

# 行政院國家科學委員會專題研究計畫 成果報告

## 中文動詞詞彙語義網的建構：互動性評價動詞的研究 研究成果報告(精簡版)

計畫類別：個別型  
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公開資訊：本計畫可公開查詢

中華民國 99 年 10 月 31 日

# 行政院國家科學委員會補助專題研究計畫 成果報告

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計畫主持人：國立交通大學外文系 劉美君 教授

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江姿儀

報告類型：精簡報告

報告附件：出席國際學術會議心得報告

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行政院國家科學委員會專題研究計畫研究報告—精簡版

中文動詞詞彙訊息網的建構：互動性評價動詞的研究

Construction of the Mandarin VerbNet: Verbs of Judgment

計畫編號：NSC 98-2410-H-009-036

執行期限：98年08月01日至99年07月31日

主持人：國立交通大學外文系 劉美君 教授

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## 摘要

本研究以Fillmore和Atkins(1992)提出之「框架語意理論」(Frame semantics)及Liu和Chiang(2008)之「中文動詞語意網之架構」為本，觀察語料中漢語內在評價動詞，如同意、相信、懷疑、輕視、支持、反對等，並以其語意、語法表現，進行「框架」分類並解決框架語義理論中極少提及的多元承繼的跨類現象。

**關鍵字：**中文動詞詞網、詞彙語意、框架語意、內在評價動詞、跨類現象

## Abstract

Based on Frame Semantics (Fillmore & Atkins 1992) and the Framework of Mandarin VerbNet (Liu & Chiang 2008), this study attempts to explore Mandarin Internal Judgment verbs, such as *xiangxin* 'believe', *huaiyi* 'doubt', *zhongshi* 'value', *qingshi* 'belittle', *zhichi* 'support', *fandui* 'be opposed to', and *tongyi* 'agree'. Through this study, in addition to providing a systematic analysis for Mandarin Internal Judgment verbs, the issue about cross-domain lemmas can be solved.

**Key words:** Mandarin VerbNet, Lexical Semantics, Frame Semantics, Mandarin Internal Judgment Verbs, cross-categorial phenomenon

## **1. Introduction**

### **1.1 Goal of Research**

This study attempts to categorize a set of Mandarin Internal Judgment verbs through Frame Semantic analysis based on the observation from the corpus. In addition, the Certainty frame in Cognition domain (Hu 2007) also denotes a kind of epistemic judgment and can be categorized as a basic frame under Internal Judgment primary frame. In other words, Certainty frame inherits the features from both Cognition domain and Judgment domain. Therefore, the relationship between Internal Judgment verbs and other domains is discussed in the study as well.

### **1.2 Literature Review**

The study of lexical semantics has always been a hot issue in linguistic field. Radical linguists of lexical semantics even believe that the meaning denoted in the lexicon determines its syntactic pattern. Many lexically-based information networks have been constructed, such as HowNet (Dong et al.), Sinica BOW (Huang et al.), and FrameNet (Baker, Fillmore and Cronin 2003). While all these networks are valuable, only FrameNet is based on Frame Semantics (Fillmore & Atkins 1992). However, the lexicon investigated on FrameNet is English only. Due to the uniqueness of each language, the same system may not necessarily fit into any languages. Moreover, the structure of FrameNet does not include analysis of interrelations of the proposed frames. To meet the gap, Liu and Chiang (2008) proposed a multi-layered hierarchical taxonomy:

[Archiframe] > [Primary Frame] > [Basic Frame] > [Microframe]

Based on the model, Mandarin Internal Judgment Verbs were classified into four Basic frames and seven micro frames.

### **1.3 Research Method**

The FrameNet is adopted as the source of lemma extraction. Each English lemma is put into Sinica BOW (<http://bow.sinica.edu.tw/wn/>) and the Chinese equivalents are the basis of the analysis. By analyzing the semantic and syntactic properties of the verbs in each frame, they are further categorized into different but related frames.

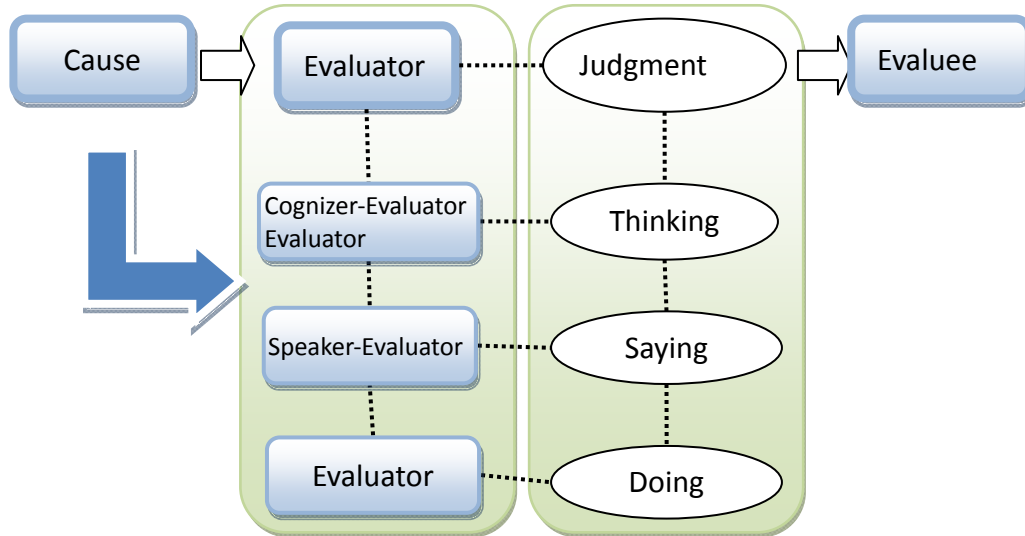
## 2. Conceptual Schema of Judgment Archiframe

In Mandarin Judgment domain, the Evaluator can express the opinion by **Thinking**, **Saying**, and **Doing**.

- **Thinking** (Used in Internal Evaluation Primary Frame):我懷疑他說的話。
- **Saying** (Used in Verbal Evaluation Primary Frame):老師很稱讚他的報告
- **Doing** (Used in Internal Evaluation Primary Frame):我同意你離開。

Under Judgment Archiframe, the three examples respectively belong to Internal Evaluation primary frame and Verbal Evaluation primary frame. The following is the conceptual schema postulated to capture the cognitive essence of Judgment event.

Figure 1: Conceptual Schema of the Judgment Archiframe

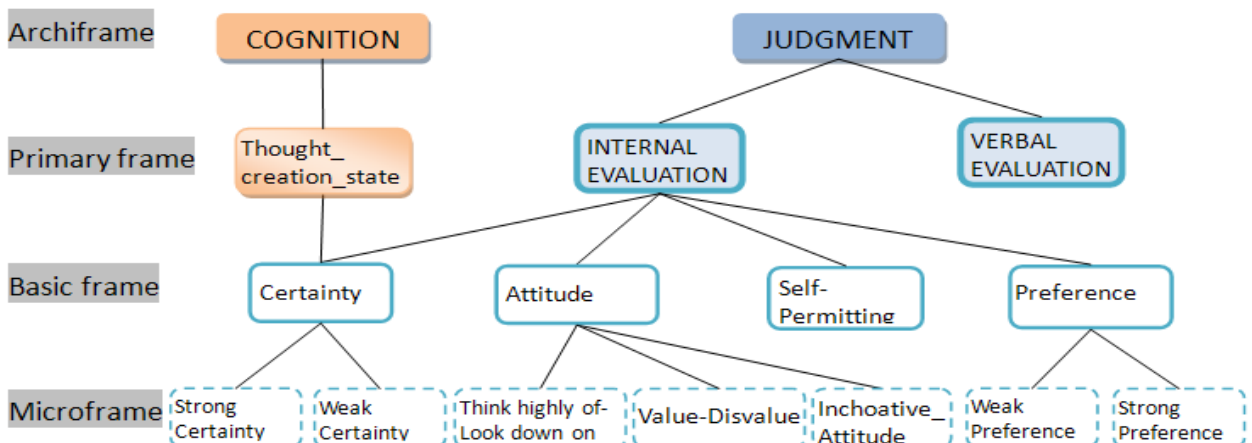


In the conceptual schema, the **Evaluator** and the **Evaluee** are the most essential frame elements in Judgment domain. The Evaluator is the one who makes the judgment on the Evaluee; the Evaluee is the target about whom/which a judgment is made. In addition to the two frame elements, the judgment event may have a **Cause**.

## 3 Frame-based Analysis

### 3.1 The Hierarchical Structure of the Judgment Verbs

Figure 2: Frame Relations of Judgment Verbs



### 3.2 Layer 1: Judgment Archiframe

**Definition:** An Evaluator makes a judgment on an **Evaluee**. The judgment may be positive or negative and can be either Verbal or Non-Verbal (Internal) evaluation.

**Representative Lemma:** 同意 *tongyi* ‘agree’、稱讚 *chengzan* ‘praise’

**Frame Element:** Evaluator, Evaluee

**Defining Patterns:** Evaluator < \* < Evaluee: 我 同意/稱讚 他。

### 3.3 Layer 2: Primary Frame

Judgment archiframe can be classified into two primary frames based on the way of judgment—Verbal and Non-Verbal (Internal). For Verbal Evaluation, **Saying** is the only way to express one’s attitude. For non-Verbal judgment, i.e. Internal Evaluation, **Thinking** and **Doing** can be the ways for judgment expression. The verbs in Internal Evaluation frame depict one’s inner attitude toward an event or an entity. When we have some kind of opinion in our mind, we keep that opinion in mind instead of speaking out.

**Definition:** Verbs in this frame describe an Evaluator who has an Internal Evaluation toward an Evaluee. Generally, there is a potential Cause in the Internal Evaluation event.

**Representative Lemmas:**

看重 *kanzhong* ‘think highly of’、看輕 *kanqing* ‘look down on’、看扁 *kanbian* ‘look down on’、看好 *kanhao* ‘look on...as good’、重視 *zhongshi* ‘value’、珍視 *zhenshi* ‘highly value’、鄙視 *bishi* ‘despise’、蔑視 *mieshi* ‘scorn’、輕視 *qingshi* ‘belittle’、藐視 *miaoshi* ‘defy’、瞧不起 *qiaobuqi* ‘look down upon’、瞧得起 *qiaodeqi* ‘think much of’、看不起 *kanbuqi* ‘look down upon’、看得起 *kandeqi* ‘have a good opinion of’、否定 *fouding* ‘deny’、否決 *foujue* ‘reject’、信任 *xinren* ‘trust in’、信賴 *xinlai* ‘count on’、尊重 *zunzhong* ‘esteem’、尊敬 *zunjing* ‘respect’、珍惜 *zhenxi* ‘treasure’、愛惜 *aixi* ‘cherish’、認同 *rentong* ‘be identify with’、欣賞 *xinshang* ‘appreciate’、賞識 *shangshi* ‘appreciate’、仰慕 *yangmu* ‘admire’、敬佩 *jingpei* ‘esteem’、欽佩 *qinpei* ‘admire’、同意 *tongyi* ‘agree’、贊成 *zancheng* ‘approve’、贊同 *zantong* ‘endorse’、反對 *fandui* ‘be opposed to’、支持 *zhichi* ‘support’、肯定 *kending* ‘affirm’、相信 *xiangxin* ‘believe’、深信 *shenxin* ‘deeply believe’、確信 *quexin* ‘sure’、確定 *queding* ‘sure’、懷疑 *huaiyi* ‘doubt’、質疑 *zhiyi* ‘suspect’

**Core Frame Elements:** Evaluator, Evaluee, Cause

#### The Defining Patterns of Internal Evaluation Primary Frame

- Evaluator [NP] < \* < Evaluee [NP][VP][CL] (Transitive)  
[他的母親/Evaluator]很信任[他/Evaluee]。
- Evaluee [NP][VP][CL] < Evaluator [NP] < \* (Obj. preposing)  
對於[這個議題的處理/Evaluee]，[黨中央/Evaluator]完全尊重。
- Cause[NP][VP][CL] < 令/讓/使/教 < Evaluator[NP] < \* < Evaluee [NP][VP][CL]  
[你的表現/Cause]也讓[我們/Evaluator]重新認識自己、看重[自己/Evaluee]。

### 3.4 Layer 3: Basic Frame

There are four basic frames—Certainty, Attitude, Self-Permitting, and Preference. Under

Internal Evaluation frame, lemmas in Certainty frame and Attitude frame express the judgment by **Thinking**; in Self-Permitting and Preference, by **Doing**.

### 3.4.1 Certainty Frame

**Definition:** Verbs in this frame describe the Evaluator's epistemic judgment. It concerns an Evaluator's Degree of certainty about the correctness of an Evaluatee\_belief.

**Lemma:** 同意 *tongyi* 'agree'、肯定 *kending* 'affirm'、相信 *xiangxin* 'believe'、深信 *shenxin* 'deeply believe'、確信 *quexin* 'sure'、確定 *queding* 'sure'、懷疑 *huaiyi* 'doubt'、質疑 *zhiyi* 'suspect'

**Frame Elements:** Evaluator, Evaluatee\_belief, Cause

#### Defining Patterns:

- a. Evaluator [NP] < \* < Evaluatee\_belief [CL][NP]  
[我/Evaluator][相信/Certainty][學醫的也有很迷信的/Evaluatee\_belief]，
- b. Evaluatee\_belief [CL][NP] < \* < Evaluator [NP]  
[他說的話/Evaluatee\_belief][我/Evaluator]很[懷疑/Certainty]。
- c. Evaluatee\_belief [CL][NP] < 令/讓/使/教 < Evaluator [NP] < \*  
[你還活著/Evaluatee\_belief]，真令[人/Evaluator]難以[相信/Certainty]！
- d. Cause [NP][VP][CL] < 令/讓/使/教 < Evaluator[NP] < \* < Evaluatee\_belief[CL] / Evaluatee\_belief [CL][NP]  
[劉學強平日行止怪異/Cause]，一度令[警方人員/Evaluator][懷疑/Certainty][他有精神上的疾病/ Evaluatee\_belief]。

### 3.4.2 Attitude Frame

**Definition:** Verbs in this frame describe an Evaluator's affective judgment directly toward an Evaluatee\_person or Evaluatee\_entity. Sometimes, there may be a Reason which leads to an evaluation.

**Lemma:** 看重 *kanzhong* 'think highly of'、看輕 *kanqing* 'look down on'、看扁 *kanbian* 'look down on'、看好 *kanhau* 'look on...as good'、重視 *zhongshi* 'value'、珍視 *zhenshi* 'highly value'、鄙視 *bishi* 'despise'、蔑視 *mieshi* 'scorn'、輕視 *qingshi* 'belittle'、藐視 *miaoshi* 'defy'、瞧不起 *qiaobuqi* 'look down upon'、瞧得起 *qiaodeqi* 'think much of'、看不起 *kanbuqi* 'look down upon'、看得起 *kandeqi* 'have a good opinion of'、否定 *fouding* 'deny'、否決 *foujue* 'reject'、信任 *xinren* 'trust in'、信賴 *xinlai* 'count on'、尊重 *zunzhong* 'esteem'、尊敬 *zunjing* 'respect'、珍惜 *zhenxi* 'treasure'、愛惜 *aixi* 'cherish'、認同 *rentong* 'be identify with'、欣賞 *xinshang* 'appreciate'、賞識 *shangshi* 'appreciate'、仰慕 *yangmu* 'admire'、敬佩 *jingpei* 'esteem'、欽佩 *qinpei* 'admire'，同意 *tongyi* 'agree'、贊成 *zancheng* 'approve'、贊同 *zantong* 'endorse'、反對 *fandui* 'be opposed to'、支持 *zhichi* 'support'

**Frame Elements:** Evaluator, Evaluatee\_person, Evaluatee\_entity, Reason, Cause

#### Defining Patterns:

- a. Evaluator [NP] < \* < Evaluatee\_person/Evaluatee\_entity [NP]  
[他的母親/Evaluator]很[信任/Attitude][他/Evaluatee\_person]。

- [我/Evaluator][同意/Attitude][你的看法/Valuee\_entity]。
- b. Evaluator [NP] < \* < Valuee\_person/Valuee\_entity[NP] < Reason [VP]  
[我/Evaluator][敬佩/Attitude][他/Valuee\_person][態度積極/Reason]。
- c. Valuee\_person/Valuee\_entity [NP] < Evaluator [NP] < \*
- d. Evaluator [NP] < 對 < Valuee\_person/Valuee\_entity [NP] < \*  
[我/Evaluator]對[這幅畫/Valuee\_entity]十分[欣賞/Attitude]，
- e. Valuee\_person/Valuee\_entity [NP] < 令/讓/使/教 < Evaluator [NP] < \*  
[她的表現/Valuee\_entity]也讓[總公司/Evaluator][賞識/Attitude]，
- f. Cause[NP][VP][CL] < 令 / 讓 / 使 / 教 < Evaluator[NP] < \* <  
Valuee\_person/Valuee\_entity [NP]  
[你的表現/Cause]也讓[我們/Evaluator][看重/Attitude][自己/Valuee\_person]。
- g. Valuee\_person/Valuee\_entity[NP] < 被/為/受 (< Evaluator[NP]) < (所) \*  
[這個行業/Valuee\_entity]仍然不很被[看重/Attitude]。

### 3.4.3 Self-Permitting frame

**Definition:** Verbs in this frame describe an Evaluator's deontic intention to an action, which is irrealis and is supposed to be done by the Evaluator himself.

