Categories of Causative Verbs:
a Corpus Study of Mandarin Chinese

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Contents

Abstract

This thesis examines the categories of causative verbs in Mandarin Chinese, including two corpus studies. Previous research has shown a tight relationship between the concept of CAUSE as it is described in the psychological model of causation, the force dynamic model and the meaning of causative verbs across languages (Wolff, Song & Driscoll, 2002; Wolff, 2003; Wolff & Song, 2003; Wolff, Klettke, Ventura & Song, 2005). In the first study I investigate whether this model can characterize the meanings of causative verbs in Mandarin Chinese. The results show that the categories of Chinese causative verbs partially present the pattern that the force dynamic model predicts; in particular, the distinction between the notion of CAUSE and ENABLE is not clear in Mandarin Chinese. In the second corpus study, I further explore whether the categories of Chinese causative verbs can be approached by theory of direct/indirect causation (Verhagen & Kemmer, 1997). The corpus results show that direct/indirect causation provides a better account for those verbs to which the force dynamic model fails to apply. Thus, I conclude that the whole picture of Chinese causative verbs is more complex than either of the two theories presents, and future work needs to be done for a systematic description of the causative verbs in Mandarin Chinese.

Chapter 1.   Introduction

Causality refers to the relation between two successive events in which the second event (a caused event) is understood as the consequence of the first event (a causing event). If the causing event does not occur, the caused event will not occur either.

Language has various ways of expressing causation, such as conjunctions (e.g. *because*), prepositions (e.g. *thanks to*), or verbs (e.g. *let*). Many studies have assumed that there is a tight relationship between our conceptual system and linguistic system of causation, suggesting that the concept of CAUSE as it is reflected in the task of causal reasoning is the same concept as that encoded in causal language (Wolff & Song, 2003; Pander Maat & Sanders, 2001).

According to cross-linguistic research on the psychological model of force dynamics, the way in which people use causal verbs, in particular, periphrastic causative verbs (e.g. *cause*), is consistent with the concepts of CAUSE, ENABLE, and PREVENT defined in this model.

This thesis starts with the investigation of the categorization of Chinese periphrastic causative verbs. The question to be addressed is whether the force dynamic model can be applied to Mandarin Chinese as it is to other languages such as English, German and Arabic (Wolff, Klettke, Ventura & Song, 2005). The Chinese verbs to be studied are collected from Academia Sinica Bilingual Ontological Wordnet (Sinica BOW), and examined through syntactic and semantic criteria of periphrastic causative verbs. The results seem to be that the force dynamic model is applicable to Chinese periphrastic causative verbs in the category of PREVENT, but that the distinction between CAUSE and ENABLE is not very clear.

My finding in the first study becomes the motivation for the second part of the thesis. The purpose of this part is to examine whether the theory of direct/indirect causation proposed by Verhagen and Kemmer (1997) can be applied to explain the distinct usage of Chinese causative verbs. Specifically, I will focus on two verbs that are the core components of meaning in causal relations: *shi* ("cause") and *rang* ("let"). By means of corpus research, three models with different structures of causative verbs will be analyzed. I will show that *shi* categorizes an event as involving direct causation, and *rang* involving indirect

causation. I will also show that the difference between two verbs can be attributed to the folk world view that the mental world is considered as separate from the physical world. This thesis consists six chapters. In Chapter 2, a theoretical framework of the force dynamic model (section 2.2) and periphrastic causative verbs (section 2.3) will be provided, as well as the research question. Chapter 3 presents the methodology and results, followed by discussion and summary of the first study. Chapter 4 starts with the unsolved question in Chapter 3, followed by a literature review of Chinese causative verbs, *shi* and *rang*, and an introduction of theory of direct/indirect causation. The research question will be presented in section 4.2. In Chapter 5 I will present the analytical models of the corpus study, the results and discussion. Finally, Chapter 6 provides a conclusion for the entire research of the current thesis.

Chapter 2.   Categorization of Causative Verbs

2.1.   Background

The knowledge of causal relations is of importance in our everyday life. It indicates what people learn when they induce causal relationships and what people mean when they use causal language (Wolff, 2007). For example, it is natural to say *lightning causes fire* while *oxygen causes fire* sounds quite odd (Wolff, Klettke, Ventura & Song, 2005). For linguists and psychologists, it has been a central topic to study the coherence of causal representations in the linguistic domain and the conceptual domain. They have made the claim that the concept of CAUSE as it is reflected in tasks of causal reasoning is the same concept as that encoded in causal language, suggesting that it is possible to compare the implicit definition of causation in our conceptual models of causal judgment with the explicit definition of causation in our language (Wolff & Song, 2003; Pander Maat & Sanders, 2001).

Languages have multiple ways of expressing causation. In English for instance, conjunctions (e.g., *because, since*), prepositions (e.g., *thanks to*) and verbs (e.g. *break*) are all used to express causal relations. In particular, a large number of languages have two types of causative forms for verbs: verbs that convey both the notions of CAUSE and RESULT are called *lexical causatives* (e.g., *Alice broke the glass cup*); the other type of verbs that conveys only the notion of CAUSE is referred to as *periphrastic causatives* (e.g., *Alice caused the glass cup to be broken*). The second type of verbs is of special interest to researchers because they directly encode different causal concepts that are described in many psychological models of causation. For example, recent research suggested that the class of periphrastic causative verbs is semantically organized in a way consistent with a psychological model of causation known as *the force dynamic model* (Wolff, Song & Driscoll, 2002; Wolff, 2003; Wolff & Song, 2003). The force dynamic model represents a particular approach to causation that specifies the basic dimensions of meaning associated with various causal concepts such as CAUSE (e.g., *cause, force, stimulate*), ENABLE (e.g., *enable, help, permit*), and PREVENT (e.g., *block, hinder, prevent*). Relevant studies also showed that this model not only reveals the underlying semantic system of causation in English, but also in other languages such as German,

Russian, Spanish and Arabic, suggesting that force dynamic events are conceptually salient across languages (Wolff, Klettke, Ventura & Song, 2005).

In this chapter, I will investigate whether periphrastic causative verbs in Mandarin Chinese can be categorized according to the components of meaning predicted by the force dynamic model. The study is organized as follows: section 2.2 is a more detailed description of the force dynamic model; section 2.3 is the introduction of periphrastic causatives, including their syntactic and semantic features; in Chapter 3 I present the methodology and results on the study of periphrastic causatives in Mandarin Chinese, as well as the discussion and conclusion.

2.2.   The force dynamic model

The force dynamic model is based on a theory of causation proposed by Talmy (1988) known as force dynamics, which was later elaborated by other linguists (Jackendoff, 1991; Verhagen & Kemmer, 1994). According to force dynamics the concept of CAUSE is one member of a family of cause-like concepts including ENABLE and PREVENT, among others. These concepts represent an interaction concerning a change of state or location between two participants: an affector and a patient. An affector is an entity separate from the patient that impinges upon the patient, and a patient is the entity that undergoes a transition as consequences of the forces associated with the affector and the patient (Wolff & Song, 2003). [1]In the force dynamic model (Wolff, Song & Driscoll, 2002; Wolff & Song, 2003), the concepts of CAUSE, ENABLE, and PREVENT can be approached by three dimensions: (a) the tendency of the patient for the result; (b) the presence or absence of concordance between the affector and the patient, and (c) the occurrence of the result. The notion of a tendency is defined as the patient's propensity for a particular direction due to properties or actions that are internal to the patient, including its ability to change itself and/or resist change. The notion of concordance is defined as the nature of the interaction between the affector and patient; when the inherent tendency of the patient is opposed by the affector their relationship is in non-concordance; The notion of result is defined as a particular endstate that a patient might

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[1] Talmy (1988) originally used antagonist and agonist in the force dynamic model. More familiar terms such as affector and affectee, affector and patient were used by Wolff (2002; 2003; 2005). In this paper I will adapt the terms affector and patient.

enter into if a change in the patient occurs (Wolff & Song, 2003). Consider the examples of causal event described in the following sentences:

(1) The poor harvest caused prices to rise sharply.

(2) Insulin enables the body to use and store sugar.

(3) Props were used to prevent the roof from collapsing.

In sentence (1), the affector is *the poor harvest* and the patient is *prices*, because it is the poor harvest that has effect on the prices. The patient does not have a tendency for the result (the prices rise). The affector is not in concordance with the patient and the result occurs. Similarly, in (2), the tendency of the patient *body* is for the result (to use and store sugar). The affector *insulin* is in concordance with the patient and the result occurs. In preventing situations, as in sentence (3), the patient *roof* has the tendency for the result (collapsing). The affector *props* opposes the tendency of the patient and the result does not occur.

The table below illustrates how each concept differs in three conditions. Recent research (Wolff, Song & Driscoll, 2002; Wolff & Song, 2003) indicated that the concepts of CAUSE, ENABLE, and PREVENT are equally similar in meaning because each shares one feature with one other concept: ENABLE and PREVENT both involve patients with a tendency for the result; CAUSE and PREVENT both involve non-concordance between affector and patient; CAUSE and ENABLE both lead to results.

Table 1. Representation of CAUSE, ENABLE, and PREVENT

Concept	Patient tendency for result	Affector-patient concordance	Occurrence of result
CAUSE	NO	NO	YES
ENABLE	YES	YES	YES
PREVENT	YES	NO	NO

Several experiments were conducted to test whether force dynamic model could capture the concepts of cause-related verbs inherent in people's representations (Wolff, Song & Driscoll, 2002; Wolff & Song, 2003). In the first experiment, the participants were asked to sort verbs expressing different kinds of causation into groups based on their semantic similarity to one another. The following experiments included rating sentences with

6

different conditions in terms of tendency, opposition and constancy consistent with the three dimensions of force dynamic model. These experiments provided converging evidence in support of the force dynamic model. Cross-linguistic translation tests also indicated that the meanings of causal verbs based on the force dynamic model are consistently available across various languages (Wolff, Klettke, Ventura & Song, 2005).

2.3. Periphrastic causative verbs

2.3.1. Definition of periphrastic causative verbs

As mentioned in the Introduction, periphrastic causative verbs are of special interest to linguists because they directly encode different causal concepts described in many models of causation, including the force dynamic model. The following example presents a typical periphrastic causative construction in English with respect to its form:

(4) Alison caused the door to open.

In (4), the construction contains a noun phrase (*Alison*), a causative verb (*cause*), another noun phrase (*the door*) and an infinitive (*to open*). The causative verb takes the first noun phrase as the subject (i.e., the affector) and the infinitive take the second noun phrase (i.e., the patient). The causative verb expresses the notion of CAUSE and the infinitive expresses a particular RESULT. The complement of the causative verb in a periphrastic causative construction in English can be range of structures besides embedded clause as in (4) (Wolff, Klettke, Ventura & Song, 2005):

(5) The colonel got the soldiers *in his office within the hour*. (prepositional phrase)

(6) Jay set the pendulum *swinging*. (participle phrase)

In other languages such as German and Arabic noun clauses can also be used to express the notion of RESULT while it is impossible in English (Wolff, Klettke, Ventura & Song, 2005). Although the syntactic structure of periphrastic causative construction is complex, the causative verb plays a key role in it, which is often opposed to lexical causatives, such as *kill, break,* etc. (Hollmann, 2003).

