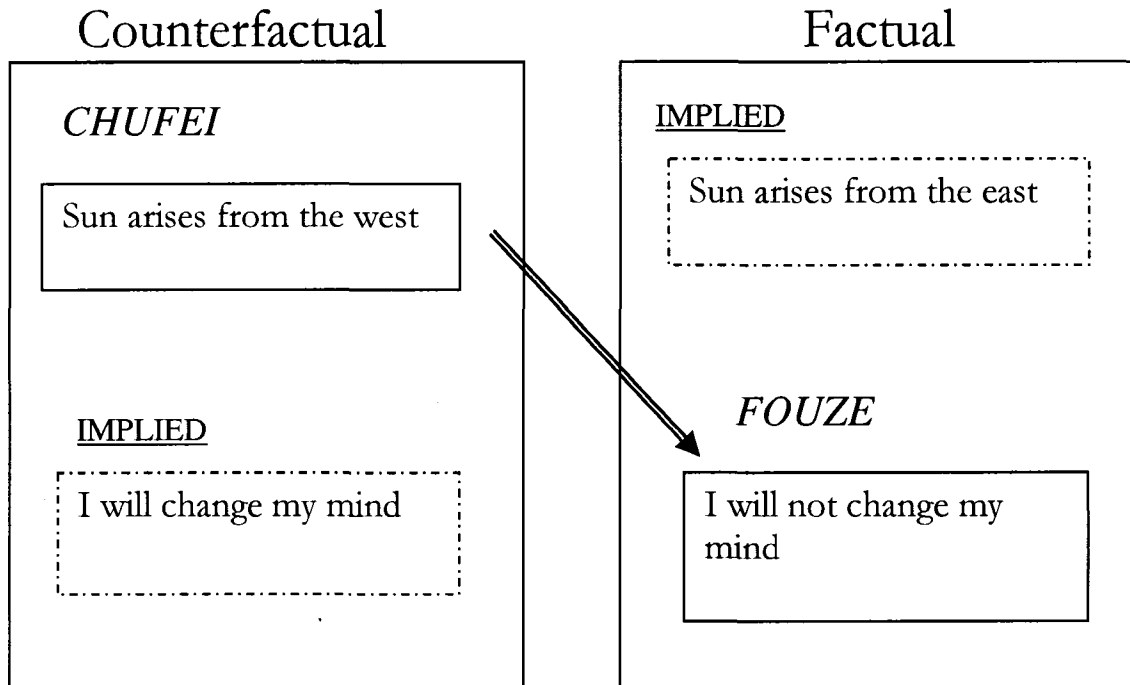


Figure 4.5: Representation of the *chufei* construction used to show one's attitude with a counterfactual.

Chufei in the above example builds a counterfactual and factual space. The *chufei* clause proposition is placed in the cause space within the counterfactual space; the *fouze* clause proposition is located in the effect space of the factual space. This construction is used for a rhetorical purpose, and thus the two propositions and the implied situations do not have any cause-effect relationship. Of course, the fact that sun rises from the west has nothing to do with the speaker changing his mind. This alternative space analysis posits multiple spaces even though the speech-act can stand alone because representing this kind of sentence in terms of mental spaces has one advantage: we can easily infer the implied propositions in counterfactual and factual spaces once the space representation is drawn. These implications are the real messages that the speaker wants to convey. The spaces clearly exhibit the reasoning process and contrast across counterfactual and factual domains.

The Mandarin example serves as a good comparison with the English *unless* construction. An English example is provided as follows:

(14) Unless the sun arises from the west, I will not change my mind.

This use of the *unless* construction is a natural outgrowth of the basic constructional use. The exceptive nature of the impossible state is indicated by the protasis marker and the unlikelihood of the exceptive state—in both Mandarin and English—strengthens the tone of the speaker.

The third function is negotiation between two participants of the conversation. In this type of *chufei* construction, the *chufei* clause conveys the speaker's demand while the opposite of Q proposition is the addressee's request. The important thing here is that the exceptive-default distinction is not necessary for the reasoning of this use. Thus it does not have an alternative space structure as do other *chufei* sentences. Consider the following example:

(15)	<i>chufei</i>	<i>ni</i>	<i>gei</i>	<i>wo</i>	<i>nei</i>	<i>ben</i>	<i>shu,</i>
	CHUFEI	you	give	me	that	CL	book
	<i>buran</i>	<i>wo</i>	<i>bu</i>	<i>xuan</i>	<i>na</i>	<i>men</i>	<i>ke</i>
	otherwise	I	not	take	that	CL	course

'Unless you give me that book, I will not take that course.'

'Give me the book or I will not take that course.'

(Li & Thompson 1981)

The speaker uses Q proposition as the basis for negotiation. If the addressee wants to get what she wishes, she has to meet the speaker's demand expressed in P. The strategy of negotiation in this case is exchange of conditions. Both conditions in the subordinate and Qs are equally likely to happen. Thus, the unlikelihood and exceptive property of the proposition of the first clause of the *chufei* construction is not emphasized

in this usage. Because exceptiveness is not a crucial factor in understanding the function of the sentence, the exceptive-default distinction is not at play in the reasoning process. Naturally, the exception-default space contrast is not set up as in the prototypical *chufei* construction. Instead, only the speaker's request space (marked by *chufei*), the addressee's request space, and the addressee's undesired space (marked by *buran*) are set up. The construction itself expresses the speaker's request and the addressee's unwanted situation and therefore their spaces are created. The space set up is illustrated as follows:

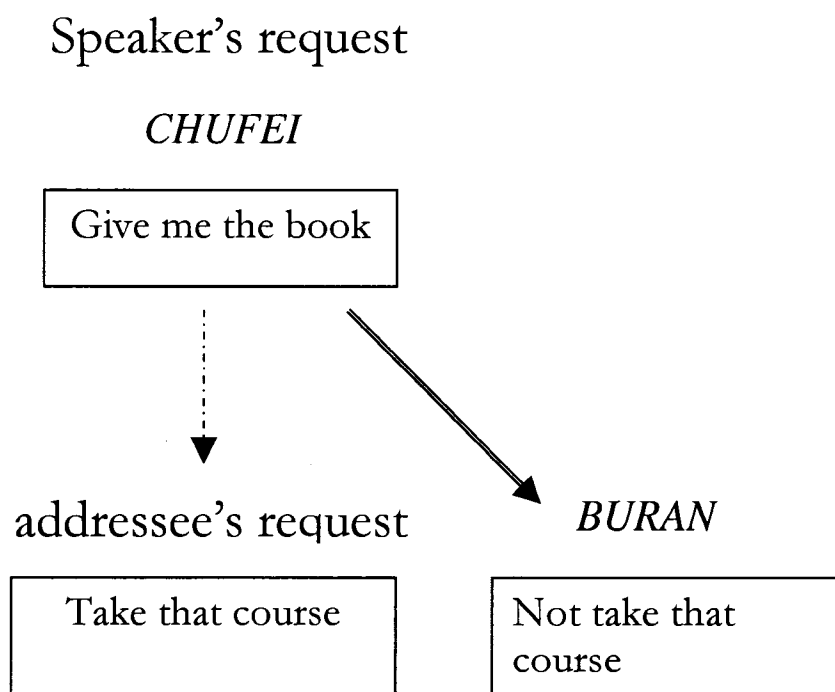


Figure 4.6: Representation for the *chufei* construction used in the context of negotiation

Dancygier and Sweetser (2005) also notes the use of conditional as a threat in their discussion of the *or* conditional. An English example is given as follows:

(16) Give me that book, or I will not take your course.

This example bears two similarities to the Mandarin example as in (15): the sentence is about an exchange of conditions, and one condition is not more exceptive

than the other. Similar to *buran*, *or* points to a condition that is not the effect of the cause described in the protasis. In other words, *or* directs attention to an alternative to the addressee's desired condition. The alternativity involved with this construction allows the speaker to make such negotiation with the addressee. In an *or* conditional, the alternatives are expressed via the P, ~Q structure, which is also the case of a *chufei-buran* conditional. The only syntactic difference here is that the protasis is overtly marked in (15) but the protasis is not marked in (16). In addition, similar to (15), both the speaker's request and the addressee's request are equally likely because the likelihood or exceptive quality of the expressed conditions is not stressed in this use of the construction. Therefore, the closest English translation of (15) is an *or* sentence, not an *unless* sentence.

Fourthly, the *chufei* construction serves as a hedge in speech acts. The function of the hedge is to evade responsibility. Consider the example:

- (17) *chufei* *women hen mang,*
 CHUFEI we very busy
- buran* *women* *yiding* *lai* *kan* *ni*
 otherwise we certainly come see you

'Unless we are very busy, we will come to see you.'

The speaker makes a promise in Q. The *chufei* clause expresses an exceptive situation that might cause the speaker to break her promise. By presenting the exception before the promise, the speaker provides a hint that her promise is not fully guaranteed. In the meantime, unlikelihood suggested by *chufei* softens her excuse of being busy. This helps the speaker to assure the addressee that she is very unlikely to break her promise of visiting. If that happens, it is because she is too busy and the chance of her being too busy is very low.

In this instance, *chufei* establishes a cause space and an effect space. Inside the exceptive space, the hedge 'we are busy' is marked by *chufei*, while the case that we are not busy is inferred and created in the default space. In the default space, the promise is expressed by the *buran* space, whereas the broken promise is implied and set up in the exceptive space. These four small spaces are all created because they need to be present in the course of the reasoning in order for the listener to understand the utterance. The addressee of course has to infer that there is an implication that the speaker may break the promise in case she becomes too busy. Inability to infer the existence of this possibility is tantamount to failing to understand the speech act associated with this sentence.

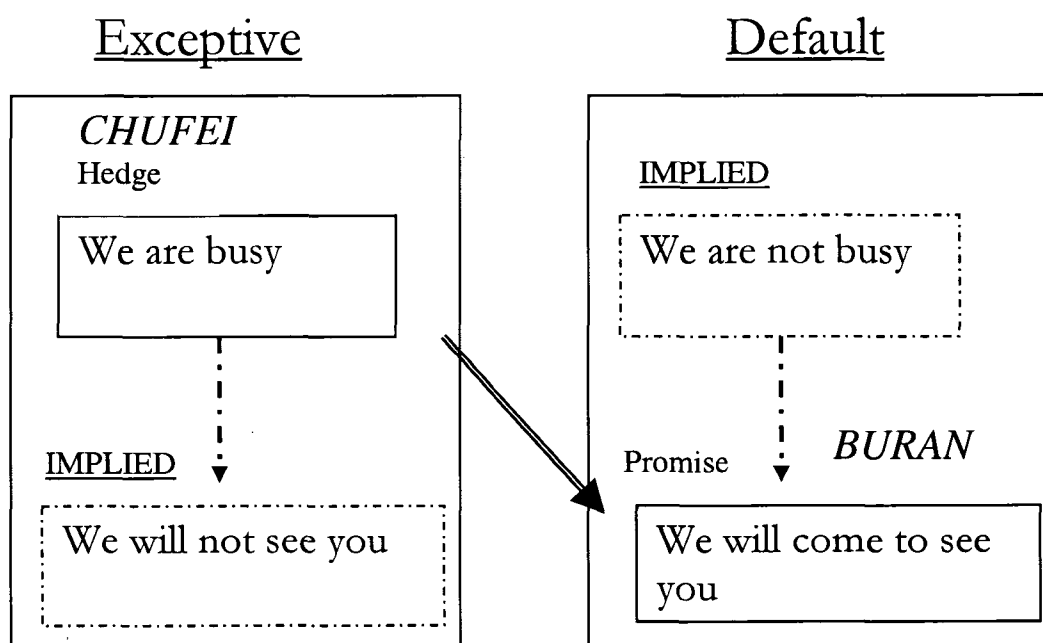


Figure 4.7: Representation of the *chufei* construction used as a hedge

In the case of making a promise, the *chufei* construction is used as a strategy for politeness. More specifically, this use of *chufei* construction is an inverse of the politeness example such as *We will come if we are not too busy*. Instead of directly stating the condition under which the speaker will keep her promise, she uses the *chufei*

construction to mark the condition that prevents her visit as exceptive and unlikely. This is to say that in normal situations, the speaker will keep her promise.

4.4.2 Conclusion of uses of the *chufei* Construction

In addition to hypotheticality and optionality, the *chufei* construction has an exceptive ingredient in its meaning and use. These three ingredients make the *chufei* construction an ideal medium to minimize a threat in the context of making a promise. This observation is consistent with the claim that conditionals are ‘vehicles for interpersonal functions in conversation where issues of face must be attended to’ (Ford 1997). However, in some contexts, the *chufei* construction has emphatic effects instead of softening effects. For instance, in showing one’s attitude (as discussed in 4.2), one uses the exceptive quality of the protasis to emphasize that the apodosis is as impossible as the protasis. The face threatening act is not minimized, but maximized. In the context of negotiation, the *chufei* construction is not used to make one’s request sound more polite. Instead, the construction expresses that fulfilling the speaker’s request is the unique condition to satisfy the addressee’s request. These facts indicate that the politeness-based analyses proposed by previous scholars (Ford 1997, Ford and Thompson 1987) are not sufficient to explain and analyze the diverse functions of the exceptive conditionals.

The interpretation of the *chufei* construction relies heavily on contextual information and implication. The functions mentioned in this section are achieved by conveying and inferring the alternative (e.g., counterfactual vs. factual, fortunate vs.

unfortunate) and desired (e.g., speaker's request and addressee's request) relationships between the options expressed and the options implied by the construction.

Specific strategies, intentions, and interactions are conventionally associated with the use of the *chufei* construction. As Borutti (1984) points out, "to obtain a correct representation of the subject's discourse, we must consider the linguistic strategies of the speaker, the effects he or she is planning, the anticipation of the hearer's mental reactions, his or her pre-existing context of speaker, etc. (1984: 445)." To understand the meanings and interpretations of exceptive conditionals, we need to look at the situated pragmatic acts directly conveyed by the construction.

4.5 Polarity and the *Chufei* Construction

In the *chufei* construction, Q is often negated by a negator or a word with negative implication. Typical negators are *bu* 'not,' *meiyou* 'have not,' and words with negative implications including adjectives *bu keneng* 'not possible,' *hen nan* 'very hard,' *mei banfa* 'have no means,' etc., verbs *quxiao* 'cancel,' *zhicai* 'sanction,' *kaichu* 'expel.' In addition to overt negative elements, Q is often cast in interrogatives whose answers are known to be negative. The phenomenon is not unique to Mandarin *chufei* construction. The English *unless* construction also tends to be polarity sensitive in that Q occurs more often in a negative environment than a positive one. The relationship between polarity and the exceptive conditional is an intriguing issue worth pursuing. Studying this phenomenon in Mandarin conditionals not only provides an analysis for polarity sensitivity in Mandarin conditionals, but also sheds lights on Mandarin polarity triggers

in diverse contexts including conditionals and questions. The negative environments where Mandarin exceptive conditionals occur are illustrated in the following examples.

The first example uses the negator *bu* 'not' in Q

(18)

A. ... *yao chu lai hen nan...*
Want out come very hard

'It is very hard to go abroad (for advanced studies).'

B. ... *fanzheng ni na zhuan ye wo jue de genben jiu*
Anyway you that major I feel completely JIU
na bu dao qian,
get not perf money

chufei ni kao shang lian-qian you xiwang
CHUFEI you test above two-thousand have hope

'Anyway, with that major, I really don't think you'll get any money (financial support), unless you hope to have a (GRE) score of over 2000.'
(Call Home ma 0030)

The next example uses an adjectival phrase to negate Q

(19)

A: *ruguo yao dao jundui kan ta de_hua tai yuan...*
RUGUO want go military see him the_case_of too far...

mei-you banfa han ta jianmian
not have means/way with him see

chufei fangjia
CHUFEI have a vacation

'If we want to visit him in the military, it is too far (for us)... There is no way that we can see him unless he has a vacation.'

(Putonghua A04)

The following example uses the adjective 'difficult' to describe the low possibility of Q proposition.

(20)

A: *pingshi zhao yidian sheme shiqing zuo a*

ordinarily look_for a little what thing do A_PAR

‘You might want to look for a job. (lit: look for things to do on ordinary days.)’

B: *pingchang wo shi xiang shizhe zuo yi zuo sheme danshi*
Ordinarily I am think try do one do what but

jiu shi bijiao kuennan,
JIU is more **difficult**

chufei wo ziji de shenfen xian jiejie
CHUFEI my self of identity first resolve

‘I am indeed thinking and trying to find a job, but it is difficult; unless I resolve my problem of identity first.’

(Call Home ma 1008)

The next instance has a verb *mei* ‘have not’ in Q.

(21) *chufei nide wenti hen duan,*
CHUFEI your question very short

fouze wo mei shijian han ni tan
FOUZE I have not time with you talk

‘Unless your question is very short, I **do not have** time to talk to you.’

The last example uses a question in Q whose answer is known to be negative.

(22) A: *dai zai jiali wo hai neng zuo sheme?*
Stay at home I still can do what

jiao shouzhang a,
foot was hurt, A_PAR

chufei qu kan jiao
CHUFEI go see foot

‘What can I do by staying at home? My foot was hurt, unless I went to see a doctor for my foot.’

(Putonghua A 16-17)

As shown in the examples, the *chufei* construction is closely related to negative polarity. *Chufei*, *fouze*, *buran*, and *cai* are negative polarity triggers. The evidence is that

the *chufei* construction usually has an overt negative element or negative implication that can be inferred from the context. The goal of this section is to provide a unified account of the lexical semantics of conditional linkers as negative polarity items. Through the investigation of the semantics of the linkers, we are able to examine the interaction of negative polarity and linking devices in the construction.

Traditional approaches to negative polarity focus on the constraints in polarity licensing. Krifka (1990, 1994), and Kadmon and Landman (1993) study lexical semantic factors that attribute to the behavior of PSIs. Ladusaw (1980, 1983) provides an analysis of Negative Polarity Items (NPIs) based on semantic entailment. Linebarger (1980, 1987, 1991) discusses the pragmatic motivation for the negative Implicature, and Horn (1972) and Fauconnier (1975a, 1975b) analyze polarity along pragmatic scales. And Israel (1996) investigates the general properties of Polarity Sensitive Items (PSIs) in an attempt to unite the large diverse class of PSIs.

The present study adopts Israel's approach, though the linkers in question are not Polarity Sensitive Items. The parameters that he proposes are useful in the analysis of the linking devices in conditionals with overt negators or words of negative implications. In his analysis, polarity sensitive items can be analyzed with two lexical features: informative value and quantitative value. The informative value is the parameter that shows the emphatic pragmatic function of a PSI. For example, *even* in English encodes a pragmatic emphasis and thus possess an i-value. The quantitative value (q-value) has to do with a value on a quantity scale expressed by the PSI; for instance, *a bit* in English encodes a low q-value.

There are two advantages for using Israel's model in the discussion of *chufei*, *fouze*, *buran* and *cai*. First, it can provide a unified account for seemingly very different linkers, *buran* 'otherwise' and *cai* 'only then.' *Buran* occurs in clause-initial position and acts like a conjunction. *Cai* occurs in sentence-medial position and behaves like an adverb. They are semantically incomparable in that *buran* introduces another alternative whereas *cai* emphasizes the tie between cause and effect. The second advantage is that this approach can describe *cai*'s sensitivity to words of quantity. We can therefore expand out analysis of linkers to a wider context of quantifiers and questions, beyond sentential negation.

Using Israel (1996)'s model, *buran*, *fouze*, and *cai* can be analyzed with two lexical features: informative value and quantitative value. *Buran*, *fouze*, and *chufei* are negative polarity triggers that encode an emphatic i-value but are neutral as to a q-value. It is because *buran*, *fouze*, and *chufei* emphasize the negative polarity of the event present in the apodosis but do not depict anything about quantity. On the other hand, *cai* is a polarity trigger that encodes an emphatic i-value and a q-value. Instances that illustrate *cai*'s pragmatic i-value are provided as follows:

- (23) *Meijun lai-de_shihou wo cai kaishi shao fan*
 Meijun come-when I CAI begin cook rice

'I did not start cooking until MEIJUN CAME.'
 'I only started cooking when MEIJUN CAME.'

(From Hole 2004)

- (24) Ni wen wo cai dui
 you ask me CAI right

'You (should) ask me (instead of others)!'
 'It is the right thing to ask me!'

In (23), the speaker emphasizes ‘Meijun comes’ is the only condition that makes her start cooking. In (24), the speaker emphasizes that asking her instead of other people is the right thing to do.

The examples showing that *cai* has to do with the q-value are sentences with quantity and expectation. More specifically, *cai* indicates that the q-value of a *cai*-marked proposition is not as the speaker expects. The first example has a ‘later than expected’ interpretation and the second example has a ‘more than expected’ interpretation.

- (25) *zhangsan wu dian cai lai*
Zhangsan five o'clock CAI come

“Zhangsan came as late as five o’clock.”
“Only after five o’clock did Zhangsan come.”