**Lemma:** 同意 *tongyi* 'agree'、贊成 *zancheng* 'approve'、贊同 *zantong* 'endorse'、反對 *fandui* 'be opposed to'、不屑 *buxie* 'distain to do something'、不恥 *bushi* 'be ashamed to do something'

**Frame Elements:** Evaluator, Valuee\_act, Cause

**Defining Patterns:**

- a. Evaluator [NP] < \* < Valuee\_act [VP]  
[我/Evaluator][同意/Self-Permitting][讓步/Valuee\_act]。
- b. Valuee\_act[VP] < Evaluator[NP] < \*  
對於[參加這個會議/Valuee\_act]，[他/Evaluator]並不是非常[贊成/Self-Permitting]。
- c. Cause[NP][VP][CL] < 令/讓/使/教 < Evaluator[NP] < \* < Valuee\_act[VP]  
[這件事情的發生/Cause]讓[我/Evaluator][不恥/Self-Permitting][與你共事/Valuee\_act]。

### 3.4.4 Preference frame

**Definition:** Verbs in this frame describe an Evaluator's deontic preference to an Valuee\_potential situation, which is irrealis. In this basic frame, the Evaluator may have authority to control the realization of Valuee\_potential situation.

**Lemma:** 同意 *tongyi* 'agree'、贊成 *zancheng* 'approve'、贊同 *zantong* 'endorse'、反對 *fandui* 'be opposed to'、支持 *zhichi* 'support'

**Frame Elements:** Evaluator, Valuee\_potential situation, Cause

**Defining Patterns:**

- a. Evaluator < \* < Valuee\_potential situation  
[我/Evaluator][贊成/Preference][銀行越多越好/Valuee\_potential situation]。



- [媽媽/Evaluator][同意/Preference][我出門/Evaluee\_potential situation]。
- b. Evaluee\_potential situation[VP] < Evaluator[NP] < \*  
[華南金控與第一金控合併/Evaluee\_potential situation]，即便[一銀工會/Evaluator]也不  
[反對/Preference];
- c. Cause[NP][VP][CL] < 令/讓/使/教 < Evaluator[NP] < \* < Evaluee\_potential situation  
[我們應以行動/Cause]，讓他們[同意/Preference][我們成為會員/Evaluee\_potential situation]，

### 3.5 Layer 4: Microframe

#### 3.5.1 Microframes under Certainty Frame

The lemmas in Certainty can be differentiated by their strength of epistemic certainty. Strong lemmas (同意 *tongyi* ‘agree’、肯定 *kending* ‘affirm’、確信 *quexin* ‘sure’、確定 *queding* ‘sure’) may be collocate with 已經 *yijing* ‘already’、必然 *biran* ‘must’; Weak lemmas (同意 *tongyi* ‘agree’、相信 *xiangxin* ‘believe’、深信 *shenxin* ‘deeply believe’、懷疑 *huaiyi* ‘doubt’、質疑 *zhiyi* ‘suspect’) collocate with 可能 *maybe* ‘keneng’、或許 *huoxu* ‘perhaps’ more often.

- a. [我/Evaluator][確定/Certainty][中方必然清楚此一立場/Evaluee\_belief]。
- b. [我/Evaluator][懷疑/Certainty][他可能回家了/Evaluee\_belief]。

#### 3.5.2 Microframes under Attitude Frame

In Attitude frame, there are three microframes: Think\_highly\_of-Look\_down\_on frame, Value-Disvalue frame, and Inchoative\_Attitude frame. Collocation, role internal feature, and aspectual marker can be used to differentiate those frames, as shown in Table 10.

Table 1: the Summary of the Three Microframes under Attitude Basic Frame

Microframe	Ba construction	Imperative	Reason	The feature of Evaluee	Aspectual marker Le
Think_highly_of-Look_down_on	✓	✓	✓	most animate	✗
Value-Disvalue	✗	few	More	most animate	✗
Inchoative_Attitude	Rare	✓	✓	most inanimate	✓

#### 3.5.3 Microframes under Preference Frame

- (1) **Strong Preference microframe:** verbs collocating with 立刻 *like* ‘immediately’、馬上 *mashang* ‘right away’ with higher frequency. In addition, it may contain the construction 經(過) < Evaluator < \*. In the corpus, it also can be found to function as “speech act” verb with relatively higher frequency. Therefore, it is more common for the agent in the clause preceded by 同意 *tongyi* ‘agree’ to be second pronoun and the Evaluator to be first pronoun.

**Lemma:** 同意 *tongyi* ‘agree’

- a. Evaluee\_potential situation < 經(過) < Evaluator < \*  
[學生請假/Evaluee\_potential situation]要經過[學校/Evaluator]同意。  
\*學生請假要經過學校 贊成/贊同/反對/支持。

b. Collocation with 立刻 *like* ‘immediately’、馬上 *mashang* ‘right away’

我同意你立刻離開。

c. It is more common for the agent in the clause preceded by 同意 *tongyi* ‘agree’ to be **second pronoun** and the Evaluator to be **first pronoun**.

我們同意你成為公司的一份子。

(2) **Weak Preference microframe:** verbs collocating with suggestive modal such as 應該 *yinggai* ‘should’、最好 *zuihao* ‘had better’ more often.

**Lemmas:** 同意 *tongyi* ‘agree’、贊成 *zancheng* ‘approve’、贊同 *zantong* ‘endorse’、反對 *fandui* ‘be opposed to’、支持 *zhichi* ‘support’

[他/Evaluator][同意/Preference][約翰應該要離開/Valuee\_potential situation]。

### 3.6 Polysemous Words v.s. Multiple Inheritances

Adopted the central idea of the framework of Mandarin VerbNet “one frame, one meaning”, 同意 *tongyi* ‘agree’ is actually a polysemous verb since it can be settled in different frames:

- **Certainty Frame:**[我/Evaluator][同意/Certainty][明天可能會下雨/Valuee\_belief]
- **Attitude Frame:**[我/Evaluator][同意/Attitude][你的看法/Valuee\_entity]
- **Self-Permitting Frame:**[我/Evaluator][同意/Self-Permitting][離開/Valuee\_act]
- **Preference:**[我/Evaluator][同意/Preference][你離開/Valuee\_potential situation]

There are two kinds of multiple inheritances: **balanced cross-categorial phenomenon** and **unbalanced cross-categorial phenomenon**.

**Balanced cross-categorial phenomenon** means that a frame shares all the features in both domains. The best example is Certainty frame, which can be categorized into either Cognition or Judgment because of different perspectives from the observer.

(1) **Certainty frame in Cognition domain (Hu 2007)**

[我/Cognizer]深深[相信/Certainty]，[沒有諒解與寬恕的心，就沒有溫柔敦厚好禮的社會/Content]。

(2) **Certainty frame in Judgment domain**

[我/Evaluator]深深[相信/Certainty]，[沒有諒解與寬恕的心，就沒有溫柔敦厚好禮的社會/Valuee\_belief]。

**Unbalanced cross-categorial phenomenon** means that a frame only shares a partial feature from other domain. Attitude frame can serve as the example of unbalanced cross-categorial phenomenon because it also shares a partial feature from the Exp-Oriented primary frame in **Emotion** domain. We may figure that **Experiencer** in Emotion domain can be tagged as **Evaluator** in Judgment domain, and **Target** can be tagged as **Valuee**. However, in Judgment domain, lemmas seldom collocate with feel verbs such as 覺得 *juede*、感覺 *ganjue*、感到 *gandao*, which can be used to signal the existence of the experiencer.

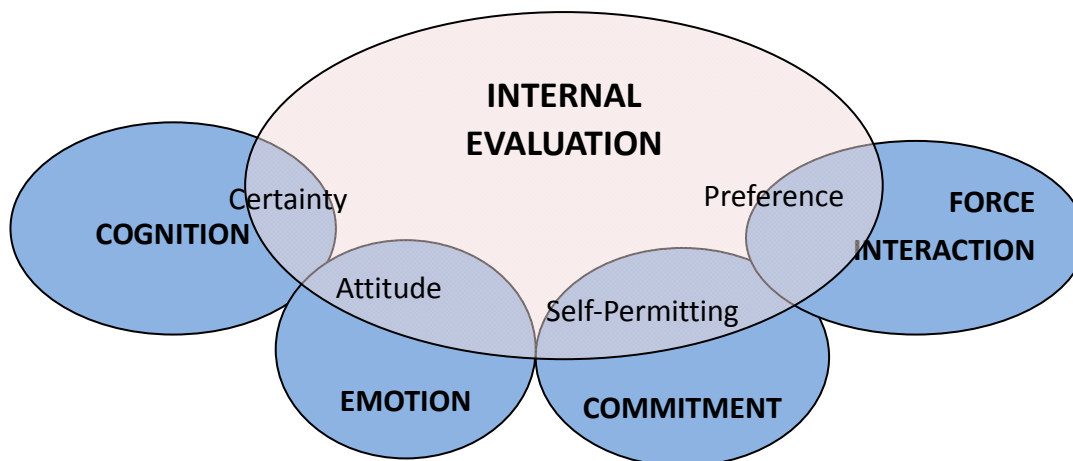
### 3.7 The Potential Cross-Categorial Phenomenon of Internal Evaluation

As for Self-Permitting and Preference frame, there may be potential issues. For example, the semantic of Self-Permitting is close to **Commitment domain** such as *wish* and *want* in

English and 打算 *dasuan* ‘intend’ and 想要 *xiangyao* ‘would like’ in Mandarin; Preference frame shares a partial feature from **Force Interaction domain** (e.g. 允許 *yunxu* ‘allow’ and 准許 *zhunxu* ‘permit’) which we are still in the process.

The following figure shows the intersection between Internal Evaluation and other domains.

**Figure 3: The Intersection between Internal Evaluation and other Domains**



In order to reflect the cross-categorical phenomenon, we did some revision for the name of frame elements:

#### The Tag Revision of the Four Basic Frames

- a. Certainty frame (complete inheritance from Cognition)
  - [我/Evaluator][同意/Certainty][明天可能會下雨/Evaluee\_belief]。
  - ➔ [我/**Cognizer-Evaluator**][同意/Certainty][明天可能會下雨/**Content\_belief**]。
- b. Attitude frame (partial inheritance from Emotion)
  - [我/Evaluator][同意/Attitude][你的看法/Evaluee\_entity]。
  - ➔ [我/Evaluator][同意/Attitude][你的看法/Evaluee\_entity]。(keep the same name)
- c. Self-Permitting frame (partial inheritance from Commitment)
  - [我/Evaluator][同意/Self-Permitting][離開/Evaluee\_act]。
  - ➔ [我/Evaluator][同意/Self-Permitting][離開/**Committed\_act**]。
- d. Preference frame (partial inheritance from Force Interaction)
  - [我/Evaluator][同意/Preference][你離開/Evaluee\_potential situation]。
  - ➔ [我/**Elvauator**][同意/Preference][你離開/**Preferred\_situation**]。

#### 4. Conclusion and Discussion

Adopting the theory of Frame Semantic (Fillmore and Atkins 1992) and Mandarin VerbNet (Liu and Chiang 2008), this study classifies Internal Evaluation verbs into different basic frames and microframes based on the syntactic structures and internal semantic features. A multi-layered hierarchical structure helps us not only have a complete overview about verbs in the same domain but also prove the correlation between the semantic and syntax. Through the complete investigation of the primary frame in Judgment domain, Internal Evaluation frame, the polysemy of 同意 *tongyi* ‘agree’ can be distinguished. In addition, this study can function as a cross-domain case study which is seldom discussed in the field of frame semantics. Through multi-layered hierarchical structure, both polysemy and multiple inheritances of verbs can be revealed.

In fact, Judgment domain by nature is a semantically complicated category. For Internal Evaluation primary frame, each basic frame is cross-categorial. In addition to Internal Evaluation domain, verbs can inherit the feature from other domain such as Cognition, Emotion, Commitment, and Force Interaction. The cross-categorial phenomenon is resulted from different perspectives from the observer instead of the polysemy of the verb.

For Internal Evaluation domain, potential issues needed to be investigated in the future are listed in the following:

- In this study it has been known that 同意 *tongyi* ‘agree’ is a polysemous word and can be settled in different basic frames under Internal Evaluation frame. However, for the four different usage of 同意 *tongyi* ‘agree’, which one is the original meaning? How does the original one extend to other meanings?
- In addition to 同意 *tongyi* ‘agree’, the polysemy can be seen from the lemmas such as 贊成 *zancheng* ‘approve’、贊同 *zantong* ‘endorse’、反對 *fandui* ‘be opposed to’ which can be used in three basic frames under Internal Evaluation: Attitude frame, Self-Permitting frame, and Preference frame. Under Internal Evaluation, is there any relationship among the three basic frames?

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### Website Resources

Academia Sinica Bilingual Ontological WordNet (Sinica BOW):

<http://bow.sinica.edu.tw/>

Academia Sinica Balanced Corpus of Modern Chinese (Sinica Corpus):

<http://www.sinica.edu.tw/SinicaCorpus/>

Chinese WordNet: <http://cwn.ling.sinica.edu.tw/>

FrameNet: <http://framenet.icsi.berkeley.edu/>

Google: <http://www.google.com.tw/>

Mandarin VerbNet: [http://140.113.222.78/verbnet/website/Heirarchy\\_Index.aspx](http://140.113.222.78/verbnet/website/Heirarchy_Index.aspx)

## 國科會補助專題研究計畫成果報告自評表

請就研究內容與原計畫相符程度、達成預期目標情況、研究成果之學術或應用價值（簡要敘述成果所代表之意義、價值、影響或進一步發展之可能性）、是否適合在學術期刊發表或申請專利、主要發現或其他有關價值等，作一綜合評估。

### 1. 請就研究內容與原計畫相符程度、達成預期目標情況作一綜合評估

達成目標

未達成目標（請說明，以 100 字為限）

實驗失敗

因故實驗中斷

其他原因

說明：

### 2. 研究成果在學術期刊發表或申請專利等情形：

論文： 已發表  未發表之文稿  撰寫中  無

專利： 已獲得  申請中  無

技轉： 已技轉  洽談中  無

其他：（以 100 字為限）

### 3. 請依學術成就、技術創新、社會影響等方面，評估研究成果之學術或應用價值（簡要敘述成果所代表之意義、價值、影響或進一步發展之可能性）（以 500 字為限）

本研究採語料庫為本之統計分析完成中文評價動詞之語意區分。本研究不但可擴展並改進現有「中文動詞語義網」、強化其訊息內容及涵蓋範圍，且可發展框架語意理論下的認知轉換及多義性的分析及表徵原則，在中文動詞語意研究上廣立根基、開創新局，對語言學、華語教學及自然語言剖析皆有重大極深遠的影響。

## 國科會補助專題研究計畫項下出席國際學術會議心得報告

日期：99年10月08日

計畫編號	NSC 98-2410-H-009-036		
計畫名稱	中文動詞詞彙訊息網的建構：互動性評價動詞的研究		
出國人員姓名	研究生：賴伊凡	服務機構及職稱	國立交通大學
會議時間	99年05月20日 至 99年05月22日	會議地點	美國 波士頓 哈佛大學
會議名稱	(中文) 國際中國語言學學會第18屆年會暨北美洲漢語語言學第22次會議  (英文) The 18th annual conference of the International Association of Chinese Linguistics (IACL-18) & The 22nd annual conference of the North America Conference on Chinese Linguistics (NACCL-22)		
發表論文題目	(英文) Force Dynamics and Social Interaction Verbs in Mandarin		

## 一、參加會議經過

學生從台灣桃園中正機場搭乘國泰航空公司之航班，經香港於舊金山轉機後，轉搭美國 AA 航空班機到波士頓羅根機場，參加由美國哈佛大學東亞系與語言學系聯合主辦之「國際中國語言學學會第18屆年會暨北美洲漢語語言學第22次會議 (The 18th annual conference of the International Association of Chinese Linguistics (IACL-18) & The 22nd annual conference of the North America Conference on Chinese Linguistics (NACCL-22)」。

國際漢語研究以 IsCLL、NACCL 及 IACL 三大會議最盛大。學生此次出席之會議為 IACL-18 & NACCL-22 聯會，囊括語言學功能/形式、理論/實驗等各次領域之研究討論，又因今年由美國語言學龍頭之一哈佛語言學系承辦，實為漢語語言學界年度盛事。