In terms of function, the periphrastic causative construction describes a causative situation encoding the notion of cause and a particular result explicitly. In other words, a causing event and a caused event have to be involved (Talmy, 2000). In example (4), the causing event is Alison interacting with the door in some way (e.g., by switching the door

knob) and the caused event is the status of door that is from being closed to open. In addition, these two events have to be linked in a way that the caused event must follow causally from the causing event. In other words, two conditions have to be satisfied (Shibatani, 1976; Talmy, 2000):

1. The caused event would not occur if the causing event did not occur

2. The caused event does indeed occur

The first condition explains why example (5) is inappropriate if Bob will slip regardless of any effort made by Alison:

(5) a. Alison caused Bob to slip over the ice.

   b. #Alison caused Bob to slip over the ice. But no, it was Bob's own carelessness that
      he slipped.

The second condition explains why (5) cannot be accepted either, in the context that Bob himself did not slip:

(5) a. Alison caused Bob to slip over the ice.

   c. #Alison caused Bob to slip over the ice, but Bob did not slip.

A similar claim on the second condition is proposed by Wolff & Song (2003), that periphrastic causatives strongly imply a result if negating its implied end state leads to a contradiction (Wolff & Song, 2003):

(7)   #The blast caused the boat to heel, but the boat did not heel.

(8)   Mary begged Bob to marry her, but he did not marry her.

In (7), the negation of the result leads to a contradiction so that the sentence is not acceptable. In (8), the verb *beg* takes the clausal complement but it does not entail the necessary result (to marry her) so the following negation does not lead to a contradiction. Thus, the verb *cause* qualifies as a periphrastic causative verb but the verb *beg* does not.

2.3.2. Periphrastic causative verbs in English

Wolff, Song & Driscoll (2002) conducted a corpus study to obtain a relatively complete list of periphrastic causative verbs in English. They searched the Penn Treebank versions of the Brown corpus (N = 1,172,041 words) and the 1989 Wall Street Journal (N≈ 1,000,000 words). Both corpora are syntactically tagged, enabling them to search for the syntactic structures associated with periphrastic causative verbs, yielding 538 candidate

verbs. These verbs were examined again according to the semantic criteria, and finally 49 verbs were determined to be periphrastic causative verbs, 23 of which can be used to describe interactions involving either sentient or non-sentient patients (9a) and the remaining are restricted to situations involving sentient patients only (9b) (Wolff, Song & Driscoll, 2002). The distinction made between sentient and non-sentient entities was for the purpose of conducting a series of experiments focusing on causative verbs that are used to describe causation involving non-sentient entities only, since causal relations between sentient entities that have sense perception and consciousness are considered to be more complex than those between non-sentient entities, i.e., entities that are senseless (Wolff, Song & Driscoll, 2002; Wolff & Song, 2003):

(9) a. *allow, block, cause, enable, force, get, help, hinder, hold, impede, keep, leave, let, make, permit, prevent, protect, restrain, save, set, start, stimulate,* and *stop*

   b. *aid, bar, bribe, compel, constrain, convince, deter, discourage, dissuade, drive, have, hamper, impel, incite, induce, influence, inspire, lead, move, persuade, prompt, push, restrict, rouse, send,* and *spur*

The list was considered relatively comprehensive due to the large size and representativeness of the corpora, as well as the fact that the corpora analysis yielded all the periphrastic causatives mentioned in the previous literature and new 38 verbs.

Recall what I mentioned in section 2.2., that several studies indicated the consistency between the force dynamic model and the underlying semantic system of periphrastic causative verbs in English and other languages. It will be interesting to examine whether the meanings of periphrastic causatives in Mandarin Chinese reflect the force dynamic model as well. In order to answer this question, in the next section I will present how I obtain a list of periphrastic causatives in Mandarin Chinese by corpus search based on English verbs in (9). I will also show that the results of studying these Chinese verbs seem to be not compatible with what the force dynamic model predicts.

Chapter 3.   Corpus Study of Chinese Periphrastic Causative Verbs

3.1.   Methodology

This section aims at searching and obtaining a list of periphrastic causative verbs in Mandarin Chinese. The method is to find the Chinese verbs that have parallel semantic meanings of periphrastic causatives in English from Academia Sinica Bilingual Ontological Word net (Sinica BOW). The reason for selecting Sinica BOW is that it integrates three main resources: WordNet, SUMO (Suggested Upper Merged Ontology), and the English-Chinese Translation Equivalent Database (ECTED). Therefore, Sinica BOW functions as an English-Chinese bilingual word net providing a combination of lexical, semantic and ontological information. The first step is to translate English periphrastic causative verbs, finding equivalent Chinese verbs in Sinica BOW. The next step is to examine whether these Chinese verbs meet both the syntactic and semantic criteria of the periphrastic causatives.

3.2.   Results

107 Chinese verbs are found through Sinica BOW, including 55 words from the CAUSE category, 18 words from the ENABLE, and 34 words from the PREVENT. Table 2 lists all the periphrastic causative verbs in English and their corresponding Chinese translations. It is found that some English periphrastic causative verbs have more than one equivalent translation in Chinese. For example, *cause* has three translations: *shi*, *qushi* and *rang*. In this case, all the Chinese verbs that are translated from the same English periphrastic causative verb are analyzed: although they have roughly the same meaning, these verbs are not completely interchangeable. The following two examples contained two verbs *zaocheng* and *yinqi*, both translated from *make*:

(10) a. *Zhe dui wo de xingge,* **_zaocheng_** *le   juda de   yingxiang.*

      This for   my characters, caused particle huge particle influence

      "This caused huge influence on my character."

    b. #Zhe *dui wo de xingge,*   **_yinqi_** *le   juda de   yingxiang.*

      This for   my characters, caused particle   huge particle influence

      "This caused huge influence on my character."

On the other hand, some periphrastic causative verbs in English share the same Chinese translation, for instance *compel*, *drive*, *force*, *impel* and *make* all have one equivalent Chinese translation *poshi*. In addition, no corresponding verb in Chinese is found for *convince*, the relevant entry is marked as Ø.

Table 2. Chinese translations of periphrastic causative verbs in English

Category	English	Chinese Translations
CAUSE	*bribe*	*shoumai*; *huilu*
	cause	*shi*; *qushi*; *rang*
	compel	*mingling*; *yaoqiu*; *shi*; *poshi*
	convince	Ø
	drive	*qugan*; *tuidong*; *qudong*; *kongzhi*; *poshi*; *quce*; *qushi*; *bipo*
	force	*xiebi*; *qiangpo*; *lebi*; *qiangshi*; *mianqiang*; *kongzhi*; *poshi*; *bipo*; *qiangzhi*
	get	*shi*; *zhishi*; *rang*; *qushi*
	have	*rang*; *shi*; *qushi*
	impel	*tujin*; *tuidong*; *qushi*; *qiangshi*; *poshi*
	incite	*songyong*; *suoshi*; *reqi*; *jijiang*; *jili*; *cushi*
	induce	*shi*; *qushi*; *zhaozhi*; *cushi*; *cujin*
	influence	*zuoyou*; *gaibian*; *yingxiang*
	inspire	*guli*; *cuicu*; *liquan*; *jili*; *cucheng*;*qifa*; *jiqi*
	lead	*daozhi*; *zhudao*; *youzhuyu*; *yinqi*
	make	*zhishi*; *ling*; *shi*; *qushi*; *poshi*; *zaocheng*; *shide*; *yinqi*; *cushi*; *rang*
	move	*jidong*; *cushi*
	persuade	*quanshuo*; *shuifu*
	prompt	*guli*; *jili*; *cushi*
	push	*cushi*; *bipo*; *tuidong*; *tuiguang*; *po*; *cuicu*
	rouse	*guli*; *guwu*; *jili*
	send	*tuisong*; *qushi*
	set	*shi*; *yinfa*; *fadong*
	spur	*guli*; *jili*
	start	*qishi*; *fasheng*; *kaishi*
	stimulate	*jili*; *shi*; *qushi*; *cujin*; *ciji*
ENABLE	*aid*	*bangmang*; *mangzhu*; *yuanzhu*
	allow	*zhun*; *yunxu*; *tingren*; *renping*; *rang*; *yingxu*; *rongxu* ;
	enable	*shikeyi*; *shi*; *shinenggou*; *nenggou*
	help	*xiezhu*; *bangmang*; *cujin*; *zhuzhang*; *youliyu*
	leave	*shi*; *renping*; *rongxu*
	let	*rang*; *shi*; *renping*; *yunxu*; *tingren*
	permit	*zhun*; *yunxu*; *tingreng*; *renping*; *rang*
PREVENT	*bar*	*yufang*; *zu'ai*; *fang'ai*; *zudang*; *jinzhi*
	block	*fengsuo*; *zhise*; *zuse*; *duzhu*; *fang'ai*; *zudang*; *zu'ai*; *zuduan*

	zuzhi; *zuzhi*
constrain	*xianzhi*; *fangzhi*; *yizhi*
deter	*ezu*; *zu'ai*; *fang'ai*; *zhizhi*
discourage	*zu'ai*; *fang'ai*; *zhizhi*
dissuade	*ezu*
hamper	*zu'ai*; *fang'ai*; *zunao*; *shufu*; *zurao*
hinder	*zurao*; *shufu*; *zurao*; *zu'ai*; *fang'ai*
hold	*ezhi*; *zuzhi*; *shitingzhi*; *kezhi*; *kongzhi*; *yizhi*
impede	*fengsuo*; *zu'ai*; *fang'ai*
keep	*fangwei*; *baowei*
prevent	*fangwei*; *baowei*; *fangzhi*; *yufang*
protect	*baohu*; *hanwei*
restrain	*xianzhi*; *jushu*; *fangzhi*; *yizhi*; *xianzhi*
restrict	*xianding*; *xianzhi*; *jushu*
save	*baochi*; *baoliu*; *baohu*
stop	*zuzhi*; *zhizhu*; *zu'ai*; *zhizhi*; *zulan*; *lanzhu*; *shitingzhi*; *zhongzhi*

Among 55 Chinese verbs translated from CAUSE category in English, 54 are consistent with the criteria of periphrastic causative verbs. The only verb that is not compatible with CAUSE notion is *kaishi* ("start"). Consider the following example:

(11) *Wo kaishi shangban,   jiu   zai   Huguosi.*

    I   start   work,   just   at   Huguo Temple

   "I started working at Huguo Temple."

In (11), the construction does not express the relation between affector and patient; In addition, *kaishi* does not encode a particular caused event brought about by a causing event. It fails to meet the criteria of periphrastic causative verbs.

15 out of 18 verbs denoting the meaning of ENABLE are consistent with the criteria of the periphrastic causative verbs. The major finding within this category is that in Mandarin Chinese, the concepts of CAUSE and ENABLE are not as distinct as those in English: *enable*, *leave* and *let* are translated as *shi*, which is also the translation of *cause*, *compel*, *get*, *have*, *induce*, *make*, *set* and *stimulate*. In addition, the meaning of ENABLE can be expressed by modal verbs *nenggou* and *keyi*, or a combination of *shi* and *nenggou/keyi*. However, a single modal verb can not denote the concordance between the affector and the patient; it conveys the skill, strength, or knowledge of the subject needed to do something and the result of doing so, as in the following examples:

(12) *Renmen* **<u>nenggou</u>** *zhizao gongju.*

   Men   are able make   tools

"Men are able to make tools."

