A Lexical Semantic Study of Mandarin Social Interaction Verbs

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Abstract: This study aims to provide a frame-based analysis of Mandarin social interaction verbs. Social interaction verbs relate to group activities which inherently involve two or more participants within social settings (cf. Levin 1993). These verbs are lexical reciprocals, denoting mutual configurations by themselves without necessary grammatical marking (cf. Haspelmath 2007), hence different kinds of reciprocity between/among participants take shape. The goal of this study is thus to analyze how different kinds of reciprocity are lexicalized in Mandarin social interaction verbs and realized in syntactic behaviors. Adopting frame semantics (Fillmore & Atkins 1992), the hierarchical frame structures (Liu & Chiang 2005) and force dynamics (Talmy 2000), this study aims to investigate: 1) the form-function correlations lexicalized in social interaction verbs; 2) the distinctions of Mandarin social interaction verbs; and 3) the conceptual schema of reciprocity in terms of force relations. By mapping syntactic realizations to semantic properties, Mandarin social interaction verbs can be divided into two different but related subtypes based on their transitivity between participants: 1) Symmetric frame, and 2) Asymmetric frame. In conclusion, this study is significant in exploring the mutual status of participants encoded by the verbs, ultimately probes into a broader generalization of reciprocity in terms of force relations.

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

[1] Introduction
1.1 The Background

Studies of verbal semantics have been widely discussed in linguistic research since verbs are crucial when determining the syntactic structures (Jackendoff 1983, Levin 1993). A number of studies have drawn significant attention to lexical organization and semantic categorization (Chang et al. 2000, Levin 1993, Liu 1999, Liu 2002, Liu and Chiang 2005, Tsai et al. 1998). Among them, the two pioneering studies should be emphasized: Levin (1993) classifies English verbs into different categories with a diathesis alternation approach, and Liu (2002) focuses on Mandarin verbal semantics. Fillmore (1971) proposes frame semantics which is adopted in this study, noting that “meanings are relativized to frames”. Also Goldberg (2005) proposes that “each word sense evokes an established semantic frame.” Moreover, adopting frame semantics, Liu and Chiang (2008) propose a ‘multi-layered hierarchical taxonomy’ which is layered as Archiframe > Primary frame > Basic
frame > Microframe > Near-synonym sets, classifying Mandarin verbs into different subframes. These previous studies have already built a foundation for semantic researches.

1.2 The Issue: Social Interaction Verbs

Haspelmath (2007) proposes that lexical reciprocals can be defined as predicates that express a mutual configuration by themselves, without necessary grammatical marking. They consist of a semantically restricted set of predicates whose meanings generally fall into the class of social actions and relations (‘marry’, ‘quarrel’, ‘friend’), spatial relations (‘adjoin’, ‘next to’), and the relations of (non-)identity (‘same as’, ‘different from’, ‘resemble’).

Besides, according to Levin’s taxonomy (1993), most of these verbs relate to group activities that inherently involve more than one participant. A significant number of these verbs relate to fighting; another large group relates to verbal interactions. When one of these verbs takes a subject that refers to a single person, then it must take either a direct object (the marry verbs) or a with phrase (the correspond verbs); it need not take a complement if its subject is a collective NP. In addition, those verbs that relate to verbal interactions can take a prepositional phrase describing the content of the communication (They bargained over the price), while those verbs that relate to fighting can take prepositional phrases describing the reason for the fight (They fought over the land). The prepositions most commonly heading such phrases are over and about; the choice of preposition depends on the verb and the content of the preposition phrase itself.

However, since neither lexical reciprocals nor verbs of social interaction have been adequately studied in the field of Mandarin verbal semantics, there are still some issues needed to be further investigated: 1) what are the form-function correlations lexicalized in Mandarin social interaction verbs? 2) what are the classification criteria for Mandarin social verbs? 3) how is the reciprocity conceptualized by Mandarin social interaction verbs? To fill the gaps, this study focuses on Mandarin social interaction verbs, attempting to provide a detailed frame-based solution to the form-meaning interactions encoded in the verbs, and to propose conceptual schemas in terms of force relations for these verbs as well.