- (26) *zhangsan chi le san-ge pinguo cai bao*
Zhangsan eat Perf three CL apple only_then full

“Only after eating three apples was Zhangsan full.”
“Zhangsan ate as many as three apples to be full.”

(Biq 1994)

In (25), the speaker expects Zhangsan to come earlier than five o’clock. In (26), the speaker has expected Zhangsan to be full before the intake of three apples. To her disappointment/surprise, Zhangsan needs more than she expected to be satiated.

All of the above uses have to do with *cai*’s “uniqueness” meaning as discussed in Chapter 3. That is, *cai* emphasizes either that the previous clause (P) as a unique condition for the *cai*-marked (Q) clause, or that the described unique quantity that precedes *cai* needs to be fulfilled first in order for the expected situation to happen.

Buran, *fouze*, and *chufei* are very strong polarity triggers. The *chufei* construction has a strong tendency to occur with any word with negative implication as well as overt negators. In contrast, *cai* is not a strong polarity trigger because it can occur in both affirmative and negative sentences, but it is sensitive to the interaction of polarity with scalar inference of its focus.

Using the lexical parameters, informative value, and quantitative value, we are able to discuss the differences between *buran/fouze/chufei* and *cai*. *Buran*, *fouze* and *chufei* are negative polarity triggers that encode informative value. *Cai* is a trigger that encodes both informative value and quantitative value. The i-value parameter is able to capture the pragmatic emphasis that *cai* indicates in the cases of (23) and (24). The q-value parameter is helpful to provide a consistent analysis of *cai* in non-conditional scalar contexts as in (25) and (26).

4.6 Conclusion

This chapter has presented a descriptive analysis of the syntactic constraints (i.e., clause order and bi-clausal marking) and semantics of the Mandarin exceptive conditional construction using theories of cognitive linguistics. The Mandarin exceptive conditional construction has two types that respectively emphasize the default situation or the exceptive situation. Studying this phenomenon provides insights into how linguistic cues guide people's reasoning and draw people's attention in exceptive scenarios. The study has examined two approaches to the relationship between the linking mechanisms and the whole construction. The formal coindexing method treats the apodosis linkers as correlative pronouns and the protasis marker as an exceptive operator. While the formal

coindexing method explains the clash of *unless* and *then* in English conditionals, it mispredicts this clash in the Mandarin exceptive conditionals since the bi-clausal linking with *chufei* and *cai* is perfectly grammatical in Mandarin. So, there is a flaw in the formal coindexing approach. The second method—the one favored here—analyzes the construction by means of mental spaces and information structure. Under this account, the protasis linker *chufei* creates two exceptive and default spaces in the background, and the apodosis linkers such as *buran*, *fouze*, and *cai* select particular $\sim Q$ and Q spaces to be placed in the foreground. *Buran* and *fouze* indicate that the effect space in the default space ($\sim Q$ space) is in figure/foreground, whereas *cai* shows that the effect space in the exceptive space (Q space) is foregrounded. The advantage of this method is that it allows the possibility to analyze the conversational functions of the *chufei* construction in terms of space set-ups and compare these with the functions of other English constructions.

The conversational functions discussed in the study include emphasis on the unfortunate current state of affairs, showing one's uncompromising attitude, negotiation of interests and evasion of responsibility. These functions are achieved by using the exceptive property of the *chufei* construction and the alternative space structure. What links these functions together is that they are used in potentially problematic contexts—the speaker performs face threatening acts in these contexts. On the one hand, the speaker makes use of the hypothepicality and exceptiveness associated with the construction to minimize the threat, while, on the other, the uniqueness and impossibility of propositions presented in the construction help to show emphases and attitudes. More studies on the discourse and conversational functions of the exceptive conditional

construction need to be conducted. The politeness theory is not enough to analyze its functional diversity.

The topic of polarity is also investigated in the chapter. It is found that treating Mandarin conditional linkers as polarity triggers offers a good account of the behavior of linkers in various constructions.

In conclusion, I have conducted preliminary research on the syntax, semantics and pragmatics of the *chufei* construction. This research not only has a high descriptive value for Mandarin, but also might be valuable for the study of the exceptive linking devices in general.

Chapter 5 Counterfactual Constructions in Mandarin

5.1 Introduction

5.1.1 The source of counterfactuality

Many languages use the past tense form to express counterfactual meaning. As a language that lacks past tense morphology, Mandarin has been considered to have no grammatical means to express the counterfactual meaning. Pervious scholars have claimed that the counterfactual interpretation in Mandarin can only be inferred from the context (Chao 1976, Li & Thompson 1981). Although counterfactuality can be contextually inferred in *ruguo*-marked, *jiu*-marked, and unmarked conditionals, it is not true that Mandarin has absolutely no grammatical means to express counterfactuality. For example, the negative compound *bushi* ‘not be’ explicitly indicates counterfactuality. When one sees a *ruguo-/yao- bushi* sentence, one immediately knows the sentence is counterfactual. Consider the following example:

- (1) *ruguo bushi bei duiyou zuzhi wo zao jiu zou*
if not be Passive teammate stop I early JIU beat
ta le
him Perf

‘If I had not been stopped by my teammates, I would have beaten him’
‘(lit. If **it was not the case that** I was stopped by my teammate, I would have beaten him.)’

(from a sports website)

In addition to the negative compound, certain phrases explicitly mark the conditional statement as counterfactual. One of such is *ruguo...jiu hao le* ‘if... it would be nice,’ as shown in the following example.

(2) *Yao-shi* *zhe* *haozhai* *shi* *wode* *jiu* *hao* *le*
if this mansion is mine **JIU** nice **A_Par**

‘If only this mansion is mine!’
 ‘(lit. If this mansion was mine, it would be nice.)’

The current research treats the pattern of *ruguo...jiu hao le* as a whole construction—the combination of *if*-like word *ruguo* or *yao-shi* plus *jiu hao le* ‘would be nice’ is conventionalized.

One of the goals of this chapter is to investigate all kinds of means to express counterfactuality in Mandarin at the levels of bound morpheme, lexicon, and phrase. A focus of the research is the question of how these elements interact with counterfactual inferences. Another goal is to study the interaction of context and the components in the constructions, which this chapter will show to be crucial for determining the meanings of the constructions without explicit counterfactual markers as well as crucial for understanding cases of counterfactual constructional structures whose counterfactual status is difficult to evaluate.

5.1.2 The Meaning of the counterfactual construction

This chapter addresses an important question in the study of meaning: what is an appropriate semantic description of conditional constructions? It is proposed that a proper analysis should take into account the compositional properties of the overall construction and examine the interaction of the whole functioning unit with context. The

mental space representations of constructions in relation to the meanings of their constituents are also provided. This approach avoids not only the problems of attributing too much to pragmatics (Chao 1976, Li & Thompson 1981) but also avoids the difficulty of formalizing how truth conditions depend on the constructional constituents and context using logic (Kratzer 1981, 1989; Lewis 1989; Pullock 1976; Von Stechow 1999; Kanazawa et al. 2005).

In the case of Mandarin counterfactual constructions, a pragmatics-only method (i.e., the proposal that counterfactuality can only be contextually and pragmatically inferred in Mandarin) cannot provide insights into the relation of the compositional components' meanings. A truth-conditional semantic analysis cannot completely present the diverse functions of the Mandarin counterfactual conditional constructions, especially the pragmatically counterfactual conditionals.

It is also argued that linkers and other words and phrases are important clues for conditional reasoning in that they indicate both the building of background and the selection of space to be foreground/figure. Counterfactual inference in Mandarin is based on reasoning across two parallel alternative spaces (factual vs. counterfactual) and, similar to English negative stanced conditionals, Mandarin counterfactual space building involves embedding of the counterfactual space in the base space. Using Fauconnier's (1985) embedded mental space structure as evoked by other conditionals discussed in Chapter 3 and Chapter 4, Sweetser (1996) points out that the tense group in the English marks the mental space embedding and that Fillmore's (1986) grammar of English conditionals accords with Fauconnier's proposed space embedding structure. Dancygier and Sweetser (2005) term this tense group used for marking counterfactuality as

distanced form(s), which indicate space embedding and epistemic stance. The space representations provided in this chapter enable the comparisons and contrasts of the diverse reasoning patterns of counterfactual inference in different types of counterfactual constructions. For instance, in a *bushi*-marked counterfactual conditional, the protasis describes a situation that occurs/occurred; the protasis in a counterfactual conditional without *bushi* depicts what does/did not occur. This means that in Mandarin the counterfactual reasoning can be conducted from a cause space in the factual space or the counterfactual space.

This research concerns Mandarin counterfactual constructions in two categories. The first is the counterfactual conditional constructions, including those using the negative compound *bushi* and those without explicit markers. This type includes present counterfactual conditional and past counterfactual conditional. The other category is the counterfactual wishes, including sentences marked by a sentence-final phrase as shown in (3) and those introduced by a verb of wishing as shown in (4).

- (3) (repeated from (2))
yao-shi *zhe* *haozhai* *shi* *wode* *jiu* *hao* *le*
if this mansion is mine **JIU** nice A_Par

‘If only this mansion is mine!’
‘(lit. If this mansion was mine, it would be nice.)’

- (4) *danyuan* *wo* *mei* *yujian ta*
wish I not-perfective meet him

‘I wish I had not met him.’

Although the counterfactual interpretations of these constructions have origins in different sources (e.g., negative compound and conventionalized phrases), they share one similarity. The counterfactual interpretation is obtained compositionally from the

semantics of the components in the constructions. For example, besides the *if*-like word, the counterfactual conditional is semantically connected with the negative compound *bushi*'s function of indicating falsehood. The phrase-marked wish as shown in (2) is involved with counterfactual meaning by integrating the wish-expressing comment *jiu hao le* 'it would be/have been nice' with the *if*-clause. The WISH verb sentence is interpreted counterfactually due to the negative stance of the WISH verb inferred from context together with the aspect-indicating word *mei* 'have not (perfective),' as shown in (4). *Mei* '(not) perfective' suggests that the negated event is a past event. Its past implication serves as a contrast to another negator *bu* 'not', which has a present and future implication. In this sentence, *mei* indicates that 'meeting him' is a past event. To express a future hope in this instance, one has to replace *mei* with *bu hui* 'not will,' with this past counterfactual interpretation related to the tense-indicating negator *mei*. These facts indicate that the analysis of the counterfactual construction relies on the understanding of semantics of contributing components. It follows from this that we must regard the construction as a whole unit that interacts with the context and gains its meaning from integrated parts.

5.1.3 Organization

Section 5.2 examines the interaction of negation and counterfactuality, taking on the question of whether counterfactuality in Mandarin is an implicature or assertion is also discussed. Section 5.3 proposes an analysis that is able to describe the cognitive processing of the Mandarin counterfactuals as represented in mental spaces. Section 5.4 discusses the counterfactual wish constructions marked with *danyuan* 'wish' or *xiwan*

‘wish’ and the counterfactual belief construction marked with *yiwei* ‘think’ in terms of alternative spaces. Then, section 5.5 examines the role of context in processing of the pragmatic counterfactual conditional constructions as well as distinguishing counterfactual and non-counterfactual constructions, which is followed by the conclusion in Section 5.6.

5.2 Negation and counterfactuality

This section investigates two topics. First, it discusses the function of the negative compound *bushi* in expressing counterfactuality in Mandarin as part of counterfactual conditional meaning expressions. Although previous linguists have observed the use of negative compounds in Mandarin counterfactual constructions, they do not place emphasis on the importance of the semantic association of negation and falsehood indication in Mandarin (Eifring 1988), or treat the sequence *yao bushi* ‘if it is not the case that (lit. if not-be)’ as one complementizer (Nevins 2001) irrespective of the productive patterns of the if-negator combination (such as *ruguo bushi* ‘if it is not the case that’). Instead, the analysis here relates the use of indicating falsehood in non-counterfactual contexts to the counterfactual use in conditionals. It is also argued here that these uses are based on the wide complementation types of *bushi* in contrast to other negative compounds such as *mei-you* ‘have not (lit. not have)’ and *buhui* ‘not (lit. not will).’

The second topic to be discussed is the question of whether counterfactuality is an implicature or assertion in Mandarin. Iatridou (2000) treats counterfactuality indicated by past tense morphology as an implicature based on the argument that the implicature is cancelable (Anderson 1951, Stalnaker 1975, Karttunen and Peters 1979). I will show

that counterfactuality in the counterfactual conditional (i.e., the *bushi*-marked counterfactual) is an assertion, as the counterfactuality cannot be cancelled by context. And, counterfactuality in the ambiguous conditional (i.e., the counterfactual that is only marked with *ruguo* ‘if’ or *yao-shi* ‘if it is the case that’) is an implicature due to its cancellability. This chapter finds that the *yao-bushi* counterfactual conditional is a stronger type of counterfactual construction because of the falsifying power of the negative compound; the ambiguous counterfactual conditional is a weaker type in that the counterfactual interpretation is inferred from context.

5.2.1 The role of negation in reasoning irrealis scenarios

In a sentence, negation asserts the opposite of its associated affirmative proposition. The negative assertion is used to express what the speaker considers as untrue. Thus, negation is associated with irrealis reasoning and non-positive stance. Palmer (2001) points out that it is not uncommon to find languages that mark negated propositions as irrealis statements. Negation in these languages has a modal status. For example, in Caddo (Chafe 1995: 354, 355) negatives take the irrealis marking:

Kúy-t’ayi-bahw
NEG-I+AG+IRR-see
‘I don’t see him’

The negator in the example is an irrealis modal that connotes that the proposition ‘see him’ is non-actual. This irrealis marking of negatives is also true in Mesa Grande Diegueño (Yuman, S. California- Landon 1970: 159), Alamlak (Roberts 1990) and Muyuw (Bugenhagen 1994).

Similar to negation, conditional constructions fall in the ‘non-positive stanced’ category. In particular, a counterfactual conditional describes a proposition that has a negative epistemic stance, so it is not surprising that a language uses negation to mark a counterfactual conditional. In the following sub-sections, it will be demonstrated that the use of negative compound *bushi* in counterfactual construction is closely connected with the use of falsifying propositions in daily conversation. It will also be shown that the predicate *bushi* ‘not be’ has a wide range of complementation type of negations, differentiating it from other negative compounds in being the only legitimate predicate capable of indicating a falsified proposition.

5.2.1.1 Negation and falsehood

The negative compound *bushi* ‘not be’ is composed of *bu* ‘not’ and *shi* ‘be.’ The compound occurs either before an object as in (6) or before a clause as in (7).

- (6) *zhangsan bushi hao ren*
 zhangsan not is good person

‘Zhangsan is not a good person.’

- (7) (revised example from *Chao* 1976)
bushi wo bu gei ta, shi ta bu yao
 not was I not gave him was he not wanted

‘It wasn’t that I didn’t give it to him, but he did not want it.’

In addition to negating a noun phrase as in (6), *bushi* can negate a whole clause. As shown in (7), *shi* ‘be’ asserts the proposition of the second clause to be true and *bushi* ‘not be’ marks the proposition of the first clause introduced as false. (Both *shi* and *bushi* receive stress in the sentence.) The word of affirmation is used to asserts the truth of a

statement (i.e., he did not want it) and the word of negation is employed to make a negative assertion (i.e., it wasn't that I didn't give it to him). In general, when a Mandarin speaker agrees that a statement is true, she uses *shi* 'be' or *dui* 'right (lit. match (v)).' In contrast, when one considers a statement to be false, she uses *bushi* 'not be' or *budui* 'not right.' These uses are applied to sentences regardless of whether they are negative or affirmative (Chao 1976). This is illustrated in the following example:

(8)

A: *Ni bu xihuan woban ni jieshao de nuhai ma*
 you not like I for you introduce Relative girl A_Par

'Didn't you like the girl I introduced to you?'

B: *bushi de, wo xihuan ta*
 not be A_Par I like her

'No, I like her.'

wo zhi shi bu zhidao yao han ta liao sheme
 I just be not know will with her say what

'I just did not know what to say to her.'

In this example, A introduced a girl to B and noticed that B did not talk much with that girl. Thus A concluded that B did not like her. B used *bushi* 'not be' to express that A's conjecture was false, even though the following response was 'I liked her.' It is because *bushi* indicates the falsehood of the whole proposition, not merely negates the verb phrase *xihuan ta* 'like her.' The *bushi* sentence is a negative assertion that it is not true that the speaker does not like her. Based on this falsehood-indicating function, *bushi* naturally marks a hypothetical situation as counterfactual when it occurs with an *if*-like word in a conditional construction. The counterfactual interpretation of a *ruguo bushi* or *yao bushi* counterfactual construction has its origin in *bushi*. The use of indicating a false

proposition also has to do with the complementation type of *bushi*. The question of complementation type of negation will be pursued in the next section.

5.2.1.2 Complementation types in negative and conditional constructions

In addition to *bushi* ‘not be,’ *meiyou* ‘not (perfective) there is/are not’ is often used to mark negative constructions. This section compares *bushi* and *meiyou* in terms of complementation type of negation in counterfactual constructions. This is important in that the discussion of scope provides insights into the degree of compositionality suggested by the negative compound in a counterfactual construction. Besides, *meiyou* needs our attention because it indicates temporal information in a sentence. Its aspectual meaning is a crucial cue to determining whether the hypothetical situation is present or past.

Bushi has a wide range of complementation type of negation. *Bushi* can have scopes over a clause, NP and VP, as illustrated in the following examples. The word *de-hua* ‘of-case’ at the end of the *ruguo-bushi* clause is optional.

(9) complementation type is a clause

ruguo bushi
it not be

[*ta nupengyou bingbian*⁹]
[his girlfriend dumped one’s boyfriend when he served in the military]

de-hua,
of-case,

⁹ *Bingbian* is a Taiwanese Mandarin slang. It describes an event where a girl dumps her boyfriend when he serves his compulsory military duty. *Bingbian* is homophone of mutiny. It is a humorous and yet conventionalized term to refer to this situation. This term can be used as a verb to refer to the action of dumping or as a noun to refer to the event.

ta yinggai hui gen ta nupengyou jiehun
 he probably would with his girlfriend married

'If **it was not the case that** his girlfriend dumped him when he served in the military, he would probably have married her.'

(Su Iwen Corpus ss016)

(10) Complementation type is an NP

ruguo bushi [bingbian]
 if **not be** [one's dumping of boyfriend when he served in the military]

de hua,
 of case

ta yinggai hui gen ta nupengyou jiehun
 he probably would with his girlfriend married

'If **it was not** the dump when he served in the military, he would probably have married his girlfriend.'

(revised from (9))

(11) Complementation type is a VP

ruguo ta nupengyou bushi
 if his girlfriend **not**

[bingbian] de hua
 [dumped one's boyfriend when he served in the military] of case

ta yinggai hui gen ta nupengyou jiehun
 he probably would with his girlfriend married

'If his girlfriend had **not** dumped him when he served in the military, he would probably have married her.'

(Revised from (9))

The precise meaning of *bushi* has to be determined by the complementation type of negation as well as content. Its meaning is similar to 'is/was not' when it has complementation type of negation over a noun. However, when it is used to negate a VP, its simply means 'not.' The aspect 'had' is inferred from the context. This indicates that

the meaning of *bushi* is not always compositional from *bu* and *shi*. In the case of VP-negation, the meaning of *shi* ‘be’ is bleached.

It is also important to know that in a counterfactual conditional in the form of *ruguo bushi P, Q*, the protasis describes a situation that occurred and Q depicts one that did not occur (see also Nevins 2001). The situations described in P and Q belong to different sequences of events. This is different from the English counterfactual construction in the form of *If P, Q*. It is because the *ruguo-/yao- bushi* construction is like ‘if not P, Q.’ In English negative-stanced constructions, the situations depicted in P and Q are the cause and effect of the same sequence of events.

Meiyou is composed of *mei* ‘not’ and *you* ‘have,/there is’. *Mei* is a remnant of ancient negative (Chao 1976). It is now limited only to the verb *you*. *Meiyou* means ‘have/has not’ when occurring before a VP and it means ‘there is/was/are/were not’ when occurring before an NP. It is important to remember that *meiyou* has a perfective element and marks a past event, which plays a significant role in reasoning in past counterfactual conditionals. In contrast to *bushi*, *meiyou* ‘not have/not-there is’ has a narrower scope and is not used emphatically. *Meiyou* can scope over an NP and a VP, as illustrated in the examples.

(12) Complementation type of negation over a VP

ruguo wo meiyou [bingbian]
 If I not-had [dumped one’s boyfriend when he served in the military]

de-hua,
 of case

women yidin jiehun
 we surely get married

‘If I **had not** dumped my boyfriend when he served in the military, we would have surely got married.’
 (Su Iwen Corpus ss016)

(13) Complementation type of negation over an NP

Ruguo meiyou [bingbian]
If **not-there was** [one's dumping of boyfriend when he served in the
military]

de-hua,
of-case

women *yidin jiehun*
we surely get married

'If **there was not** the dumping when my boyfriend served in the military, we
would have surely got married.' (revised from (13))

As shown in the examples, the meaning of *meiyou* is always compositional. When *meiyou* has a complementation type of negation over a VP, its meaning is 'have/has/had not.' The perfective meaning comes from *you*. When *meiyou* immediately precedes an NP, its meaning is 'there is/was/are/were not.' The word obtains the existential meaning from *you*. Given its restricted context (i.e., before NP and VP) and non-emphatic use, I conclude that *meiyou* does not indicate an assertion as *bushi* does. That is to say, the counterfactuality in a *bushi*-marked counterfactual construction is asserted whereas that in a *meiyou*-marked counterfactual construction is not asserted, a fact which is related to the question of whether counterfactuality in Mandarin is an assertion or implicature as discussed in the next section.