Finally, 34 Chinese verbs that have a meaning equivalent to the meaning of PREVENT notion in English are all consistent with the criteria of the periphrastic causative verbs. These verbs denote the tendency of the patient, the opposition between the affector and the tendency, and the occurrence of the failure of the result, as exemplified in the following:

(13) *Kangshengsu* <u>***zu'ai***</u> *bingjun zhengchang de   xinchendaixie.*

　　　Antibiotics   hinder bacteria normal   particle metabolism.

　　　"Antibiotics hinder the normal metabolism of the bacteria."

(14) *Danshi wo* <u>***zuzhi***</u> *bieren zheme zuo.*

　　　 But   I   stop   them   this   do.

　　　"But I stopped them from doing this."

In (13), the tendency of the patient *bacteria* is for the result (have a normal metabolic rate), the affector *antibiotic is* not in concordance with the patient, and the result does not occur. In (14), the tendency of the patient *them* is towards the occurrence of the result (do something), but this tendency is opposed by the affector *I* and the result does not occur.

Finally, the corpus analysis shows that in Mandarin Chinese, the complement of a periphrastic causative verb can be a noun phrase, which is very pervasive in Mandarin Chinese:

(15) *Renlei   huodong* <u>***zaocheng***</u> *huanjing   de   yichang.*

　　　Human activity   cause   environment particle abnormality

　　　"Human activity caused the abnormality of the environment."

(16) *Gongye* <u>***cujin***</u> *nongye   de   fazhan.*

　　　 Industry help   agriculture particle development

　　　"Industry helped the development of agriculture."

(17) *Ta meiwanmeiliao de   tanhua* <u>***fang'ai***</u> *wo de   xuexi.*

　　　 He endless   particle talk hinder my particle study

　　　"His endless talk hindered my study."

3.3. Discussion

In this study, I investigate whether the force dynamic model which distinguishes the concept of causation in language into three categories: CAUSE, ENABLE and PREVENT can be used to describe the periphrastic causative verbs in Mandarin Chinese. According to Sinica BOW, 49 English periphrastic causative verbs turn out to have 107 equivalent meaning Chinese verbs. The results also suggest that the semantic system underlying the expressions of causation in English and Mandarin Chinese are not identical. In Mandarin Chinese, the boundary between CAUSE and ENABLE category seems to be not as clear as that in English. The evidence is that several Chinese verbs are found in both categories, such as *shi* ("cause") and *rang* ("let"); in particular, the notions of CAUSE and ENABLE are related in the way that the meaning of ENABLE can be expressed through a combination of *shi* and modal verb *nenggou/keyi*.

However, the ambiguous situation does not mean the two verbs can be used interchangeably:

(18) *Nuanse* ___***rang/shi***___ *ren   xingfen.*

      Warm color   make   people   excite

     "Warm color makes people feel excited."

(19) *Baofengyu #**rang/shi*** *jiaotong   tanhuan.*

      Storm   make   transportation   paralyzed

     "Storm made transportation paralyzed." (Lit: Storm stalled transportation)

In (18), both *shi* and *rang* are accepted in expressing the causal relation between warm color and people's feeling; on the contrary, *shi* can be used in (19) but not *rang*.

They also differ in terms of the ability to function as one element in compound verbs that have similar meanings. For example, *shi* is used as the element of compound verbs like *poshi* ("drive, force, impel, make") and *cushi* ("make, move, prompt, push")that are all in the category of CAUSE, but it is impossible to form a compound verb with *rang* as the element, thus verbs like *qurang* or *curang* are not acceptable.

Therefore, the categories of CAUSE and ENABLE in the force dynamic model may not be a convincing account to distinguish the meaning and usage of *shi* and *rang*. Although the notion of PREVENT is consistent with the meanings of 34 verbs, the force dynamic model cannot account for the complete categorization of Chinese causative verbs. A better account is needed.

The limitations of the current study must be taken into account. The corpus study is based on verbs translated from English; although the list of English periphrastic causative verbs is relatively comprehensive, there is possibility that some Chinese periphrastic causatives whose corresponding translations are not on the list of English verbs are missing from the current study.

3.4. Summary

The question examined in the present study is whether one particular linguistic structure, periphrastic causative verbs demonstrates that Mandarin Chinese, like English and other languages, has an underlying semantic system for causal expressions that differ in terms of three domains based on the force dynamic model: the tendency of the patient for the result; the presence or absence of concordance between the affector and the patient, and the occurrence of the result. The major finding is the semantic system of causation in mandarin Chinese is partly consistent with the force dynamic modal, while the categories of CAUSE and ENABLE do not present a clear distinction. Furthermore, it is found a large amount of periphrastic causative verbs in Mandarin Chinese take the noun phrase as the complement.

In the next chapter, I will further study two verbs that their meanings cannot be clearly distinguished according to the force dynamic model: *shi* and *rang*. The aim is to explore how their distinction between them can be explained by the theory of direct/indirect causation proposed by Verhagen and Kemmer (1997).

Chapter 4. **Categorization of *Shi* and *Rang***

4.1. **Background**

In Chapter 3, I investigate whether the semantics of periphrastic causatives in Mandarin Chinese fall into the categories of CAUSE, ENABLE, and PREVENT based on the force dynamic model. One major problem found in this study is that two verbs, *shi* which has the equivalent translation of *cause*, and *rang*, which means *let* in English, are not as distinct as their English equivalents in the category of CAUSE and ENABLE. In this chapter, I will further explore the distinction between these two verbs based on theory of direct/indirect causation. This chapter starts with a literature review on *shi* and *rang*. Then I will present the directness/indirectness theory proposed by Verhagen and Kemmer (1997), along with my research question and hypothesis. In Chapter 5, I will present the methodology of corpus study and analytical models. The results will be provided in section 5.3. The general discussion is on section 5.4.

4.1.1. ***Shi* and *rang*: a Chinese literature review**

Shi and *rang* are categorized as typical Chinese periphrastic verbs (Han, 2007). They are also referred to as *Shiyi* verbs that constitute *Shiyi* construction (Chang, 2005):

(20) F*u qin **rang** ta   qu zhuo xi shuai.*

  Father let him go catch crickets

  NP1   V1 NP2   VP2

  "Father asked him to go and catch crickets."

In *Shiyi* construction, there is an agent that exerts the force, as NP1, *father*, in (20); the verb *rang* as V1 expresses a request by the father, which is more clearly presented in the English translation, *ask*; the predicate, NP2 + VP2, expresses the process or final state that will be brought about by the agent.

Compared *Shiyi* construction to periphrastic causative construction in English (see section 2.3.1), it is not difficult to find that the two structures are identical:

(21) Alison caused Bob to slip over the ice.

   NP1   V1 NP2   VP2

In both structures, the V1, *rang* or *let*, takes the first noun phrase as the subject and the second verb phrase VP2 takes the second noun phrase as the subject. The differences

between (20) and (21) are mainly semantic: in (20) *rang* expresses a specific physical action, namely *ask him to catch the crickets,* while in (21) the verb *cause* expresses a more abstract concept denoting the relation between the agent and the object – it is not clear whether specific actions of *Alison* are involved for the final state of *Bob slip over the ice*. *Shiyi* construction is syntactically identical to periphrastic causative construction but semantically different; I therefore keep the term "*Shiyi* construction" instead of translating into "causative construction" in this study, although *Shiyi* is translated directly as *causative usage* or *causality* in English.

In Mandarin Chinese, a causative construction can be expressed by other forms as well. (22) is an example of *ba*-construction to express causation:

(22) *Wo **ba*** *bo li bei da huai le.*

    I   ba   glass cup hit broken particle

    "I broke the glass cup."

Chang (2005) suggested that *shi* and *rang* share the same process of diachronic evolvement. In general, the semantic meaning of *shi* and *rang* undergo the following steps: from indirect imperatives to causatives, from deliberate causatives to non-deliberate causatives, and finally from general causatives to descriptive causatives (Chang, 2005):

Origin	Step 1	Step 2	Step 3
Shiyi Construction	*Shiyi* Construction		
	Causative construction	Deliberate causative	
		Non-deliberate causative	Non-deliberate causative
			Descriptive causative
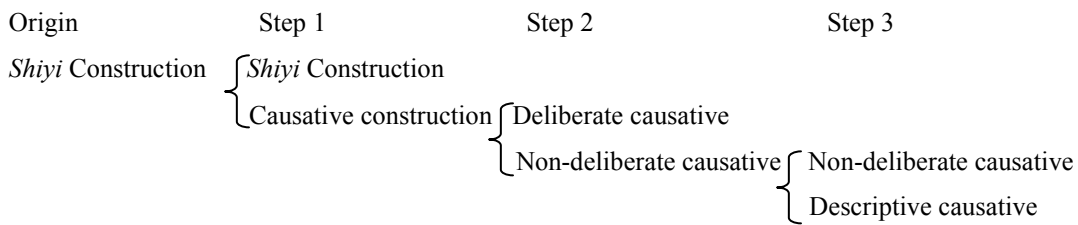
Fig.1. the diachronic evolvement of *shi* and *rang* (Chang, 2005)

A key factor involving in the evolvement is the scope change of subject and object of causative construction. Take *shi* for example, its original meaning "to command, to order, to request, to send away" requests both subject and object have to be people. The command or order is typically sent from the people in power to his followers, most of whom are envoys:

(23) *Xuan gong* **shi** *pu ren yi shu ming Ji Wenzi.*

   Lord Xuan send servants take official document command Prime Minister Ji wenzi

   "Lord Xuan sent his servants with the official document to command Prime Minister
   Ji Wenzi."

(24) *Jin ping gong shi si nian, wu Ji Zha* **shi** *jin.*

   Lord Jin   fourteen year,   Wu State Ji zha sent Jin

   "On the fourteenth year of reign of Lord Jin, the Prince of Wu State, Ji Zha was sent
   on a diplomatic mission to Jin State."

In (23), *shi* expresses the command sent from *Lord Xuan*; (24) also demonstrates the
original meaning of *shi*: *Ji Zha* is sent by powerful people on a diplomatic mission. Thus,
in these contexts, *shi* requires that both the subject and object have to be animate entities;
more importantly, volitions of both sender and receiver are necessary.

The relationships between the subject and object are various. (25) expresses the
invitations between ministers; (26) expresses the persuasion from the lord to the prisoner:

(25) *Zi chan bai,* **shi** *wu qing jie bai.*

   (Prime Minister) Zichan   gave a respectful salute,   make five ministers all saluted

   "Prime Misnister Zichan gave a respectful salute (to someone), making five ministers
   all gave salute."

(26) *Chu zi hou lu zhi,* **shi** *fan qi yan.*

   Lord Chu much bribe him,   make opposite his words

   "Lord Chu bribed him with much money, making him say the contrary words (to the
   enemy)."

In (25) the salute of *Prime Minister* is an invitation to other ministers for doing the same
thing, instead of an order to others because they are of the same ranking; (26)
demonstrates the persuasion of *Lord Chu* to someone rather than the command, implied
by the bribe offered by the lord that the object *someone* would have refused to cooperate
if *Lord Chu* commanded him to do certain things directly.