研討會為期三天，來自全球各地之學者、學生等與會者共兩百多位。大家齊聚一堂，百家爭鳴，進行語言學研究的交流與分享。各場會議發表深入淺出，內容豐富多元，極具水準。此會議共有四場主要講演，受邀之演講者均為享譽國際語言學界之專家學者，會議講演由美國賓州大學語言學系 Anthony Kroch 教授開場，為大家帶來 “Change and Stability in Diachronic Syntax” (歷時句法之動靜態研究)。首日末場由音韻大家林燕慧教授 (Professor Yen-Hwei Lin) 的 “Unexpected morphological outputs” 做結，第二天研討會以香港科技大學人文社會科學學院丁邦新教授 (Professor Pang-Hsin Ting) 的 “漢語方言中的歷史層次” 為大會提供歷史語言學的分析面向。最後，三天會議中的最高潮莫屬美國哈佛大學李豔惠教授 (Professor Y. H. Audrey Li) 帶來的精彩演說，講題為 “Deletion, phrase structures and constraints”。除了精采絕倫的主題講演外，會議中另有青年學者獎競賽發表，總計共有超過 200 篇研究成果發表。



分組研討會採七個平行場次同時進行，主題豐富多元且分組細密。各場次由一位主持人負責主持，並由四～六位發表人輪流發表論文，每位發表人有十七分鐘展演，八分鐘開放提問。各場聽眾皆踴躍發問及討論，氣氛熱絡。學生就自身興趣及個人研究領域相關的題目至各會場聆聽發表，其中包含漢語句法與外力 (on the cleft construction in Mandarin Chinese 等)、詞彙語意學 (詞彙、語法和認知的表達等)、句式語意介面 (動結式中動作 V1 和結果 V2 隱現的句法條件等)、詞彙與詞源學 (漢語句子的疑和問等)等各主題。從發表者的分享與與會者的提問討論之中學生獲益良多。

會議結束後於費城、紐約停留數日，拜訪旅居當地留學、研究的老師們等研究前輩及友人，後搭乘國泰航空班機直飛香港，再轉機返回台灣。

## 二、與會心得

此次學生的論文藉由這次發表獲益良多，發表是在會議第三天早上進行的，因內容豐富，報告時間為二十分鐘，包含七分鐘綜合討論時間。與會者提出了一些研究內容上的細節，並提供了許多寶貴的建議和給予肯定，主要歸納為兩點：1) 就所觀察到的力學模型，除了漢語和英語外，是否也能應用至世界其他之語言，例如日文、閩客等方言等？學生相信力學抗衡具備語言普遍性，在各語言中均為重要，但可能使用不同的語言符號或句法形式標記。針對此部份我們仍以觀察漢語為主，但需隨時注意其他語言的表現與其比較。2) 對於本次研究報告中例句 “我幫他結婚/選上總統”，與會者希望能有其他更多例句佐證中文的動詞 “幫” 囊跨 “協助” 與 “為誰施做” 之語意。學生認為，我們採用中研院平衡語料庫之語料研究，可再使用 Chinese word sketch 和 google search 搜尋例子，以為說明輔助並增加說服力。然而，與會者多方回饋和建議幫助我們釐清了研究中不足的部分，同時省視自己未注意到的盲點。

總的來說，此次會議橫跨語言學各領域，議題豐富多元，並促進與會者之交流、令與會者得到許多學術上之啟發。此外，哈佛豐富的學術人文環境及波士頓、費城、紐約等各歷史人文景觀確實開拓了學生的視野和心境，燃起學生對多元文化及語言研究之熱情。

## 三、考察參觀活動(無是項活動者略)

## 四、建議

學生十分感謝國家科學委員會補助出席國際學術研討會。因為貴單位的支持與協助，學生才得以參與此次國際語言學的大型會議盛宴，稍稍減輕過重的經濟負擔。因為這個機會，學生認識了語言學界的各方學者與同好友人，互相交換學術意見與研究交流。另外出席國際會議也協助學生增長見聞，拓展視野，見習西方學術研討之熱烈氣氛，並進行跨文化溝通。這次出席國際會議的經驗，確實讓學生多方受益，也在各方面成長許多。學生滿心感謝，並希望院上能夠繼續提供並增加這類的經費補助，對於有志於做學問的研究生而言，貴會之幫助除了能鼓勵研究發展，更能協助年輕學者一圓研究發表之夢！

## 五、攜回資料名稱及內容

## 六、其他

## **Force Dynamics and Social Interaction Verbs in Mandarin**

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### **Abstract**

This paper explores the issues of force dynamics discussed in Talmy (2000) by investigating the social interaction verbs (SIVs) in Mandarin. The ways physical entities interact with each other in terms of force relations provide the conceptual bases for various causative relations. According to Talmy, force dynamics as a semantic category exhibits a directed force relation between two force-exerting entities. In the force interaction, “one force-exerting entity is singled out for focal attention, and the second force entity, correlatively, is considered for the effect that it has on the first, effectively overcoming it or not (Talmy 2000: 413). Several major force schemas were distinguished. Social interaction verbs in Mandarin, however, display a categorical complexity distinct from that of English in terms of force trajectory projections.

This study aims to investigate the possible range of force intentional trajectories distinguished and lexicalized in Mandarin as well as the constructional variations associated with each distinct lexicalization patterns.

Under the assumption that verb meanings are anchored in semantic frames with lexically-profiled specificities (Fillmore and Atkins 1992, Goldberg 2005), Mandarin SIVs are analyzed and re-constructed with a frame-based taxonomy, following the classificational scheme established in Liu and Chiang (2008) with an extendable hierarchy of semantic scopes: Archiframe > Primary frame > Basic frame > Microframe > Near-synonyms. It is proposed that the correlations of semantic properties and syntactic behaviors characteristic of Mandarin SIVs are triggered and modeled upon a number of extensional patterns of force interactions. By offering a cognitive semantic account, the study ultimately draws implications on the cognitive-linguistic correspondences pertaining to the domain of force relations for both language-specific and cross-linguistic generalizations.

**Keywords: Social Interaction Verbs, Force Dynamics, Frame Semantics**

### **1. Introduction**

Many works on force dynamics (FD) manifestation on verbs propose that the ways physical entities interact with each other in terms of force relations provide the conceptual bases for various causative relations that may be lexicalized in a language (Talmy 1988, 2000; Chiang 2003). As distinct force relations in different semantic domains are exemplified in English (Talmy 1988, 2000; Wolff *et al.* 2002), German (Wolff *et al.* 2005), French (Achard 2001) and the like, the studies of force relations in Mandarin focus more on the physical, psychological, and intrapsychological causation (Lai and Chiang 2003; Chiang 2003; Chang 2007); whereas verbs in social interaction domain are often left unspecified.

According to Talmy (2000), force dynamics as a semantic category exhibits a direct and unilateral

force relation in which an Antagonist is viewed as the opposite party exerting an effect on an Agonist. He further suggested that force-dynamics patterns incorporated in lexical items can bring many of them together into systematic relationships.

In light of Talmy's theory, this study proposes the following three research questions. First, do those schematized force-dynamic patterns proposed by Talmy (2000) exist in Mandarin as well? In what way and to what extent are they lexicalized in Mandarin? Next, while applying the FD schemas to Mandarin, why is it difficult to decide the balance of strengths in the Chinese corresponding schemas? If the balance of strengths is not lexicalized nor indirectly implied in Mandarin verbs, how does Mandarin exhibit the relative strengths between the two force exerting entities? Finally, if FD, as Talmy suggested, is a unique semantic category and is capable of being extended to interpersonal domain, are there other possible social interactive relations left for further research? The three topics are of great importance because they not only provide evidences from Mandarin causative verbs in social interaction domain but also refine the force-dynamic schemas into a more complete mechanism by investigating Mandarin social interaction verbs (SIVs) in detail.

The purpose of this study is to explore the possible force relations distinguished and lexicalized in Mandarin as well as the constructional variations associated with each distinct lexicalization pattern. Under the assumption that verb meanings are anchored in semantic frames with lexically-profiled specificities (Fillmore and Atkins 1992, Goldberg 2005), Mandarin SIVs are analyzed and re-constructed with a frame-based taxonomy, following the classificational scheme established in Liu and Chiang (2008) with an extendable hierarchy of semantic scopes: Archiframe > Primary frame > Basic frame > Microframe > Near-synonyms. By offering a cognitive semantic account, this study presents a unified, frame-based, and corpus-based<sup>1</sup> classification to the study of SIVs in Mandarin and ultimately provides evidences to define force dynamics as a natural and unique semantic category in a cross-linguistic level.

The paper is sequenced in the following way. The first section illustrates the background information. The next section is the review of the literature. The third section exhibits the Chinese corresponding schemas and proposes a comparison between English and Mandarin. The fourth section exhibits the unique force patterns in Mandarin SIVs, and they're also the findings that motivate this research. The fifth section proposes a frame-based analysis of social interaction verbs in Mandarin based on the findings. Finally, the last section concludes the paper and proposes theoretical implications for further research.

## 2. Theatrical Frameworks

Talmy (2000) brings force dynamics to the attention of linguistic study by proposing that force

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<sup>1</sup> The present analysis is mainly based on the corpus data from Academia Sinica Balanced Corpus of Modern Mandarin Chinese simplified as Sinica Corpus. It hosts more than five million words of both written and spoken contemporary Mandarin and is developed by the CKIP group in Academia Sinica, Taiwan. The second database is Chinese Word Sketch. It provides amplified data in contribution to the tendency and the distribution of syntactic behavior of each lemma. Thirdly, the daily-updated database 'Google Search' was used to verify collocational observations.

In the present analysis, frequency and the distributional tendencies were taken as the important evidences. Verbs with high-frequency were chosen as the representative lemmas to start with in each sub-frames. The corpus data were used primarily for examining the basic syntactic patterns as well as collocational associations.

dynamics is a fundamental category that helps language to structure conceptual materials and organize meanings. It is a unique semantic category that describes how entities interact with respect to force. To schematize every possible force patterns, Talmy (2000: 414) uses a diagramming system to represent the basic elements involved as shown in diagram (1) below:

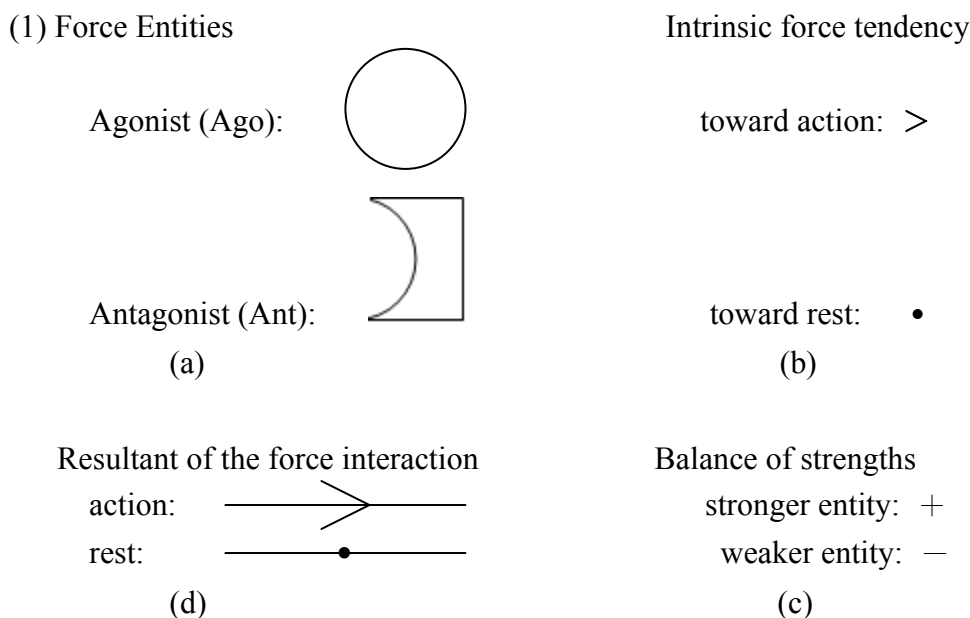


Diagram (1): the basic elements of force dynamic relations

As shown in (1a), the Agonist (Ago) is indicated by a circle and the Antagonist (Ant) by a concave figure. The intrinsic tendency of Agonist as seen in (1b) is either toward motion (represented by an arrowhead) or toward rest (represented by a black dot). It will be placed within the Agonist's circle. (1c) indicates the balance of strengths between Ant and the Ago. During force interaction, the stronger entity gets a plus. Last, the result of the force interaction as seen in (1d) is a line underneath the Agonist. It is either an action indicated by an arrowhead or an inaction indicated by a black dot.

In Talmy's theory, there are two basic patterns of force interactions, namely ONSET pattern and EXTENDED pattern. By expending these patterns with the examination of causative verbs in English, Talmy (2000) develops several FD schemas, which depict 'causing' and 'letting' into finer primitives as shown in diagram (2)<sup>2</sup> below:

<sup>2</sup> This diagram is quoted and re-numbered from diagram (10) in Talmy (2000). Please refer to Talmy (2000: 424) for the original diagram.

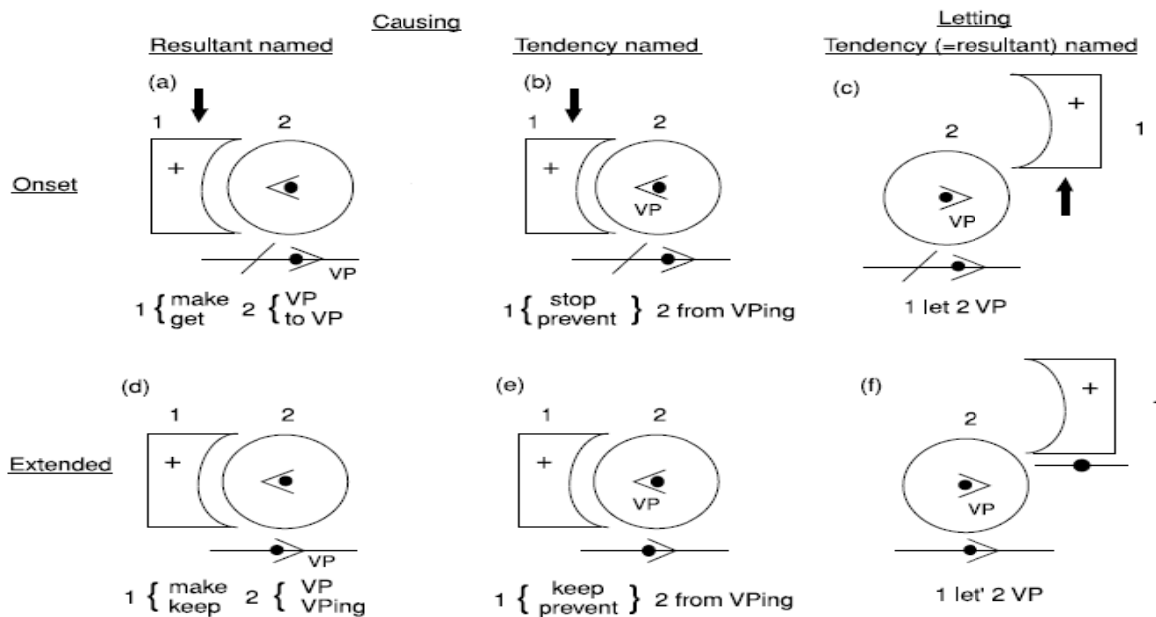


Diagram (2): the causing and letting patterns with a stronger Antagonist

In diagram (2), (2a,b,c) are examples of ONSET pattern. The Antagonist either comes into position against the Agonist as in (2a,b) or removes the obstacle and is disengaging from blocking Agonist’s tendency as in (2c). (2d,e,f), on the other hand, are EXTENDED patterns. The Agonist with intrinsic tendency is either affected by the opposing force exerting by the Antagonist as in (2d,e) or not affected by the disengaged Antagonist as in (2f). Moreover, since the Antagonist is stronger than the Agonist in (2), the Antagonist’s coming into impingement forces the Agonist to perform an action (or inaction) against the intrinsic tendency. This is the conceptual schema of causative verbs. In contrast, when the stronger Antagonist is disengaging or has been disengaged from blocking the Agonist’s way, the Agonist can perform an action (or inaction) according to the intrinsic tendency, and this is the conceptual schema of verbs of letting.

Apart from the relations of ‘causing’ and ‘letting,’ Talmy (2000) further claims that force dynamics is a generalization over causation, which not only divides “causing” into finer primitives but also includes concepts like “letting,” “hindering,” and “helping” schematized as shown in diagram (3)<sup>3</sup> below:

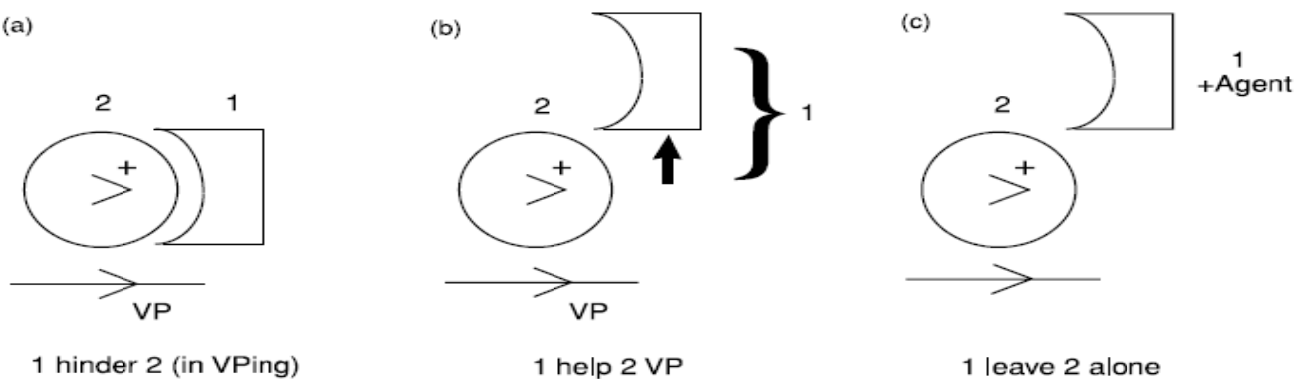


Diagram (3): FD patterns with a weaker Antagonist

<sup>3</sup> This diagram is quoted from diagram (14) in Talmy (2000: 426).