5.2.2 Assertion vs. implicature

Many scholars have treated counterfactuality as an implicature, not an assertion (Stalnaker 1975, Karttunen and Peters 1979, Palmer 1986, Iatridou 2000). The classic example used to illustrate this point is as follows:

(14) If the patient had the measles, he would have exactly the symptoms he has now. We conclude, therefore, that the patient has the measles.

As shown in the example, the antecedent proposition is cancelable, thus the counterfactual inference is an implicature.

In studying how different choice of morphological means affects resulting implicature, Nevins (2001) applies the example to the Mandarin *yao-bushi* construction, which is shown as follows:

(15) (a revised example from Nevins 2001)

Yao bushi ta mei you fengzhen,
If **not be** she **didn't** **have** measles

tade pifu shang hui you bao
her skin top would have bumps

Danshi yinwei tade pifu shang xianzai you zhei yang de bao
However because her skin top now has those kind of bumps

suoyi ta hoaxing you fengzhen,
so she appears have measles

'If it were the case that she had measles, she would have bumps on her skin. However, since she does have bumps on her skin now, she appears to have the measles.'

(lit. 'If **it were not the case that** she **did not** have measles, she would have bumps on her skin. However, since she does have bumps on her skin now, she appears to have the measles.')

He uses this example to show that the counterfactual inference in a *yao-bushi* sentence is not an implicature because it cannot be cancelled. According to him, the *yao-bushi* counterfactual establishes the assertion that in all of the $\sim P$ worlds, Q holds. However, he claims that the noncancellability is independent from the negative compound *bushi*, in light of other languages that employ specialized morphemes to express counterfactuality.

Given the fact that counterfactuality in *yao-bushi* and *ruguo-bushi* conditionals is an assertion, can we conclude that counterfactuality in Mandarin conditionals is always asserted? The answer is no. In Mandarin counterfactual conditional constructions without the negative compound, the counterfactual inference is an implicature. Consider the following example:

- (16) *ruguo* *ta* *you* *mazhen*,
 if she **had** measles
- tade* *pifu* *shang* *hui* *you* *bao*
 her skin top would have bumps
- danshi* *yinwei* *tade* *pifu* *shang* *xianzai* *you* *bao*
 however because her skin top now has bumps
- suoyi* *ta* *haoxian* *you* *mazhen*
 so she appears have measles

‘**If** she **had** measles, she would have bumps on her skin. However, she does have bumps on her skin now, so she appears to have measles.’

In this example the counterfactual inference can be inferred from the context as well as the adverb of transition *danshi* ‘however.’ The inference is cancelable and thus it is an implicature in this case.

So far we have seen that counterfactuality in *yao-bushi* and *ruguo-bushi* constructions is asserted, whereas that in the *ruguo* construction is implicated. The *bushi*-marked conditional construction is a strong type of counterfactual that makes the assertion that in all $\sim P$ cases, Q holds. In contrast, the *ruguo* construction, which lacks explicit counterfactual marking, is ambiguous and dependent on contextual information for the counterfactual interpretation. It is a weak type of counterfactual construction that requires much inferential work. Therefore, counterfactuality can be cancelled and is only implicated in this type of construction.

5.3 Cognitive processing of counterfactual conditional constructions in Mandarin

The previous section has analyzed two types of counterfactual conditional constructions. One type employs negation to mark counterfactuality as an assertion, and the other obtains counterfactual implicature from context. The Mental Space Theory can provide clear representation of the conditions and the differences between these two types of construction. This section compares and contrasts *bushi*-marked counterfactual conditional construction and the conditional construction without explicit marking in terms of space-building. This section also discusses the space setups of the two types of Mandarin counterfactual conditionals in contrast to the English counterfactual conditional. This can help us understand how divergent mechanisms (i.e., past tense morphology and negation) reflect different patterns of counterfactual reasoning. It will be demonstrated that, in Mandarin counterfactual conditionals, processing is built on reasoning across contrastive spaces, whereas, in English, it is based on constructing embedded spaces within an established space. This section will also provide an account for the cases of cancelable implicature using the mental-space descriptions in both Mandarin and English.

Several scholars have discussed counterfactual mental space-building in English (Fauconnier 1996, 1997, Sweetser 1996, Dancygier & Sweetser 2005). Fauconnier (1996, 1997) observes that the main function of setting up counterfactual spaces is to gain inferences about the base space. Based on this observation, counterfactual conditionals are analyzed in relation to context, instead of truth and falsity. Dancygier

and Sweetser (2005) have gone further by treating counterfactual conditionals as involved with building embedded mental spaces. Under their account, the counterfactual verb forms are used to keep track of the space embedding. These forms indicate the proposition of a given clause is embedded in a distanced parent space. These markers also show the negative epistemic stance of the conditional constructions in question.

The following discussion follows previous studies' idea that counterfactual conditional constructions should be analyzed in context. This discussion analyzes how the linguistic signs, e.g., the negative compounds and linkers, set up alternative spaces to draw the counterfactual inference and keep track of space building in the absence of past tense morphology. This section will show that both *bushi*-marked counterfactual conditional and unmarked counterfactual conditional require set-ups of alternative spaces as embedded in a base space.

5.3.1. The *bushi*-marked counterfactual conditional and other negative-stanced conditionals

This section investigates different mental space set-ups of the *bushi*-marked counterfactual conditionals and other counterfactual conditionals using other markers such as the perfective aspect marker *you* 'have/has/had' to indicate counterfactual interpretation. In addition to the falsehood and alternativity conveyed by *bushi*, this section also considers the contribution of linking elements. For instance, the protasis linker such as *ruguo* sets up a factual and a counterfactual space and places these spaces in the background, and the apodosis linker marks the space that is

foregrounded. Therefore, the morphological pieces distributed throughout the two clauses of the construction keep track of the space set-ups of counterfactual conditional constructions in Mandarin.

In studying the roles of the linguistic tokens (as a contrast to context) in constructing the spaces of Mandarin counterfactual conditionals, the present study first considers the function of the linkers *ruguo* and *yao* and the negative compound *bushi*.

The *ruguo-bushi* or *yao-bushi* clause sets up two spaces: a factual space and a counterfactual space. The content in the *yao-/ruguo-bushi*-marked space is a factual situation; however, the *jiu*-marked space has the content that cannot or could not come true.

Consider the example:

- (17) *yao bushi Zhangsan jiu le Lisi*
 if not be Zhangsan saved Perf Lisi
- Lisi jiu yan si le*
 Lisi JIU drown dead Perf

‘If Zhangsan had not saved Lisi, he would have been drowned.’
 ‘(lit. If it was not the case that Zhangsan saved Lisi, Lisi would have been drowned.)’

The space set-up is illustrated in the following figure:

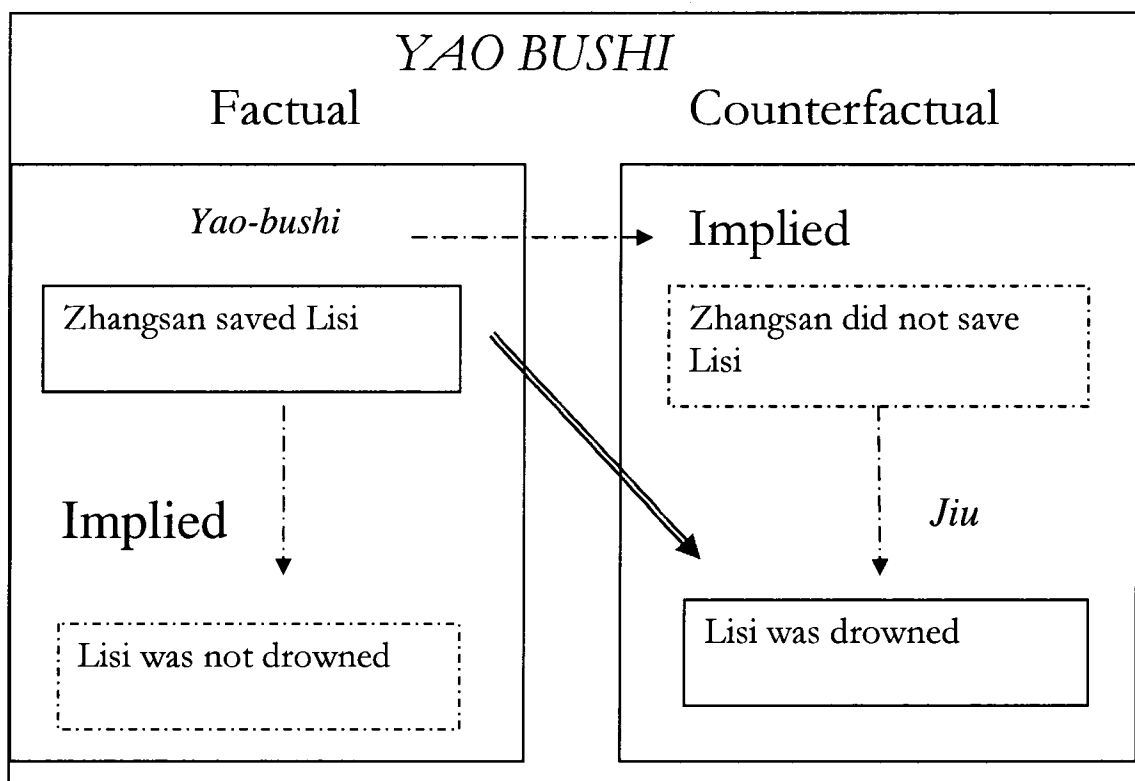


Figure 5.1: Representation of the mental space set-ups in a *bushi*-marked counterfactual conditional

Yao-bushi in this example builds two spaces: a counterfactual and a factual space. These two spaces are backgrounded. *Bushi* indicates that the situation in the *yao bushi* marked space is true (i.e., the space where Zhangsan saved Lisi). In the meantime *bushi* implies an alternative case. However, this alternative counterfactual containing space is still backgrounded. The contained cause and effect spaces are not elaborated until the consequent clause is uttered. The linker *jiu* ‘therefore’ expresses that the scenario where Lisi’s drowning depends on the implied space where Zhangsan did not save him. It is interesting that *ruguo bushi* introduces the factual cause space on the surface, but implicitly conveys the counterfactual cause event results in the state described in the consequent clause.

In contrast, a *ruguo* counterfactual conditional without *bushi* is more straightforward than a *bushi*-marked counterfactual construction in that one can perceive from the surface form a causal relation between the *ruguo*-marked protasis and apodosis. In this case, the propositions of the two clauses are both represented in the elaborated spaces of the counterfactual space. The containing factual space and the elaborated cause and effect spaces in the factual space are automatically implied and built as alternatives to those of the counterfactual space. This can be illustrated by the following example.

- (18) *ruguo* A-mei you ting jiejiède hua
 if A-mei had listened elder sister's words
 ta jiu bu hui bei pian le
 she JIU not would Passive cheat A_Par

'If A-mei had listened to her elder sister, she would not have been cheated.'

In this example, *ruguo* in the first clause only sets up a conditional situation whose factive status is unknown. The perfective marker *you* in the antecedent indicates that the hypothetical event has happened. *Jiu*, a clausal-relation marker, signals that there is a causal relation between the two events described in the two clauses. The perfective marker *you* in a conditional context is relevant to the counterfactual inference of the described events in the conditional construction in that it shows that the event is supposed to have happened in the hypothetical world. The perfective marker can also be used in sentences describing present situations. To understand the functions of these relevant markers and linkers, we first look at their roles in building mental spaces. The space set-ups of example (18) is illustrated as follows:

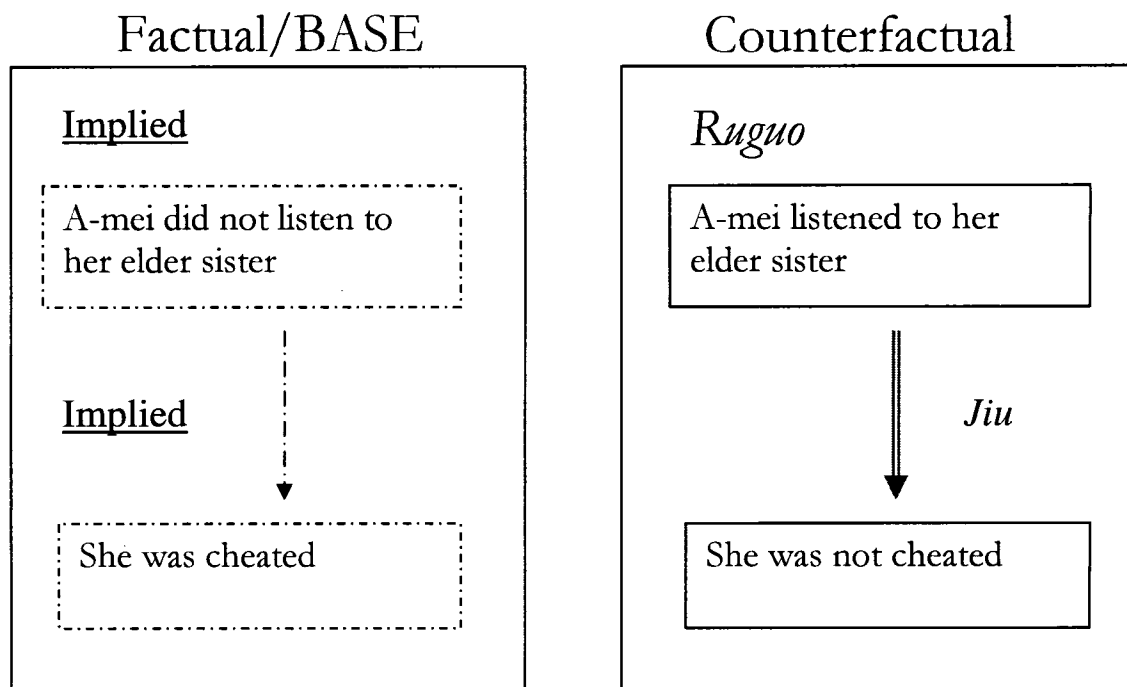


Figure 5.2: Representation of mental spaces established in a *ruguo* counterfactual sentence.

The space-building process of the example is as follows: *Ruguo* ‘if’ sets up a conditional space without assigning a factive status to it. When hearing the statement ‘A-mei listened to her elder sister’ marked with *you* ‘had’ one infers that the speaker means A-mei was SUPPOSED TO listen. As one can expect, another space where A-mei did things that she was NOT SUPPOSED TO is set up as a contrast. Then the linker *jiu* shows that there is a causal relationship between the protasis and the apodosis. Now the extended spaces in the counterfactual space are set up. The result of not being cheated as described in the apodosis completes the SUPPOSED TO HAPPEN reasoning.

The space building of the *ruguo* counterfactual differs from the *bushi*-marked counterfactual in one respect. In a *ruguo* counterfactual construction, *ruguo* introduces the counterfactual cause space; in a *bushi*-marked counterfactual construction, the

protasis describes the cause in the factual space. The apodosis of these two types of constructions both refer to the counterfactual effect spaces. Comparing Figure 1 and Figure 2, we can see that the *bushi*-marked construction requires attention on selected spaces across factual and counterfactual spaces. And the *ruguo* construction only describes situations in the counterfactual space and set up the factual space as an alternative in the background.

How perfective markers contribute is of interest here. How does perfectivity become associated with factivity? When I presented (19) to native speakers, all agreed that the sentence can only be interpreted counterfactually. This means that the counterfactual interpretation is inferred from the perfective marking in a conditional context. This can be proven by removing the perfective marker *you* 'had' from the sentence. If the counterfactual cannot stand without the perfective marker, we can conclude that counterfactual inference in the case of (18) is a result of the mismatch between the estimated completion of events and the real state of affairs. An example of this is shown in (19). For comparison, (18) is repeated here.

(19) *ruguo* A-me*i* *ting* *jiejiede* *hua*
if A-me*i* listened sister's words

ta *jiu* *bu* *hui* *bei* *pian*
she **JIU** not would Passive cheat

'If A-me*i* listens to her elder sister, she will not be cheated.'

(18) *ruguo* A-me*i* **you** *ting* *jiejiede* *hua*
if A-me*i* **had** listened elder sister's words

ta *jiu* *bu* *hui* *bei* *pian* *le*
she **JIU** not would Passive cheat A_Par

‘If A-mei had listened to her elder sister, she would not have been cheated.’

(19) is ambiguous in terms of tense. Important to notice is that this sentence cannot be interpreted counterfactually due to the lack of perfectivity/factivity marking. Whether this sentence is a present or past conditional is completely determined by context. This means that perfectivity is essential for the counterfactual interpretation in a conditional.

Comparing (19) and (18), it can be inferred that perfectivity is related to counterfactuality. Counterfactuality in the case of *ruguo-you* combination may come from two sources: non-positive stance marked by *ruguo* and ‘expected to be factive’ indicated by *you*. The perfective marker is usually used to mark an event as ‘has happened’ and is thus involved with the implication that the event is ‘assumed/supposed to be factive.’ When this ‘supposed to be factive’ meaning encounters the non-positive stance ‘unassertive,’ the resulting meaning is ‘the supposed fact is not believed to be factual.’

The perfective marker *you* not only marks the aspect of an event but also indicates the attitude of a speaker. Another way of seeing it is that the completion of an event is associated with the factivity of an event. Naturally, this marker incorporates the attitudes toward an event’s factive status into its semantics. The perfective marker *you* in modern Mandarin as spoken in Taiwan is used to mark the speaker’s belief of events in a colloquial language, as illustrated in (20).

(20)
A: *ni* *zeme* *zhidao* *dongxi*
 you how know things

shi ta tou de
Is he steal DE

'How do you know he was the one who stole it?'

B: *wo jiushi juede ta you tou*
I just feel he Perf steal

'I just feel he DID steal (it)!'
'lit. I just feel he has stolen it!'

This example indicates that a perfective marker is used emphatically to mark the speaker's belief that the event did happen. Perfectivity in a conditional sentence suggests the factivity status of the proposition is non-positive since the conditional linker marks the non-positive epistemic stance of the propositions.

Using the perfective aspect to mark counterfactuality of the protasis is not unique to Mandarin conditionals. In American English, the conditional perfect is used in past counterfactuals, as in *if you would have fixed it, it would have worked* (Fillmore 1986). Using this sentence, the speaker identifies the actual space as one different from the protasis and one that happens later than the protasis. Similar to the case in Mandarin, the perfectivity is associated with the expected factivity of the proposition involved. However, in the non-positive stanced construction, the factivity status is interpreted to be counterfactual.

5.3.2 Space building and implicature

In 5.2.2, I have mentioned that Mandarin has two types of counterfactual conditionals. One is the strong *bushi*-marked counterfactual construction whose counterfactual assertion cannot be cancelled. The other one is the weak *ruguo* or *yao(shi)*

construction with contextually inferred negative-stanced interpretation. The counterfactual inference of this type of construction is cancelable. This section compares the space building of the Mandarin *ruguo/yao-shi* construction and that of English negative-stanced conditional. It is proposed here that that the cancellation of a counterfactual implicature in English is achieved by merging the counterfactual space with the individual-case space. Consider the following example:

- (21) If the patient had the measles, he would have exactly the symptoms he has now.
We conclude, therefore, that the patient has the measles.

In terms of space building¹⁰, the speaker first describes a counterfactual scenario where the patient has measles with the belief that the patient does not have the disease. At the time of the utterance, the counterfactual space is set up as an embedded space within the base space. When she continues the sentence, she finds that the patient has the matching symptoms. She then establishes a space for this individual patient in her mind. This individual space contains the facts that the patient has the symptoms and these symptoms indicate measles. These two facts match the content of the counterfactual space (i.e., the patient has the symptoms and the patient has measles). Given the similarity of the contents, these two spaces are merged. The resulting space is no longer counterfactual and thus the implicature is cancelled. However, the cancellation of the counterfactual implicature in Mandarin is not achieved by merging but by recategorization. Consider the example:

- (22) *yao shi ta you fengzhen,*
If be she have measles

tade pifu shang hui you bao
her skin top would have bumps

¹⁰ Based on intuition from Michael Ellsworth, an informed native English speaker.

Danshi yinwei tade pifu shang xianzaiyou zhei yang de bao
However because her skin top now has those kind of bumps

suoyi ta hoaxing you fengzhen
so she appears have measles

“If it were the case that she had measles, she would have bumps on her skin. However, since she does have bumps on her skin now, she appears to have the measles.”