Because of the various possible relations between subject and object, the meaning of *shi*
is highly context-dependent. According to Chang (2005), the meaning of causative
relation gradually emerges when sometimes NP2 + VP2 expresses an ambiguous state on
the volition of object. Consider the following example:

(27) *Jun zi neng wei ke gui,   er bu neng* **shi**   *ren   bi   gui ji.*

   Noble man can   do   dignified, but cannot   make people necessarily respect himself.

   "A noble man can be dignified but cannot make other people respect himself."

In (27) there are two possible interpretations for NP2 + VP2 *(cannot make) other people respect himself*: on the one hand, it means that the noble man, although dignified, does not guarantee that his noble character will lead to the result that the other people willingly respect him; on the other hand, it means the noble man cannot force other people to respect himself, although he is dignified. The difference of two interpretations lies on the point whether the object, *the other people*, are able to control their behavior or action, in this case is "their respect". In the first interpretation the people are able to decide whether the subject, *the noble man*, are worthy of their respect; in the second interpretation, however, people are forced to obey because of the suppression from the higher power, even it is against people's willingness. In this case, the relation between NP1 and NP2, namely *noble man* and *people* is causative.

Together with the emergence of causative meaning is the expansion of the scope of NP1 from human to the event "people do something to exert the force" (Chang, 2005):

(28) *Wu yu   wei jun shi,   * **shi**   *zi sun   zhi zhi.*

   I   intend for lord name (a posthumous title), make decedents know it.

   "I intend to name a posthumous title to the lord, making his decedents know it."

Here the subject is the event *I intend to give a posthumous title to the (late) lord*. The consequence of the expansion is that the subject of causative construction gradually described the event that *has already happened* (Chang, 2005):

(29) *Shang tian jiang zai,   * **shi** *wo liang jun fei yi   yu bo   xiang jian,*

   Heaven   fell disaster,   make us two lords not by jade and silk meet each other,

    er   yi   xing rong.

   but by   start war

   "The disaster fell from heaven made us meet each other not with jade and silk, but

    with war."

In (29), the subject is disaster which has already happened when the event of *we met each other with war* occurred; in addition, the end point of causation in (29) is not due to the

volition of the subject, which Chang (2005) referred as "non-deliberate causative", meaning the volition of subject does not play a role in the causative event.

A further development is from "non-deliberate causative" to "descriptive causative" when the subject "influences the object in terms of subject's feelings" (Chang, 2005). The feature of this special type of non-deliberate causative is that the predicate of "*shi/rang* + NP2 + VP2" functions not only as a result brought about by the subject but also a detailed description of the properties of the subject:

(30) *Ta zhe zhong qing kuang zhen* **<u>rang</u>** *wo dan xin!*

He   this   situation   really made me worried

"His situation really made me worried!"

In this sentence, the predicate "made me worried" expresses how the subject, *his situation* brings about *my feelings of worrying about him*. In addition, *my worry* can be considered as a detailed description of his situation as negative rather than positive.

Chang (2005) pointed out that like "non-deliberate causative", the subject in "descriptive causative" barely has the volition to exert force on the object, instead it is often concrete substances that can *directly* work on the objects; finally, the object in this construction is usually dummy object pronouns:

(31) *Ru ci duo de   you hua   shou cang* **<u>rang</u>** *ren men kan sha le yan.*

So many particle oil paintings collection make people   stun

"The collection of large number of oil paintings made people stun." (Lit: people are

stunned by the collection of large number of oil paintings)

In (31) the subject is *the collection of large number of oil*, which naturally has no volition. The object *people* are dummy object pronouns: they are not necessarily the people seeing the collection. The whole sentence presents a description of how amazing the collection is.

In sum, Chang (2005) illustrated the evolvement of *shi* and *rang* from *Shiyi* construction to the causative construction, where the changes of subject present two patterns: from people to events; from volition ("deliberate") to non-volition ("non-deliberate").

Zhang (2006) analyzed the difference between *shi* and *rang* from the perspective of semantics and pragmatics as well. She claimed that *shi* expressed a "mandatory and strong causation" because the subject has strong volition to make something happen;

rang stands for a "passive and weak causation" because the subject "permits or allows" something to happen rather than a command, which is consistent with the original meaning of *rang* as "humility". The force of causality of different verbs thus shows a hierarchical order: *shi* with strong causation > *rang* with weak causation.

Zhang (2006) also argued that the subject of *shi* in the structure "NP1 + *shi* + NP2 + V2" gradually loses the "autonomy" and "agentive power", and is replaced by subjects that expressed the concrete substance or events. She also proposed that because of the "autonomy" and "high subjectivity" in the original meaning of *shi*, it expresses "strong causation" or "positive causation" between subject and object, because the subject "positively force the object to accept certain situation and do something", while *rang* expresses "weak causation" or "passive causation" because its original usage was in "*qianrang*", meaning humility. When *rang* is used as the causative verb, it still denotes the concept of "tolerance" and "permission", and "the action of object is no longer seen as the direct result of the force exerted by causer."

4.1.2. Direct and indirect causation

The theory of direct and indirect causation was first proposed by Verhagen and Kemmer (1997) to distinguish two Dutch verbs *doen* and *laten*. This theory arouses my interest because the corresponding translations of *doen* and *laten* in Mandarin Chinese are *shi* and *rang*, indicating that the direct/indirect causation theory may be relevant in the current study. Verhagen and Kemmer (1997) found that Dutch causal verbs differ in terms of direct or indirect causation: the verb *doen* ("make") is typically used when the inanimate elements are involved in the causal part, and the energy initiated from the causer inevitably lead to the result of the causee, therefore the verb *doen* is related to the sense of "direct causation". The other verb *laten* ("let" or "have") is typically used when the animate participants are involved in the causal part, and some other force besides the causer becomes the most immediate source of energy in the effected event, which is termed as "indirect causation". The concept of "animacy" used in the study not only includes human beings, but also human institutional entities such as the government. The following examples illustrate how the two verbs differ (Verhagen & Kemmer, 1997):

(32) *De stralende zon **doet** de temperatuur oplopen.*

21

The shining sun does the temperature rise

"The bright sun makes the temperature rise."

(33) *Hij haalde de stop eruit en* **liet** *het badwater weglopen.*

He took the plug out and let the bath-water run-away

"He took out the plug and let the bathwater flow off."

In sentence (32) the sun shining inevitably leads to the rising of the temperature. In sentence (33) the action of taking out the plug does cause the bathwater to flow off, but a more immediate energy plays a role in the process, namely the gravity, therefore *laten* is used here to express indirect causation.

Furthermore, Verhagen and Kemmer (1997) applied the 'the folk model of the mind' proposed by D'Andrade (1987) to illustrate people's preference of *doen* and *laten* for particular effects. The folk model of the mind refers to one type of cultural models applicable in American and European society to reflect the common-sense understandings that people use in daily life. It is composed of various types of mental processes and states: perceptions, beliefs/knowledge, feelings/emotions, desires/wishes, intentions, and resolution/will/self-control. The relevant parts of these processes/states to the direct or indirect causation are presented below (D'Andrade, 1987):

Table 3. Characteristics of internal states

Perception	Belief	Feelings	Desires	Intentions	Resolutions
cause outside mind	cause inside mind	cause inside and outside mind	cause inside and outside mind	cause inside mind	cause inside mind
self usually agent	self usually agent	self usually object	self usually agent	self always agent	self always agent
not controllable	usually controllable	usually not controllable	not controllable	controls itself	control of control

It is shown that these processes/states first differ in terms of cause: perception, i.e., what one sees, hears or senses is conceived of as caused by events and objects external to the mind, which is not controllable, since people cannot avoid perceiving what is out there in the physical world. Belief, intention and resolution are more like a result of the activity of the mind inside, and thus are controllable. Feelings and desires are showing a relatively complex picture: they can be seen as caused by something outside or by the person

internally ("the examination made me nervous" cf. "thinking about examination made me nervous").

It is shown that people's preference of *doen* and *laten* is consistent with the folk model of the mind with respect to the type of mental state they want to convey. The following two sentences show how *doen* and *laten* express different types of mental state (Verhagen & Kemmer, 1997):

(34) *De psychiater **deed** mij aan mijn moeder denken.*

the psychiatrist did   me at   my mother think

"The psychiatrist made me think of (reminded me of) my mother."

(35) *De psychiater **liet** mij aan mijn moeder denken.*

the psychiatrist let   me at   my mother think

"The psychiatrist had/made me think of/about my mother."

(34) and (35) both are describing an event involving an outside causer, *the psychiatrist*, and a mental endpoint, *think of/about my mother*. In (34), the event is categorized as direct causation because of *doen*, and then it is naturally taken as a description of something perceived by *me*. In (35), the event is categorized as indirect causation by means of *laten*, then it is taken as "a case of inductive causation, with the causee as an intermediary in the process" (Verhagen & Kemmer, 1997), indicating there is interaction between humans.

To sum up, direct and indirect causation reflect the folk world view in which the mental world is seen as separate from the physical world. It also provided a rich interpretation of several of specific cases when combining with D'Andrade's theory of a folk model of the mind.

4.2. Discussion and hypothesis

It is found that although different researchers obtained different categorizations and terminologies on causative verbs, i.e., deliberate causative and non-deliberate causative for Chang (2005, 2006); strong causation and weak causation for Zhang (2006), animacy and inanimacy for Verhagen and Kemmer (1997), these classifications all take volition of human beings as the key element. For example, Chang (2006) claimed that from deliberate causative to non-deliberate causative there is obvious decrease of human

volition. During the development, the subject gradually turns to be physical, inanimate objects; In Zhang's (2006) system the hierarchical order is also related to the volition, where "strong causation" expresses a more intense volition than "weak causation".

The following section investigated the distinction of *shi* and *rang* in modern Mandarin Chinese based on the theory of direct/indirect causation. My hypothesis is: *shi* is similar to *doen* in Dutch in that it is related to the inanimate entity as the causer part and it expresses the direct causation, and *rang* is related to the animate entity, just as *laten* in Dutch and it expresses the indirect causation.

Chapter 5.   Corpus Study of *Shi* and *Rang*

5.1.   Corpus selection

"Academia Sinica Balanced Corpus of Modern Chinese", simplified as Sinica Corpus is chosen for the current study. Designed for analyzing modern Chinese, one advantage of Sinica Corpus is that every text in the corpus is segmented and each segmented word is tagged with its part-of-speech. In addition, texts are collected from different areas and classified according to five criteria: genre, style, mode, topic and source. Therefore, this corpus is a representative sample of modern Chinese language. The current online version open to academic use is Sinica 3.0 with the size of 5 million words. I will focus on written language use of *shi* and *rang*, because it is possible that the distinction between *shi* and *rang* is more salient in formal language where the authors will be more carefully to select the appropriate verb to achieve the communication purpose. Thus in Sinica corpus I select the following domains to analyze: a. written domain; b. written-to-be-read domain, such as speech scripts, because this type of texts is often well-organized to differentiate from common spoken language; c. written-to-be-spoken domain, such as actor's lines. These texts are presented in an artificial scenario; they are not the same as spoken language either. In corresponding to the domain selection, I also limit the medium source to the following areas: newspaper; general magazine; academic journal; textbook; reference book; thesis; general book; audio/visual medium.