(3a,b,c) are representative schemas for force interactions with a weaker Antagonist because they are lexicalized force patterns in English.<sup>4</sup> The Antagonist is engaged in (3a), disengaging in (3b) or remaining disengaged in (3c). They represent the conceptual schema of “hinder,” “help” and “leave alone” in English respectively.

The generalization over causation and the nine major corresponding FD schemas<sup>5</sup> (6 in diagram (2) and 3 in diagram (3)) presented above arouse several interesting issues. If FD is a fundamental category that represents cognitive operation in terms of force interactions, FD as a semantic concept should be cross-linguistic and universal. All FD patterns should be natural and possible force relations across languages but may be lexicalized and syntactically realized with different close-class forms in different languages.

Take the English “causing” relation for example. It is schematized by Talmy (2000) with four distinct FD patterns as shown previously in diagram (2) and now rearranged in diagram (4)<sup>6</sup> below:

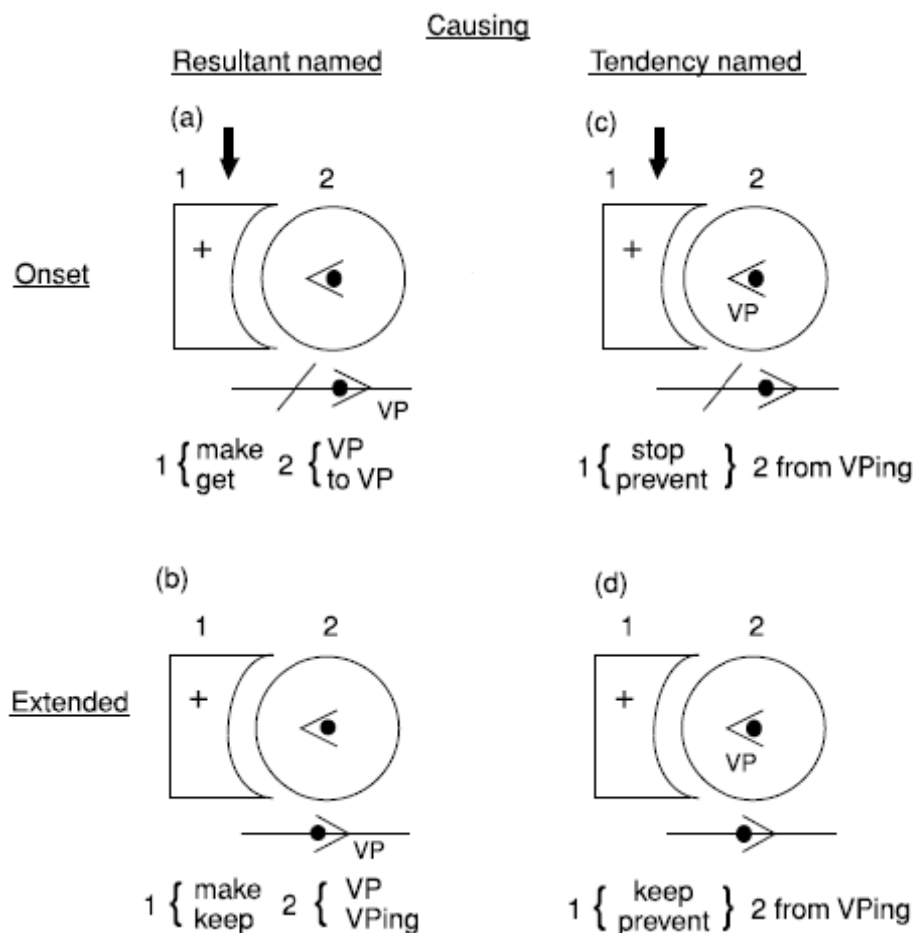


Diagram (4): the FD patterns of “causing” in English

<sup>4</sup> Talmy (2000: 425) suggested that there are a set of eight patterns with weaker Antagonist in terms of force patterns, but these patterns seem to play a less important role than the set with a stronger Antagonist. Moreover, most of them are “nevertheless well presented” in English. Only three FD patterns as shown in (3) are lexicalized in English.

<sup>5</sup> In Talmy’s work (2000), there are ten FD patterns (six of them with a stronger Antagonist as shown in (2) and four of them with a weaker Antagonist as partially shown in (3) ) presented and discussed as evidences of generalization over causation in English. However, certain patterns among them especially those with a weaker Antagonist are not lexicalized nor well presented in English, only nine FD patterns are focused and exemplified by Talmy. Please refer to Talmy (2000) p.424, and p.426 for original diagrams.

<sup>6</sup> This diagram is drawn and re-numbered based on Talmy’s diagram (10), which brings together all the causing and letting patterns he has discussed. Please refer to Talmy (2000:424) for original diagrams.

In diagram (4), all the Antagonists are syntactically realized as the subject marked by ‘1’ and semantically are stronger in the competition of the balance of strengths, thus, marked by a ‘+.’ Moreover, diagram (2a) and (2b) are the causing relations with a result-named VP as in sentence (1) and (2)<sup>7</sup> below; whereas diagram (2c) and (2d) are the causing relations with a tendency-named VP as in the following sentence (3) and (4)<sup>8</sup>:

- (1) The added soap **got** the crust **to come off**. (resultant\_named VP: toward motion)
- (2) The fan **kept** the air **moving**. (resultant\_named VP: toward motion)
- (3) The added soap **stopped** the crust **from sticking**. (tendency\_named VP: toward motion)
- (4) The fan **kept** the air **from standing still**. (tendency\_named VP: toward motion)

The causing relation in Mandarin, however, displays a seemingly blurry boundary in terms of lexicalizing the onset and the extended patterns. Take the result-named causing relation for example. Both Mandarin and English have the onset FD pattern representing strong causative relation in which the Antagonist is the stronger force in the interaction. Diagram (5) below is used as a comparison.

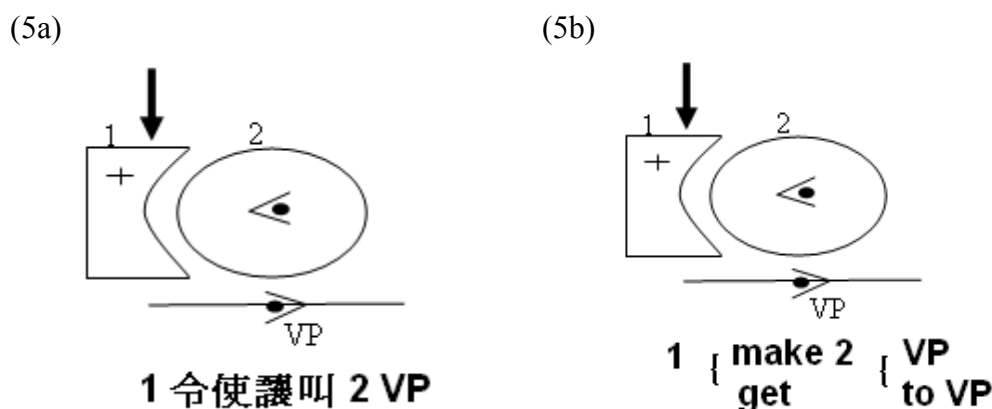


Diagram (5): onset causing FD patterns

On the other hand, while English lexicalizes the force-dynamic verb *keep* representing the extended causation, Mandarin seemingly lacks the lexicalization of this force relation. The extended causation in Mandarin is expressed by adding the adverb *yìzhí/jìxù/búduàn* 一直/繼續/不斷 ‘continuously’ before the complement VP. Diagram (6) and example (5) to (6) are used as a comparison:

<sup>7</sup> These sentences are quoted from Talmy (2000:424).

<sup>8</sup> These sentences are quoted from Talmy (2000:424).

(6a)

(6b)

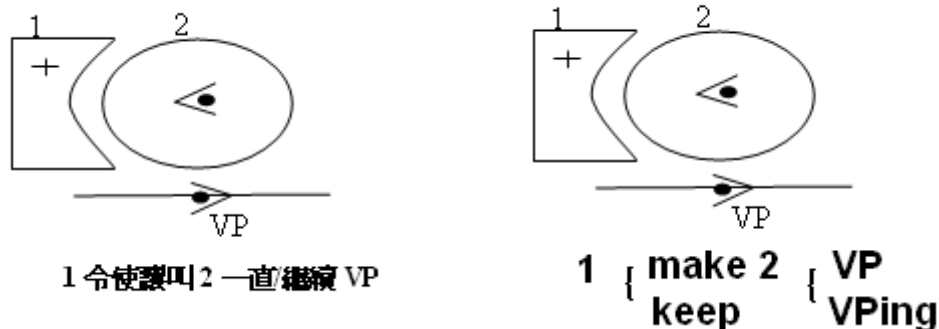


Diagram (6): extended causing FD patterns

- (5) 我 令/使/讓/叫                      她 為 我 工作。  
 wǒ lìng/shǐ/ràng/jiào              tā wèi wǒ gōngzuò  
 I LING/SHI/RANG/JIAO she for me work  
 ‘I caused her to work for me.’ / ‘I made her work for me.’ (diagram 5a)
- (6) 我 令/使/讓/叫                      她 一直/繼續/不斷 為 我 工作。  
 wǒ lìng/shǐ/ràng/jiào              tā yìzhí/jìxù/búduàn wèi wǒ gōngzuò  
 I LING/SHI/RANG/JIAO she continuously for me work  
 ‘I caused her to work for me constantly.’ / ‘I made her work for me constantly.’ (diagram 6a)

From the examples above, we found that both Mandarin and English require FD patterns to signal onset and extended strong causative relations, but they differ in lexicalization and syntactic realization they perform. This brings us a crucial question. If Mandarin and English share the FD patterns we discussed above but only differ in the way they lexicalize these patterns, is it true for other FD patterns as well? Is it possible to find FD patterns that are exclusively for Mandarin not for English?

To tackle these issues, the present study tries to apply schematized FD patterns proposed by Talmy (2000) to Mandarin causation in social interaction domain and examines the possible force relations in Mandarin SIVs.

### 3. A Comparison: The Corresponding FD schemas in Mandarin

In this section, we apply the force relations and the schematized FD patterns proposed by Talmy (2000) to Mandarin causation in social interaction domain with further investigation on Mandarin SIVs in this section. 3.1 illustrates the FD applications of Mandarin causation in social interaction domain and proposes a comparison between FD patterns in English and those in Mandarin. 3.2 elaborates the FD patterns of Mandarin SIVs with the example of verbs of helping.

#### 3.1 The FD Patterns of Causation in Mandarin Social Interaction Domain

According to Talmy (2000), there are nine major FD patterns lexicalized in English causation as shown previously in diagram (2) and (3). While applying these FD patterns to Mandarin, two interesting



observations are found. Firstly, Mandarin does not have particular lexicons for the pattern of extended strong causation as shown previously in section 2. It is expressed by the onset causative verbs *lìng/shǐ/ràng/jiào* with an adverb *yìzhí/jìxù/búduàn* 一直/繼續/不斷 ‘continuously’ adding before the complement VP. It seems that Mandarin often lexicalizes the onset and the extended FD patterns with the same lexicon. Take verbs of letting *ràng* 讓 for example. Mandarin lexicalizes both the onset and the extended letting with the same lexicon *ràng* in the construction *NP ràng NP VP*.

(7) 我讓你走。

*wǒ ràng nǐ zǒu*

I RANG you go

‘I (as a disengaging force) let you go from now.’ (onset letting)

‘I (stayed out of the impingement) and let you go.’ (extended letting)

Example (7) above as well as the strong causation mentioned in section 2 demonstrate that there seems to be a blurry boundary in terms of lexicalizing the onset and extended FD patterns in Mandarin.

Secondly, unlike English in which the balance of strengths between the Antagonist and the Agonist is clearly lexicalized and unambiguously encoded in the verbs, Mandarin seems to leave it unspecified from the lexical meaning of the verbs. Take *zǔzhǐ* 阻止 ‘stop~from’ for example. It allows both the strong Antagonist and the weak Antagonist readings without specifying the result of the interaction. Example (8) is used as an illustration.

(8) 我 阻止 他 去 美國。

*wǒ zǔzhǐ tā qù měiguó*

I ZUZHI he go to America

a. ‘I (as a stronger force) stop him from going to America.’

b. ‘I (as a weaker force) try to stop him from going to America.’

In (8a), the Antagonist *wǒ* ‘I’ exerts a stronger force to the Agonist *tā* ‘him’ to stop him from going to America. Even though the Antagonist is a stronger force, whether the Agonist successfully departs or not is not clear in this sentence. The Antagonist in (8b), on the contrary, is a weaker force in terms of stopping relation. Even though the Agonist has a stronger force which makes his tendency of going to America more possible, the result of this interaction is still not encoded in the meaning of the lexical verb *zǔzhǐ*. Therefore, prevention verb *zǔzhǐ* is used to lexicalize two FD patterns in Mandarin as shown in diagram (7) below:

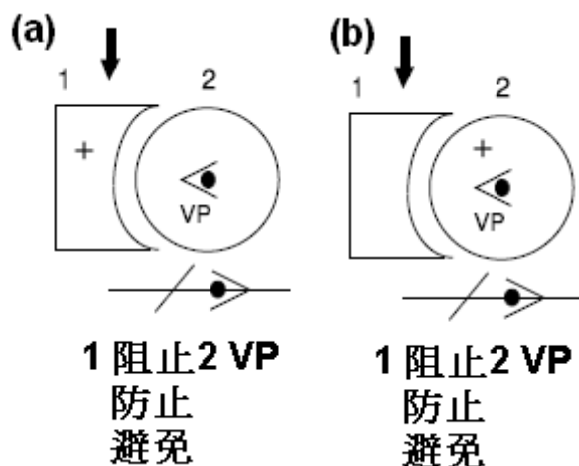


Diagram (7): the FD patterns of stopping verbs *zǔzhǐ*, *fángzhǐ*, and *bìmiǎn*

In sum, Mandarin not only has a blurry boundary in terms of lexicalizing the onset and the extended patterns but also leaves the balance of strengths unspecified in the force interaction marked by the verbs. If ‘causing’ and ‘letting’ relations are schematized in English with 6 FD patterns as shown in diagram (2a) to (2f), the corresponding schemas for Mandarin will increase to 12 because each FD pattern in English with a stronger Antagonist has a twin schema with a weaker Antagonist in Mandarin except for the strong causative ones as shown in (2a) and (2d). It is worth noticing that both languages do not lexicalize the force patterns with a weaker Antagonist in strong causation. The reason is based on the nature of force interaction in terms of causation. In unmarked situations, the Causer (Ant) has to be stronger to force the Causee (Ago) in performing an action or inaction in strong causation. Therefore, a strong causation with a weaker Ant is rare and thus marked.