When the speaker says the first sentence, she has already built up two separate alternative spaces: one is counterfactual and the other is factual. It has been pointed out that counterfactual inference in all kinds of Mandarin counterfactual conditionals is obtained through the reasoning of alternative spaces. In this case, these two spaces have to co-exist. When the speaker continues to the second sentence, she finds that the true situation is the same as what she supposes to be counterfactual. At this point, she recategorizes the formerly considered counterfactual space to be factual and reassigns the counterfactual status to the formerly factual space. The transitional adverb *danshi* ‘however’ indicates this switch of categorization as well as indicating the speaker’s surprise. Therefore, when the counterfactual implicature is cancelled, the two spaces still exist and the resulting counterfactual space only remains in the background. The cancellation can be seen as achieved by means of recategorization.

5.4 Counterfactuality, wish and belief

5.4.1 The counterfactual wish constructions marked with comment phrases

This kind of construction is composed of a *ruguo* or *yao* clause that expresses one’s wish and a comment such as *jiu hao le* ‘would be nice’ and *you duo hao* ‘would be great (lit., have so good).’ An example of this construction is given as follows:

(23) *ruguo wo shi ge meinu jiu hao le*

if I am classifier beauty *JIU* good A_Par

‘If only I were a beauty!’

‘(lit. If I were a beauty, (it) would be nice.’)

(from a commercial website)

In this example, the ‘it would be nice’ clause is reduced to a fixed expression and is always placed at the end of the sentence. Syntactically, this comment phrase is so reduced that it is a conventionalized part of the whole construction. Semantically, it preserves the meaning of the evaluated effect resulting from the wish. This means that, in space-building, the comment phrase still occupy a space extended from the wish space.

This is illustrated by the following figure:

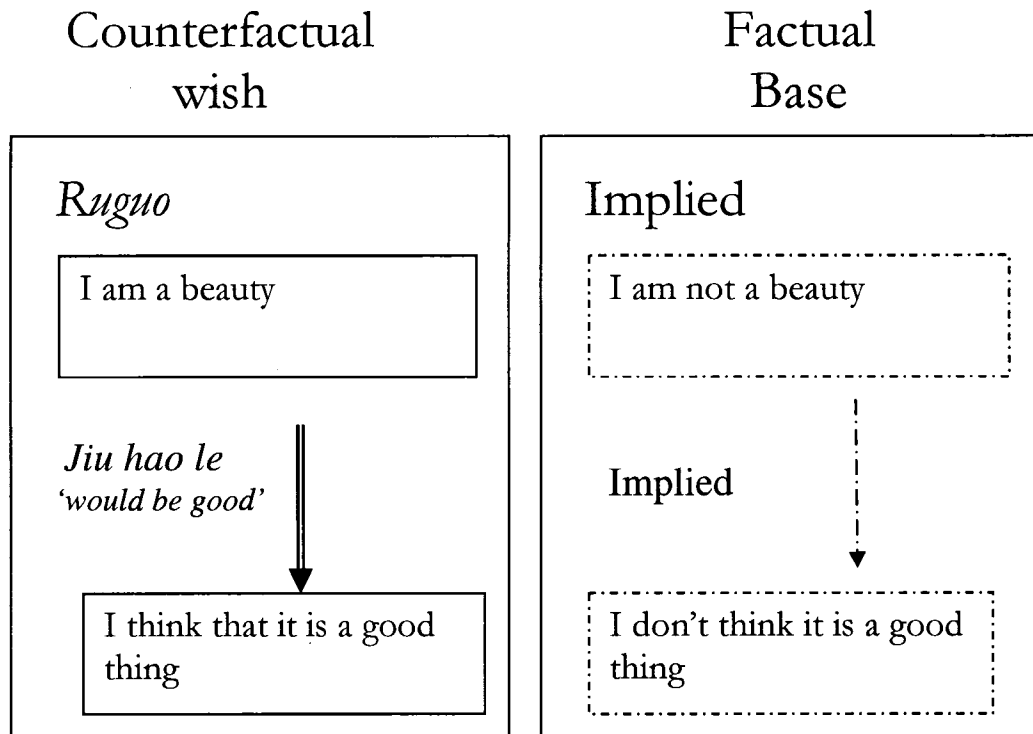


Figure 5.3: Representation of the space building of a *ruguo...jiu hao le* construction

It was previously mentioned that *jiu* is a linker that indicates that two propositions are related. In this case, *jiu* shows that the speaker’s comment space is dependent on the wish space where she is a beauty. To understand the meaning of this sentence, *ruguo...jiu*

hao le has to be considered as a constructional unit. This example shows that only a constructional approach can properly describe the semantics of a construction, especially the construction with idiomatic components.

This Mandarin construction serves as an interesting contrast and comparison to English mono-clausal *if only* sentences. Mono-clausal *if only* sentences do not preserve the speaker's comment in the syntactic form as Mandarin *ruguo...jiu hao le* construction. However, similar to Mandarin, it also has the idea of 'would be nice' in its semantics. Both constructions have the similar semantic structure with a reduced syntactic structure. They indicate the negative epistemic stance, i.e., impossibility, and positive evaluated stance, i.e., desirability. The space building of the *if only* sentences has been thoroughly discussed in Dancygier & Sweetser (2005). Since their discussion mostly focuses on the interaction and contribution of *if* and *only*, which is not directly relevant to the Mandarin case, the discussion of *if only* is omitted here.

5.4.2 The counterfactual wish constructions marked with WISH verbs

The counterfactual meaning is built into the semantics of WISH verbs. The commonly used WISH verbs in Mandarin are *xiwan* 'hope/wish' and *danyuan* 'hope/wish.' The second one is more literary and formal. The Mandarin WISH verbs have neutral epistemic stance, and thus they can be translated as either 'hope' or 'wish'. Unlike the Mandarin WISH verbs, English *wish* has negative stance in its meaning and *hope* marks neutral stance. Some native speakers feel that a *danyuan* sentence is more likely to be interpreted counterfactually than a *xiwan* sentence in an identical context. For instance, (24) is mostly regarded as a counterfactual sentence where as (25) is open to

many interpretations. The context for (24) and (25) is that a speaker expresses her wish/hope that her flowers are still alive after she returns from a trip. When she is away, nobody takes care of the flowers for her.

(24) *danyuan* *wode* *hua* *mei* *si*
 wish my flowers have_not die

‘I wish my flowers did not die.’
 (Inference: The flowers are dead)

(25) *xiwan* *wode* *hua* *mei* *si*
 hope my flowers have/will not die

‘I hope my flowers will not die.’
 ‘I wish my flowers did not die.’

The register of the WISH verb seems to influence people’s judgments of the statement’s possibility. (24) is mostly interpreted counterfactually whereas (25) is ambiguous. The proposed explanation for this phenomenon is that the more familiar colloquial marker is often used to encode a speaker’s positive epistemic stance whereas the unfamiliar literary marker is used to mark a speaker’s negative epistemic stance. Cognitively, familiarity is connected with those things that a speaker is sure of. Naturally, a more familiar linguistic sign is used to encode the situation that is estimated to be possible, while a formal and less familiar morpheme is employed to mark a situation considered impossible.

Though *danyuan* is more likely to be associated with counterfactual inference, it can be used in non-counterfactual constructions as *xiwan*. In this kind of environment both verbs are translated as ‘hope.’ When there are no obvious time adverbials such as *zuotien* ‘yesterday’ or aspect marker such as *you* ‘have’ in the sentence, the sentence is interpreted as counterfactual or not as determined by the context.

5.4.3 The counterfactual belief construction marked with *yiwei*

Yiwei ‘think’ is a commonly used verb of thinking. It has two senses. One of them has to do with one’s belief in relation to reality. The other is used to express one’s opinion about a future event or state. The first use of *yiwei* is to indicate that the agent of the belief verb believes in something that is different from the real state of affairs. This sense is used in a counterfactual belief construction, as shown in the following example.

- (26) *na ge ren hezuejiu,*
 that Classifier person got drunk
 ‘That person got drunk,’
 ... *buzhidao zhuandao sheme.*
 unknown bumped into what
 ‘bumped into who-knows-what.’
ranhoujiu zai louxia yao xunchou
 then JIU at downstairs wanted revenge
 ‘Then he waited downstairs seeking to revenge’
jiu kandao lian ge ren ...
 JIU saw two Classifier people
haoxian zhen yao chuqu
 probably just about to go out
 ‘He saw two people who were probably about to go out’
jiu yiwei shi na lian ge ren
 JIU thought was those two Classifier people
 ‘He thought those two were the people (who bumped into him)’
Ranhou jiu cong beihou ge tong yi dao
 Then JIU from back respectively stab one knife
 ‘Then he stabbed each of them in the back.’
 (National Taiwan University Corpus of Spoken Chinese KTV.txt)

The above example describes a tragedy that happened at a karaoke bar, which is covered in a news chapter. The narrator is retelling the story to friend to discourage her from going to a karaoke bar. The drunken person in the story mistakenly took two people as those who bumped into him and, in mistaken recourse, stabbed them both in the back. The speaker uses *yiwei* ‘think so/take someone as’ to show that the killer’s belief mismatches with reality. In other words, the victims are in fact not the people that the killer was looking for. *Yiwei* has a strong ‘mistakenly think someone as’ interpretation in this context, which is not possessed by other verbs of thinking such as *xian* ‘think’ and *juede* ‘feel.’ *Xian* and *juede* can also be used in this example; however they do not suggest that the killer’s belief is wrong. The counterfactual interpretation is explicitly marked in the case of *yiwei* but only inferred from context in the cases of *xian* and *juede*.

In addition to concrete animated and in-animated objects, as shown in the next example, abstract notions, events, and states can be also evaluated in terms of factuality in an *yiwei* sentence.

(27) *wo yijing gou ming-mu-zhang-dan le*
 I already enough bright-eye-open-guts A_Particle

‘I have openly committed acts (of cheating)’

wo yiwei ta zhidao
 I thought he knew

‘I thought he knew it’
 (Implied: He did not know it.)

... *ta hai wen wo zai taibei*
 he still asked me at Taipei

You-mei-you ren zhui wo
 There-not-there people pursue me

‘He still asked me if there was anyone who pursues me in Taipei.’

(National Taiwan University Corpus of Spoken Chinese Friends.txt)

In this example, the speaker tells her friend that she is surprised that her boyfriend does not know that she is dating someone else. Before the *yiwei* sentence, she describes how she has openly committed acts of cheating and naturally she assumes that her boyfriend should have known that she is going out with someone else. The following *yiwei* sentence indicates that her assumption is different from the reality, which is that her boyfriend does not know the cheating and this is indicated by his question.

Another sense of *yiwei* involves expression of a personal opinion about an event or state that has not happened. In this case, whether the speaker’s belief will match or mismatch the reality is not important. This is illustrated by the following example:

- (28) (revised from Eifring 1988)
- | | | | | | |
|----------------|----------------|--------------|------------|-------------|-----------|
| <i>wo</i> | <i>geren</i> | <i>yiwei</i> | <i>zhe</i> | <i>tiao</i> | <i>lu</i> |
| I | personally | think | this | Classifier | road |
| <i>yinggai</i> | <i>jiakuan</i> | | | | |
| should | expand | | | | |

‘I personally think that this road should be expanded.’

In order to distinguish the two sense of *yiwei*, one has to infer from the time adverbials and context to decide whether the *yiwei*-marked proposition is a present, past, or future event or state. These two senses share one property: the agent’s belief is not true or has not become true. In the first sense, the agent of the belief verb believes in something that is evaluated as untrue in the past or present state of affairs. In the second sense, the opinion about a future event certainly cannot be judged to be true since the event in question has not happened.

The first sense of *yiwei* is our concern here. Since *yiwei* indicates that there is a mismatch of an agent's belief and the real state of affairs, it shows that the belief represented in the sentence is counterfactual. Like other Mandarin counterfactual constructions, the *yiwei* construction involves reasoning of factual and counterfactual spaces. Take (27) for example, two contrastive spaces are set up: one is speaker's belief space and the other is the base space. (27) is repeated here for reference.

(27) *wo yijing gou ming-mu-zhang-dan le*
 I already enough obvious-eye-open-guts A_Particle

'I have openly committed acts (of cheating)'

wo yiwei ta zhidao
 I thought he knew

'I thought he knew it'
 (Implied: He did not know it.)

... *ta hai wen wo zai taibei*
 he still asked me at Taipei

You-mei-you ren zhui wo
 There-not-there people pursue me

'He still asked me if there was anyone who pursues me in Taipei.'
 (National Taiwan University Corpus of Spoken Chinese Friends.txt)

The space set-ups are illustrated in the following figure.

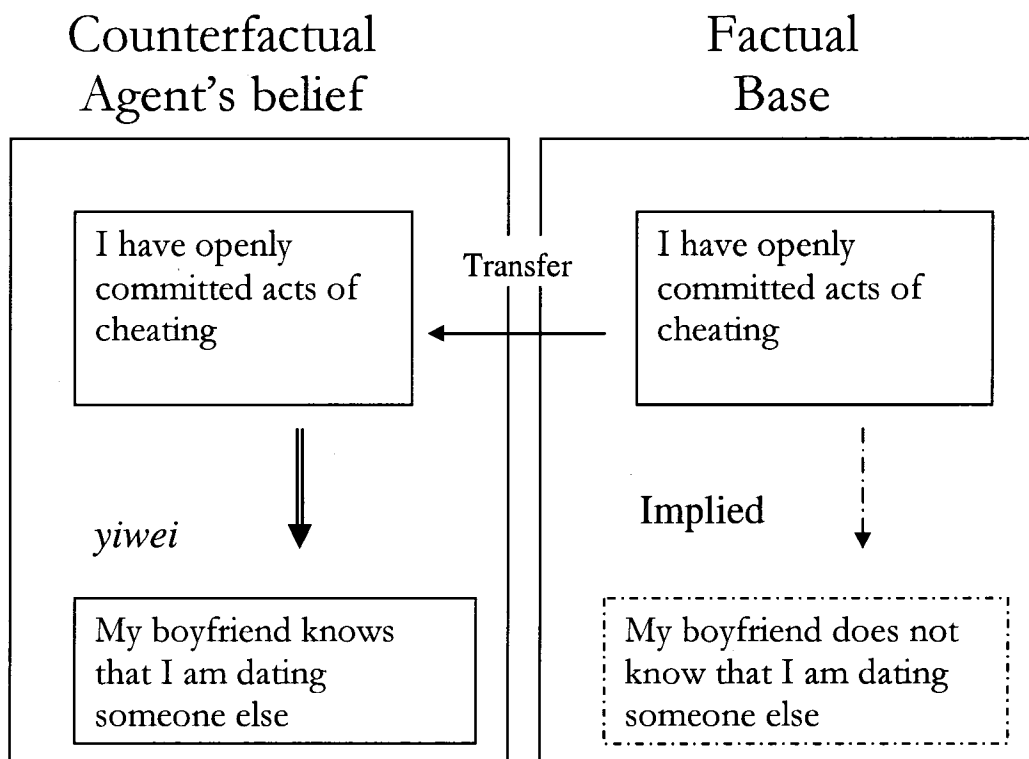


Figure 5.4: Representation of the space building of an *yiwei* construction

It is worth noting that in the space building of a *yiwei* construction involves projection of facts from the base space to the agent's belief space. In this example, the fact that the speaker has openly committed acts of cheating is transferred from the base to the belief space. This fact serves as the cause for the speaker to obtain the conclusion. Therefore, while syntactically the *yiwei* construction only preserves the conclusion, semantically it has a premise. This construction has a similar space structure to a counterfactual conditional construction in that it has cause and effect spaces in two alternative spaces. This construction only differs from a counterfactual conditional construction in the aspect that its belief space shares the cause or premise with its base space.

5.5 Pragmatics, Context and Ambiguity of Counterfactual conditionals

5.2 and 5.3 have only discussed cases of counterfactual conditional where the counterfactual interpretation is obvious. However, due to the emphatic nature of the counterfactual conditional and the negative compound *bushi*, the *bushi*-marked counterfactual conditional is often used in contexts where it is hard to draw the factivity-nonfactivity distinction. This kind of pragmatic use is common, though not prototypical. Section 5.5.1 presents case-studies of the pragmatic *bushi*-marked counterfactual conditionals and Section 5.5.2 discusses a disjunctive construction that shares a very similar structure with the prototypical *bushi*-marked counterfactual construction as well as the role of context in distinguishing these constructions in similar forms.

5.5.1 The pragmatic *bushi*-marked counterfactual conditional construction

Fauconnier (1996) proposes that the general function of counterfactuals is to reason about the real situation. The purpose of building the counterfactual space is to establish a situation that contrasts with the real/base space. The information provided in the counterfactual space is meant to help the listener make inferences about the actual situation in the base space. The Mandarin examples to be presented in the section accords with Fauconnier's point. The alternativity structure (factual vs. counterfactual) serves as basis for the above-mentioned function.

This section investigates four cases of the pragmatic counterfactual conditionals. These constructions share two properties though their contexts are different. First, they all involve building of alternative spaces. Second, the speaker's perceived counterfactuality and factuality do not necessarily hold or do not matter.

The first scenario where a pragmatic counterfactual conditional construction is used is when one wants to express regret, rage, and so on. The construction is cast in the form of an exclamation, as shown in the example.

- (28) *wo yao bushi shagua*
 I if not be fool
- danchu zeme jia gei yi ge shagua?*
 At that time why married to one classifier fool

'If I had not been a fool, why would I have married a fool at that time?
 (Academia Sinica Corpus 267)

In this example, the speaker expresses her regret of marrying the man that she considers to be a fool. In her belief space, she believes that she was a fool at that time and thus she made the foolish decision of marrying him. Her believed fact does not necessarily equal to the real state of affairs assumed by others. Whether she was a fool or not is open to question. Important here is that, in order to process this sentence, one has to construct two alternative spaces as one does for counterfactual conditionals. More importantly, the purpose of setting up the counterfactual space is to draw inference about the base space. The base space is the factual space where the speaker is considered a fool that married a fool. The space set-ups for this example is represented as follows

Speaker's Belief

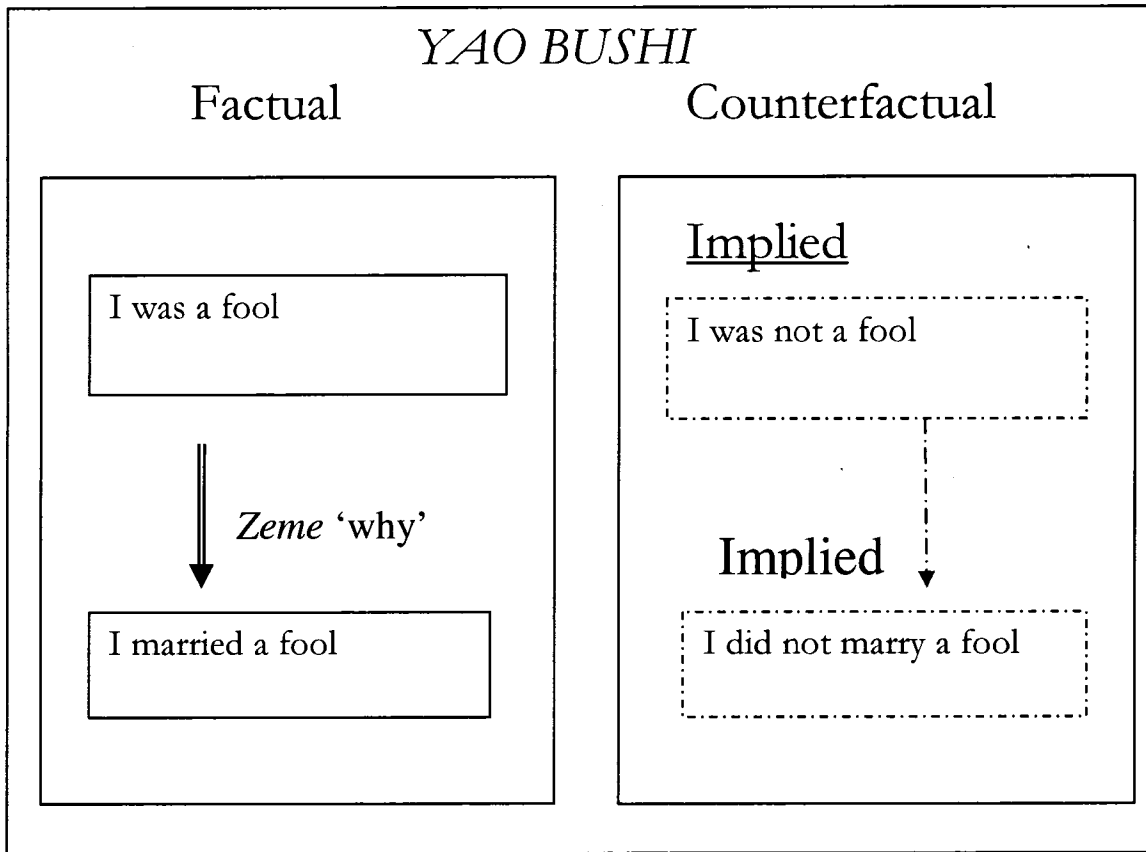


Figure 5.5: Representation of the space-building of an exclamative *bushi*-marked conditional

In this construction, the apodosis is cast in the form of an interrogative and is about the real situation. This exclamative is located in the factual space. There is no need to reason across the spaces, but it is necessary to have the counterfactual space established and elaborated in terms of its content as a contrast to the believed factual space. This contrast is important in interpreting the sentence. One relies on this alternativity to infer about the real situation and the speaker's intended comment on her husband that he is a fool. Both factual and counterfactual spaces are embedded in the speaker's belief space.