1.3 Scope and Goal

The scope of this research is limited to the verbs denoting social interactions, which must take subjects in a single argument. That is, a set of participants are expressed whether as two or more single NPs conjoined by a conjunction or as one collective NP. The verbs in question include 合作 ‘collaborate’, 分工 ‘division of labor’, 合力 ‘cooperate’, 搭檔 ‘be in partnership’, 互助 ‘help each other’, 協力 ‘pull together’, 同心協力 ‘pull together’, 合夥 ‘work in partnership’, 同甘共苦
The goal of this study is to classify Mandarin social interaction verbs into different but related frames on the basis of corpus observation, as well as to provide a well-defined account for the reciprocal properties of Mandarin social interaction verbs. This study may lead to a better understanding of Mandarin verbal semantics and lexical reciprocals.

[1] Database, Theoretical Frameworks and Methodology

The corpus data used in this study come from Academic Sinica Balanced Corpus of Modern Chinese (http://dbo.sinica.edu.tw/SinicaCorpus/index.html), which involves numerous texts with topics in society, life, literature, philosophy, science, and art; the Chinese Word Sketch (http://words.ling.sinica.edu.tw/), which contains grammatical co-occurrence statistics and differences distribution patterns; and the Academia Sinica Biligual Ontological WordNet (Sinica BOW, http://bow.sinica.edu.tw/), which shows English-Chinese bilingual lexical access. Other sources used in this study are the FrameNet (http://framenet.icsi.berkeley.edu/) and the search engine Google (http://www.google.com/webhp?hl=zh-TW).

The study is based on the corpus observation, adopting frame semantics (Fillmore & Atkins, 1992) as the research approach. Moreover, the multi-frame hierarchy model is utilized in classifying the verbs which is proposed by Liu and Chiang (2008). In order to capture the broader generalization of reciprocity encoded by verbs of different frames, force dynamics (Talmy 2000), as a semantic category, is used in performing the conceptual schemas.

To capture and analyze the form-to-meaning interaction of Mandarin social interaction verbs, four steps are utilized as follows: Step 1: Finding the Mandarin social interaction verbs, Step 2: Collecting the corpus data, Step 3: Observing and examining the data, and Step 4: Analyzing and categorizing the verbs.
[1] Preliminary Findings

As mentioned above, lexical meanings are correlated with their syntactic realizations. Verbs in the same frame will share similar background information and take similar semantic roles. Therefore, the preliminary observation is crucially based on core frame elements (core FEs) as well as distributional and collocational variations. In Social Interaction Frame, the core FEs include Force-exerting party, Force-exerting parties, Outsider, Goal and the non-core FEs include Cause and Ground. As a result, the following sections are sequenced as below: 1) distribution of Force-exerting party and Force-exerting parties; 2) distribution of Goal; 3) distribution of Outsider; 4) distribution of Cause; 5) distribution of Ground.

3.1 Distribution of Force-exerting party and Force-exerting parties

All of the verbs in this frame are used intransitively by default, taking subjects in a single argument. The expression of subject is either two or more single NPs conjoined by a conjunction, such as these in example sets (a), or one collective NP, as those in (b). Note that the single NPs are not necessarily to be singular, which means they can be nonsingular as well. When these single NPs are conjoined by a conjunction, the whole NP must be nonsingular, the same as the collective NP. Semantically, a single NP refers to Force-exerting party and a collective NP refers to Force-exerting parties.