5.2.   Analytical models

As mentioned above in section 4.1.1., *Shiyi* construction and causative construction have the same syntactic structure which will be used as the analytical model of current corpus study. A causative construction with *shi* or *rang* consists of several elements: the causer, the causative verb, which is also called "causal predicate", the causee and the second verb phrase expressing the process or state brought about by the causer. The second verb phrase is also called "effected predicate" (Verhagen & Kemmer, 1997), which has two varieties: intransitive and transitive. When the effected predicate is transitive, the causal event occurs between a causer and a causee, and the combination of a causal predicate and an intransitive effected predicate is called "intransitive causative", illustrated in (36):

(36) *Zhe bu dian ying **shi** wo hen   gan dong.*

This   movie   make me very touched

"This movie made me very touched." (Lit: I was deeply touched by this movie)
When the effective predicate is transitive, the causal relation occurs among a causer, a causee, and a third participant called 'affectee', which becomes the end of the energy flow in the entire causal event. In this case, the combination of a causal predicate and a transitive effected predicate is called 'transitive causative':

(37) *Ben ci   hua zhan   **rang** ren   xin shang le   xu duo zhu minge de   zuo pin.*

This time art exhibition let people enjoy particle a lot of famous particle works

"This art exhibition made people enjoy a lot of famous art works."

Therefore, a basic model with four explicit elements is presented below:

causer + causative predicate + causee + effected predicate ⎰transitive causative
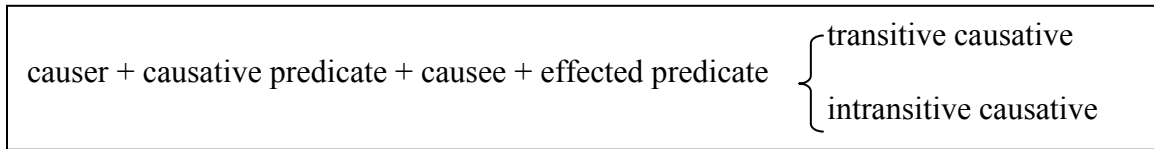⎱intransitive causative

Fig.2. Model 1: Basic causative construction of *shi* or *rang*

It should be noted, that due to the allowance of subject drop in Mandarin Chinese, sometimes the causative construction with *shi* or *rang* does not have an explicit causer:

(38) *...mei nian fu zhu guo nei   huo hai wai yan pin   zhi   jie chu ren cai*

Every year   assist domestic or   overseas employ particle excellent talents

*yi bai   ming,   **shi** bi deng neng zhuan xin   fu wu she hui,...*

one hundred measure word, make them   able concentrate service society

"(causer) financially assists one hundred excellent talents that are employed by domestic or overseas institutions every year, making them concentrate on society service."

(39) *...jiu **rang** zi ji zhi shen zai shu ben   zhi   zhong, jiu **rang** guo qu cheng wei*

...just let   self   stay   in   books particle middle, just let   past   becomes

guo yan yun yan.

passing clouds

"(causer) let himself stay among the books and let the old time be the past glories."

(38) is a typical example of subject drop. It can be inferred that the causer should be animate so as to "financially assist one hundred excellent talents".

In (39) the content is about author's introspection identified by using *ziji* ("self"), thus the causer, *he*, is set as default and readers do not have difficulty identifying the causer based on the context.

The second analytical model focuses on the interaction between modality and causatives. In Mandarin Chinese, modality constantly occurs in causative construction:

(40)　*Zhe ci duo guan   neng gou **shi**   ta   zeng qiang   xin xin.*

　　　This champion　　able   cause him strengthen   confidence

　　"The champion is able to cause him to have more confidence." (Lit: the champion enables him to have more confidence)

The main question to be solved in this model is whether the combination of modal verb and causatives will affect the interpretation of the sentence, since modality usually expresses "speaker's 'opinion or attitude towards the proposition that the sentence expresses or the situation that the proposition describes'" (Lyons, 1977).

One way to study modals in causal relation is from the perspective of so-called speaker-oriented modality and subject-oriented modality. Speaker-oriented modality refers to the speaker's stance concerning the truth of a whole proposition, as in *John may be there now*, while subject-oriented modality concerns with the ability or volition of the subject of the sentence, rather than the opinions or attitudes of the speaker, as in *They can't speak a word of English* (Palmer, 1990). It will also be interesting to investigate whether such distinction affects the description of causal events.

Modality or what is mostly called *qingtai dongci* ("mood verb") in Mandarin Chinese has been a topic of interest for a long time, yet there are still a lot of debating issues concerning the form features as well as the meaning categories. For instance, scholars claimed that modality in Chinese should include modal auxiliaries (Chao, 1980), modal particles (Zhu, 1982) or modal adverbs (Tsieh, 2005). The categories of meaning of modality seem to have more controversy (Lv, 1980; Zhu, 1982; Wang, 1985; Zhu, 1996; Heish, 2005). For example, *keyi* can be categorized as with the meaning of ability and permission (Lv, 1980; Wang, 1985), subjective ability (Zhu, 1982), ability and obligation (Zhu, 1996) or deontic and dynamic (Tsieh, 2005).

The fact that many scholars have dealt with modality in many different ways is an indication of the complexity of the issues in Mandarin Chinese. These debates are not the

central part of the current study. I will use the term "Chinese modal expressions" in current study, and I only examine the modal expressions approved by most of the previous studies, ruling out the categories that are still in debate, such as modal particles.

It is now widely accepted that Chinese modal expressions take these syntactic properties (Chao, 1980; Zhu, 1982):

1. There is no tentative reduplicate like *neng neng* ("can can")

2. They can not take aspectual markers (e.g., *zhe*, *le*)

3. They do not occur in one-word imperatives like *neng!*

Based on these criteria, I find eight modal expressions that are all studied in the available literature: *yinggai*; *yingdang*; *keneng*; *keyi*; *yao*; *hui*; *neng*; *nenggou*. The categorizations of these modal verbs are listed in the Appendix. In addition, *yinggai* and *yingdang* are two words that can be used interchangeably, and it is the same with *neng* and *nenggou*. The final results turn out to be 6 types of modal expressions:

(41) *yinggai/yingdang*; *keneng*; *keyi*; *yao*; *hui*; *neng/nenggou*;

These modal expressions will be analyzed from two perspectives: the relation between the occurrence of modality and the distribution over animacy/inanimacy properties in causal event, and the relation between occurrence of modality and its division of speaker-oriented and subject-oriented. Table 4 presents these two variables:

Table 4. Variables for the modality analysis

Variables	Types of Variables in Causal Event			
Animacy	Animate Causer + Animate Causee	Animate Causer + Inanimate Causee	Inanimate Causer + Animate Causee	Inanimate Causer + Inanimate Causee
Orientation	Speaker orientation		Subject orientation	

The model is presented below, with the term "modality" in parentheses to indicate the two possible positions that it occurs.

causer + (modality) + causative predicate + causee + (modality) + effected predicate {transitive causative / intransitive causative}
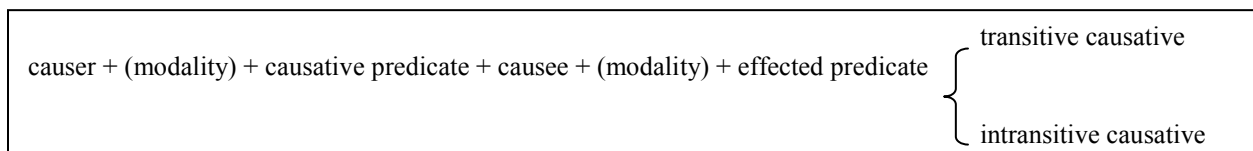
Fig.3. Model 2: Modality with causative verbs

The final analytical model concerns a different structure for causative verbs: the causer appears at the very end of the sentence.

(42) *Geng **rang** xian dai du zhe jing yi   de   shi ta de   xi xue.*

More let modern readers surprise particle is   his Western learning

"What makes the modern readers more surprised is his knowledge of Western

cultures and societies."

Example (42) can be considered as a *wh*-cleft construction in which the underlying form is *His knowledge of Western cultures and societies makes the current readers more surprised*. The reason to separate this structure from Model 1 is that different structures may have different discourse functions. The question to be addressed here is whether this special type of sentence will affect the direct/indirect causation, and secondly, what is the discourse function of *wh*-cleft construction in expressing causal events. For example, previous research suggested that the *wh*-clause part represents information that the speaker can assume the hearer is thinking about (Prince, 1978). In this study, I am particularly interested in the speaker's focus on force intervention.

causative predicate+ causee+ effected predicate
transitive causative
intransitive causative
+ causer
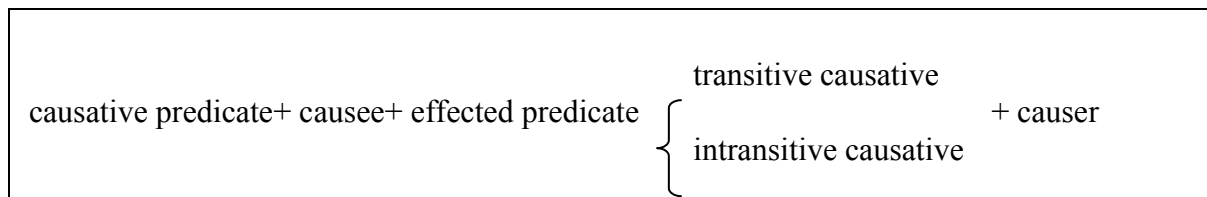
Fig.4. Model 3: *Wh*-cleft construction with causative verbs

5.3.   Results

5.3.1. Corpus data

500 fragments obtained from Sinica Corpus are analyzed. There are 250 fragments with *shi* and 250 with *rang*. The distribution of different models is presented below:

Table 4. Distribution of types of causative construction of *shi* and *rang*

Model	Effected Predicate	*shi*	*rang*
Model 1	Transitive Causative	91 (87 explicit causers)	107 (71 explicit causers)
	Intransitive Causative	67 (60 explicit causers)	76 (60 explicit causers)
Model 2	Transitive Causative	36 (36 explicit causers)	34 (34 explicit causers)

	Intransitive Causative	38 (38 explicit causers)	22 (22 explicit causers)
Model 3	Transitive Causative	15 (15 explicit causers)	0 (0 explicit causers)
	Intransitive Causative	3 (3 explicit causers)	11 (11 explicit causers)
Total		250	250

The following sections investigate each type of model. The samples of each model are separated with explicit causer and implicit causer, and I focus on the explicit causer, since the relation between causer and causee is the key issue in the current study. For example, in Model 1 with *shi*, 87 out of 91 transitive causatives and 60 out of 67 intransitive causatives have explicit causers, and these samples will be further analyzed (N = 87 + 60 = 147).

5.3.2. Analysis of model 1: Basic causative construction

First of all, I examine the distribution of animacy over causer and causee. The results are presented below:

Table.5. the distribution of animacy for *shi* and *rang* in Model 1

	Shi	*Rang*
Causer animate	72 (48.9%)	109 (83.2%)
Causee animate	58 (80.5%)	104 (95.4%)
Causee inanimate	14 (19.5%)	5 (4.6%)
Causer inanimate	75 (51.1%)	22 (16.8%)
Causee animate	55 (73.3%)	21 (95.5%)
Causee inanimate	20 (26.7%)	1 (4.5%)
Total	147	131

Table 5 shows that the number of *shi* with inanimate causer (51.1%) is slightly higher than that with animate causer (48.9%). In addition, animate causee tends to take up a large number in these groups (80.5% and 73.3%). With respect to *rang*, a majority number of sentences is with animate causers (83.2%). In those cases where the causers are animate, there is a large skewing in numbers for the animacy of causee (95.4%), and

only five samples have inanimate causees (4.5%). In the remaining 22 samples, inanimate causers with animate causees take up an overwhelming number (95.5%), and only one sample contain both inanimate causer and inanimate causee.