The pragmatic *bushi* counterfactual conditional is often used in the context of negotiation or bargaining. The alternativity structure of this construction is brought about to serve as the base for negotiation. In this case, the speaker creates a counterfactual space to justify her acts in the negotiation process. The created factual space is not necessarily true to the other party during the negotiation, and the claimed counterfactual case is not really false. Consider the example:

- (29) *yao bushi weilie womende youhao guanxi*
 if not be for our friendly relation
women shi buyuanyi yi zhege jiage baojia de
 we be reluctant with this price quote A_Particle

'If it were not for our good (business) relation, we would be reluctant to quote (at such a low price)'

(Academia Sinica Corpus 274)

In this example, the speaker is a seller who states a price of her goods to a buyer. The buyer tries to bargain with her, so the seller claims that, in fact, she is offering this price in order to maintain their good relations, a claim which is represented in her factual space. Her intention is to show that her quote is the best offer and is not her desired price., which she would like to be higher. On the other hand, in the counterfactual space, the seller does not give this best offer and so the buyer-seller relation is damaged. Again, the counterfactual and factual space building is conducted within the speaker's belief space. The mental spaces are illustrated as follows:

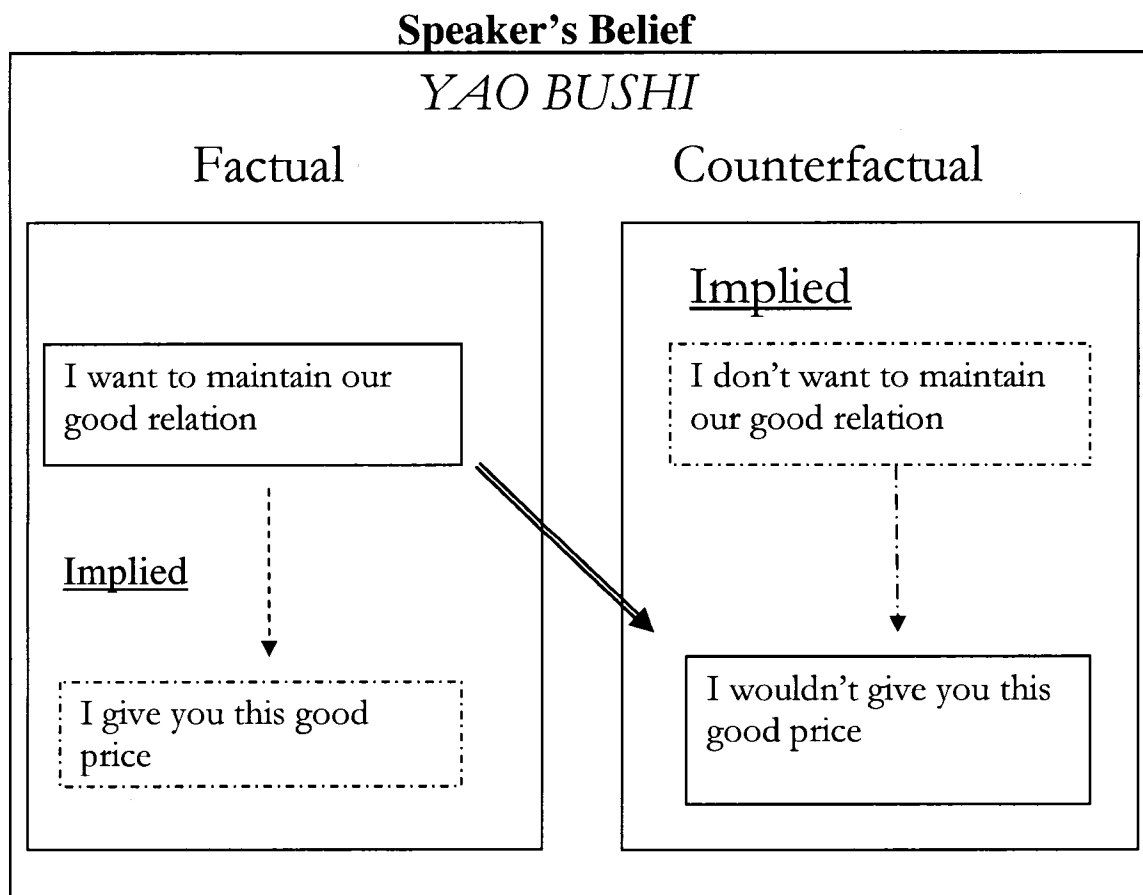


Figure 5.6: Representation of the space-building of a negative *bushi*-marked conditional

The reasoning pattern in this example is quite similar to that of a typical *bushi*-marked counterfactual conditional in that both involve cross-space reasoning. The *yao-buishi* clause describes a cause in the factual space while the consequent clause depicts an event in the counterfactual space.

The third environment where the *bushi*-marked conditional is used is where a speaker claims credit for herself or attributes credit to someone else. The conditional construction is used to exhibit the speaker's evaluated responsibility attribution in reality, which may not be an agreed fact by everyone involved. Consider the example:

- (30) *shangci ganmao de shihou*
 last time caught a cold of time
- yao bushi tongxue han fangdong de bangzhu*
 if not be classmate and landlord of help
- wo zheng bu zhidao gai zeme ban*
 I really not know should what do

‘Last time when I caught a cold, if it had not been my classmate and landlord’s help, I would not have known what to do.’

(Academia Sinica Corpus 228)

The speaker is a foreign student who studies Mandarin in Taiwan. As a foreigner, he does not know how to navigate the health care system when he is ill. Luckily, his landlord and classmates take him to a hospital, pick up prescriptions, and interpret for him whenever he needs communication with medical personnel and this sentence shows his appreciation to those who help him. It is presented in an emphatic counterfactual form (i.e., *bushi*-marked counterfactual) instead of a non-counterfactual conditional because this form shows his positive evaluation of their help. Actually, he can just buy cold medicine himself or speak English to the doctor and pharmacist. In other words, he actually knows what to do without his friends’ help. The assumed truth of the situation by the speaker is not important in this instance and the important thing is that he expresses his gratitude by means of this emphatic construction.

The space building is again embedded the speaker’s belief. The space structure of this sentence is similar to a prototypical *bushi*-marked counterfactual conditional. This is illustrated by the following figure.

Speaker's Belief

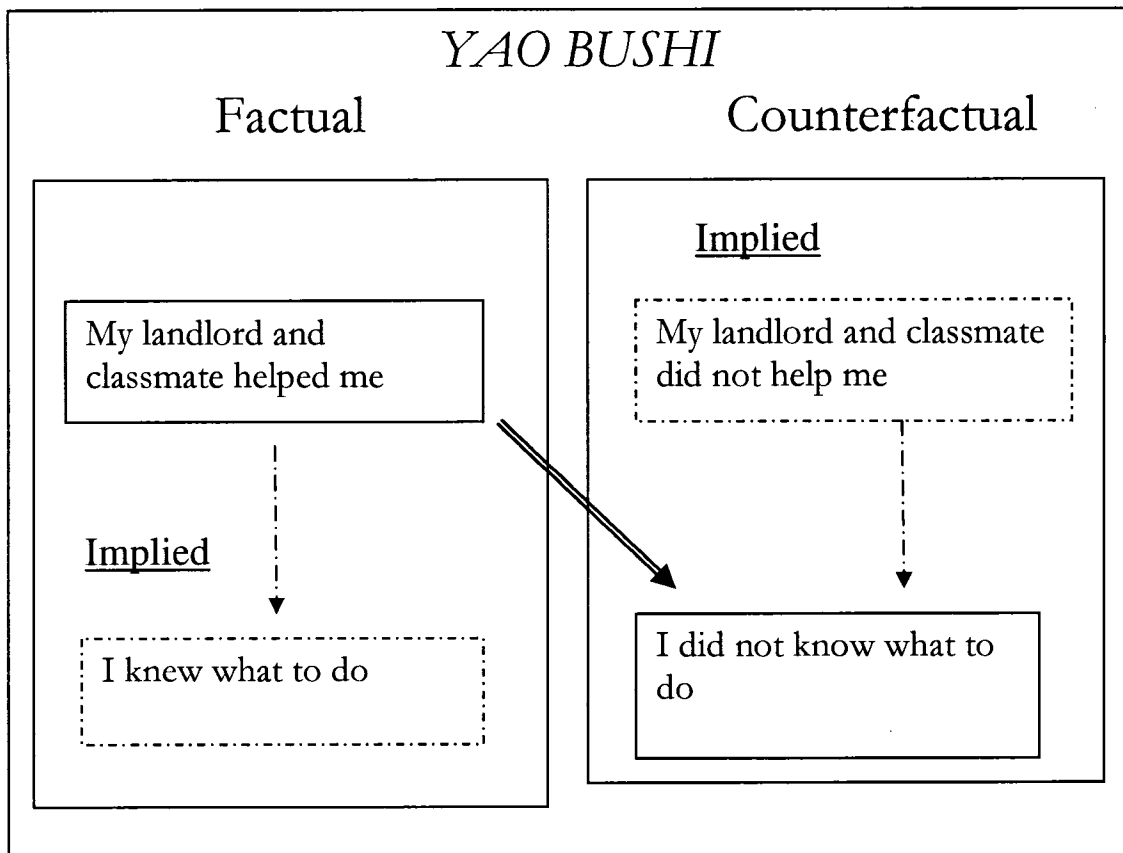


Figure 5.7: Representation of the space-building of a credit-attributing *bushi*-marked conditional

The use of counterfactual here is also intended to express important points that the speaker wants to make about the real situation. The real situation that he tries to depict here is that he has loving and caring friends and landlord who can help him when he is in need.

The next case to be analyzed is a writer's talk to a cockroach. In narratives, using the counterfactual conditional to describe a narrator's stream of thoughts is a common technique. Using this technique, the narrator imagines her action and the possible outcome and reports her thoughts to addressee(s). This is illustrated by the example:

(31) *yao bushi chou zhanglan ni pao de kuai*
 if not be stinky cockroach you ran Adv_ending fast

lao-nian zao jiu ba ni da de si-qu-huo-lai
 Old mother already JIU BA you hit resultative die-go-live-come

‘If you stinky cockroach had not run fast, your mother (I) would have hit you almost dead.’

(lit. ‘If it was not the case that you stinky cockroach ran fast, old mama had hit you half dead half alive’)

(Academia Sinica Corpus 170)

In the narrator’s imaginary space, she sees herself try to hit the cockroach and the cockroach runs away. The hitting action does not actually occur. This sentence is more like a statement to a personified cockroach meant to show her distaste for the creature. The space building of the sentence is illustrated as follows.

Narrator’s Imaginary Space

YAO BUSHI

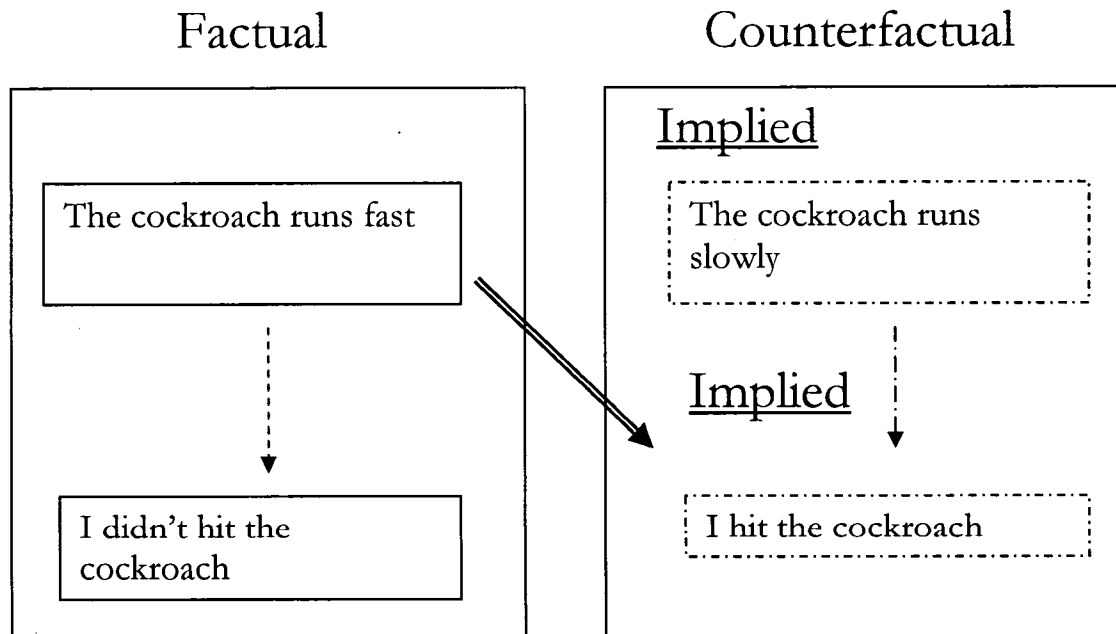


Figure 5.8: Representation of space-building in a *bushi*-marked conditional in a narrative

Similar to the previous three cases discussed in the section, the counterfactual construction in (31) is used to help the listener or reader to infer what actually happened. The fact that the cockroach ran fast and escaped is the message intended to be conveyed. The counterfactual situation where the cockroach was hit serves as a contrast to the undesired reality.

5.5.2 Ambiguity and Context

So far this chapter has discussed counterfactual constructions whose counterfactual inference can be obtained from components in the sentence. The present study does not intend to claim that all counterfactual constructions in Mandarin can be analyzed solely based on the components and independent of context. In some cases, the counterfactual inference is completely determined by context. This next section discusses the importance of context in distinguishing counterfactual constructions from non-counterfactual constructions in similar forms.

There is a type of *ruguo bushi* and *yao bushi* construction that does not have a conditional meaning. Instead, this construction is used to indicate disjunction, as illustrated in the example.

(32) *Tamen jia hen you wenti.*
 Their family very have problem

Ruguo bushi *baba* *hejiu,*
If not be father drink

jiu shi *mama dubuo*
then is mother gamble

“Their family has many problems. If it is not the case that the father is not drinking, then it is the case that the mother is gambling.”

(revised from Eifring 1988)

The sentence is represented in the form of *ruguo bushi...*, *jiu shi...*. *Bushi* here is simply used as a negator which means ‘is not (the case that).’ The whole construction has an ‘either...or’ reading and one has to rely on the context to know it is a disjunctive construction. The use of a conditional form to introduce alternatives is not unique to Mandarin. English also uses *if* for this purpose as in *if its not one thing, then its another*, a structure very similar to that in Mandarin and bearing the same meaning.

It is worth noting that this construction also calls upon the alternativity structure as the *yao-bushi...jiu* counterfactual. It is because, in both constructions, the negative compound *yao-bushi* suggests the existence of an alternative. In the case of *yao-bushi...jiu shi* construction, the two alternatives involved are two situations without any contrastive relationship; in the case of *yao-bushi* counterfactual, the two alternatives serve as contrasts and the counterfactual alternative provides clues to the situation in the factual alternative. These two constructions also differ in the space building. In the *yao-bushi...jiu shi* ‘either...or’ construction, the first clause space describes a situation different from the second clause situation, and there is no causal relationship between the alternatives. There are no other implied extended spaces. However, in the counterfactual construction, the protasis depicts the cause in a factual space and the apodosis represents the effect in a counterfactual space. In order to understand the counterfactual, one has to infer the implied counterfactual cause space and the implied factual effect space.

When a conditional construction lacks *bushi* and other time-indicating elements, context is the only way of determining whether a conditional is counterfactual. In the absence of temporal information, a conditional construction can have several possible interpretations. Such an example is given by Li & Thompson (1981).

- (33) *ruguo ni kanjianwo meimei,*
 if you see my sister
- ni jiu zhidao ta huaiyun le*
 you JIU know she pregnant A_Particle

‘If you saw my younger sister, you would know that she was pregnant’
 ‘If you had seen my younger sister, you would have known that she was pregnant’
 ‘If you see my younger sister, you will know that she is pregnant’
 (revised from Li & Thompson 1981)

This example has three interpretations: present counterfactual, past counterfactual, and predictive. Since both clauses lack time indicating words such as perfective markers and time adverbials, the sentence can be a hypothetical statement about the past, present, and future. It can be a counterfactual or noncounterfactual conditional. In the absence of *bushi*, the marking of time and perfectivity is crucial to distinguishing counterfactual constructions from non-counterfactual constructions.

5.6 Conclusion

This chapter has investigated the *ruguo-/yao-bushi...jiu* counterfactual construction in the aspects of space building, the source of counterfactuality, and the question of whether counterfactuality in Mandarin is an implicature or assertion. Similar to English, the counterfactual space is embedded in the base space. The counterfactual interpretations are related with *bushi*'s meaning of asserting falsehood in *bushi*-marked counterfactuals and with the ‘actuality’ meaning of the perfectivity marker in *ruguo* conditionals without *bushi*. It has been pointed out that the *yao-bushi* counterfactual is an assertion, not an implicature

It was also shown that a counterfactual wish marked with a phrasal comment such as *jiu hao le* 'would be nice' or *you duo hao* 'would be great' preserves the same cause-effect and alternative-space structure in space-building as a full counterfactual conditional construction. In other words, two alternative spaces (counterfactual and factual) and extended spaces within these two general spaces must be built for processing of the counterfactual wish, though the second comment clause is reduced structurally. Also analyzed was the counterfactual belief construction, also termed as the *yiwei* construction, in terms of the mismatch between the agent's estimated truth and real state of affairs. That is to say that this construction means that what one believes is different from reality, so the subject's belief space serves as a contrast to the fact/base space, and it is through this alternative reasoning that the construction obtains the counterfactual interpretation. Lastly, this chapter examined four cases of pragmatic *yao-bushi* construction. The asserted truth and falsehood in these constructions do not really hold or matter. Rather, the general function of these uses is to draw inferences about the real situation, and the alternativity structure is employed as basis to make inferences and achieve intended speech acts.

Chapter 6 Embodied Construction Grammar and Chinese Conditionals

I have discussed the semantic differences, the syntactic variations, and the mental spaces evoked by the *ruguo* construction (in Chapter 2 and Chapter 3), the *chufei* construction (in Chapter 4), and the *yao-bushi* construction (in Chapter 5). To improve the testability of hypotheses and to use these facts to build formal models, these descriptions are best cast in a formal representation. If we only have prose descriptions, we can be unsure of whether there are implicit contradictions within our descriptions or between our descriptions and the sentences we want to model. Formalizing constructions allows us to model and confirm or disprove our analysis in a consistent and reproducible fashion and represent the important notions in the analysis of conditionals. As we all want to do, we provide a formal representation that incorporates semantic information and constructional implication associated with clause order and choice of conditional linkers as discussed in earlier chapters. Embodied Construction Grammar (ECG) is the first formalized construction grammar that offers apparatus to represent these aspects. In fact, one of the primary goals of developing ECG is to provide a formal notation for cognitive linguistics (Feldman 2006). This formalism makes use of two formal structures to express the findings for Mandarin conditionals—schema and construction, which will be discussed in Section 6.1. In what follows, the chapter explains the schema notations in section 6.2, and discusses the construction notations with examples in section 6.3. Section 6.4 demonstrates how to formalize a negative-stanced conditional (the *ruguo... jiu hao le* construction) with a conventionalized phrase. The constituents of this construction have

to be specified in the clausal construction level and cannot be inherited from other abstract constructions discussed in Section 6.3. Section 6.5 concludes the chapter.

6.1 Basics of Embodied Construction Grammar

This section summarizes the important concepts of Embodied Construction Grammar and describes its formal notation. Similar to other varieties of Construction Grammar, Embodied Construction Grammar assumes that language users access constructions during comprehension to understand a particular utterance based on its corresponding cognitive structures and, during production, to produce a form to achieve some communicative purposes (Chang 2007). However, ECG differs from other Construction Grammars in its focus on how constructions facilitate the language processing that associates static linguistic conventions with dynamic semantic inference. More specifically, ECG assumes that understanding an utterance is simulating the content of the utterance. Under this view, utterances are viewed as activating a set of constructions and their associated conceptual representations, termed as **embodied schemas**. These schemas are then mentally **simulated** with respect to the current context to produce a rich set of inferences.

The notion of simulation influences the formal representation in several ways. One of them is that a construction does not have to include all information needed to understand the utterance. The constructional representation only has to be specific enough to include information able to launch a simulation using cognitive structures that are represented in evoked schemas.