(1) a. [台灣企業界]與[學術界]互相合作，對未來之發展必有貢獻。
   b. [兩種人]合作必然是企業效率的基礎與根源所在。
(2) a. [我們]可憑品質跟售價跟[他們]競爭。
   b. [大家]要公平競爭。
(3) a. 今年[日本神戶地區智障者拔河錦標賽的冠軍隊伍]，也要和[國內的選手]交流、較勁。
   b. 而畢竟音樂是超越種族、國籍的，時至今日[兩派]已充分交流。
(4) a. [老師們]透過此教案與[孩童]互動
   b. 最近李總統、連院長積極希望[兩岸]能夠良性互動。
(5) a. 我在他面前時，動不動就會哭泣，[他]不曉得如何跟這樣的[我]相處。
   b. 克服了語言隔閡之後，[彼此]同樣地可以融洽相處。
(6) a. [研究者]與[創作者]分工。
   b. 唯有[兩岸]分工、優勢互補，台灣才有著力的空間。
(7) a. 我國居全球領先地位的[資訊科技]，可與[生技產業]密切結合。
   b. [這地點的地理、歷史和種族的成分]，以原創而獨特的方式結合。
(8) a. [此方面之研究]將和[三醫學臨床研究中心]密切配合。
   b. 檢警單位向來重視職棒賭博案，希望今後[雙方]密切配合。
(9) a. [來台演講訪問的美國塔伯特攝影博物館館長麥克·格雷]，昨天下午和[台灣的攝影界]第一次接觸。
Nevertheless, some verbs in this frame can be used transitively while most verbs in this frame cannot, as shown in (10) and (11).

(10)  
於是[醫生]到處陳述革命理想及富國強兵之道，同時結合[一批志同道合的年轻人]，[一起推翻舊政府]。

(11) [行政院經濟建設委員會]配合[「人力發展專案」] [進行第六次科技人力供需修正的推估]，目前已完成初稿。

3.2 Distribution of Goal

Some social interaction verbs may take NP or VP complements as their Goals to indicate the content of their joint actions. Note that some verbs may take both NP and VP as complements, shown in (12) and (13), some may only take NP or VP as complements, shown in (14) and (15), and some may not take any complement.

(12) a. [黃舒駿]與[何平]合作了[五部電影配樂]，
    b. 前一陣子[臺大某系學生]與[老教授]競爭[研究室的使用權]，

(13) a. [美國哥倫比亞大學]與[中國大陸北京政治大學]合作[研究中國經濟史]，
    b. [黨內有多人]競爭[爭取黨內高雄市長人選]，

(14) a. [廿一名學生代表]今日將與[台北學生]分享他們參與政策擬訂的經驗，並交流[兩地的青少年政策、問題]。
    b. 現在就讓[我]來讀剛收到的這封信，與[你們]分享[一些喜悅]。

(15) a. [編輯委員會]分工[著手撰寫內文]，
    b. [本院]配合[「國家滅鼠運動」][實施毒餌之置放]，

3.3 Distribution of Outsider

We know that Force-exerting party and Force-exerting parties can serve as subjects from above. What’s more, the verbs in this frame that can be used in Ba-construction may take another NP argument as subject other than Force-exerting party and Force-exerting parties. This subject NP is an Outsider, which means it isn’t the participant of the joint action, that is, it is outside of the joint action.

(16) 有人說，[社會]把[人]分工的太厲害，人已經淪為「工具」來使用，

3.4 Distribution of Cause

In a causative construction, the NP that precedes the causative marker {令/使/讓/叫} is the Cause that gets participants involved in the joint action.

(18) [社團評鑑制度]能促使[各社團]良性競爭。
(19) [溫馨的小組時間]讓[工作員]與[成員]互動，
(20) 她認為女性角色可做[男性研究員間的潤滑劑]，使[彼此]相處更融洽。

3.5 Distribution of Ground

Ground, a NP argument, denotes the basis for participants to perform the joint
action. It usually collocates between the markers {在} and {上}.