Furthermore, statistical analysis shows a significant difference between the distribution of animacy of causer for *shi* and *rang* (χ^2 (1) = 35.720, p<0.01): *shi* has a preference for inanimate causer (z = 3.3) and *rang* shows a preference for animate causer (z = 2.6). Significant difference is also found among four types of combinations (χ^2 (3) = 48.967, p<0.01): animate causer with animate causee; animate causer with inanimate causee; inanimate causer with animate causee; inanimate causer with inanimate causee. In particular, *shi* occurs more often when both causer and causee are animate (z = 3.0), or inanimate causer with animate causee (z = 2.3); *rang* occurs predominately when both causer and causee are animate (z = 3.2).

5.3.2.1.   *Shi*: direct causation

As mentioned in section 4.1.1., *shi* goes through a process that its semantics evolves from human-manipulated meaning of "to command/order" to the abstract meaning of "causation", in which human force is not necessarily an element. The evolvement provides an account for 51.1% samples with *shi* having inanimate causers in modern Mandarin Chinese:

(43) (*Zhong yao de   zhuo se ji shi tong   he tie, zai yang hua qi fen zhong shao*

    (important particle   stain   are copper and iron, at   oxidation   in   fire

    *cheng), tong   **shi**   you cheng xian mei li   de   cui lv.*

    done), copper makes glaze   appear   beautiful particle emerald green

    "(The important stain is copper and iron, oxidized during firing) copper makes

      ceramic glaze present beautiful emerald green."

In this sentence, the high temperature of fire is more likely as a precondition than the causer and the copper is the only source that changes the appearance color of glaze to emerald green. There is no second force that takes part in this chemical process and the sense of direct causation is present here.

Direct causation also holds when the causer is inanimate and causee is animate entity, where the causal event mostly involves the emotion or feelings of people. Consider the following example:

(44) *Gu dong guo du yong se,* **_shi_** *ren   fang fu   zhi shen   zai la ji dui zhong.*

  Antiques over crowded, makes people as if place themselves at rubbish dump in.

  "There are so many antiques around (in such a small place), making people seem to

  be among the rubbish heap."

This sentence describes a feeling (with exaggeration) caused by perceiving so many antiques huddled together as if people were in a rubbish heap. Recall the theory of folk model of the mind, such feelings are not controllable, thus should be viewed as a consequence of direct visual perception without other force intervening.

A more obvious case with the irresistible feeling caused by inanimate entity is illustrated in (45):

(45) *Wei shen me qing ren   de   jiao bu sheng* **_shi_** *xin fang ju lie de   tiao dong?*

  Why   lover   particle   steps   sound makes   heart   violently   beating

  "Why the footsteps of the lover makes the heart beat violently?"

The sounds of foot steps immediately arises the feeling of excitement and further, the physiological reaction of violent heart beat. In this event both the feeling and the bodily reaction are beyond people's control, that is why *shi* is used here to express causal event directly induced from perception.

Although more than half of the samples with *shi* in the result had inanimate causers, there is still considerable number (48.9%) of the samples with animate causers. Therefore, one question needs to be answered: do these samples express direct causation as well? If so, what does it mean for a causal event with animate causers but to be considered as direct causation?

My first finding is that direct causation holds when both causer and causee are animate entities to describe how the physical action or mental activity of people works on themselves. In this way, self-action and self-communication like introspection should be understood as a process that the causer and the causee are actually referring to the same person and no other outside force is involved. Concerning the mental activity, especially,

we ought to see it differently from the human communication that normally two or more people participate in and is regarded as inductive causation. The following sentence illustrates how *shi* expresses direct causation with animate causer and causee:

(46) *Zhe zhong qiang xing   de   zi wo   ya yi   __shi__   ba da shan ren jing shen*

    This   coercive particle self constraint makes Bada Shanren   mental

    yi du shi   chang.

    once lost normal

    "This coercive self-constraint makes Bada Shanren insane for some time."

The sentence describes the force of self-constraint as well as its consequence that works on the same person. Thus it is clear that there is no other source of energy that brings about "the madness" in the whole event, and such relation can be categorized as direct.

Animate entities with *shi* also expresses direct causation on occasion that the causee actually perceives the action of causer, but this 'animate' feature of the causer does not necessarily mean that the causer exerts some force; instead, their own intentions may have nothing to do with the whole causative event:

(47) *Zhe xie re qing   de   yi shu jia jiang jing mi   de   xi jie da dan de*

    These   enthusiastic particle artists   put   exquisite particle detail bold particle

    miao hui zai ta de hua zuo shang, __shi__   wo yin xiang   shen ke.

    paint   at his painting on,   make me impression deep

  "These enthusiastic artists boldly painted these exquisite details on their artwork,

    making me very impressive."

In (47), the causer is the enthusiastic artists painting the details to their work. What makes *me* impressive, however, is actually the painter's enthusiasm or their works or perhaps both. In other words, the scenario I perceived made me impressive, but I am not communicating with the artists, and the intention of the artists has no role to play within the causal event. This is exactly what Verhagen and Kemmer (1997) pointed out, that "independently of the construed animacy of the initiator": although artists' painting their artwork is always considered as an animate entity, the use of *shi* determines that this 'animate' feature of the causer actually takes no effect in this event. Instead, the whole event is considered as direct causation similar to (45) and (46): the mental state is triggered directly by the outside world, viz. perception.

33

5.3.2.2. *Rang*: indirect causation

First of all, it is found that some examples with *rang* still have the meaning of "permission/allowance". Consider the following example:

(48) *Wo dang kai   le hou mian de   ren,   hao   **rang** ta xian shang qu.*

   I   fended off particle back particle people, in order to let her first get up.

   "I fended off the people in the back, making her get up first."

In this example, the initiator, *I*, exert some force to allow *her* getting up first. This sentence can be interpreted as causal event as well, since my behavior, *fended off the people in the back*, brings about a condition that no one can get up first but her, and she actually does so. Among 104 samples where both the causer and causee are animate entities, 18 segments are like (49) that can be understood as in-between permission and causation.

Most of the cases, however, describe a causal event rather than permission:

(49) *Jie chu ren wu zui hou jing ran dou **rang** zi ji   de   sun zi   qi   yi ge*

     Elites   finally   actually all   let self particle grandson name one

  yu   dui fang   yi yang   de   ming zi, yi shi   wu ru.

  with the opposite party the same particle name, to show insult.

  "These elites actually all let their grandsons have the same name as their enemies,

   order to show the insult."

Here the causer, *the elites*, exert some force on *their grandsons* and request them to name themselves as the enemies of these elites. According to Chang (2005), the causee is not able to control their action; the causer is therefore the only force source.

The question rises on the point of "controlling force" of the causee. In this example this question is whether the force *to have the same name as the enemies of the elites* is solely from *the elites* or not. It seems that a more likely reading is that although the elites exert some authoritative force on their grandsons, the event of naming is based on the premise that the grandsons are *willing* to give the names, and this willingness should also be considered as a force that pushed forward to the final state. Therefore, the whole causal event should be interpreted as indirect causation where a more immediate force is the intention of the causee.

Perhaps a more obvious force from the causee being involved in the causative event is the following:

(50) *Ma kui si bu yan qi fan   de   **rang** shang xiao   yi ci ci   qu ma tou*
     Marquis make every effort particle let   captain   many times go wharf
     deng dai you chuan.
      wait   post boat
   "Marquis made the effort to make the captain wait for the post boat at the wharf
      many times."

In (50), the force from the causer, *Marquis*, is not as strong as in (49), in which the force can be considered as a command from the older generation to the younger. Here, the force from the causer to the causee can be understood as a persuasion. The causative event happens because of the persuasion and further, agreement between the two parties. Therefore, the captain's willingness and the request made by Marquis are both forces that make the event happen.

The previous two examples seem a contrary to the theory proposed by Chang (2005), in which she argued that in causative construction with *rang*, the causee cannot control its action. The interpretations of the previous two samples of corpus study provide evidence that it is not so. In contrast, the interpretation of causative construction can never be complete without the mental or physical force autonomously exerted from the causee.

Chang's (2005) theory appears to be problematic as well for those samples with animate causer and inanimate causee, since the inanimate entities naturally do not have autonomous actions, so the distinction between "controllable" and "uncontrollable" according to Chang (2005) is not necessary. Furthermore, there will be no difference between the following examples, since both the causees are inanimate and "uncontrollable":

(51) *1913 nian Du xiang **rang** san tiao chang yi gong chi   de   xian sui ji luo xia.*
    1913 year Duchamp let   three   length one meter particle line random fall.
   "In 1913 Duchamp let three one-meter-long lines fall at random."

(52) *1913 nian Duchamp **shi** san tiao chang yi gong chi de   xian sui ji   luo xia.*
    1913 year Duchamp make three   length one meter particle line random fall.
   "In 1913 Duchamp made three one-meter-long lines fall at random."

Reader's understanding for two sentences are different, however. (51) describes a scenario that the causee, *the lines*, falls because of another force besides the causer, *Duchamp*. The force should be the gravity given the context and readers' common knowledge. (52) expresses a different scene, that it is *Duchamp* alone that causes the event of falling happen; it is possible that the causer does something special that pushes the force towards lines and finally they fall.

Therefore, the theory proposed by Chang (2005) seems not be able to provide rounded explanations for various samples found in corpus. I argue that theory of direct/indirect causation can provide a better explanation. Recall what I present in section 4.1.2., that indirect causation is defined as a situation that some other force is the most immediate force to bring about the effected event other than the initiator (Verhagen & Kemmer, 1997). In other words, indirect causation involves at least two forces that work together: an initiator and a second force which is considered as a more direct force in the causative event. The schema of indirect causation is true in understanding the samples with *rang* when the meaning is between causation and permission in example (49) mentioned above:

(49) *Wo dang kai   le hou mian de   ren,   hao   **rang** ta xian shang qu.*

   I fended off particle   back particle people, in order to let   her first   get up.

   "I fended off the people in the back, making her get up first."

The scenario becomes clear if it is explained by indirect causation: the initiator, *I*, fend off people, and the causee, *she*, is the direct source of energy in the effected predicate "getting up". In addition, there are two possible understandings for the context: a. the causer, *I*, fend off people simply as a polite manner; b. the cause, *she*, has the intention to get up and this request leads to his action. Regardless of which understanding the reader takes, the causee can never be neglected as a more direct force source.

Now I apply the indirect causation to the example. How this more direct force besides the initiator works on the causative event is also presented in the example (49) and (50), repeated here for convenience:

(50) *Jie chu ren wu zui hou jing ran dou **rang** zi ji   de   sun zi   qi   yi ge*

     Elites   finally actually all   let self particle grandson name one

 yu   dui fang   yi yang de   ming zi, yi shi   wu ru.

  with the opposite party the same particle name, to show insult

"These elites actually all let their grandsons have the same name as their enemies,

order to show the insult."