The rest of this section provides an overview of the ECG formalism, including the representational primitives, constraints, accessible structures, and relations among the primitives. A detailed discussion of the ECG formalism can be found in Chang (2007). The present study uses her definitions but only describes notation that is used for the representation of Mandarin conditional constructions.

A. Representational primitives

- A **schema** is the basic structured unit of representation. Each schema specifies structured relationships among a set of participants, called **roles**; roles can be instantiated by particular values (or fillers). Schemas are used to represent both form and meaning. From a language understanding perspective, form schemas provide information that can be used to recognize a construction based on an utterance's surface form (e.g., associated phonological or orthographic strings, intonational information, temporal ordering), while meaning schemas help to specify parameters for simulations. For example, a semantic *into*-schema has roles such as *trajector* and *landmark*. In this case, the *trajector* is the entity and the *landmark* is the container.
- A **construction** is the basic linguistic unit that pairs elements and constraints across the form and meaning domains, or **poles**. Each construction has a **form** pole and a **meaning** pole, which can be constrained to instantiate specific form and meaning schemas, respectively. Some constructions also have internal constituents that are themselves constructions, or features encoding properties of the construction that do not reside solely in the form or meaning domain. For example, the *into*-construction links an instance of word with an instance of *into*-schema. The form pole specifies its phonological form as the schematic representation /Intu^w/. The meaning pole of the *into*-construction is the *into*-schema.

B. Relations among primitives

Structures may be related in one of several ways:

- **subcase**: Schemas and constructions are organized in multiple inheritance hierarchies, each a lattice induced by the subcase relation between a structure (schema or construction) and its more general **base** structure (or set of base structures), notated as **subcase of**. The roles (and constituents, in the case of constructions) of each base structure are accessible and its constraints apply. For instance, the *into*-schema is a subcase of the *trajector-landmark*-schema. The *into*-construction is a subcase of the *spatial-relation*-construction.

- **evocation:** A schema may activate an instance of another schema x with the local identifier y , using the notation **evokes x as y** . This underspecification provides needed flexibility for building semantic specifications. For example, the *trajector-landmark*-schema evokes the *source-path-goal*-schema. In combination with the **self** notation (see below), evocation also allows one structure to be defined or raised to prominence against a background set of structures, thus formalizing the notion of profiling used in frame semantics (Fillmore 1982) and Cognitive Grammar (Langacker 1991). The **self** notation refers to the structure being defined. For example, in a *spatial-phrase*-construction, the meaning pole has “self_m↔ sr_m”. This indicates that the meaning of a *spatial-phrase*-construction is bound to the meaning of its spatial-relation constituent.

C. Constraints

The following constraint types are allowed:

Type (or category) constraints (indicated with a colon, as $x : y$) restrict x to be filled by an instance of schema y . For example, in the *into*-construction, “meaning : into” means that the construction’s meaning is to be filled by an instance of *into*-schema.

Binding constraints: ECG has two constraints that correspond to standard unification or coindexation.

Identification constraints (indicated with a double-headed arrow, as $x \leftrightarrow y$) cause fillers to be shared between x and y , thus indicating how roles of different structures involved in simulation are aligned. For instance, in the *into*-schema, “trajector↔s.trajector” means that the *trajector* is bound to the *trajector* of the *source-path-goal*-schema.

Filler constraints (indicated with a single-headed arrow, as $x \leftarrow y$) indicate that the role x is filled by the element y (a constant value). For example, in the *into*-construction, “phon←/Intu^w/” means that the phonological form of this construction is filled by /Intu^w/.

Ordering constraints: Temporal relations among form segments are notated using form constraints. The most common relations are **before** (for precedence) and **meets** (for immediate precedence). In the absence of any explicit order constraint, a weaker co-occurrence constraint holds among the forms of different constituents of the same construction. For instance, in a *spatial-phrase*-construction, the spatial-relation form must precede the *landmark* form, represented as “sr_f before lm_f”.

ECG includes notations for expressing several kinds of constraints. Arguments to these constraints must be accessible structures within the relevant definition, i.e., one of the following:

- the structure itself, expressed using the keyword **self**;
- locally defined roles, constituents and evoked structures;
- inherited roles, constituents and evoked structures (i.e., those accessible via the subcase relation);
- roles and constituents recursively accessible through other accessible structures, using a dotted “slot chain” notation to refer to a role y of a structure x as $x.y$; and
- the form and meaning poles of any accessible construction, including those of the structure itself or any of its constituents, using a subscripted f or m .

6.2 Schemas for mental spaces and situations

A schema is a representational primitive that represents the cognitive structures evoked during language comprehension and production. As mentioned in the previous section, a linguistic construction only has to be specific enough to include information that is able to launch simulation using cognitive structures. In other words, the meaning pole in a construction evokes the relevant schemas. The evoked schema illustrates a structured relationship among a set of roles. The schemas required for the understanding of Mandarin conditionals are classified into two types: schemas for mental spaces and schemas for situations. The former formalize how utterances are tracked in discourse and mental spaces set up for Mandarin conditionals as shown in section 6.2. The latter represent how situations are related (i.e., temporally or causally) as shown in section 6.2.2. Figures 6.1-6.3 show the ECG formalism minus the conditional features and constructions; all figures after figure 6.4 display the features of the conditionals discussed in earlier chapters.

6.2.1 Schemas for Spaces

As a preliminary to discussing space schemas, Discourse Segment schemas, which are the means of introducing spaces into discourses, must be described. A Discourse Segment is a piece of discourse that is directed to an addressee by a speaker. At any given point in this segment, a space is being elaborated. Which space is elaborated can change over time, thus `currentSpace` serves as a pointer to that space. The `currentSpace` is a symbol recognizable to a program, which indicates the space that is being simulated.

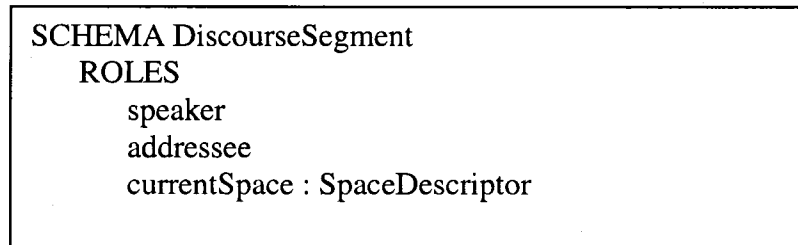


Figure 6.1

A mental space is represented in a `SpaceDescriptor` schema as shown in Figure 6.2. The content of the mental space is not specified at this abstract level.

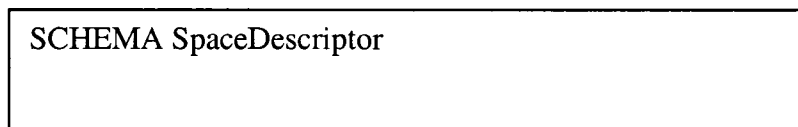


Figure 6.2

As was mentioned in the first chapter, a protasis linker in a Mandarin conditional creates a non-positive background space. This is to say that conditionals indicate a non-positive epistemic stance toward the truth of the background. This property is indicated by the **epistemicStance** role. In general, *ruguo* conditionals have neutral epistemic stance and *yao-bushi* conditionals have negative stance. The content of a non-positive

background space is represented in a **Non-positiveBackgroundSpaceDescriptor** schema. The role `parentSpace` provides a way to track the current space in the discourse.

```
SCHEMA Non-positiveBackgroundSpaceDescriptor
SUBCASE OF SpaceDescriptor
ROLES
  parentSpace : SpaceDescriptor
  epistemicStance : { neutral, negative }
```

Figure 6.3

The **ContentConditionalSpaceDescriptor** schema has the roles that define the meanings of the conditional space in question. The representation of Mandarin conditionals here is restricted to content conditionals because the purpose is to describe the basic semantic contribution of the linking devices in content conditionals (these functions are paralleled for non-content conditionals). To represent speech act conditionals, we also have to find methods to represent types of speech acts (such as assertions, commands, and questions) and other interrelated structures which are still being investigated. The formalization of Epistemic Conditionals is also in process.

The **ContentConditionalSpaceDescriptor** is represented in Figure 6.4:


```

SCHEMA ContentConditionalSpaceDescriptor
  SUBCASE OF Non-positiveBackgroundSpaceDescriptor
  EVOKES CausallyRelatedSituations as
  causallyRelatedSituations
  ROLES
    stateChangeCondition : Situation
    uniquenessOfCondition : {non-unique, unique}
    alternative : ContentConditionalSpaceDescriptor
    exceptiveness : {non-exceptional, default, exceptional}
  CONSTRAINTS
    self <--> alternative.alternative
    parentSpace <--> alternative.parentSpace
    satisfy(self, stateChangeCondition)
    not(satisfy(alternative, stateChangeCondition))
    stateChangeCondition <-->
    CausallyRelatedSituations.situation1
    alternative.CausallyRelatedSituations.situation1 <-->
    not-identical(CausallyRelatedSituations.situation1)
    alternative.CausallyRelatedSituations.situation2 <-->
    not-identical(CausallyRelatedSituations.situation2)

```

Figure 6.4

As pointed out in previous chapters, there is a causal relationship holding between the protasis and the apodosis in all types of Mandarin conditionals. To describe this relationship, the ContentConditionalSpaceDescriptor evokes the CausallyRelatedSituations schema (as in Figure 6.8). The CausallyRelatedSituations schema expresses the idea that two situations described in the two clauses are semantically related by means of a causal relationship. Situation1 refers to the cause and situation2 represents the effect. This schema will be explained in detail later.

StateChangeCondition refers to the situation that is simulated in the primary space of the conditional¹¹. The role **uniquenessOfCondition** is used to indicate the “uniqueness” meaning of the protasis in *ruguo...cai* construction and *chufei cai* construction, both of which often translate simply as *only if* conditionals. This role distinguishes conditionals with ‘only if’ meanings from other conditionals. The role **alternative** refers to an alternative space that is also being simulated, as most conditionals set up two alternatives. The alternative space contains the condition that does not satisfy the condition described in the protasis. The **exceptiveness** role allows us to indicate the exceptive nature of the protasis in the *chufei* conditional.

In the CONSTRAINTS section, **self** refers to the current space that is being simulated, and it is an alternative to an alternative space that is being simulated. **parentSpace <--> alternative.parentSpace** means that the parent space of the current space is also the parent space of the alternative space. As I mentioned in the previous paragraph, the condition described in the protasis space (which is coded as **self**) satisfies the state-change condition whereas the condition in the alternative space does not satisfy the state-change condition. This constraint is represented as **satisfy(self, stateChangeCondition)** and **not-identical(satisfy(alternative, stateChangeCondition))**. The last two lines in the part of CONSTRAINTS express that situations or states simulated in the alternative space are not the same as those simulated in the primary space.

¹¹ Just as usual, a situation may be simulated in an alternative space if alternative-space builders (e.g., ‘not’, ‘no’) are present. Thus, in *If it doesn’t rain tomorrow*, ‘It rains tomorrow’ is simulated in the alternative space of the conditional.

6.2.2 Schemas for situations

The following is an ECG attempt to handle the radial category of temporally and causally linked situations. What we'd really like to represent is having a central case of both temporally and causally related situations and two radial extensions for situations that are only temporally or only causally related. Our solution is to represent the radial extensions as sub-cases inheriting from the `RelatedSituation` schema defined with only the shared structure between the two.

The schema `Situation` has a role **polarity**. This will be useful when a lexical component triggers negative polarity.



Figure 6.5

The `RelatedSituations` schema has two situation roles: `situation 1` and `situation 2`. `Situation 1` refers to the situation or state described in the protasis, and `situation 2` points to the situation or state depicted in the apodosis. Another role, `situationRelation`, has two values: temporal or causal. It has been mentioned in Chapter 3 that *jiu* and *cai* indicate propositions in the subordinate and main clauses are related either causally or temporally. This schema has the temporal and causal values that can capture the relations indicated by *jiu* and *cai*.

```

SCHEMA RelatedSituations
  SUBCASE OF Situation
  ROLES
    situation1 : Situation
    situation2 : Situation
    situationRelation : {temporal, causal}

```

Figure 6.6

The TemporallyRelatedSituations schema is used to represent the meaning of temporally-linked clauses. This schema has a constraint on situation relation: the relation is set to **temporal**. Situation1 and situation2 are defined with one going **before** another.

```

SCHEMA TemporallyRelatedSituations
  SUBCASE OF RelatedSituations
  CONSTRAINTS
    situationRelation <-- temporal
    before(situation1, situation2)

```

Figure 6.7

The CausallyRelatedSituations schema is able to represent the causal relationship holding between the linked clauses. In this schema, the situation relation is set to causal, and situation1 and situation2 are related with a cause-effect relationship. In a conditional sentence, situation1 describes the cause and situation2 refers to the effect. Therefore, later in clausal constructions, situation1 is bound to the protasis and situation2 is bound to the apodosis.

```

SCHEMA CausallyRelatedSituations
  SUBCASE OF RelatedSituations
  CONSTRAINTS
    situationRelation <-- causal
    cause(situation1, situation2)

```

Figure 6.8

6.3 Constructions

A construction is a linguistic unit that pairs elements and constraints across the form and meaning domains. ECG provides formalized constructions at all levels. Formalizing constructions at different levels allows us to give information about the semantic contribution of both small and large units in conditionals, and also illustrates the manner in which they are combined to form a hierarchical structure. This section provides representations of linkers, clauses, and sentences. The two types of linkers, the AntecedentLinker and the ConsequentLinker, are described below, along with their two major subtypes in 6.3.1 and 6.3.2. The antecedent clause constructions and the consequent clause constructions are formalized in 6.3.3 and 6.3.4 respectively. Section 6.3.5 formalizes possible combinations of antecedent clauses and consequent clauses.

The abstract constructions are defined in Section 6.3.1. The lexical constructions are discussed in Section 6.3.2. The abstract constructions contain the generalized properties of the antecedent linkers and the consequent linkers. The lexical constructions lay out the representations of the words, such as *ruguo*, *jiu*, *chufei*, and so on.

6.3.1 Abstract linker constructions

6.3.1.1 Construction for antecedent linkers

The AntecedentLinker construction (Figure 6.9) is an abstract construction. This construction evokes the **ContentConditionalSpaceDescriptor** schema (Figure 6.4). By evoking this schema, the construction cues mental-space simulation according to the pattern described in the ContentConditionalSpaceDescriptor schema. The *as space* that

follows means that **space** is shorthand for the ContentConditionalSpaceDescriptor schema within this construction definition. *DS.currentSpace <--> space* indicates that the content of the current space that is being simulated is the one represented in the ContentConditionalSpaceDescriptor schema (Figure 6.4).

<p>CONSTRUCTION AntecedentLinker MEANING EVOKES ContentConditionalSpaceDescriptor as space DS.currentSpace <--> space</p>
--

Figure 6.9

There are three types of antecedent linkers in the Mandarin conditionals discussed here. The BasicAntecedentLinker (Figure 6.10) refers to *ruguo* used in an unambiguous conditional. The ExceptiveAntecedentLinker (Figure 6.11) represents a linker with an “exceptive” meaning such as *chufei*. The NegativeStancedAntecedentLinker (Figure 6.12) includes the linkers that signal the negative epistemic stance such as *yao-bushi* and *ruguo-bushi*.

<p>CONSTRUCTION BasicAntecedentLinker SUBCASE OF AntecedentLinker</p>
--

Figure 6.10

<p>CONSTRUCTION ExceptiveAntecedentLinker SUBCASE OF AntecedentLinker</p>
--

Figure 6.11

<p>CONSTRUCTION NegativeStancedAntecedentLinker SUBCASE OF AntecedentLinker</p>
--

Figure 6.12

6.3.1.2 Construction for consequent linkers

The abstract construction for consequent linker (Figure 6.13) evokes the **ContentConditionalSpaceDescriptor** schema (Figure 6.4). By evoking this schema, the construction obtains its meaning from the simulation in spaces as indicated in the ContentConditionalSpaceDescriptor schema.

CONSTRUCTION ConsequentLinker MEANING EVOKES ContentConditionalSpaceDescriptor as space

Figure 6.13

The ConsequentLinker construction has two sub-cases. One of them is SpaceContinuingConsequentLinker construction. This construction is an abstract construction that is the parent construction of lexical constructions such as *jiu* and *cai*. Simply put, a space continuing consequent linker points to an apodosis space that belongs to the same sequence of situations as the protasis space.

CONSTRUCTION SpaceContinuingConsequentLinker SUBCASE OF ConsequentLinker DS.currentSpace <--> space

Figure 6.14

The second sub-case of ConsequentLinker construction is the SpaceRedirectingConsequentLinker construction. Chapter 4 discussed two variants of the *chufei* construction. In one type of *chufei* construction, the situations described in the protasis and the apodosis belong to different sequences of situations, as illustrated in the example:

(1) *chufei* women like *zuo* *hao* *yesheng* *dongwu*
 unless we immediately do well wild animal

baoyu *gongzuo*,
 conservation job

fouze *jinji* *zhicai* *suishi* *hui* *jianglin*
 otherwise economic sanction anytime will fall upon

‘Unless we do a good job of wildlife conservation immediately, economic sanctions could hit us sometime soon.’

(Academia Sinica Corpus 004)

The protasis describes a situation in an exceptive space, while the apodosis describes a situation in a default space. In other words, *fouze* points to an alternative space (default space) instead of an extension space in the primary space (exceptive space).

The space-redirecting property is formalized as **DS.currentSpace <--> space.alternative**, which means the simulated current space is an alternative space to the primary space.

CONSTRUCTION SpaceRedirectingConsequentLinker SUBCASE OF ConsequentLinker MEANING DS.currentSpace <--> space.alternative

Figure 6.15

6.3.2 Lexical constructions

One of the goals of this chapter is to represent the semantic contribution of the linking devices. The section shows how individual linker discussed in previous chapters are represented in Embodied Construction Grammar.

6.3.2.1 Antecedent Linkers

We first consider the *Ruguo* construction.

CONSTRUCTION <i>Ruguo</i>
SUBCASE OF BasicAntecedentLinker
FORM
self.f.orth <-- <i>ruguo</i>
MEANING
space.epistemicStance <-- <i>neutral</i>
space.exceptiveness <-- <i>non-exceptional</i>
space.alternative.epistemicStance <-- <i>neutral</i>
space.alternative.exceptiveness <-- <i>non-exceptional</i>

Figure 6.16

Figure 6.16 indicates that *ruguo* marks the P space's epistemic stance as neutral as in **space.epistemicStance ← neutral**, the exceptiveness feature as non-exceptional as in **space.exceptiveness ← non-exceptional**. The alternative space has the same features for the roles of epistemic stance and exceptiveness.