Diagram (8) below is used as an overall illustration. (8a) to (8f) are the FD schemas in diagram (2) but lexicalized with Mandarin corresponding verbs. (8g) to (8j) are new FD patterns with a weaker Antagonist:

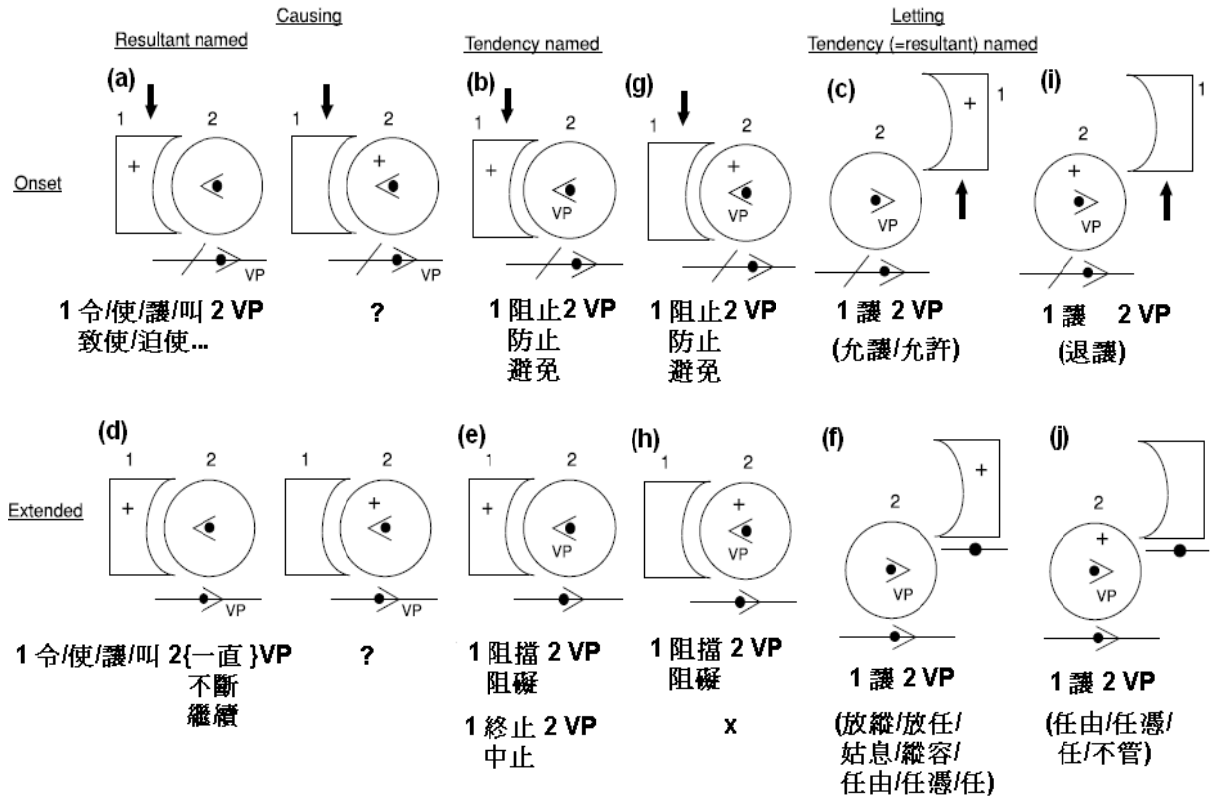


Diagram (8): the possible FD schemas in Mandarin

Compared with the English schemas in diagram (2), Mandarin lexicalizes more force-dynamic patterns than English does. Take verbs of letting for example. Both the onset “letting” (2c) and the extended “letting” (2f) are lexicalized in English with one verb *let* in the construction *NP(Ant) let NP(Ago) VP*. The Antagonist in both force patterns are designated to be the stronger force. The Mandarin counterpart *ràng* 讓, however, displays at least five interpretations<sup>9</sup> illustrated in (9) to (11), which match with five force-dynamic patterns as in diagrams (8a), (8c), (8i), (8f), and (8j) respectively:

(9) 我 讓 他 簽 合 同 了。 (Strong Causative)

Wǒ ràng tā qiān hétóng LE

I RANG him sign contract PERF

‘I caused him to sign the contract.’ / ‘I made him sign the contract.’

(10) 我 讓 你 先 走。

Wǒ ràng nǐ xiānzǒu

I RANG you first go

a. ‘I (actively) let you go first.’ (Permissive)

b. ‘I (gave way and) let you go first.’ (To yield)

<sup>9</sup> The lexical item RANG has the passive reading illustrated as in

我 讓 他 罵 了 一 頓。

Wǒ ràng tā màle yī dùn

I RANG he scold-PERF NUM-CL

‘I was scolded by him.’

Since the passive meaning of RANG is not the concern of the present study, we will not discuss it for now.

(Passive)

(11) 我 讓 你 予取予求。

Wǒ ràng nǐ yúqǔyúqiú

I RANG you ask for freely

a. 'I (over-tolerated and) let you take whatever you want.'

(To indulge, To let sb. have his own way)

b. 'I (had nothing to do but) let you take whatever you want.'

(To leave sb. alone)

The stronger Antagonist in sentences (9, 10a, 11a) exerts stronger forces to the weaker Agonist as shown in diagram (8a, 8c, 8f), which encode a successful manipulation as the result of the interaction (his signing the contract in (9), your leaving first in (10a), and your freedom of taking whatever you want in (11a)); whereas the weaker Antagonist in (10b, 11b) exerts weaker forces to the stronger Agonist as seen in (8i, 8j) in which the successful manipulation is not guaranteed as a result. In other words, while verbs of letting in English lexicalize the balance of strengths and the result of the event, Mandarin counterparts only lexicalize the force interaction between Ant and Ago. The lexical item *ràng* 讓 is used to represent five different force-dynamic patterns in which the Antagonist can be strong or weak and the result of the interaction can be successful or unsuccessful.

In addition, Causing patterns with tendency named VP display the similar complexity as that in *ràng* 讓. While English using the force-dynamic verb *stop* and *keep* in conjunction with *from* in a construction indicating “onset prevention” and “extended prevention” with successful manipulation shown in diagram (2b) and (2e), Mandarin SIVs incorporate the PP (*from*~) into the meaning of the onset prevention verb *zǔzhǐ* 阻止 and the extended prevention verb *zǔdǎng* 阻擋 without guaranteeing the result of the interaction.<sup>10</sup> It is because both verbs allow strong Ant and weak Ant readings and the strengths competition is not lexicalized nor encoded in the meaning of the verbs as demonstrated in (12) and (13):

(12) 我 阻止 他 去 美國。

wǒ zǔzhǐ tā qù měiguó

I ZUZHI he go to America

a. 'I (as a stronger force) stop him from going to America.'

(diagram 8b)

b. 'I (as a weaker force) try to stop him from going to America.'

(diagram 8g)

(13) 我 阻擋 他 去 美國。

wǒ zǔdǎng tā qù měiguó

I ZUDANG he go to America

a. 'I (as a stronger force) keep him from going to America.'

(diagram 8e)

b. 'I (as a weaker force) hinder him in his going to America.'

(diagram 8h)

<sup>10</sup> Note that the extended prevention can be lexicalized with the prevention verb *zǔzhǐ* 阻止 by adding the adverb *jìxù/búduàn* 繼續/不斷 'continuously' before the complement VP as well:  
美、日等國 阻止 北韓 繼續/不斷 發展 核子 武器。  
*měi rì děng guó zhǔzhǐ běihán jìxù/búduàn fāzhǎn hézǐ wǔqì*  
America Japan etc country ZHUZHI North Korea continuously develop nuclear weapon  
'Countries such as America and Japan keep North Korea from developing nuclear weapon.'

Given the finding that most Mandarin SIVs such as *zǔzhǐ* and *zǔdǎng* do not guarantee a clear result of the force interaction<sup>11</sup>, we are now in a position to figure out what complements the resulting part of the event. It is found that Mandarin depends highly upon collocations such as aspectual markers, auxiliaries, complement VPs, and even the collocational NPs. If we compare example (12) and (14) below, the balance of strengths and the result of the interaction in (14) is seemingly easier to decide:

(12) 我 阻止 他 去 美國。

wǒ zǔzhǐ tā qù měiguó

I ZUZHI he go to America

a. 'I (as a stronger force) stop him from going to America.' (diagram 8b)

b. 'I (as a weaker force) try to stop him from going to America.' (diagram 8g)

(14) 我 要 說話。元帥 伸了 手 阻止 我。

Wǒ yào shuōhuà yuánshuài shēn-LE shǒu zhǔzhǐ wǒ

I want talk the general reach out-PERF hand ZHUZHI I

'I wanted to talk, but the general had his hand extended and stopped me from talking.'

In (14), the Antagonist *yuánshuài* is a general with a stronger force, which makes the stopping event more possible. The post-verbal perfective aspectual marker *le* indicates the completion of the action *shēnshǒu* 'extend one's hand or reach out one's hand,' which reinforces the result of the stopping interaction to be accomplished. That is to say, with the help of the collocational NPs and the aspectual marker *le*, it gets easier to distinguish the result of the force interaction in (14) than that in (12).

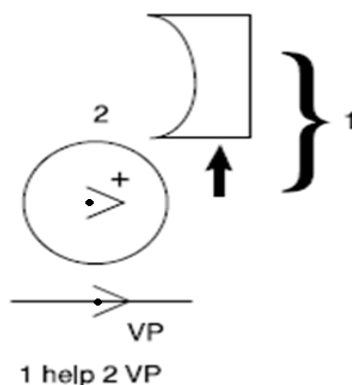
To conclude this section, two observations are found during the FD applications: First, while English lexicalizes both the onset and the extended strong causations schematized as in diagram (2a,b), Mandarin only lexicalizes onset causation and expresses the extended causing relation by adding the adverb *yìzhí/jìxù/búduàn* 一直/繼續/不斷 'continuously' as the indication of extended causation. Secondly, while English causation verbs lexicalize and encode the balance of strengths between the Ant and the Ago as well as the result of the interaction, Mandarin causation verbs open two possibilities to the force competition between the Ant and the Ago (either one can be stronger than the other) because in most of the case they do not lexicalize the result of the competition<sup>12</sup>. The polysemy of *ràng* 讓 and that of prevention verbs such as *zǔzhǐ* 阻止, *zǔdǎng* 阻擋 indicate that it is common to use one lexical item to represent more than one force-dynamic patterns without specifying the relative strengths between the Ant and the Ago nor marking the result of the force interaction. To distinguish the polysemy of the lexicon and differentiate the force-dynamic patterns, Mandarin depends highly upon collocations such as aspectual markers, auxiliaries, complement VPs, and even the collocational NPs.

<sup>11</sup> The verb *zhōngzhǐ* 中止 'to cease in the middle' and *zhōngzhǐ* 終止 'to terminate' are of exceptions. A successful manipulation is encoded in the meaning of the verbs. They will be further discussed shortly.

<sup>12</sup> The strong causative verbs *lìng* 令 and *shǐ* 使, and the terminating verbs *zhōngzhǐ* 中止 'to cease in the middle' and *zhōngzhǐ* 終止 'to terminate' are the verbs encoding a stronger Antagonist as well as a successful manipulation as the result of the event. They are rare and of exceptions.

### 3.2 The Elaboration on Mandarin SIVs: The FD Patterns of Verbs of Helping

With the examination of Mandarin causation verbs in social interaction domain, it is found that the Antagonist in Talmy's FD patterns is viewed as the opposite party exerting an effect on the Agonist. Along this pattern, The FD schema of English verb *help* is illustrated with two examples by Talmy (2000) as in diagram (9) below:



*Smoothing the earth helped the logs roll down the slope.*  
*Removing the benches helped the marchers cross the plaza.*

Diagram (9): the FD schema of 'help' in English

The force interaction encoded here is the Antagonist impinging against the Agonist where the former is weaker. With the Antagonist as subject, the sentences above show the pattern with the Antagonist disengaging from the event. That is, the concept of *1 help 2 VP* in English is incorporated into the movement which the Antagonist leaving impingement so that the Agonist can move toward the action. Semantically, the Antagonist helps the Agonist by removing a potential obstacle.

The similar concept of *help* can be lexicalized into different but synonymous lexical items in Mandarin, say, verbs of helping, such as *bāng* 幫, *bāngmáng* 幫忙, *bāngzhù* 幫助, and *xiézhù* 協助. Thus, the following sentence exhibits the same force interaction as mentioned above.

(15) 延緩血糖上升可以 幫/幫忙/幫助/協助 糖尿病患控制血糖。

*Yánhuǎn xiětáng shàngshēng kěyǐ bāng/bāngmáng/bāngzhù/xiézhù tángniàobìngguàn kòngzhì xiětáng.*

delay blood sugar rise can BĀNG/BĀNGMÁNG/BĀNGZHÙ/XIÉZHÙ diabetic control blood sugar  
 'Delaying the rising degree of blood sugar helps a diabetic control his blood sugar.'

Nevertheless, the Antagonist is not necessarily to be impinging against the Agonist. As a matter of fact, in most cases, the social interaction as a force-dynamic form that Mandarin verbs of helping display is an Antagonist exerts a force on an Agonist toward a particular action. More specifically, the force direction exerted by the Antagonist is the same as the Agonist's intrinsic force tendency, as shown in diagram (10). Its force pattern depicts an interaction that the Agonist has an intrinsic force tendency to do a certain action and the Antagonist exerts an additional force on the Agonist toward that action, hence forming the concept of *help* in Mandarin. Such examples are illustrated as the following.

(16) 多次複習可以 幫/幫忙/幫助/協助 學生記憶一些困難及不容易理解的課題。

*Duōcì fùxí kěyǐ bāng/bāngmáng/bāngzhù/xiézhù xuéshēng jìyì yìxiē kùnnán jí bùróngyì lǐjiě de kèti.*  
 many times review can BĀNG/BĀNGMÁNG/BĀNGZHÙ/XIÉZHÙ students memorize some  
 difficult and not easy comprehend DE issues  
 ‘Reviewing many times helps students memorize some difficult and incomprehensible issues.’

(17) 這場雨幫助那些樹苗復生。

*Zhè-chǎng yǔ bāngzhù nàxiē shùmiáo fùshēng.*  
 This-CL rain BĀNGZHÙ those saplings revive  
 ‘This rain helped those saplings revive.’

The force-dynamic interpretation of verbs of helping is thus that the Agonist has an intrinsic force tendency toward a certain action, and the Antagonist exerts a supportive force which has the same direction with the Agonist’s on the Agonist. In other words, the Agonist plays the primary role to execute the action, and the Antagonist acts as a supportive role to assist the Agonist. The force of the Antagonist is weaker than that of the Agonist, but the action is done by them both, illustrated as (10b). The semantic role of Antagonist is a Co-actor with less effort and that of Agonist is a Co-actor with more effort. Semantically, (10b) implies the Antagonist helps the Agonist in the sense of assisting the Agonist.

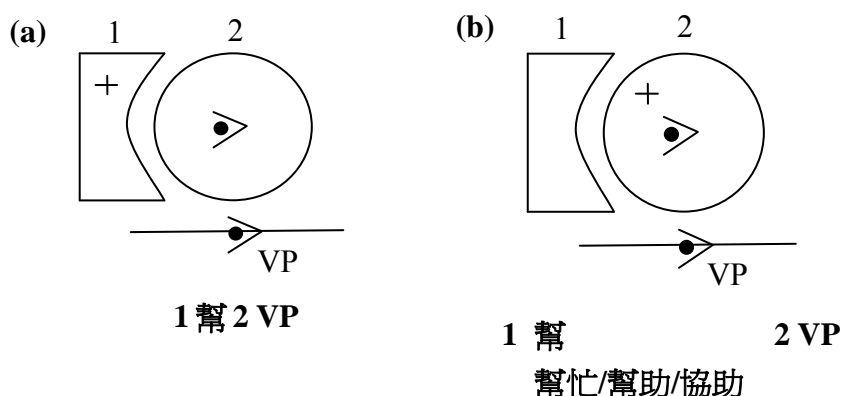


Diagram (10): the FD schema of ‘verbs of helping’ in Mandarin-1

Yet, among the verbs of helping in Mandarin, *bāng* is indeed a unique one. It may lead ambiguous readings as the following example.

(18) 我到廚房幫媽媽做一點事。

*Wǒ dào chúfáng bāng māma zuò yìdiǎn shì.*  
 I to kitchen BĀNG mother do a little thing  
 a. ‘I went to kitchen to help mother do something.’  
 b. ‘I went to kitchen to do something for mother.’

The interpretation of (18a) implies that the action is done by both the Antagonist *I* and the Agonist *mother*, whereas the interpretation of (18b) implies that the action is done entirely by the Antagonist *I*

alone. That is, in addition to lexicalizing the same meaning as *bāngmáng/bāngzhù/xiézhù* do, *bāng* may also saturate the meaning that the Antagonist itself did the action for the Agonist. The Antagonist may take charge of the whole action regardless of the Agonist. It further implies that the force of Antagonist is stronger than that of Agonist, shown in diagram (10a). The semantic role of Antagonist is more like an Agent, and that of Agonist is more like a Beneficiary. Semantically, (10a) implies the Antagonist helps the Agonist in the sense of doing the Agonist a favor. This semantic difference draws a line that separates *bāng* from other verbs of helping in Mandarin.

In some cases, *bāng* may even only get the interpretation that the Antagonist itself did the action for the Agonist, illustrated as below.

(19) 不久胡適的朋友幫他繳了罰款，把他保出來。

*Bù jiǔ Húshì de péngyǒu bāng tā jiǎo-le fákuǎn, bǎ tā bǎo chūlái.*

not long Hushi DE friend BĀNG he pay-ASP fine, BA he guarantee out

“Soon Hushi’s friend paid the fine for him and served as a guarantor for him.”

(20) \*這場雨幫那些樹苗復生。

*\*Zhè-chǎng yǔ bāng nàxiē shùmiáo fùshēng.*

This-CL rain BĀNG those saplings revive

‘\*The rain revived for those saplings.’

On one hand, in (19), the interpretation of the person who paid the fine must be Hushi’s friend rather than Hushi himself. On the other hand, (20) is unacceptable since we can never get the interpretation that the rain revived for those saplings. The action of reviving must be executed by the Agonist itself because this action obligatorily requires the Agonist’s self-engagement.