(21) 清華大學人文社會學院創立的宗旨之一是倡導科際整合，集結[人文與
社會科學各領域的專家]，在[研究與教學]上合力合作，互相支援。

(22) [日本]已經擁有足量的龐大資金，準備在[金融服務這個市場]上競爭。

[1] Preliminary Analysis

4.1 Classification

Social Interaction Archiframe include social interaction verbs related to group
activities which inherently involve two or more participants within social settings (cf.
Levin 1993). These verbs are lexical reciprocals, denoting mutual configurations by
themselves without necessary grammatical marking (cf. Haspelmath 2007), hence
different kinds of reciprocity between/among participants take shape.

Fillmore & Atkins (1992) notes that verbal meanings are associated with their
syntactic expressions. Moreover, the multi-layered hierarchical taxonomy proposed
by Liu and Chiang (2008) is utilized when classifying the verbs. There are four layers
of semantic frames: Archiframe > Primary Frame > Basic Frame > Microframe. The
higher frame encodes a broader semantic domain that provides background frame
information. Therefore, the distributions of frame elements mentioned in section 3
help us to further divide the verbs into subgroups. The preliminary classification of
social interaction verbs is shown as Table (1) below. Social Interaction Archiframe
can be divided into Symmetric Primary Frame and Asymmetric Primary Frame due to
transitivity. Verbs of Symmetric Primary Frame can be used only intransitively while
verbs of Asymmetric Primary Frame can be used both intransitively and transitively.
What’s more, verbs in each Primary Frame can be further divided into different Basic
Frames since they may take different types of complements, say NPs or VPs.

<table>
<thead>
<tr>
<th>Archiframe</th>
<th>Primary Frame</th>
<th>Basic Frame</th>
<th>Lemmas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interaction</td>
<td>Symmetric</td>
<td>1</td>
<td>合作、競爭、…</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>交流、分享、…</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3</td>
<td>互動、相處、…</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4</td>
<td>分工、…</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5</td>
<td>談、討論、協調、吵架、閒聊、…</td>
</tr>
<tr>
<td></td>
<td>Asymmetric</td>
<td>6</td>
<td>配合、接觸、…</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7</td>
<td>結合、聯合、…</td>
</tr>
</tbody>
</table>

Table (1): The classification of social interaction verbs
4.2 Conceptual Schema

By both adopting and adapting Talmy’s (2000) diagrams of basic elements in force dynamics, the conceptual schema of Social Interaction Archiframe is illustrated as Figure (1) below. The conceptual schema represents the participants and force relations in the event structure encoded by social interaction verbs. Social interaction verbs share the default set of core frame elements (core FEs): Force-exerting party, Force-exerting parties and Goal. In the schema, A serves as Force-exerting party_1 and B serves as Force-exerting party_2. Between A and B are the mutual forces exerted by one onto the other. They thus form a joint party called Force-exerting parties and move toward the Goal of the joint action.

Figure (1): The conceptual schema of Social Interaction Archiframe

[1] Conclusion

Social Interaction Verbs encode a mutual force-exerting process in which Force-exerting party_1 and Force-exerting party_2 are conjoined as Force-exerting parties and move toward the Goal of the joint action.

By mapping syntactic realizations to semantic properties, Mandarin social interaction verbs can be divided into two different but related subtypes based on their transitivity between participants: 1) Symmetric frame, and 2) Asymmetric frame. In conclusion, this study explores the mutual status of participants encoded by the verbs, ultimately probes into a broader generalization of reciprocity in terms of force relations.
The Hierarchical Structure of Social Interaction Frame

**SOCIAL INTERACTION**

**FORCE INTERACTION**

**CONVERSATION**

**ASYMMETRIC**

**SYMMETRIC**

Basic 1

Basic 2

Basic 3

Basic 4

Basic 5

Basic 6

Basic 7

A and B <*< (NP) (VP)

A and B <*< (*NP) (*VP)

A and B <*< (NP) (VP)

A and B <*< (*NP) (*VP)

A <*< B < (*NP) (VP)

*C < Ba < A and B <*

A <*< B < (*NP) (VP)

*C < Ba < A and B <*

A <*< B < (*NP) (VP)

C < Ba < A and B <*
Selected References