Yao-shi has identical values to those of *ruguo* in the meaning section (so the discussion of Figure 6.17's content is therefore omitted here). But *yao-shi* differs from *ruguo* in morphological composition. *Yao-shi* is composed of *yao* 'if' and *shi* 'be', each of which can stand alone. In contrast, *ruguo* 'if' is an unbreakable morpheme because *ru* or *guo* by itself cannot be interpreted in this word. Neither of them can be used independently as a conditional marker in Modern Chinese. The claim that *yaoshi* is breakable but *ruguo* is not can be supported by the fact that *yao* can be combined with *bushi* 'not be' to form a negative-stanced marker *yao-bushi* 'if it is not the case that' but *ru* or *guo* cannot be combined with *bushi*. Thus *ruguo-bushi* 'if it is not the case that' is grammatical but *ru-bushi* and *guo-bushi* are not.

```

CONSTRUCTION Yao-shi
SUBCASE OF BasicAntecedentLinker
FORM
  self.f.orth <-- yao-shi
MEANING
  space.epistemicStance <-- neutral
  space.exceptiveness <-- non-exceptional
  space.alternative.epistemicStance <-- neutral
  space.alternative.exceptiveness <-- non-exceptional

```

Figure 6.17

Bushi is a negator that occurs with an ‘if-like’ word *yao* to create a **NegativeStancedAntecedentLinker** *yao-bushi* ‘if it is not the case that’. *Yao-bushi* itself creates a counterfactual space, the P space. *Yao-bushi* marks the P space as negative-stanced, represented as **space.epistemicStance** ← **negative**. The alternative space is the factual space; therefore the epistemic stance of the alternative is set to positive. *Yao-bushi* does not have any exceptive meaning; therefore the P space and the alternative are both marked as non-exceptional.

```

CONSTRUCTION Yao-bushi
SUBCASE OF NegativeStancedAntecedentLinker
FORM
  self.f.orth <-- yao-bushi
MEANING
  space.epistemicStance <-- negative
  space.exceptiveness <-- non-exceptional
  space.alternative.epistemicStance <-- positive
  space.alternative.exceptiveness <-- non-exceptional

```

Figure 6.18

The antecedent linker *chufei* sets up an exceptive space. In the figure, **space.exceptiveness** is set to exceptive. An alternative default space is set up when

people understand or use the *chufei* construction. Therefore, the status of the alternative space is set to default, which is represented as **space.alternative.exceptiveness<-- default.**

```

CONSTRUCTION Chufei
SUBCASE OF ExceptiveAntecedentLinker
FORM
  self.f.orth <-- chufei
MEANING
  space.epistemicStance <-- neutral
  space.exceptiveness <-- exceptive
  space.alternative.epistemicStance <-- neutral
  space.alternative.exceptiveness <-- default

```

Figure 6.19

6.3.2.2 Consequent linkers

It has been mentioned that there are two types of consequent linkers in Section 6.3.1.2. The first type is termed as SpaceContinuingConsequentLinker (Figure 6.14) in that linkers of this type direct people's attention to the effect in the primary space. For example, in a *ruguo...jiu* construction, *jiu* points to the Q space as an effect of P. Because of this function, *jiu* is analyzed as a marker of causal relationship here. In addition, *jiu* does not mark the protasis as a unique condition, which is represented as **Space.uniquenessOfCondition ← non-unique.**

```

CONSTRUCTION Jiu
SUBCASE OF SpaceContinuingConsequentLinker
FORM
  self.f.orth <-- jiu
MEANING
  space.uniquenessOfCondition <-- non-unique

```

Figure 6.20

Conditionals marked with *cai* are often translated as *only if* sentences. *Cai* indicates the uniqueness of the protasis condition, which is formalized as **space.uniquenessOfCondition** *-- unique*.

```

CONSTRUCTION Cai
SUBCASE OF SpaceContinuingConsequentLinker
FORM
  self.f.orth -- cai
MEANING
  space.uniquenessOfCondition -- unique

```

Figure 6.21

In contrast to *jiu* and *cai*, *buran* and *fouze* point to the $\sim Q$ space. They are therefore termed as **SpaceRedirectingConsequentLinkers** (Figure 6.15). *Buran* and *fouze* also evoke the **CausallyRelatedSituations** schema (Figure 6.8). It is because *buran* and *fouze* can only indicate a causal relationship. However, *jiu* and *cai* can indicate both temporal and causal relationships. Thus, their constructions (Figure 6.20 and Figure 6.21) are left unspecified for this aspect.

```

CONSTRUCTION Buran
SUBCASE OF SpaceRedirectingConsequentLinker
FORM
  self.f.orth -- buran
MEANING
  EVOKES CausallyRelatedSituations as
  causallyRelatedSituations
  alternative.exceptiveness -- default
  space.relatedSituations --> causallyRelatedSituations

```

Figure 6.22

```

CONSTRUCTION Fouze
SUBCASE OF SpaceRedirectingConsequentLinker
FORM
  self.f.orth <-- fouze
MEANING
  EVOKES CausallyRelatedSituations as
causallyRelatedSituations
  alternative.exceptiveness <-- default
  space.relatedSituations <--> causallyRelatedSituations

```

Figure 6.23

6.3.3 Constructions: antecedent clauses

The AntecedentLinkedClause construction puts the clause and the antecedent linker together. This construction is a sub-case of the LinkedClause construction, as in Figure 6.24.

```

CONSTRUCTION LinkedClause
MEANING : Situation

```

Figure 6.24

```

ABSTRACT CONSTRUCTION AntecedentLinkedClause
SUBCASE OF LinkedClause
CONSTITUENTS
  linker : AntecedentLinker
  clause : Clause

```

Figure 6.25

The BasicAntecedentLinkedClause construction (Figure 6.26) is a general construction for clauses linked with *ruguo*. Since this construction is a subcase of AntecedentLinkedClause construction (as shown in Figure 6.25), it inherits the

consitutents (i.e., linker and clause) from the AntecedentLinkedClause construction. In Figure 6.26, **linker : BasicAntecedentLinker** indicates that the type of linker occurring in this construction is a BasicAntecedentLinker.

linker.space.CausallyRelatedSituations.situation1 <--> clause.m says that the meaning of this linked clause is bound to the situation 1 in the CausallyRelatedSituations schema (Figure 6.8) evoked by the ContentConditionalSpaceDescriptor (Figure 6.4) that is evoked by the linker *ruguo*. (6.25) at the end of the SUBCASE line indicates that Figure 6.25 represents AntecedentLinkedClause. I provide this type of information for figures after Figure 6.25 in order to help readers to easily locate the related figures.

CONSTRUCTION BasicAntecedentLinkedClause	
SUBCASE OF AntecedentLinkedClause	(6.25)
CONSITUTENTS	
linker : BasicAntecedentLinker	(6.10)
MEANING	
linker.space.CausallyRelatedSituations.situation1 <-->	
clause.m	

Figure 6.26

The ExceptiveAntecedentLinkedClause construction is a general construction for clauses linked with *chufei*. This construction is a also a subcase of AntecedentLinkedClause construction (as shown in Figure 6.25), and therefore it inherits the consitutents from the AntecedentLinkedClause construction. In Figure 6.27, linker : ExceptiveAntecedentLinker indicates that the type of linker occurring in this construction is an ExceptiveAntecedentLinker. The meaning of this linked clause is bound to the situation 1 in the CausallyRelatedSituations schema that is evoked by the ContentConditionalSpaceDescriptor that is evoked by the linker *chufei*.

CONSTRUCTION ExceptiveAntecedentLinkedClause	
SUBCASE OF AntecedentLinkedClause	(6.25)
CONSITUTENTS	
linker : ExceptiveAntecedentLinker	(6.11)
MEANING	
linker.space.CausallyRelatedSituations.situation1 <-->	
clause.m	

Figure 6.27

The NegativeStancedAntecedentLinkedClause is a general construction for clauses linked with *yao-bushi*. Similar to Figure 6.26 and 6.27, this construction is also a subcase of AntecedentLinkedClause construction, and therefore it inherits the constituents from the AntecedentLinkedClause construction. In Figure 6.28, linker : NegativeStancedAntecedentLinker indicates that the type of linker occurring in this construction is a NegativeStancedAntecedentLinker.

linker.space.alternative.CausallyRelatedSituations.situation1

<--> **clause.m** means putting the content of the *yao-bushi* clause into the alternative (i.e. factual) space.

CONSTRUCTION NegativeStancedAntecedentLinkedClause	
SUBCASE OF AntecedentLinkedClause	(6.25)
CONSITUTENTS	
linker : NegativeStancedAntecedentLinker	(6.12)
MEANING	
linker.space.alternative.CausallyRelatedSituations.situation1 <-->	
clause.m	

Figure 6.28

6.3.4 Constructions: consequent clauses

This puts the clause and the consequent linker together. The meaning of a linked consequent clause is less straightforward. The following table illustrates the overtly expressed spaces and implied spaces involved in individual constructions:

Constructions	Expressed Spaces	Implied Spaces
<i>ruguo</i> P, <i>jiu</i> Q	(non-exceptional) $P \rightarrow Q$	(non-exceptional) $\sim P \rightarrow \sim Q$
<i>chufei</i> P, <i>cai</i> Q	(exceptional) $P \rightarrow Q$	(default) $\sim P \rightarrow \sim Q$
<i>chufei</i> P, <i>buran</i> Q	(exceptional) $P \rightarrow \sim Q$	(default) $\sim P \rightarrow Q$

Table 6.1 Constructions, spaces, and implied spaces

In general, a space continuing consequent linker points to Q whereas a space redirecting consequent linker points to $\sim Q$.

- If the linker is space-continuing, then the meaning of the clause is the situation² (effect) of the RelatedSituations evoked by the primary space.
- If the linker is a space-redirecting one, then the meaning of the clause is the situation² (effect) of the RelatedSituations evoked by the alternative space.

We need to have an abstract ConsequentLinkedClause construction that has the space-continuing linked clause and the space-redirecting linked clause as its sub-cases.

<p>ABSTRACT CONSTRUCTION ConsequentLinkedClause CONSTITUENTS linker : ConsequentLinker clause : Clause</p>

Figure 6.29

A typical **SpaceContinuingConsequentLinkedClause** is a *jiu*-marked clause. Figure 6.30 shows that the meaning of such a clause is to be understood in terms of the **situation2** of the related **Situations** schema evoked by the **ContentConditionalSpaceDescriptor**.

<p>CONSTRUCTION SpaceContinuingConsequentLinkedClause SUBCASE OF ConsequentLinkedClause (6.29) CONSTITUENTS linker : SpaceContinuingConsequentLinker (6.14) MEANING linker.space.CausallyRelatedSituations.situation2 <--> clause.m</p>
--

Figure 6.30

In figure 6.31, **linker.space.alternative.CausallyRelatedSituations.situation2** <--> **clause.m** says that the meaning of the linked consequent clause is to be interpreted as the **situation 2** of the related **Situations** schema (Figure 6.8) evoked by the alternative space to the primary **ContentConditionalSpaceDescriptor** schema (Figure 6.4).

<p>CONSTRUCTION SpaceRedirectingConsequentLinkedClause SUBCASE OF ConsequentLinkedClause (6.29) CONSTITUENTS linker : SpaceRedirectingConsequentLinker (6.15) MEANING linker.space.alternative.CausallyRelatedSituations.situation2 <--> clause.m</p>
--

Figure 6.31

6.3.5 Conditionals: abstract constructions

In addition to presenting the formal notation for lexical constructions and single clauses, we want to show how the clauses are combined in our representation. This

section lists the general linking patterns of conditionally-conjoined clauses. A conditionally-conjoined-clauses construction is a subtype of conjoined-clauses construction. Figure 6.32 shows that a conjoined-clauses construction is composed of two clauses.

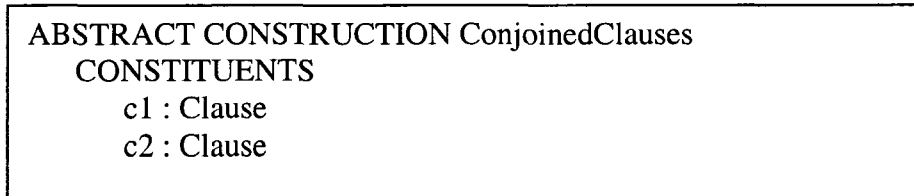


Figure 6.32

The ConditionallyConjoinedClauses construction as in Figure 6.33 is meant to be the supertype of all conditional sentences. No further form or constituency structure can be specified at this level for two reasons. First, there are several types of conditional constructions (e.g., *ruguo* conditional, *chufei* exceptive conditional and *yao-bushi* counterfactual) and it would be uneconomical to include all of the types in one abstract construction. Second, a conditional antecedent linker may be combined with several consequent linkers and these combinations with semantic differences are best specified at the individual constructional level.

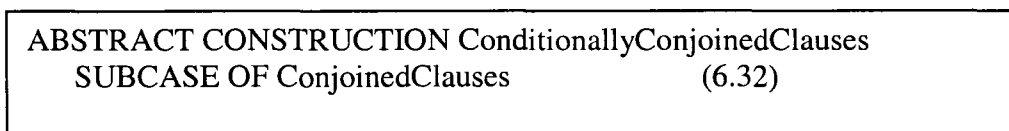


Figure 6.33

Since the ConditionallyConjoinedClauses construction is a sub-case of ConjoinedClauses construction, Figure 6.33 inherits its features from figure 6.32. That

is to say, ConditionallyConjoined Clauses construction inherits the constituents (c1 and c2) from the ConjoinedClauses construction.

ContentConditional construction (Figure 6.34) is a subcase of ConditionallyConjoined Clauses construction (Figure 6.33). Thus, ContentConditional construction inherits its constituents (c1 and c2) from ConditionallyConjoined Clauses. Figure 6.34 specifies that its meaning is simulated in a ContentConditionalSpaceDescriptor. The form section indicates the order constraint of the conjoined clauses: clause 1 must precede clause 2.

ABSTRACT CONSTRUCTION	ContentConditional	
SUBCASE OF	ConditionallyConjoinedClauses	(6.33)
FORM		
	c1.f before c2.f	
MEANING		
	evokes ContentConditionalSpaceDescriptor as space	(6.4)

Figure 6.34

The following figures (Figure 6.35-6.37) exhibits three types of ConditionallyConjoined clauses. A conditional construction can be marked in both clauses as in Figure 6.35, in the antecedent clause only as in Figure 6.36, or in the consequent clause only as in Figure 6.37. Note that a conditional construction with only an antecedent linker has to be followed by a modal clause (A modal clause is simply a clause containing a modal verb such as *hui* 'will,' *keneng* 'may,' etc.).

In a ContentConditionalWithBothLinkers, the meaning is bound to the simulation spaces marked by the antecedent clause linker and the consequent clause linker.

ABSTRACT CONSTRUCTION ContentConditionalWithBothLinkers	
SUBCASE OF	ConditionallyConjoinedClauses (6.33)
CONSTITUENTS	
c1 :	AntecedentLinkedClause (6.25)
c2 :	ConsequentLinkedClause (6.29)
MEANING	
space <-->	c1.linker.space
space <-->	c2.linker.space

Figure 6.35

In the ContentConditionalWithAntecedentLinkerOnly construction, the meaning of the antecedent linked clause (c1) is bound to the simulation space evoked by the c1 linker. C2's meaning is specified as the situation2 of the relatedSituation schema evoked by its simulation space.

ABSTRACT CONSTRUCTION ContentConditionalWithAntecedentLinkerOnly	
SUBCASE OF	ConditionallyConjoinedClauses (6.33)
CONSTITUENTS	
c1 :	AntecedentLinkedClause (6.25)
c2 :	ModalClause
MEANING	
space <-->	c1.linker.space
space.relatedSituations.situation2 <-->	c2.m

Figure 6.36

In the ContentConditionalWithConsequentLinkerOnly construction, c1's meaning is specified as the situation1 of the relatedSituation schema evoked by its simulation space. C2's meaning is specified as the simulation space evoked by the c2 linker.

ABSTRACT CONSTRUCTION	ContentConditionalWithConsequentLinkerOnly	
SUBCASE OF	ConditionallyConjoinedClauses	(6.33)
CONSTITUENTS		
	c1 : Clause	
	c2 : ConsequentLinkedClause	(6.29)
MEANING		
	space.related Situations.situation1 <--> c1.m	
	space <--> c2.linker.space	

Figure 6.37

6.3.6 Conditionals: combinations

This section presents the combinations of antecedent linked clauses and consequent linked clauses. The meaning poles of these bi-clausal constructions (Figure 38-44) are empty because their constituents (c1 and c2) evoke features in ContentConditionalSpaceDescriptor schema (Figure 6.4) and CausallyRelatedSituation schema (Figure 6.8). Namely, the meanings of the mono-clausal constituents have been specified at the mono-clausal level and thus the meanings of the bi-clausal constructions (Figure 38-44) are inferred by combining the meanings of their mono-clausal components. This indicates the compositional property of the constructions.

We first look at the BasicContentConditional construction, which has three types: marked in the antecedent clause with a modal consequent clause (type A), marked in both clauses (type B), and marked only in the consequent clause (type C). It has been mentioned in Chapter 1 that a Mandarin conditional can be composed of a linked antecedent clause and a consequent clause with a modal. There is no constraint on the modal.

CONSTRUCTION BasicContentConditionalA	
SUBCASE OF ContentConditionalWithAntecedentLinkerOnly	(6.36)
CONSTITUENTS	
c1 : BasicAntecedentLinkedClause	(6.26)
c2 : ModalClause	

Figure 6.38

The BasicContentConditionalB construction specifies that the consequent clause is marked by a space-continuing consequent linker. Thus, it prohibits the use of *buran* and *fouze* with *ruguo*.

CONSTRUCTION BasicContentConditionalB	
SUBCASE OF ContentConditionalWithBothLinkers	(6.35)
CONSTITUENTS	
c1 : BasicAntecedentLinkedClause	(6.26)
c2 : SpaceContinuingConsequentLinkedClause	(6.30)

Figure 6.39

The BasicContentConditionalC represent sentences marked only with *jiu* or *cai*.

CONSTRUCTION BasicContentConditionalC	
SUBCASE OF ContentConditionalWithConsequentLinkerOnly	(6.37)
CONSTITUENTS	
c2 : SpaceContinuingConsequentLinkedClause	(6.30)

Figure 6.40

Mandarin exceptive conditionals have to be marked in both clauses and thus they are sub-cases of ContentConditionalWithBothLinkers construction. There are two types of Mandarin exceptive conditionals (the *chufei* constructions): the consequent clause can describe a continuing situation or a redirected situation. The first type

(ExceptiveContentConditionalA) takes a space-continuing consequent linker as in Figure 6.41. It allows the use of *cai* in a *chufei* construction.

CONSTRUCTION ExceptiveContentConditionalA	
SUBCASE OF ContentConditionalWithBothLinkers	(6.35)
CONSTITUENTS	
c1 : ExceptiveAntecedentLinkedClause	(6.27)
c2 : SpaceContinuingConsequentLinkedClause	(6.30)

Figure 6.41

The second type (ExceptiveContentConditionalB) allows the use of a space redirecting consequent linker such as *buran* in a *chufei* construction as in Figure 6.42.

CONSTRUCTION ExceptiveContentConditionalB	
SUBCASE OF ContentConditionalWithBothLinkers	(6.35)
CONSTITUENTS	
c1 : ExceptiveAntecedentLinkedClause	(6.27)
c2 : SpaceRedirectingConsequentLinkedClause	(6.31)

Figure 6.42

A Mandarin counterfactual has two variations. One type of Mandarin counterfactual conditional can be composed of a negative-stanced linked antecedent clause and a consequent clause with a modal.

CONSTRUCTION NegativeStancedContentConditionalA	
SUBCASE OF ContentConditionalWithAntecedentLinkerOnly	(6.36)
CONSTITUENTS	
c1 : NegativeStancedAntecedentLinkedClause	(6.28)
c2 : ModalClause	

Figure 6.43

The second type of Mandarin counterfactual contains a negative-stanced antecedent clause and a consequent clause marked by a space-continuing linker such as *jiu* or *cai*.

CONSTRUCTION NegativeStancedContentConditionalB	
SUBCASE OF ContentConditionalWithBothLinkers	(6.35)
CONSTITUENTS	
c1 : NegativeStancedAntecedentLinkedClause	(6.28)
c2 : SpaceContinuingConsequentLinkedClause	(6.30)

Figure 6.44

After presenting the individual lexical constructions, the clausal constructions, and the combinations of clauses, the following discussion shows how a *ruguo* conditional is formalized in ECG. Consider the example:

(2) *ruguo* *tianqi* *hao, women* *jiu* *qu* *luying*
RUGUO weather good we **JIU** go camping

‘If the weather is fine, we will go camping.’

This sentence is a case of the BasicContentConditionalB construction. This sentential construction has two clauses or constituents: protasis and apodosis. The protasis (represented as **c1**) is a BasicAntecedentLinkedClause construction. The apodosis (represented as **c2**) is a SpaceContinuingConsequentLinkedClause construction.

CONSTRUCTION BasicContentConditionalB	
SUBCASE OF ContentConditionalWithBothLinkers	(6.35)
CONSTITUENTS	
c1 : BasicAntecedentLinkedClause	(6.26)
c2 : SpaceContinuingConsequentLinkedClause	(6.30)

Figure 6.45

As indicated in Figure 6.45, the BasicContentConditionalB is a sub-case of ContentConditionalWithBothLinkers. The ContentConditionalWithBothLinkers construction specifies the constituents of the content conditional in the form section. It also indicates that the meaning of the linked clauses is bound to the spaces marked by the protasis and apodosis linkers.

ABSTRACT CONSTRUCTION ContentConditionalWithBothLinkers	
SUBCASE OF ConditionallyConjoinedClauses	(6.33)
CONSTITUENTS	
c1 : AntecedentLinkedClause	(6.25)
c2 : ConsequentLinkedClause	(6.29)
MEANING	
space <--> c1.linker.space	
space <--> c2.linker.space	

Figure 6.46

The contents of the protasis and the apodosis are expressed separately in the BasicAntecedentLinkedClause construction (Figure 6.47) and SpaceContinuingConsequentLinkedClause construction (Figure 6.48).

CONSTRUCTION	BasicAntecedentLinkedClause	
SUBCASE OF	AntecedentLinkedClause	(6.25)
CONSTITUENTS		
	linker : BasicAntecedentLinker	(6.10)
MEANING		
	linker.space.CausallyRelatedSituations.situation1 <--> clause.m	

Figure 6.47

CONSTRUCTION	SpaceContinuingConsequentLinkedClause	
SUBCASE OF	ConsequentLinkedClause	(6.29)
CONSTITUENTS		
	linker : SpaceContinuingConsequentLinker	(6.14)
MEANING		
	linker.space.CausallyRelatedSituations.situation2 <--> clause.m	

Figure 6.48

As shown in the meaning section of Figure 6.47 and Figure 6.48, the meaning of these two clauses is linked to the CausallyRelatedSituation schema. In terms of notations, the meaning of the antecedent clause is CausallyRelatedSituations.situation1, and the meaning of the consequent clause is CausallyRelatedSituations.situation2. The schema is shown as follows:

SCHEMA	CausallyRelatedSituations	
SUBCASE OF	RelatedSituations	(6.6)
CONSTRAINTS		
	situationRelation <-- causal	
	cause(situation1, situation2)	

Figure 6.49

The compositional meaning of *ruguo* is represented in the lexical construction of *ruguo*.