In the sense of doing a favor, the verb *bāng* may shift the role as an Agent from the Agonist to the Antagonist, i.e., the actor is transferred from the Agonist to the Antagonist, and the action is transferred from object-control to subject-control. However, this interpretation is in conflict with some certain actions with obligatory self-requirement (e.g., *kū* 哭, *shēngqì* 生氣, *jiéhūn* 結婚). Consequently, the interpretation of *bāng* is limited in such cases.

In addition to the cases of verbs of helping mentioned above, there is another possible schema dealt with the Antagonist remaining out of the impingement. The Agonist still has a tendency toward a particular action, and the Antagonist holds a force which has the same direction as the Agonist’s. However, compared with the schema of *bāng*, *bāngmáng*, *bāngzhù*, and *xiézhù*, the Antagonist here is steadily disengaged from the impingement. Such concept may be lexicalized as *zhīchí* 支持 in Mandarin, illustrated in the following examples.

(21) 輿論支持這項判決。

*Yúlùn zhīchí zhè-xiàng pànjué.*

public opinion ZHĪCHÍ this-CL judgment

‘Public opinions support this judgment.’



## (22) 亞洲的國際奧會委員支持北京主辦奧運。

*Yǎzhōu DE guójì àohuì wěiyuán zhīchí běijīng zhǔbàn àoyùn.*

Asian International Olympic Committee committee member ZHĪCHÍ Beijing host the Olympic Games

‘Asian committee members of the International Olympic Committee support Beijing to host the Olympic Games.’

The force interaction within *zhīchí* can be characterized in terms of nonimpingement: there exists an Antagonist with force but it remains out of the impingement. If the Antagonist were involved in the impingement, it would become the force interaction of *bāng*, *bāngmáng*, *bāngzhù*, and *xiézhù*.

These examples above also show that the Antagonist may be either stronger or weaker than the Agonist. Hence, the force patterns that *zhīchí* correspond to may be either with a stronger Antagonist or with a weaker Antagonist, shown in diagram (11a,b). Namely, the concept whether the Antagonist is stronger or weaker is not lexicalized in the verb *zhīchí*. Yet semantically, (11a) implies the Antagonist supports the Agonist by active agreement and (11b) implies the Antagonist supports the Agonist by passive permission.

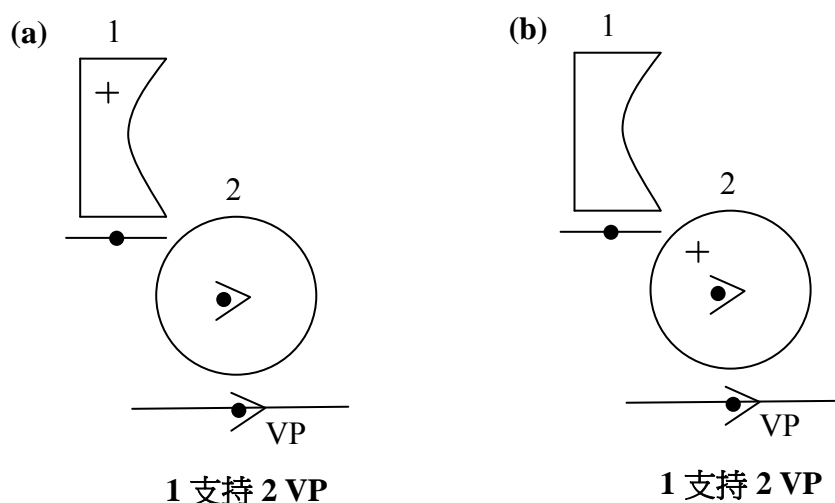


Diagram (11): the FD schema of ‘verbs of helping’ in Mandarin-2

With the distinction in hand, we may conclude that there are two main schemas for verbs of helping in Mandarin, and each has two subtypes in terms of strength difference between the Antagonist and the Agonist, thus forming four schemas in total.

In the cases of *bāng*, *bāngmáng*, *bāngzhù*, and *xiézhù*, both schemas represent a force interaction that the Antagonist exerts an additional force on to the Agonist toward a particular action, and the additional force direction is the same as the Agonist’s intrinsic force tendency. One schema is impingement with stronger Antagonist, lexicalized as *bāng*. The other is impingement with weaker Antagonist, lexicalized as *bāng*, *bāngmáng*, *bāngzhù*, and *xiézhù*.

In the case of *zhīchí*, both schemas represent a force interaction that the Agonist has a tendency toward a certain motion and the Antagonist holds a force which has the same direction as the Agonist’s. But the Antagonist remains out of the impingement. Both schemas are lexicalized as *zhīchí*. The only

difference is that one with stronger Antagonist, and the other with weaker Antagonist.

#### 4. Further Applications: The Reciprocal or Collateral Interaction Verbs in Mandarin

Apart from the interactions in which one force-exerting entity is focused as illustrated in Section 3, there are some Mandarin SIVs encoding a reciprocal or collateral force interaction in which the Agonist and Antagonist exert reciprocal forces to each other for a common goal. Both force-exerting parties obtain the focal attention, i.e., no focal difference is made. Two of the representative Mandarin SIVs that encode this concept are *hézuò* 合作 and *jìngzhēng* 競爭, illustrated in the following examples.

(23) 台灣企業界 和/跟/與 學術界互相合作。

*Táiwān qìyèjiè hàn/gēn/yǔ xuéshùjiè hùxiāng hézuò.*

Taiwan industry and academy mutually HÉZUÒ

‘The industry circles and academy circles in Taiwan cooperate with each other.’

(24) 他們一定會合作。

*Tāmēn yídìng huì hézuò.*

they certainly will HÉZUÒ

‘They certainly will cooperate with each other.’

(25) 我們可憑品質跟售價 和/跟/與 他們競爭。

*Wǒmēn kě píng pǐnzhì gēn shòujià hàn/gēn/yǔ tānmēn jìngzhēng.*

we can by quality and price with they JÌNGZHÈNG

‘We can compete with them by our quality and price.’

(26) 許多企業在全球化的市場中競爭。

*Xǔduō qìyè zài quánqiúhuà DE shìchǎng zhōng jìngzhēng.*

many enterprise in global market JÌNGZHÈNG

‘Many enterprises compete in the global market.’

The Agonist and Antagonist from (23) to (26) exert reciprocal forces to each other for achieving a common goal. Moreover, the reciprocal forces in these interactions are collateral rather than unilaterally focused.

The entities involved in collateral force relation may be two or more. Each entity is a Co-actor of this action. On one hand, in the case of *hézuò* subtype, Co-actor 1 and Co-actor 2, both having an intrinsic force tendency toward the same goal, form a coordinating party and move toward the action together. The force interaction between Co-actors is attractive. On the other hand, the *jìngzhēng* subtype encodes the repulsive force interaction between Co-actors. Although Co-actor 1 and Co-actor 2 also have an intrinsic force tendency toward the same goal, they exclude each other and only one of the Co-actors will have the chance to reach the goal in the long run. The force interactions depicted here are illustrated as diagram (12).

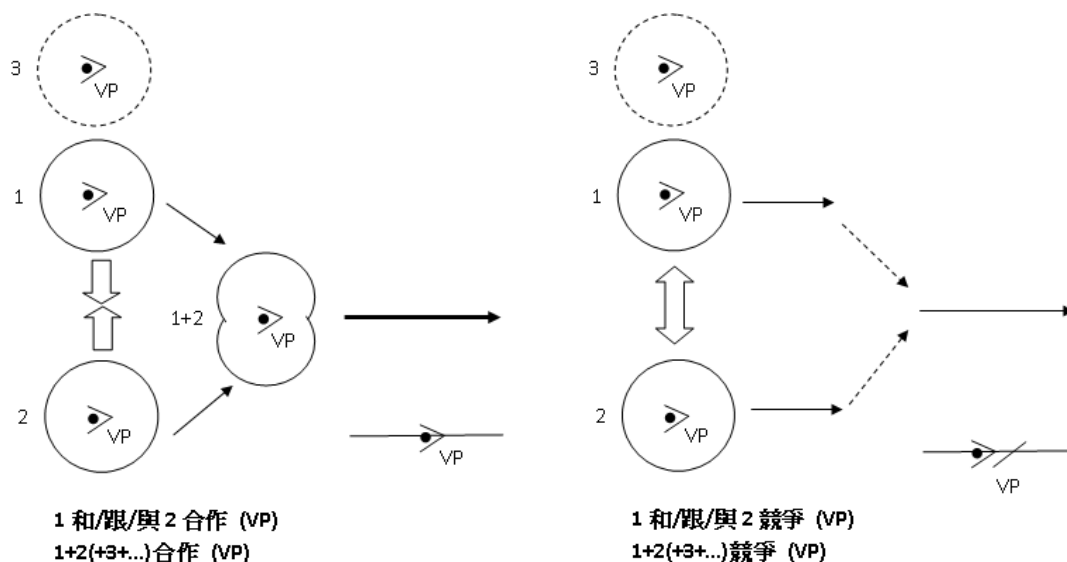


Diagram (12): the FD schema of collateral interactions in Mandarin

The collateral force interaction between Co-actors may be either attractive or repulsive. Here, the concept which *hézuò* and *jìngzhēng* encode further suggests the existence of a common goal. Nonetheless, there may be other SIVs that encode the same collateral force interaction but lack of a common goal. We'll leave this part for further investigation.

## 5. Frame-based Analysis of Verbs in the Social Interaction Frame

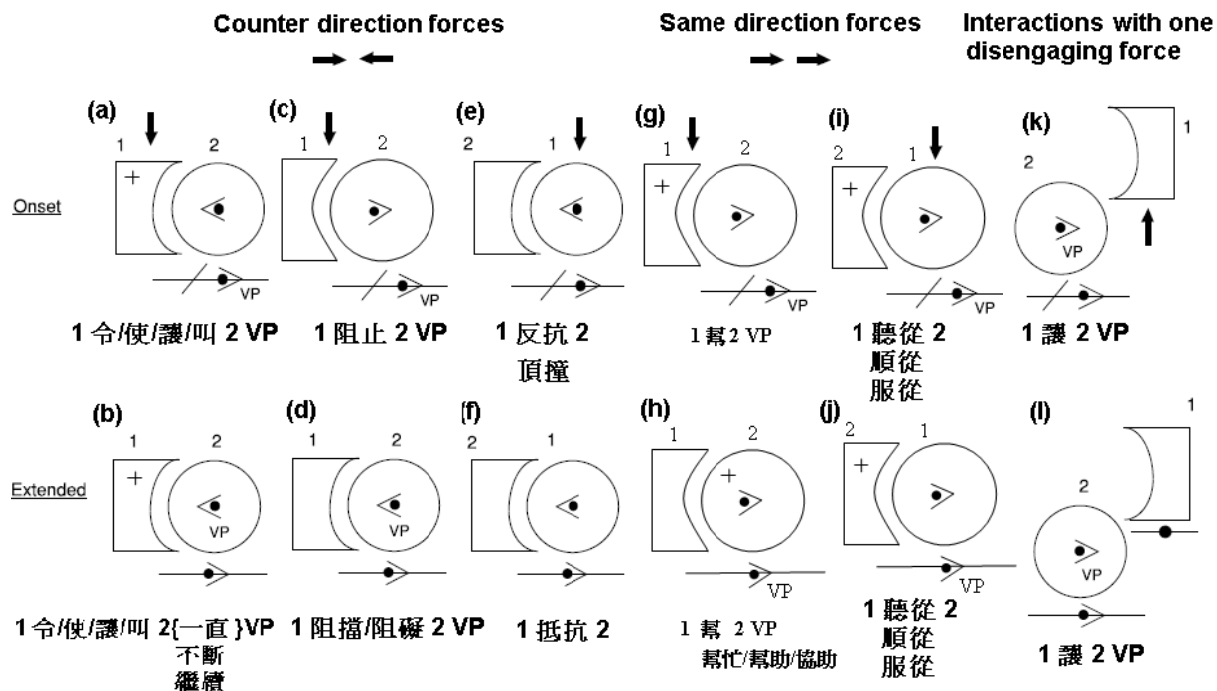
This section aims to present a preliminary frame-based analysis of Mandarin Social Interaction Verbs (SIVs) based on different force relations they represent. By examining the correlation between the semantic concept FORCE DYNAMICS and the syntactic manifestation on the Mandarin SIVs, the frame-based classification not only helps to distinguish different force relations over social interactions in Mandarin but also provides salient evidences to support that force dynamics is a natural and unique semantic category in a cross-linguistic level. 5.1 illustrates the conceptual schema and verbal Framework of Mandarin SIVs. 5.2 presents frame elements and defining patterns in terms of verbal classification. 5.3 profiles the taxonomy of the frames, and 5.4 provides an overview of the frames.

### 5.1 Conceptual Schema and Verbal Framework

From the previous investigations in section 3 and 4, Mandarin SIVs (including causation verbs in social interaction domains) exhibit distinctive force relations and FD patterns that may differentiate them into fine-grained classes or frames. It is found that Mandarin SIVs display two fundamental force relations: Unilateral force and Collateral force. Table (1) below can be used as illustration.

**a. Direct and Unilateral Force Relation**

Conceptual Schema:



Examples:

- (27). [他/Antagonist][阻止/阻擋/杯葛/讓/Unilateral\_social\_interaction][我/Agonist][投資這項企劃案/Tendency\_Ago]。
- (28) [他/Agonist][反抗/抵抗/Unilateral\_social\_interaction][父母的命令/Eventive\_Ant]。
- (29) [他/Antagonist][幫/Unilateral\_social\_interaction][我/Agonist][投資這項企劃案/Target act]。
- (30) [他/Antagonist][幫/幫助/協助/支持/Unilateral\_social\_interaction][我/Agonist][投資這項企劃案/Target act]。
- (31). [他/Agonist][聽從/順從/Unilateral\_social\_interaction][醫師的建議/Eventive\_Ant]。
- (32). [他/Antagonist][令/使/逼/讓/叫/Unilateral\_social\_interaction][我/Agonist][投資這項企劃案/Tendency\_Ant]。

Lemma:

阻止、阻礙、阻擋、制止、終止、中止、抵制、抵擋、杯葛、  
 幫、幫忙、幫助、援助、扶助、助...一臂之力、協助、輔助、  
 支援、配合、參與、支持、維持、保持、支撐、贊助、資助、資援、逼、逼迫、迫使、逼使、使、  
 令、併購、併吞、收購、合併、讓、叫、抗拒、反抗、對抗、頑抗、衝撞(體制)、排擠、干涉、  
 抵抗、頂撞、遵從、服從、順從、順服

<b>b. Reciprocal and Collateral Force Relation</b>	
<p>Conceptual Schema:</p>	
<p>Examples:</p> <p>(33). [他/Co-actor_1]跟[我/Co-actor_2][合作/競爭/Collateral_social_interaction][ (這項企劃案)/Target] °</p> <p>(34). [他們/Co-actors]進行[合作/競爭/Colateral_social_interaction] °</p>	
<p>Lemma:</p> <p>合夥、合作、結盟、聯合、配合、同謀、共謀、協力、搭檔、勾結、串通、同心協力、團結、互助、協作、連結、聯結、結合、合力、勾搭、勾串、同甘共苦、同心合力、同舟共濟、競爭、競賽、較量、比賽、對抗、一較長短、較量、角力</p>	

Table (1): the possible force relations and conceptual schemas of Mandarin SIVs

In table (1a), the force dynamic relation is direct and unilateral: the Agonist is the salient entity in the interaction and the Antagonist is either an assisting or resisting (or simply disengaging) force. A subtle distinction exists between (29) and (30): the verb *bāng* 幫 ‘help’ in table (1a) may profile an act of the Antagonist in either taking charge or merely providing assistance to the Agonist while the verb *xiézhù* 協助 ‘assist’ in (30) only allows the latter option. The force relation in table (1b), on the other hand, is co-exerting and collateral. The Agonist and Antagonist as Co-actors in (33) and (34) exert reciprocal forces to each other for a similar goal. The two distinct force relations shown as in table (1a) and (1b) divide Mandarin SIVs into two primary frames, which profile different frame elements and display distinct syntactic behaviors. The next section will display the differences.