(51) *Ma kui si bu yan qi fan   de   **rang** shang xiao   yi ci ci   qu ma tou*

    Marquis make every effort particle let   captain   many times go wharf

    deng dai you chuan.

    wait   post boat

"Marquis made the effort to make the captain wait for the post boat at the wharf

    many times."

In (50), the willingness of *the grandsons* leads to their autonomous action of name change, which becomes a more immediate force, rather than the causer, *the elites* in this causative event. (51) demonstrates a clearer scene where the social rank of two parties, the causer and the causee, are not as distinctive as in (50). The persuasion made by *Marquis* brings about the fact that the captain who exerts a more direct force towards the final stage of the whole event, *agrees* to wait at the wharf,.

There are some more complex samples involving mental state and emotions, since one cannot reach into another person's mind and directly cause him or her to do, feel, or think something (D'Andrade, 1987):

(53) *Chu bu   dui diao cha zi liao   de   liao jie   yi   zu yi **rang***

    Preliminary for   research   material particle understanding already enough   let

    wo men gan dao xing fen.

    us   feel   excited

"The preliminary understand of research material already made us excited."

Next I will explore the indirect causation expressed by *rang* in some less typical cases where the inanimate causee is involved. First, consider the following example:

(54) *Ta men hai xi wang **rang** zhe pi   zi liao   fa hui   geng   ji ji   de*

    They   also hope   let   these   materials bring into play more positive particle

    gong neng.

    Function

"They also hope to let these materials perform its best." (Lit: They also hope to let

    these materials play a more positive role in (some) studies.)

In this sentence, the causee *materials* are personalized referring to the people that use the materials for certain purpose. The personalization can be identified by the verb *fahui* ("perform"). In this way, a more immediate force is actually the people that are not explicitly mentioned, but by the objects they work on, the materials. The indirect causation is thus presented that the writers are suggesting some other force exerted by animate entities intervening in this causal event. As a matter of fact, this interpretation is approved by the following sentence where the subject is "the relevant scholars".

A similar example is in (56):

(55) *Ru guo li fa wei yuan bu xiao xin **rang** ta guo   le ... zhen shi ling ren   bu*

     If   legistors   uncarefully let it pass particle   really   make people not

    gan xiang xiang!

    dare   imagine

   "If legislators (did not consider carefully and) let it pass …it is really hard to imagine
    (what the future will be like)!"

This is a conditional statement about the possible consequence of the execution of some law terms, proposed by institutions other than legislature, such as Administrative Office or Judicial Council. These institutions thus become the "implicit animate entity" that if the legislature passes the law terms there is agreement between the legislature and the institution that propose the law terms. The verb *rang* indicates that this implicit institution has relatively great autonomy and some inherent tendency for the law terms to pass. A similar schema of this reading can be reached in the example in Verhagen and Kemmer (1997) where the verb *laten* was used:

(56) *De agent   **liet** hen passeren.*

   The officer let them pass

   "The officer let them pass."

These three cases suggest that, although the causees are inanimate entities, there is always an "implicit animate entity" related to the causee and this animate entity is a more immediate force in the causal event. The causer is in fact communicating or has the potential to communicate with the "hidden animate entity" via the causee.

The remaining two cases with animate causer and inanimate cause can be put together for interpretation:

(57) *Jiang   bi xu dong hua bu, **rang** nei rong wu zuo   you qing xie.*

    Jiang had to   move canvas, let   contents   left right incline

    "(The artist) Jiang had to move the canvas, letting the contents incline to left side or

    right side."

(58) *1913 nian Du xiang **rang** san tiao chang yi gong chi   de   xian sui ji luo xia.*

    1913 year Duchamp let   three length one meter particle line   random fall

    "In 1913 Duchamp let three one-meter-long lines fall at random."

Different from the previous three examples, there are not any animate entity related to the causees. However, a more direct force is still approached by reader's common knowledge of physical world: it is the gravity that makes the causees reach the final state: the incline of the container and the falling down of the lines.

Finally, a less typical category for *rang* include 22 samples with inanimate causers. Since inanimate causers are typical with *shi* expressing direct causation, I therefore run a small substitutability test in these samples and examine how different the sentences will be if *rang* is replaced by *shi*. Below is the example where (59) is with *shi* as the replacement of *rang* and (60) is the original segment:

(59) *Jia ru ni   hua   de   ping guo bu dan mei you yin qi wo de shi yu,   fan er*

    If you draw particle   apple   not   arouse my appetite, instead

    ***shi** wo you yi zhong yu kuai de   gan jue….*

    let me have one   pleasant particle   feeling

    "If the apple you draw does not raise my appetite, instead make me have a pleasant

    feeling…"

(60) *Jia ru ni   hua   de   ping guo bu dan mei you yin qi wo de shi yu,   fan er*

    If you draw particle   apple   not   arouse my appetite, instead

    ***rang** wo you yi zhong yu kuai de   gan jue….*

    let me have one   pleasant particle   feeling

    "If the apple you draw does not raise my appetite, instead let me have a pleasant

    feeling…"

(59) merely describes an unavoidable perception that directly arouses my positive feeling, therefore perception becomes the only force that leads to the end point of causative event; (60) is describing a different scene that the perception of apple is the force, and some

psychological process aroused by the perception becomes a more immediate force to bring about the final state, e.g. some past happy experience with the apple that resembles this one. The two sentences are different not only in terms of direct/indirect causation, but also in the fact that (59) is a causal event brought about by perception of external physical world, (60) is an indirect causal event brought about not only by the perception, but by some internal mental activity as well.

5.3.3. Analysis of model 2: Modality and causative verbs

First of all, an oveall distribution of 6 types of modal expressions is presented below:

Table 6. Overall distribution of modal expressions co-occurring with *shi* or *rang*

	shi	*rang*
yinggai/ yingdang	2 (2.7%)	0 (0%)
keneng	8 (10.8%)	2 (3.6%)
keyi	19 (25.7%)	13 (23.2%)
yao	7 (9.5%)	11 (19.6%)
hui	13 (17.6%)	10 (17.6%)
neng/nenggou	25 (33.7%)	20 (36%)
Total	74	56

Further statistic analysis reveals two results: first, the two verbs do not differ with respect to the type of modality used in the samples (χ^2 (5) = 6.187, p>0.01), the distributions of modal expressions with *shi* or *rang* are quite similar. Second, for each verb the distribution of the type of modals is significantly different (*shi*: χ^2 (5) = 29.135, p<0.01; *rang*: χ^2 (4) = 14.893, p<0.01): they both show a preference for *neng/nenggou* and *yingdang/yinggai* are the least likely to appear in all the samples.

For the factor of animacy/inanimacy, significant difference is also found. It shows the pattern of both causer and causee to be animate entities is the most likely to occur with *shi* (χ^2 (3) = 46.757, p<0.01) and *rang* (χ^2 (3) = 93.571, p<0.01).

Table 7. The distribution of animacy of *shi* or *rang* with modality

	shi	*rang*
Animate Causer	43 (64.6%)	46(82.1%)
Animate Causee	40(93.0%)	45(97.8%)
Inanimate Causee	3(7.0%)	1(2.2%)
Inanimate Causer	31(35.4%)	10(17.9%)
Animate Causee	24(77.4%)	8(80.0%)
Inanimate Causee	7(22.6%)	2(20.0%)
Total	74	56

Finally, the results of orientation of modal expressions are presented in Table 8:

Table 8. The orientation of modal expressions co-occurring with *shi* or *rang*

	shi	*rang*
Speaker-oriented	21 (28.4%)	30 (53.6%)
Subject-oriented	53 (71.6%)	26 (46.4%)
Total	74	56

The results showed that the modal expressions referring to the subjects are used much more often than to the speakers in samples with *shi* (χ^2 (1) = 13.838, p<0.01). For *rang*, however, statistics showed that there is no significant difference between modality used as the attitude of speaker or as the ability of the subject (χ^2 (1) = .286, p> 0.01).

To sum up, these results indicate that among 6 types of modal expressions co-occurring with *shi* or *rang*, *neng*/*nenggou* are the most frequently used words. Generally, the modal expressions constantly appear in the causal events involving both animate causer and animate causee, i.e. human-human interaction. It is also found that in the examples with *shi*, the modals are more likely to express subject-orientation but such tendency is not found in the cases with *rang*.

A major finding in this section is that the most often used words *neng*/*nenggou* ("can; be capable of; be able to") is used in the way not to express what the subjects could do to bring about the whole event, but to suggest what is possible or should be implemented by

speaker's implication. The subject here can be causer or causee, depending on the position of the modals. In other words, I find that modal expressions will not affect the direct/indirect causation, but functions as an indicator to point out which part of the force in the whole event the speaker wants to stress.

Let us start from example (61):

(61) *Yue shi tou guo dui yin   de   tiao jie,   biao xian xuan lv, **shi**   ren*
Music is through for sound particle adjustment, present   melody, make people
*yu   ren   zhi jian **ke yi** xiang tong.*
with people between can   link
"(Playing) music presents its melody by adjusting the sounds, making people able to communicate with each other."

In this sentence, the modal verb *keyi* indicates a situation of playing music that is possible for people to do something. Note it is the causee here that is modified by *keyi*.

The direct causation in this sentence still holds: the causer exerts some force by means of music playing, which is being received by the causee. As I have analyzed in section 4.1.2., physical perception directly leads to the consequences such as feeling or belief. Here, however, the results involve people's communication which requires the causee to play a role in it.

In this case, *keyi* is used to stress a special situation where people are connected directly from the outside force, i.e. music. Such understanding is consistent with the background context of this sentence: in ancient China music is considered as social convention that unifies heart other than the sound of stick on the bell. Therefore, playing music does not only bring pleasant auditory perception but also functions as a medium of great social significance linking people. In this way, *keyi* implies that the causer who plays music actually has a more powerful force that works on the causee and such event is categorized as direct causation.

Another example where modals are used to express the force focus is in (65):

(62) *Xi wang ri   hou yuan fang lao shi   yu   jia zhang men **neng** qi xin nu li,*
Hope day after school teachers with   parents   can make efforts,
***rang** wo men de   xia   yi   dai   zai zhe kuai yuan di li di zao geng chong shi*
let   our particle next one generation at   this   garden in create more fulfilled

ji   kuai le   de   tong nian

and   happy particle childhood.

"Hope that in the later days the school teachers and parents can make great efforts,

letting our next generation have a fulfilled and happy childhood in this kindergarten."

In this sentence, the speaker is making a wish about the future of the kindergarten. Instead of describing an already happened event, the speaker is actually indicating that the force of the causer, i.e., the school teachers and the parents, should be implemented in the future, using the verb *xiwang* ("hope"). Further more, the speaker uses modal expression *nenggou* to express that such force is not only what he expects, but he believes to be possibly taken into action. Here the speaker stresses on the causer part, because the causee should be naturally towards the target of *having a happy childhood*.