<p>CONSTRUCTION <i>Ruguo</i> SUBCASE OF <i>BasicAntecedentLinker</i> (6.10) FORM self.f.orth <-- <i>ruguo</i> MEANING space.epistemicStance <-- <i>neutral</i> space.exceptiveness <-- <i>non-exceptional</i> space.alternative.epistemicStance <-- <i>neutral</i> space.alternative.exceptiveness <-- <i>non-exceptional</i> space.uniquenessOfCondition <-- <i>non-unique</i></p>
--

Figure 6.50

The contribution of *jiu* is shown in the lexical construction of *jiu*, which is a subcase of *spaceContinuingConsequentLinker* construction.

<p>CONSTRUCTION <i>Jiu</i> SUBCASE OF <i>SpaceContinuingConsequentLinker</i> (6.14) FORM self.f.orth <-- <i>jiu</i> MEANING space.uniquenessOfCondition <-- <i>non-unique</i></p>
--

Figure 6.51

The clausal constructions indicate that the clausal meanings are bound to spaces (cf. *ContentConditionalWithBothLinkers* as in Figure 46, *BasicAntecedentLinkedClause* as in Figure 6.47, and *SpaceContinuingConsequentLinkedClause* as in Figure 6.48). The content of a space is formalized in the *ContentConditionalSpaceDescriptor* schema as in Figure 6.52. Among the four roles in this schema, *stateChangeCondition* is identified as the situation described in the space. The *uniquenessOfCondition* role is filled by the *jiu* construction because its meaning is represented as indicating the non-uniqueness of condition as shown in *space.uniquenessOfCondition <-- non-unique* in Figure 6.51. The

ruguo construction fills in the role exceptiveness with the value non-exceptional as shown in Figure 6.50. The alternative role simply means the primary space evokes an alternative space. The space schema is provided as follows:

```

SCHEMA ContentConditionalSpaceDescriptor
  SUBCASE OF Non-positiveBackgroundSpaceDescriptor          (6.53)
  EVOKES CausallyRelatedSituations as causallyRelatedSituations (6.8)
  ROLES
    stateChangeCondition : Situation
    uniquenessOfCondition : {non-unique, unique}
    alternative : ContentConditionalSpaceDescriptor
    exceptiveness : {non-exceptional, default, exceptional}
  CONSTRAINTS
    self <--> alternative.alternative
    parentSpace <--> alternative.parentSpace
    satisfy(self, stateChangeCondition)
    not(satisfy(alternative, stateChangeCondition))
    stateChangeCondition <-->
    CausallyRelatedSituations.situation1
    alternative.CausallyRelatedSituations.situation1 <-->
    not-identical(CausallyRelatedSituations.situation1)
    alternative.CausallyRelatedSituations.situation2 <-->
    not-identical(CausallyRelatedSituations.situation2)

```

Figure 6.52

The epistemic stance is not specified in the ContentConditionalSpaceDescriptor schema. Instead, it is indicated in the Non-positiveBackgroundSpaceDescriptor schema. Since the ContentConditionalSpaceDescriptor schema is a sub-case of the Non-positiveBackgroundSpaceDescriptor schema, this feature is taken care of in the higher-level construction Non-positiveBackgroundSpaceDescriptor schema as shown in Figure 6.53.

SCHEMA Non-positiveBackgroundSpaceDescriptor SUBCASE OF SpaceDescriptor ROLES parentSpace : SpaceDescriptor epistemicStance : { <i>neutral, negative</i> }	(6.2)
--	-------

Figure 6.53

6.4 The *ruguo...jiu hao le* construction

The schemas and constructions discussed in Section 6.2 and 6.3 are able to represent the conditionals marked by linkers in both clauses, by antecedent linkers and modals, and by consequent linkers only. However, we still have no representation of the *ruguo...jiu hao le* construction, since *jiu hao le* as a phrase has not been formalized.

The *ruguo...jiu hao le* construction is distinct from other *ruguo* conditionals in two respects. From the meaning side, this construction is negative-stanced whereas other *ruguo* conditionals are neutral-stanced. From the form side, this construction has a fixed phrase *jiu hao le* ‘would be good’. Consider an example:

- (3) *ruguo wo* *shi* *ge* *meinu jiu* *hao* *le*
 if I am classifier beauty *JIU* good A_Par
- ‘If only I were a beauty!’
 ‘(lit. If I were a beauty, (it) would be nice.’) (from a webpage)

For the representation of this construction, we can still use some of the schemas and constructions presented in earlier sections. For example, in Figure 6.54, we show that this construction evokes ContentConditionalSpaceDescriptor schema (Figure 6.4, Figure 6.52) to indicate its conditional properties. Also, we categorize it as a subcase of

ContentConditional construction (Figure 6.34), and specify its c1 linker as a BasicAntecedentLinker (Figure 6.10).

To formalize the conventionalized phrase *jiu hao le* in this construction, we need to specify the constituents of the fixed phrase. Figure 6.54 lays out the constituents: a BasicAntecedentlinker (*ruguo*), a clause, a linker (*jiu*), a word *hao* ‘good’, and an attitudinal particle *le*. The FORM section specifies the order of these constituents. To indicate how this construction differs from other *ruguo* constructions, in the MEANING section we show that the construction is negative-stanced and that the clause meaning is interpreted as the StateChangeCondition (situation) in the space. Since the whole construction only describes the protasis and omits the apodosis, c1 linker and c2 linker both point to the same space that contains the StateChangeCondition.

CONSTRUCTION RuguoJiuHaole	
SUBCASE OF ContentConditional	(6.34)
CONSTITUENTS	
c1linker : BasicAntecedentLinker	(6.10)
clause : Clause	
c2linker : Jiu	
hao : Hao	
particle : Le	
FORM	
c1linker.f before clause.f	
clause.f before c2linker.f	
c2linker.f before hao.f	
hao.f before particle.f	
MEANING	
space.epistemicStance <-- negative	
space.stateChangeCondition <--> clause.m	
space <--> c1linker.space	
space <--> c2linker.space	

Figure 6.54

6.5 Conclusion

This chapter has provided formal representations of all of the constructions that have been analyzed in the previous chapters. The analysis presented here is just part of the more general ECG analysis—the focus here is only to represent the conditional relations. The constructional representations presented in this chapter contains information specific enough to indicate the semantic contribution of individual linkers and to evoke the relevant cognitive structure. The cognitive structures such as mental spaces and causal relationship are represented in schemas. Important properties of conditionals such as epistemic stance, exceptiveness, and uniqueness of condition are included in the ContentConditionalSpaceDescriptor. The ECG formalism is able to represent the relevant domain-specific information via representation of meaning with schemas and the cross-domain association of form and meaning through the constructions.

Chapter 7 Conclusion

This dissertation has provided a description of some of the common Mandarin conditional constructions. This analysis has focused on describing the contributions of the linking devices to the conditional interpretations and their interactions with other elements in constructions and in context with an emphasis on the link between conceptual and linguistic structures. This proposed analysis has shown that the cognitive approaches of Construction Grammar, Mental Spaces theory, Gestalt psychology, and Embodied Construction Grammar can manage to describe the subtle semantic nuances of different constructions whereby different reasoning processes are evoked. We have discussed the *ruguo* conditional (Chapter 2), the *jiu* and *cai*-marked conditional (chapter 3), the exceptive conditional constructions (Chapter 4), the counterfactual constructions (Chapter 5), and formalized constructions using the Embodied Construction Grammar notation (Chapter 6). This final chapter will present a brief summary of the overall analysis and point out some topics that can be pursued in the future.

7.1 Summary

The analysis provided in this dissertation treats elements in a construction as contributing compositionally to its overall interpretation, with the meaning of each element depending on its interaction with other elements in the whole construction. All constructions investigated here are considered polysemous. This analysis is superior to

studies that focus on finding a monosemous meaning for a particular form, in two ways. First, subtypes of a construction have different semantic emphases (e.g. the *chufei...fouze* construction emphasizes the exceptive meaning whereas the *chufei...cai* construction emphasizes the uniqueness of the condition) and therefore have to be translated into different English sentences. It is thus inappropriate to assign a monosemous meaning to a construction. Second, the meaning of the protasis linker is indeterminate in isolation from an apodosis linker. The whole bi-clausally linked construction has to be considered as an interacting whole unit to differentiate one meaning from another. This dissertation regards conditional constructions and linking devices as cues that access cognitive structures instead of realizations of logic relations. It is found that in many cases the conditionals are not instances of material implication and that Mandarin conditional markers do not function as operators. In fact, positing protasis markers as operators makes incorrect predictions about the grammaticality of sentences, as shown in Chapter 4.

We assume there are certain basic mental space structures evoked by prototypical uses, however we also find identical basic mental space set-ups for atypical uses. This dissertation studies the mental space set-ups of Mandarin conditionals' prototypical and aprototypical uses in context. It has been demonstrated that the alternativity structure of conditionals and the meaning of the linkers serve as the bases for diverse functions of the constructions. For example, the exceptive conditional evokes the exceptive and default spaces. The two spaces serve as a basis for negotiation as in the sentence: "unless you give me the book, I will not take your course."

This dissertation represents conditional properties in a consistent fashion using the formalism of Embodied Construction Grammar, which indicates how linguistic devices

are related to cognitive structures through feature-value binding mechanisms in a computational model. This makes the formalized construction provided in the dissertation potentially computationally implementable and intergratable with systems built in the Artificial Intelligence industry.

Chapter 2 discussed the semantic contribution of *ruguo* in *ruguo* conditionals and proposed that *ruguo* indicates the non-assertive nature and neutral epistemic stance of the propositions in the conditional construction. This proposal can be supported by the fact that *ruguo* constructions are unambiguously conditional in contrast to other ambiguous constructions without *ruguo* that derive their conditional interpretations from context. The *ruguo* construction's relation to topicality and givenness was also investigated and it was found that while all *ruguo*-marked protases are topical, in discourse they are not always given topics or shared knowledge. The claim here is that the *ruguo*-clause sets up the protasis space as the ground and the apodosis identifies the figure within the protasis space. This analysis is consistent with previous analyses of English conditionals (Croft 2001; Dancygier 1993, 1998; Dancygier and Sweetser 1996, 1997, 2005) and Polish conditionals (Dancygier 1992; Tabakowska 1997).

Chapter 3 discussed notions that have traditionally been related to *jiu*-conditionals and *cai*-conditionals, including the claim that *jiu* marks sufficient conditions and *cai* indicates necessary conditions. It has been demonstrated that *jiu*- and *cai*- conditionals should not be considered as instances of material conditionality. Therefore, the logical notions of necessary and sufficient conditions are not appropriate in describing the meanings of *jiu* and *cai*. I also discussed the phenomenon of conditional perfection in Mandarin conditionals. *Jiu*-conditionals are often associated with this implicature,

whereas *cai*-conditionals already include in their meanings $\sim P, \sim Q$ and *if and only if P, Q*. This chapter also reviewed the formal focus-marking approach that has been used in several previous studies (Biq 1984, 1988; Hole 2004). I concluded that though *jiu* and *cai*'s focus-marking function can explain some of the uses of these linkers in both conditional and non-conditional contexts, a mental-space analysis is able to illustrate the linkers' functions of evoking alternative spaces, pointing to spaces, and specifying the nature of the condition represented in the space in question (e.g. the *jiu...ruguo* construction sets up P and $\sim P$ spaces; *jiu* points to the Q space). Finally, Chapter 3 addressed the relationship between scalar inferential context and scalar interpretation in *cai*-sentences, showing that scale is not part of the semantic structure of these linkers and that the scalar interpretation is inferred from quantity expressions, common-sense knowledge, and the "uniqueness" meaning of *cai*.

Chapter 4 presented an analysis of the semantics of the Mandarin exceptive (*chufei*) conditional construction and the syntactic constraints (i.e. the clause order and bi-clausal linking) on this construction. I first investigated the co-indexing syntactic pattern of *chufei...cai* and *chufei...fouze*. I found that *cai* and *fouze* have different deictic properties from English *then*. *Fouze* or *cai* is obligatory in Mandarin in order to locate $\sim Q$ or Q spaces; in English, *then* is forbidden in an *unless* sentence. The analysis reviewed the formal co-indexing approach that treats the protasis marker as an exceptive operator and the apodosis marker as a correlative pronoun. I conclude that it is inappropriate to treat the protasis marker as an operator because it mistakenly predicts the ungrammaticality of the presence of the apodosis marker. This chapter also analyzed the construction by means of mental spaces and information structure, under which the

protasis linker *chufei* creates two exceptive and default spaces in the background, and the apodosis linkers such as *buran*, *fouze*, and *cai* select ~Q or Q spaces to be placed in the foreground. This method allows us to analyze the conversational functions of the *chufei* construction and compare these constructions with English constructions with similar functions. Analyzing the conversational functions is useful for illustrating how mental spaces are accessed during the reasoning processes cross-linguistically in pragmatic uses. In addition, Chapter 4 investigated the conversational functions of *chufei* conditionals, including emphasis on the unfortunate current state of affairs, showing one's uncompromising attitude, negotiation of interests, and evasion of responsibility, which are achieved by using the alternativity space structure and the exceptive property of the *chufei* construction. I also found that using the quantity and pragmatic parameters proposed for polarity sensitive items to study Mandarin conditional linkers offers a good account of the behavior of linkers in various constructions. For example, *cai* is analyzed as a linker that indicates high pragmatic value in sentences that emphasize the “uniqueness” of conditions, and as a marker that encodes quantity value in scalar inferential contexts.

Chapter 5 investigated the *ruguo-/yao-bushi...jiu* counterfactual construction in the aspects of space building, the source of counterfactuality, and the question of whether counterfactuality in Mandarin is an implicature or assertion. It was shown that a counterfactual wish marked with a phrasal comment such as *jiu hao le* ‘would be nice’ or *you duo hao* ‘would be great’ preserves the same cause-effect and alternative-space structure in space-building as a full counterfactual conditional construction. The counterfactual belief construction, called the *yiwei* construction, was also analyzed in

terms of the mismatch between the agent's estimated truth and real state of affairs. Lastly, this chapter examined four uses of pragmatic *yao-bushi* construction in which the asserted truth and falsehood in these constructions function to draw inferences about the real situation, and the alternativity structure is used as basis to make inferences and achieve intended speech acts. A speaker uses the *yao-bushi* construction to express rage and regret as in "If I had not been a fool, why would I have married a fool."

Chapter 6 provided formal representations of the constructions analyzed in the previous chapters using notations of Embodied Construction Grammar. These formalized constructional representations contain information specific enough to indicate the semantic contribution of individual linkers and to evoke the relevant cognitive structures such as mental spaces and situation schemas. For example, the lexical construction *cai* has features that indicate its uniqueness meaning as well as its function of pointing to the continuing Q space. *Cai* also evokes the CausallyRelatedSituationSchema. Important properties of conditionals such as epistemic stance, exceptiveness and uniqueness of condition were included in the ContentConditionalSpaceDescriptor. This ECG formalism, in general, is able to represent the relevant domain-specific information via schemas and frames. The constructions represent the cross-domain association of form and meaning. The Embodied Construction Grammar representation provided in this chapter focused on the specification of conditional properties at both constructional and schematic level as well as the evocation of primary and alternative spaces simulated for interpreting the conditionals.

7.2 Future Directions

Although the current research has provided a preliminary analysis of the linking devices in some common conditionals, many further questions remain regarding the linking devices and the related constructions using conditional forms.

(a) Conditional Linking Devices

The epistemic stance and estimated probability of a conditional statement is strongly affected by the semantics of the linguistic tokens involved. In the corpus data, it has been observed that register and the meaning of the morpheme in the linking devices influences the estimated probability of a Chinese conditional. For example, a conditional marked by *tangruo* ‘if’ (in archaic Mandarin) is perceived to be less probable than one marked with *ruguo* ‘if’ (in Modern Mandarin). My hypothesis is that the infrequent, literary and formal linking devices are associated with the speaker’s low estimated probability in the premise. In other words, the less familiar a linking device is, the lower estimated prior probability of the premise is. This hypothesis raises several questions: Why is familiarity related to probability? What roles does familiarity of the lexical item play in cognitive processing of conditionals? These questions may be answerable by conducting an experiment on native speakers of Mandarin. I would like to examine the subjects’ evaluation of probability of conditionals using simple (e.g., *if*) vs. complex conditional linkers (e.g., *on the condition that*) and oral/frequent (e.g., *ruguo* ‘if’) vs. literary/infrequent markers (e.g., *jiashi* ‘if’).

(b) A corpus study of multiple linking elements in Chinese complex sentences

Linking devices are prevalent in temporal and causal sentences and can be combined in a variety of ways. This combinatorial productivity gives rise to the question

of how the compositionality of certain constructions interacts with other non-compositional constructions within the system of linkers. And there seems to be a discrepancy between formal and semantic compositionality. One type of discrepancy is redundancy in meaning. For example, it is common to see linking compounds such as *jiran-ruci*, which literally means ‘seeing as that-so’ and *ziran-zheyang*, which literally means ‘naturally-so.’ Another type is contradiction in meaning, which is exhibited by the compounds *suiran-bushi-zheyang* ‘although it is not the case that’ and *keneng-buneng* ‘maybe-may not.’ My hypothesis is that some morphemes of these compounds are semantically bleached and re-categorized. The source and reason of the semantic change need to be examined based on diachronic and synchronic data in corpora.

(c) The study of modalized constructions

Chapter 3 and chapter 5 have discussed the construction of *ruguo...jiu hao le* ‘if... would be nice’ (its closest English translation is the *if only* construction) in terms of its alternative space structure and its function of indicating a counterfactual wish. The proposed analysis is that *ruguo* sets up a counterfactual space and a factual space, and *jiu* builds an effect space in the counterfactual space where the comment ‘would be nice’ is represented. In addition to this type of double-marked modalized construction (i.e. marked with both a protasis marker and a fixed “modal” phrase), there is a type of single-marked construction that expresses similar meanings. Consider the following examples:

(1) (revised from Hole 2004)

Ni dei xiaoxin yidian cai hao
 You should careful a little *CAI* good

‘It is best for you to be a bit more careful
 ‘You should be a bit more careful.’

(2) (from Hole 2004)

Ni juan qian jiu dui le
You donate money *JIU* right A-Par

‘It is the right thing to do to donate the money.’

In Hole’s analysis in 2004, he claims that the words *cai* as in (1) and *jiu* as in (2) only provide syntactic slots for the modalized expression and do not contribute any meaning to the construction. His argument for this claim is that the ‘necessity’ interpretation is encoded by a modal adverb such as *dei* ‘should’ as in (1) and therefore the expressed modality has nothing to do with *jiu* and *cai*. In a sentence where there is no overt adverb indicating deontic modality such as (2), a covert modality operator is hypothesized. In his proposal, the role of *jiu* and *cai* is to “reflect” what the sentence is meant to express. However, I propose that these modalized expressions can be analyzed with mental spaces, categorizing *jiu* and *cai* as space builders. A close look at the constructions can illustrate this point in that these constructions all imply their alternatives. For instance, *It is the right thing to donate the money* implies ‘It is not right to not donate money.’ This phenomenon suggests that *jiu* and *cai* set up alternative spaces of the negated propositions. In other words, the modalized construction uses the same alternative space structure as the counterfactual wish construction. More research needs to be done on the specific space set-ups of this type of modalized constructions.

This dissertation has presented a comprehensive analysis of how cognitive structures such as frames and mental spaces are evoked by particular constructions and how linguistic components compositionally interact with information structure and context to give rise to conditional interpretations. For Mental Spaces theory, I found that Mandarin conditionals and protasis markers prop up alternative space structures as they

are in English. As far as information structure is concerned, using the distinction of Gestalt Psychology, I demonstrated that, similar to English, Mandarin conditionals' protasis sets up the background space and the apodosis locates the foreground within the background space. The fixed *P,Q* clause order in Mandarin indicates the order of ground building and figure performance.

I also offered findings that have important implications for cross-linguistic studies on conditionals and complex sentences. First, I concluded that the Mandarin apodosis marker in a co-indexing syntactic pattern functions as a deictic anaphor that refers back to one of the alternatives set up by the protasis. The obligatory bi-clausal linking indicates that Mandarin always requires a linguistic device to point to a particular *Q* or $\sim Q$ alternative in conditional constructions. This bi-clausal linking phenomenon also holds for other Mandarin complex structures and may provide insights for studies on other languages with similar bi-clausal marking systems. Second, this dissertation established that Mandarin protasis markers function to indicate the non-positive epistemic stance and the non-assertiveness of the conditional propositions. This may be useful for typological studies on conditional markers. Third, I pointed out the relation between negation and assertion of falsehood in both conditional and non-conditional constructions. My analysis provides a direction for future research on the interaction of negation and non-positive epistemic stance. Languages that use negation to mark conditional or irrealis sentences can also benefit from the type of analysis I provided in my dissertation.

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