### 5.2 Frame Elements and Defining Patterns

As discussed in section 5.1, Mandarin SIVs can be divided into two primary frames depending on the force relation being unilateral or collateral. Apart from the conceptual force distinctions, this division is supported by the syntactic behaviors they present as defining patterns and the frame elements they profile. Table (2) is used as illustration:

<b>Direct and Unilateral Force Relation</b>	
Definition	The verbs in this frame describe a direct and Unilateral_social_interaction in which an Agonist exerts an intentional force by virtue of having a tendency to manifest the Target Act. An Antagonist based on his or her internal judgment opposes an interactive force in response to the force of the Agonist.
Frame Elements	Agonist, Antagonist, Unilateral_social_interaction, Target Act
Defining Patterns	DP1: Antagonist > * > Agonist Ex. 他幫助我。 DP2: Antagonist > * > Agonist > Target act [VP] Ex. 他幫助我找工作。 DP3: Antagonist > * > Target act [VP] Ex. 各研究所的組織規程也配合修改補充，幫助建立了若干制度。 DP4: Agonist > * > Antagonist Ex. 兒子反抗父母 (的命令)。 DP5: Agonist > * > Antagonist, Target act [VP] Ex. 病人聽從醫生的指示，耐心的接受治療。
<b>Reciprocal and Collateral Force Interaction</b>	
Definition	The verbs in this frame describe a co-exerting and Collateral_social_interaction in which interacting Co-actors (Co-actor 1 and Co-actor 2) either collaborate or compete with each other toward achieving the same Target Act as a goal.
Frame Elements	Co-actor1, Co-actor 2, Co-actors, Collateral_social_interaction, Target Act
Defining Patterns	DP1: Co-actors > * Ex. 我跟他合作/競爭。 DP2: Co-actors > * > Target act [VP] Ex. 他們合作開公司。 DP3: Co-actors > * > Target act+nom [NP] Ex. 我跟他合作這個企劃案。 DP4: Co-actors > 進行/從事 > * Ex. 他們進行合作。 Ex. 國內廠商可在適當範圍內與之進行合作。

Table (2): the frame elements and defining patterns of the primary frames in Mandarin SIVs

As shown in table (2), SIVs with unilateral force relation select one force-exerting entity (either the Ant or the Ago) as focal attention; whereas SIVs with collateral force relation focus on both force-exerting entities as Co-actors. They differ in collocational restrictions as well. For example, only the collateral force relation verbs may take the light verb *jìnxíng* 進行 ‘proceed’ and the associative marker *gēn* 跟 ‘with’, signaling a co-active process.

In this section, we structure the primary classification of Mandarin SIVs based on the correlation

between the semantic concept FD and the syntactic behaviors that signal different force relations. Adopting from Liu and Chiang (2008), we further divide and distinguish Mandarin SIVs in primary frames into basic frames with the distinctions presented via different force directions as in the following section.

### 5.3 Taxonomy of the Frames

As shown previously in section 3, the generalization over causation in Mandarin exhibits several FD patterns that signal three types of force interactions, namely interactions between same directional forces, interactions between opposite forces, and interactions with one disengaging (or disengaged) force. Moreover, these force interactions can be separated into onset force interactions and extended force interactions. The collateral force interaction in section 4, on the other hand, exhibits two types of force interactions, namely interactions that combine the forces exerted by the Co-actors, and the interactions as a competition in between the Co-actors. All the force interactions mentioned above are conceptually illustrated in diagram (13). Notice that the balance of strengths are unspecified here for the fact that most of the Mandarin SIVs allow both strong Ant and weak Ant readings:

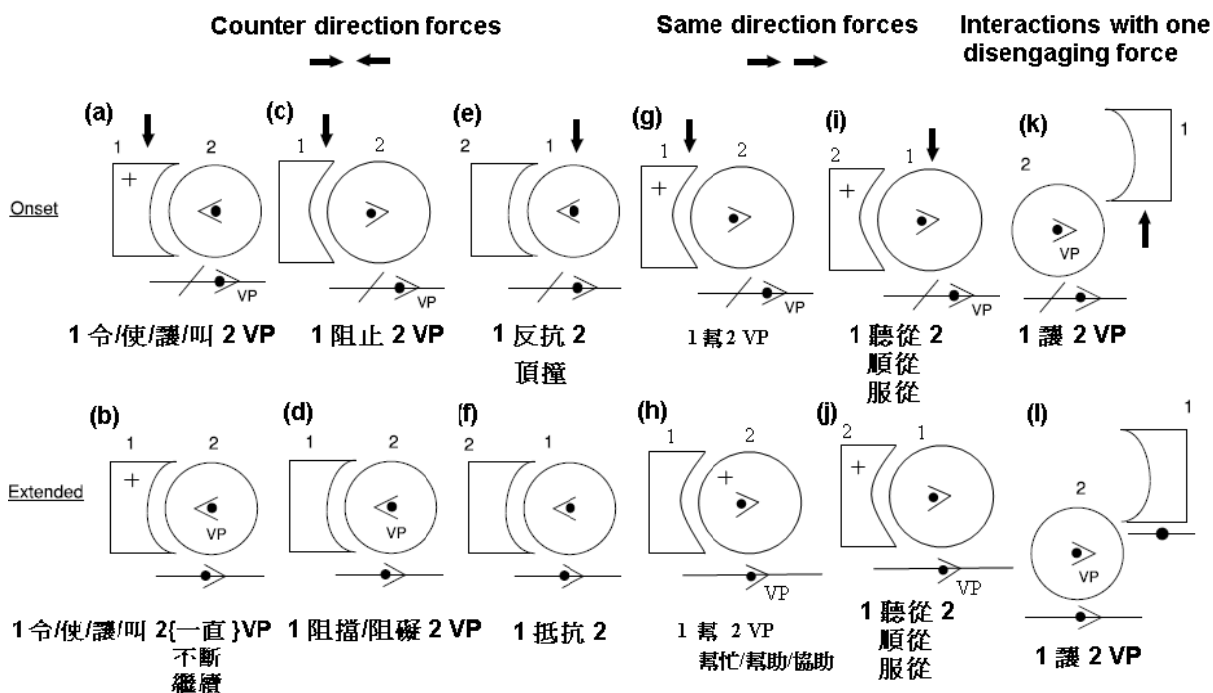


Diagram (13): the possible force interactions encoded in the basic frames

In diagram (13a, 13b, 13c, 13d, 13g, 13h, 13k, and 13l), the Antagonist is signaled out for focal attention appearing as subject marked by “1” whereas the Agonist as direct object marked by “2” in the construction *I SIV 2 VP*. The Antagonist in (13e, 13f, 13i, and 13j) however, is appearing as direct object and the Agonist as the focused subject in the construction *I SIV 2* without taking a complement VP. The following examples illustrate the unique syntactic behaviors of Mandarin SIVs with the FD schemas (13e, 13f, 13i, and 13j):

(25) 上次我阻止他打賺錢的主意，

Shàngcì wǒ zǔzhǐ tā dǎ zhuànrqián DE zhǔyì.

Last time I stop him think earn money

‘Last time I stopped him from thinking about making a big fortune.’

(26) \*上次我反抗他打賺錢的主意，

Shàngcì wǒ fǎnkàng tā dǎ zhuànrqián DE zhǔyì.

Last time I fight against him think earn money

‘\*Last time I fought against him at thinking about making a big fortune.’

(27) 我們應該團結起來，抵抗外國的入侵。

Wǒmen yīnggāi tuánjié qǐlái dǐkàng wàiguó DE rùqīn.

We should unite together resist foreign DE invasion

‘We should consolidate to resist the invasion from the foreigners.’

(28) 患了心臟病的人應該聽從醫生的指示，耐心的接受治療。

Huàn-le xīnzàngbìng de rén yīnggāi tīngcóng yīshēng DE zhǐshì, nàixīn DE jiēshòu zhìliáo.

Suffering heart-attack DE people should listen to doctor’s indication patiently accept treatment

‘Those who suffering in heart-attack should follow the instruction of the doctor and take the treatment patiently.’

In (26) to (28), the SIVs *fǎnkàng* 反抗, *dǐkàng* 抵抗, and *tīngcóng* 聽從 do not take a complement VP. Moreover, there is a pragmatic presupposition that the Antagonist in (27) and (28) executed a force to the Agonist prior to this event, say the invasion of the foreigner as in (27) and the doctor’s indication as in (28). This unique syntactic behavior of SIVs such as *fǎnkàng* 反抗, *dǐkàng* 抵抗, and *tīngcóng* 聽從 separates them from other SIVs.

#### 5.4 Overview of the Frames

From the semantic-syntactic correlation exhibited by Mandarin SIVs as discussed above, a frame-based taxonomy is proposed to distinguish as well as to unify verbs of social interaction. The hierarchical frame structure of Mandarin SIVs includes one SIV archiframe, two force relations *unilateral* and *collateral* as two primary frames, and three directions of force interaction namely *same directional force interaction*, *counter directional force interaction*, and *interaction with a disengaging force* as three basic frames. Diagram (14) shows the hierarchical overview of the frames:



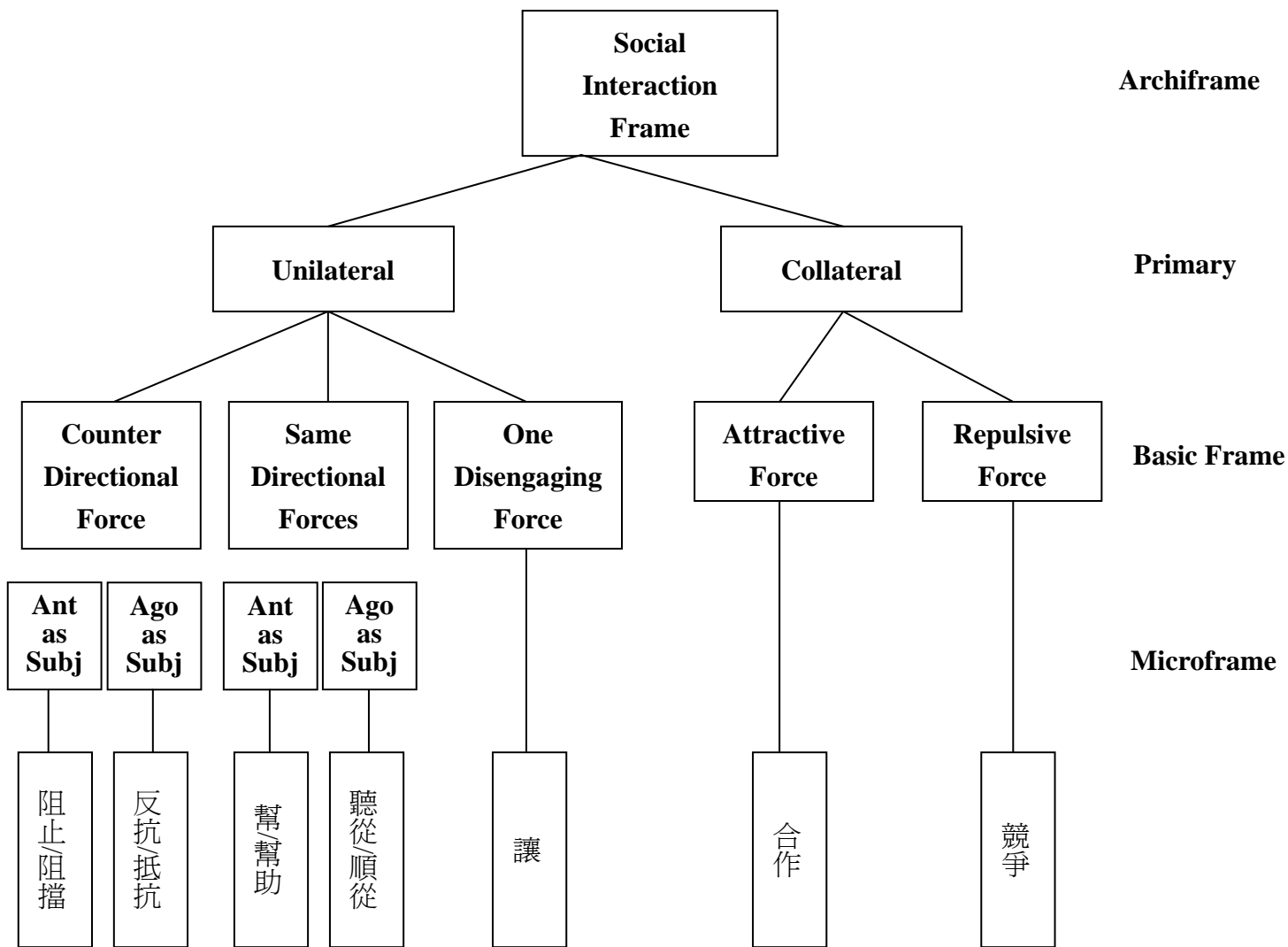


Diagram (14): the hierarchical overview of Social Interaction Frame

In this section, distinct types and directions of force relations are found to provide the conceptual bases for the verbal classification of Mandarin SIVs from Archiframe to Basic Frames. Even though the possible range of force intentional trajectories distinguished and lexicalized in Mandarin are presented in this study, more constructional variations associated with each distinct lexicalization patterns are needed in order to depict and construct Micro Frames with representative Near-synonyms.

## 6. Conclusion

Based on Talmy’s (2000) force dynamics, this paper explores the force relations and patterns of social interaction verbs (SIVs) in Mandarin. That is, we examine how entities interact with respect to force and how this concept is encoded in Mandarin SIVs.

First, by comparing Talmy’s FD schemas in English with our observations in Mandarin SIVs, several notable differences are distinguished. Although all Mandarin SIVs require at least two (or more) entities get involved in the event, there are two distinctive force relations: unilateral and collateral. When a focal attention is singled out, the Antagonist or the Agonist, the force relation is unilateral.

When no focal divergence is made, i.e., equal status of the Antagonist and the Agonist, the force relation is collateral (e.g., 合作, 競爭). Furthermore, the unilateral force relation can be divided into three force patterns: forces of Ant and Ago from opposite directions (e.g., 阻止, 阻擋), forces of Ant and Ago from the same direction (e.g., 幫, 幫助), or Ant disengaging/remaining out of impingement (e.g. 讓).

Second, under the assumption that verb meanings are anchored in semantic frames with lexically-profiled specificities (Fillmore and Atkins 1992, Goldberg 2005), the distinction of Mandarin SIVs in terms of force interaction can be taken to structure semantic frames. In this study, the hierarchical frame structure of Mandarin SIVs includes one SIV Archiframe, two Primary Frames encoding *Unilateral interaction* and *Collateral interaction*. Three directions of force interactions as three Basic Frames are divided. Further investigations are needed to specify Verbs in Basic Frames into Micro Frames.

To better accommodate Mandarin SIVs in the frameworks of force dynamics and frame semantics, the FD schemas are revised to show the possible force interactions distinguished and lexicalized in Mandarin as well as the constructional variations associated with each distinct lexicalization patterns. Most examples display a tendency that Mandarin SIVs don't lexicalize the difference of onset/extended causation as well as stronger/weaker Antagonist (the result of the interaction). Instead, Mandarin depends highly upon collocations such as aspectual markers, auxiliaries, complement VPs, and even the collocational NPs. These indeed worth further research in identifying the characteristics of Mandarin SIVs through more data detailed syntactic patterns for more delicate analysis.

According to Talmy, force dynamics is a semantic category that plays a structuring role across a range of language levels. This study, starting from a cognitive semantic point of view, illustrates a unified frame-based classification of Mandarin SIVs, and ultimately provides evidences to prove force dynamics a natural and unique semantic category in a cross-linguistic level.

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# 國科會補助專題研究計畫項下出席國際學術會議心得報告

日期：99年10月08日

計畫編號	NSC 98-2410-H-009-036		
計畫名稱	中文動詞詞彙訊息網的建構：互動性評價動詞的研究		
出國人員姓名	1. 劉美君 教授 2. 研究生： 吳佳純/廖佩瑜	服務機構及職稱	國立交通大學
會議時間	99年05月21日至 99年05月23日	會議地點	中國 蘇州 蘇州大學
會議名稱	(中文)第十一屆漢語詞彙語言學研討會 (英文)The 11th Chinese Lexical Semantics Workshop CLSW2010		
發表論文題目	(中文)從知識性及操控性探討中文內在評價動詞的語意延展 (英文)The Semantic Extension of Internal Judgment Verbs: From the Perspective of Epistemic Certainty and Manipulation		

## 一、參加會議經過

發表者從台灣桃園機場搭乘長榮航空公司航班，經香港中國上海浦東機場，再轉搭客運前往蘇州大學，參與第十一屆漢語詞彙語言學研討會(The Tenth Chinese Lexical Semantics Workshop CLSW2010)，此會議為重要之一年一度詞彙語言學研討會。今年5月21-23日於蘇州大學召開。研討會為期三天，多位語言學界學者、學生同聚一堂，分享語言學研究之成果與經驗，研討內容充實、與會文章水準極高，頗獲與會者好評。三天的會議之中，有多場大會特邀演講，受邀之講者為享譽國際語言學界之專家學者。研討會主題以漢語詞彙語意及詞彙語料庫建構為主，發表主題多元且聽眾皆踴躍發問及討論，氣氛熱絡。發表者並於研討會期間聽取許多論文相關議題，獲益良多。會議結束後，大會亦推薦一些周邊值得拜訪的著名景點以及天然美景，如拙政園、留園等，都留下此次會議行程的美好回憶。

## 二、與會心得

此次發表者的論文藉由這次發表獲益良多，發表是在會議第一天上午進行，報告時間為十五分鐘，包含五分鐘綜合討論時間。其中與會者詢問了一些研究內容上的細節，並提供了許多寶貴的建議和給予肯定。與會者的回饋和建議幫助發表者補充了研究中不足的部分，同時省視研究中未注意之盲點。

總的來說，此次會議領域多元，議題豐富，並能促進與會者之交流、令與會者得到許多學術上之啟發。此外，蘇州豐富的歷史人文和山明水秀，也舒展了與會者心境。(以下為會議期間照片)



### 三、考察參觀活動(無是項活動者略)

### 四、建議

對於國科會提供國際學術研討會之補助，發表者由衷感謝，因為國科會的支持與協助，發表者得以在專業領域上有機會與來自各地的學者們交流，將台灣區的語言學研究發表於國際講台上，也藉此見識中國蘇州的人文薈萃，對於研究者而言，不但是是一大福音，更是一大鼓舞！

### 五、攜回資料名稱及內容

1. 會議手冊:會議資訊、有關事項的提示和說明、日程表、地點及附近區域地圖，與會者名錄。
2. 論文集:主題報告人和特邀報告人論文，分組報告論文。
3. 會議部分報告投影片檔案

### 六、其他

# The Semantic Extension of Internal Judgment Verbs: From the Aspect of Epistemic Certainty and Manipulation

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**Abstract:** This paper explores the semantic extension from deontic modality to epistemic certainty and manipulation as realized in Mandarin verbs of internal judgment. The extension seems to be bidirectional and a detailed analysis of the mechanisms involved will be provided. Emphasis is put on the interface between lexical semantics and pragmatic inference. Adopting a frame-based approach, this study attempts to account for the transferring process from a cognizer-oriented propositional assertion (subjectivity) to a speaker-oriented speech act of manipulation (intersubjectivity).