A second finding is that the modal expressions such as *nenggou* can be used in the counterfactual situation to imply the speaker actually denies the possibility of occurrence of causal event:

(63) *Ru guo zhi   yin wei fu yu   xue chan   yi ge ming cheng   jiu   __neng__   __shi__*

   If   only because name snow shovel one   name   right away can   make

   ta cheng wei yi ge yi shu pin.

   it become   one   artwork

   "If giving a name to the snow shovel can make it become one piece of artwork right

   away…"

In this sentence, the speaker is expressing his doubt on the proposition that naming a common shovel directly leads to the result that the shovel turns out to be a piece of artwork. The modal expression *neng* is together with the conditional phrase *ruguo* ("if"), indicating that this is only a hypothetical proposal by the speaker instead of approving this causal event.

The last issue to be discussed is that a few examples contained modal expressions with inanimate causer. The modals are used in this way to indicate the entities have the necessary qualities or power to cause the event to take place:

(64) *Tian   di   zhi jian zui zhong yao de zuo yong li shi wan you   yin li,   ta __hui__*

   celestial bodies among most important   force   is universal gravitation, it can

   __shi__   *zhou zao   tian ti   de   yun dong gui ji gai bian.*

make around   celestial body particle   motion   orbit   change

"The most important force among celestial bodies is universal gravitation, which

makes the orbits of other celestial bodies around them change."

5.3.4.   Analysis of model 3: *Wh*-cleft construction with causative verbs

First of all, a distribution of animacy/inanimacy for two verbs is presented below:

Table 9. The distribution of animacy of *shi* or *rang* with *wh*-cleft construction

	shi	*rang*
Causer animate	9 (50%)	7 (63.6%)
Causee animate	6 (66.7%)	7 (100%)
Causee inanimate	3 (33.3%)	0 (0%)
Causer inanimate	9 (50%)	4 (36.4%)
Causee animate	8 (88.9%)	4 (100%)
Causee inanimate	1 (11.1%)	0 (0%)
Total	18	11

The number of samples for both verbs is much smaller than that of Model 1 and Model 2,
for each verb the samples are less than 20. Due to the small number of samples in this
model, statistic analysis cannot provide any valid result on the distribution over animacy
of two verbs.

However, I still find that the *wh*-cleft structure does not affect the direct/indirect
causation for the whole event. The example is shown in (66):

(65) *Wo jiu yi zhi   hai pa   zai you ren he* **rang** *ta sheng qi de   shi   shi you*

    I   then always afraid again have any   let   her   angry particle   thing is   by

    wo suo   chan sheng   de.

    me that   bring about particle

    "I am always afraid that what makes her angry is because of me."

The indirect causation still holds: the causer, *I*, is the initiator of the whole event, and the
causee *she* is taking part in this event as a more immediate force leading to the final result
of being angry. The maintenance of direct/indirect causation could be also understood in

the way that since directness and indirectness is highly abstract schema, the interaction among causer, causee, and affectee should be independent of the form it is presented.

The following question is: why speakers provide an alternative way to express the same meanings?

The major finding is that this structure functions as a reflection of the belief of the speaker about one particular force among various forces that is the causer in the whole event. In other words, this structure is describing a scenario in which many forces seem to be able to bring about the causal event, yet only one force is believed by the speaker that determines its occurrence. In addition, it is quite often that some degree adverbs appear with this structure such as *zui* ("most") or *geng* ("more"):

(66) *Geng* __*rang*__ *xian dai du zhe   jing yi   de   shi ta de   xi xue.*

    More let   modern readers surprise particle is   his Western knowledge.

   "What makes modern readers more surprised is his knowledge on Western

   (society)."

In (66), the degree adverb *geng* ("more") indicates that there are several potential factors that will initiate the event that will cause the modern readers surprised, but one factor, i.e., *his knowledge on Western knowledge*, is the one the speaker believes to be the most important one that becomes the causer.

Another example with clearer linguistic coding expressing the relevance of several factors affecting the causal event is as follows:

(67) __*Shi*__   *yi shu ping wei da   de,   bu shi yi shu ping de   feng ge yu ji qiao, shi*

    Make   artwork   great particle, not is   artwork particle style and skills, is

    chuang zuo zhe de   qing gan.

      creater   particle emotion

  "What makes the artwork a great piece is not the style or skills, but the emotion of

   the artist."

In this sentence, the speaker explicitly states two factors that might create a great artwork, and which factor between two is the more determining in the causal event. He stresses this factor using this alternative structure so that the readers will focus on "the emotion of the artist", i.e. the one that the speaker believes to be the causer.

In sum, the results of Model 3 show that firstly the meaning of direct/indirect causation is still maintained by the alternative structure. Furthermore, the speaker expresses the causal event in this way to stresses which factor is the most important one among all the potential causers. This observation is also supported by the co-occurrence of degree adverbs.

5.4. General discussion

The results of three models described in this study all provide support for the hypothesis that *shi* is similar to *doen* in Dutch that it is related to the inanimate entity to express direct causation, and *rang* is related to the animate entity to express indirect causation, . Particularly, in Model 2 and Model 3 I explore the discourse function of modality and *wh*-cleft structure co-occurred in the causal event. The results indicate that the speaker chooses modal expressions or *wh*-cleft structure combined with causative verbs for several purposes.

In this part I will discuss several issues about the methodology and the findings.

The first issue is about two verbs, *shi* and *rang*. Although they are corresponding to *cause* and *let* in English and *doen* and *laten* in Dutch, in Mandarin Chinese, they are not the only two verbs that the Chinese linguists paid attention to. The similar terms include *ling* ("make") and *jiao* ("order"). The reason I choose *shi* and *rang* is that first of all, they repeatedly occur in the translations of English verbs in CAUSE and ENABLE categories while *ling* and *jiao* do not so; A second reason is *shi* and *rang* are the two typical verbs showing the diachronic evolvement, that according to Chang (2005), *rang* is most used in describing how people's intentions are involved in causation while *shi* is more used in the description of causation between two events (as I mentioned in section 4.1.1., the term "event" in Chang (2005)'s study is treated as a contradictory to people's mental activities). To illustrate a whole picture of linguistic expressions of causation in Mandarin Chinese, *shi* and *rang* are not enough, yet in this study, they provide strong evidence in support of application of the theory of direct/indirect causation in Mandarin Chinese.

The current research examines direct/indirect causation of *shi* and *rang* on written language. The situation of spoken language is still not clear, however. It is possible that when people converse the selection of verbs may be more arbitrary than people use

former language in writing. Therefore, it will be interesting to further examine whether the verbal selection in spoken language also provides support for direct/indirect causation in the future. One point is that, a preliminary research on spoken language in Sinica corpus reveals sharp difference on the quantity of verbal usage: 618 segments with *rang* and only 43 sentences with *shi* are found. A logical explanation for this result is in spoken language, the topics are less likely about the events with inanimate entities than those with people involved. Thus, more resources are needed for this question on spoken language.

The second issue about the corpus is that 250 segments analyzed in the current are only part of the complete search result (1009 segments for each verb) in Sinica Corpus. Due to the time limit and work load, it seems impossible to analyze every piece obtained from the corpus. Although the analysis of 250 segments shows a consistent result based on direct/indirect causation, some issues need to be addressed. First of all, notice there is significant number of examples of *shi* with both causer and causee as animate entities. My analysis reveals that when causer and causee are referring to the same person, viz. *I* in most of the cases, the direct causation is present because self-action has no other force to intervene with. The direct causation also occurs when the animate causer actually does not have a volitional role to play in the whole causal event; instead the causer is treated as something perceived by the causee. Nevertheless, the relatively large number of samples can be attributed to the incompleteness of segments analysis: in these 250 examples a considerable amount of sentences are from the topics of life, philosophy or literature where the contents are dealing with personal life or meditation. This probably explains the large amount of samples of *shi* with both causer and causee as animate entities.

Another point to be addressed is the concept of animacy. Verhagen and Kemmer (1997) defined animacy as "not only humans, but also human institutional entities, like the government". Sentient and non-sentient were also used to distinguish similar concepts (Wolff, Song & Driscoll, 2002). In Chang's (2005, 2006) diachronic analysis of *shi* and *rang*, she also used the term *ren* ("human") to refer to the animate properties of the causer. However, the boundary of animacy and inanimacy seems still not clear in the current study. It is difficult to determine whether the causer/causee is animate or

inanimate when it refers to certain objects, such as bacteria. It is definitely not human, yet it has the ability to feel or perceive, which means it is sentient.

Therefore, I argue that it is necessary to investigate the self-awareness property to determine which category the subject belongs to, which is consistent with the general idea that the difference between these verbs reflects the folk model of the mind and the view that our mental world is seen as separate from the physical world. As a personal understanding of one's own identity, self-awareness can be considered as a trait unique to human beings to differentiate from other basic sentience of all living objects. Therefore, in current study, things like bacteria should be taken as inanimate entities, not because of they are not alive, but because of the lack of self-awareness.

Chapter 6.   Conclusion

This thesis consists of two research questions. The first question is whether Chinese periphrastic causative verbs fall into the notions of CAUSE, ENABLE, and PREVENT based on force dynamic model. By obtaining a list of Chinese periphrastic causatives through bilingual word net Sinica BOW and analyzing the syntactic and semantic properties of these verbs, I find that the force dynamic model does not completely map the pattern that Chinese periphrastic causative verbs present: the PREVENT notion can be used to describe 34 Chinese periphrastic causatives, but the boundary between CAUSE and ENABLE seems not clear in Mandarin Chinese.

This problem brings about the second question: how to understand the difference between Chinese causative verbs, especially two verbs, *shi* and *rang*, which the English equivalents are *cause* and *let*? One possible explanation is the application of theory of direct/indirect causation. To examine this question, I conduct a corpus research (Sinica corpus) and the results suggest that the event descriptions with *shi* categorize as direct causation in that the causer directly brings about the result of causee, thus inanimate entities are involved, while *rang* categorizes as indirect causation in that a more immediate force is working in the causal event other than the causer to bring about the result. Direct/indirect causation provides a much clearer insight into the nature of *shi* and *rang*, suggesting that the distribution of the verbs in different contexts is a reflection of folk world view in our mind.

In sum, the two studies present a complex picture of Chinese causative verbs. Either force dynamic model or direct/indirect theory alone cannot provide a full account for the relationship among Chinese causative verbs. What remains to be determined in the future is whether in spoken language *shi* and *rang* show the similar pattern as they are in written language. Also it is necessary to investigate whether one single theory or cognitive model can fully describe the pattern of Chinese causative verbs.

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Appendix

Chinese modal expressions and their meaning categories

In this table, semicolon indicated different types of categories and colon indicated subcategory. For example, the word *keyi* is in both deontic and dynamic category by Heish (2005), but in two subcategories of "Possibility" by Lv (1980): ability and permission.

	Wang (1985)	Lv (1980)	Zhu (1982)	Zhu (1996)	Heish (2005)
yinggai/ yingdang	possibility: necessity	necessity: obligation	necessity (objective situation)	modulation: obligation	epistemic
keneng	possibility: probability	possibility: probability	possibility (objective situation)	modality: probability	epistemic
keyi	possibility: ability/ permission	possibility: ability/ permission	possibility (subjective ability)	modulation: ability/obligation	deontic; dynamic
yao	inclination	necessity: inclination	inclination; obligation	modulation: inclination	deontic; dynamic
hui	possibility: ability/probability	possibility: ability/probability	possibility (subjective ability)	modulation: ability	dynamic
neng/ nenggou	possibility: ability	possibility: ability	possibility (subjective ability)	modulation: ability	dynamic