**Keywords:** Internal Judgment Verbs, Cognition verbs, Frame Semantics, pragmatics, Epistemic Certainty, Manipulation

## 1. Introduction

This paper explores the semantic extension of Internal Judgment Verbs from epistemic certainty to manipulation in Mandarin. Cognition verbs (Hu 2007) are a unique set of verbs which reflect human's mental state. Among cognition verbs, a subset of verbs such as 認同, 同意, 相信 can be used to denote speaker's attitude toward an entity or an event, i.e. these verbs are related to cognizer's inner judgment involving subjectivity. For example, 同意 has three major lexical meanings- agreement, preference, permission. From the aspect of Frame Semantics (Fillmore and Atkins 1992) and Event-integration scale (Givón 1993b), verbs 贊同, 認同, 拒絕, 反對, similar to 同意, are categorized in the same frame, Internal Judgment Frame. However, in Chang's (2005) study, 答應 'promise,' 同意 'agree,' 允許 'allow,' are discussed in the same semantic category, verbs of agreement. We find that the three verbs can be categorized in a more specific way; they have different frame elements. This paper will take 同意 as the starting point to illustrate the semantic extension from Cognition to Internal Judgment Verbs on Manipulativity.

## 2. Semantic Extension of 同意

It has been mentioned in the previous part that cognition verbs are closely related to the judgment of cognizer; for some verbs with positive/negative judgment, the meaning may be further transferred into manipulation. In the cognition process, one may express his subjective attitude toward an event or an entity. When one has some kinds of thought, he may carry out the action. Used in this kind of situation, the verbs function as modality verbs denoting the cognizre's preference, intention, or obligation—one can manipulate himself or herself to achieve something. The corpus examples of 同意 are as follows:

- (1) 筆者相當同意他/他的見解。  
bǐ zhǐ xiāng dāng tóng yì tā/ tā de jiàn jiě  
The author quite agrees with him/his point of view.
- (2) 妹妹勉勉強強同意回自己的家，  
miè miè miǎn miǎn qiǎng qiǎng tóng yì huí zì jǐ de jiā  
My sister reluctantly agrees to go home.
- (3) 醫院同意凱文暫時出院，  
yī yuàn tóng yì kǎi wén zhàn shí chū yuàn  
The hospital allowed Kevin to leave for a while.

The examples reveal that the semantic of 同意 is not limited to internal judgment but external manipulation. Observably, 同意 can function as internal judgment verb in (1), modality verb in (2), and manipulative verb in (3).

According to Givón's (1993, vol.2 p.18) framework of semantic extension, the semantic scale is from manipulation to preference to epistemics. The semantic extension is unidirectional, but the starting point is different on the semantic scale, i.e. verbs may not go through each stage. For example, the lexicon 'agree' is from weak permission to higher epistemic certainty in the graded transition; it can not be used in strong permission. In other words, the manipulativity of the verb 'agree' is weak.

- (4) a. \*Strong permission: 'She agreed that John leave right away.'  
b. Weak permission: 'She agreed that John should leave right away.'  
c. Lower epistemic certainty: 'She agreed that John may have left right away.'  
d. Higher epistemic certainty: 'She agreed that John had left right away.'

The lexicon "agree" in English, is one of the most common corresponding lexicons to 同意 in Mandarin. Interestingly, the direction of the semantic extension of 同意 is bidirectional and extended from preference to epistemic and manipulation, just opposite to Givon's theory. In addition, different from agree, the subject of '同意' have the authority to manipulate the subject in its following proposition.

- (5) 我同意這次開會很有意義。  
wǒ tóng yì zhè cì kāi huì hěn yǒu yì yì  
I agree that the discussion is meaningful.
- (6) 我同意你。  
wǒ tóng yì nǐ  
I agree with you.
- (7) 我同意離開。  
wǒ tóng yì lí kāi  
I agree to leave.
- (8) 我同意你離開。  
wǒ tóng yì nǐ lí kāi  
I allowed you to leave.

In (5) and (6), 同意 is in the lower position of the scale- epistemic certainty. In (7), the meaning extends to preference, a kind of weak manipulation that subject can manipulate himself. In (8), the subject '我' have the authority to manipulate the subject '你' in the proposition.



### 3. The Interaction Among Cognition Verbs, Internal Judgment Verbs, and Manipulation Verbs

In the paragraphs above, the meanings of 同意 are polysemous that can function as Cognition Verbs, Internal Judgment Verbs, and Manipulation Verbs. Since the verb is more than one meaning, it may share some features with verbs of different categories that sway on the same semantic scale. How do different meanings interact with each other? In Mandarin, morphological makeup can account for the semantic extension. 同意<sup>13</sup>, with a VO morphological structure, is a near synonym of 認同 which is composed of the cognition-related morpheme 認<sup>14</sup> and the positive judgment morpheme 同, so 認同 shares the characteristics of both cognition verb and internal judgment verb. 認同 and 同意 are classified as internal judgment verbs expressing the evaluator's positive assessment. According to Blending Theory (Fauconnier 1985, 1997, Fauconnier and Turner 2002), semantic elements from different conceptual processes can be blended. 認同 which goes through the conceptual blending is the combination of Cognition Verbs 認 and Internal Judgment Verbs 同. The lexical meaning of 同意 is already fused via event-integration. i.e., a Cognizer is also an Evaluator.

In the utterance, Internal Judgment Verbs reveal an inner process of the cognizer's attitude toward an entity or an event involving personal thinking and reasoning. Traditionally, it is called Subjectivity, which refers to a person's perspective or opinion, feelings, beliefs, and desires. Traugott (1995:31,46) call it "subjectification," which defines the semantic-pragmatic process whereby meanings become increasingly based in the speaker's subjective belief/state/attitude toward the proposition. When one shows his desiderative and volitional feeling, he has strong preference toward a proposition. According to Hsieh (2008), when verbs of cognition interact with epistemic modality within the attitudes and perspectives held by cognizer, their meanings extend from volition to intended manipulation via the causative construction X CAUSE Y (lai/qu) DO Z. She called the process "weaker manipulation." The cognizer is also a manipulator, and the modality verbs become manipulative verbs.

### 4. A Frame-based Analysis

One of the central principles of Frame Semantics is 'one frame, one meaning.' Analyzing the Internal Judgment Frame, we find that its frame elements can be classified according to the evaluated target. i.e. depending on an event or an entity. With different evaluated target, the internal judgment verb 同意 may sway to different side, exhibiting different degree on expressing epistemic certainty and the force of manipulation. The following examples (8)-(11) are the repetition of examples (4)-(7) with the tagged frame elements.

(9) [我/Evaluator]同意[這次開會很有意義/Content]

(10) [我/Evaluator]同意[你/Content\_Description]

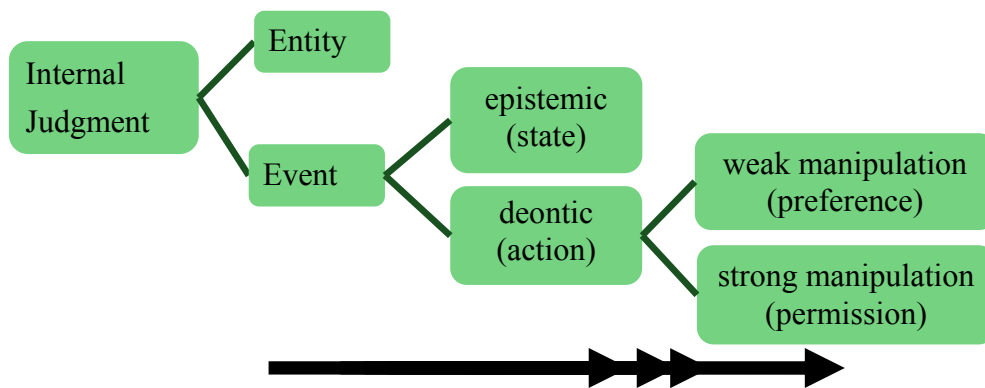
(11) [我/Evaluator]同意[離開/Evaluated\_Act]

(12) [我/Evaluator]同意[你/Evaluated\_Actor][離開/Evaluated\_Act]

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<sup>13</sup> In ancient Mandarin, 同意 is an intransitive verb, originally expressing "the subjects are with one heart" showed in the example "道者，令民與上同意"(孫子·始計篇). In modern Mandarin, the transitivity becomes significant to 同意, now only used as transitive verb.

<sup>14</sup> Based on Hu (2008), the cognition verb 認為 denotes the cognizer's opinion toward the proposition.



**Figure 1.** The Evaluated Target of Internal Judgment verbs

From Figure 1, the Evaluated Target of Internal Judgment verbs can be either an entity<sup>15</sup> or an event. In this paper, we only take an event, either epistemic or deontic one, into account. According to Givón (1993), epistemic judgment codes one's certainty, belief, or probability toward the proposition; deontic judgment denotes the desire, preference, obligation, or manipulation. For Mandarin Internal Judgment Verbs, the type of deontic judgment can be further divided into 'preference' and 'permission', i.e. 'preference' means that the evaluator can manipulate himself; 'permission' means that the evaluator can manipulate others. Reanalyzing Chang's study, we find that the three verbs, 答應 'promise', 同意 'agree,' 允許 'allow,' have different frame elements that inherited from different frames. The following examples are adopted from Chang's paper sharing the same syntactic patterns but differing from semantic meaning with each other.

- (13) 他答應另寫一篇。
- (14) 他同意另寫一篇。
- (15) 他允許另寫一篇。

Obviously, subjects in each example have different manipulative ability to the proposition. The verb 答應 inherited from Response Frame<sup>16</sup> shows subject's preference response to a proposition which has weak manipulation to the subject himself. The verb 允許 inherited from Permit Frame<sup>17</sup> shows subject's permission to a proposition which has strong manipulation to the subject's position in the proposition.

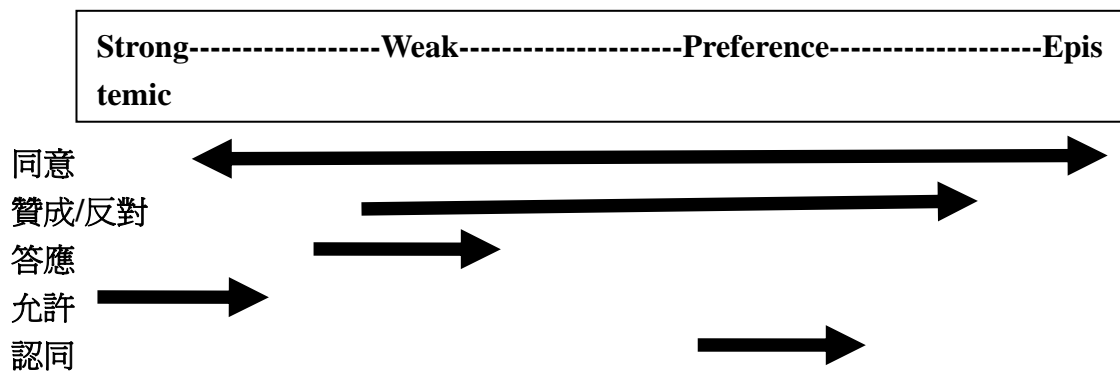
- (16) 他答應我另寫一篇。 → \*我另寫一篇，他答應了。
- (17) 他同意我另寫一篇。 → 我另寫一篇，他同意了。
- (18) 他允許我另寫一篇。 → 我另寫一篇，他允許了。

Adopting Givón's semantic scale, we find that each Mandarin Internal Judgment Verb behaves differently depending on their frame elements. Though the starting point may not be identical, the general tendency of semantic extension is unidirectional, and the semantic extension range is based on the polysemy of a verb. The following figure displays the semantic scale of five representative Mandarin Internal Judgment Verbs: 同意、贊成、答應、允許、認同.

<sup>15</sup> The entity is the person or thing about whom/ which an evaluator's judgment is based on or directly toward. In the example 我信任你 'I trust you', the Evaluated\_Target is the Entity 你.

<sup>16</sup> In Response Frame, an Agent performs a Response action in consequence of a Trigger event. In many cases, a non-agentive Responding\_entity causes the Response after the Trigger occurs.

<sup>17</sup> In Permit Frame, a Grantor (either a person or an institution) grants permission for a Grantee to perform an Action or for an Action to occur.



**Figure 2.** Semantic Scale of Four Representative Mandarin Internal Judgment

Form Figure 2, it can be observed that 同意 possesses the widest semantic range. The lexical meaning of 同意 is extended from preference to epistemic certainty and strong manipulation. The semantic range of 贊成 is slightly narrower than 同意 since the subject of 贊成 cannot force the actor to achieve the action. As for 認同、允許、答應, the semantic extension of those verbs is relatively more fixed.

## 5. Conclusion

In this paper, the semantic of Internal Judgment Verbs can be extended from deontic to both epistemic and manipulation. Conceptual transfer is reflected in semantic transfer and frequency in use may also play a role. The more frequently used one word is, the more meanings it may have (Bybee 2001, 2003). Pragmatic inference is significant to the semantic extension form preference to manipulation. Independent from the context, the literal meaning of 同意 signals one's preference to an event or some kinds of opinion and behavior. In the utterance, 同意 can be manipulative due to the frequent usage of more authoritative Evaluator. The semantic extension of Mandarin Judgment Verbs involves not only subjectivity but pragmatic inference. The five verbs 同意、贊成、答應、允許、認同 mentioned in this paper represent five subclasses that are distinct in semantic range and pragmatic inferences.

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無衍生研發成果推廣資料

98 年度專題研究計畫研究成果彙整表

計畫主持人：劉美君		計畫編號：98-2410-H-009-036-				計畫名稱：中文動詞詞彙語義網的建構：互動性評價動詞的研究	
成果項目		量化			單位	備註（質化說明：如數個計畫共同成果、成果列為該期刊之封面故事...等）	
		實際已達成數（被接受或已發表）	預期總達成數（含實際已達成數）	本計畫實際貢獻百分比			
國內	論文著作	期刊論文	0	0	100%	篇	
		研究報告/技術報告	0	0	100%		
		研討會論文	3	3	100%		
		專書	0	0	100%		
	專利	申請中件數	0	0	100%	件	
		已獲得件數	0	0	100%		
	技術移轉	件數	0	0	100%	件	
		權利金	0	0	100%	千元	
	參與計畫人力 （本國籍）	碩士生	5	5	100%	人次	
		博士生	1	1	100%		
博士後研究員		0	0	100%			
專任助理		0	0	100%			
國外	論文著作	期刊論文	0	0	100%	篇	
		研究報告/技術報告	0	0	100%		
		研討會論文	0	0	100%		
		專書	0	0	100%		章/本
	專利	申請中件數	0	0	100%	件	
		已獲得件數	0	0	100%		
	技術移轉	件數	0	0	100%	件	
		權利金	0	0	100%	千元	
	參與計畫人力 （外國籍）	碩士生	0	0	100%	人次	
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博士後研究員		0	0	100%			
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<p style="text-align: center;">其他成果</p> <p>(無法以量化表達之成果如辦理學術活動、獲得獎項、重要國際合作、研究成果國際影響力及其他協助產業技術發展之具體效益事項等，請以文字敘述填列。)</p>	<p style="text-align: center;">無</p>
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	成果項目	量化	名稱或內容性質簡述
科 教 處 計 畫 加 填 項 目	測驗工具(含質性與量性)	0	
	課程/模組	0	
	電腦及網路系統或工具	0	
	教材	0	
	舉辦之活動/競賽	0	
	研討會/工作坊	0	
	電子報、網站	0	
	計畫成果推廣之參與(閱聽)人數	0	

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本研究採語料庫為本之統計分析完成中文評價動詞之語意區分。本研究不但可擴展並改進現有「中文動詞語義網」、強化其訊息內容及涵蓋範圍，且可發展框架語意理論下的認知轉換及多義性的分析及表徵原則，在中文動詞語意研究上廣立根基、開創新局，對語言學、華語教學及自然語言剖析皆有重大極深遠的影響。