

## Force Dynamics and Social Interaction Verbs in Mandarin

Meichun Liu, Tzu-I Chiang, and I-Fan Lai

*National Chiao Tung University*

This paper explores the issues of force dynamics raised 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, forced dynamics as a semantic category exhibits a unilateral trajectory in which an Agonist is singled out for focal attention and an Antagonist is considered to be the opposite party exerting an effect on the Agonist. Nine 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 explore the possible range of force intentional trajectories distinguished and lexicalized in Mandarin as well as the various conceptual schemas of each force relation.

### 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), 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.

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, 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 purpose of this study is to explore the possible force relations distinguished and lexicalized in Mandarin as well as the various conceptual schemas of each force

relation in Mandarin. By offering a cognitive semantic account, this study presents a unified 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.

## 2. Theatrical Frameworks

Talmy (2000) argued that Force Dynamics 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:

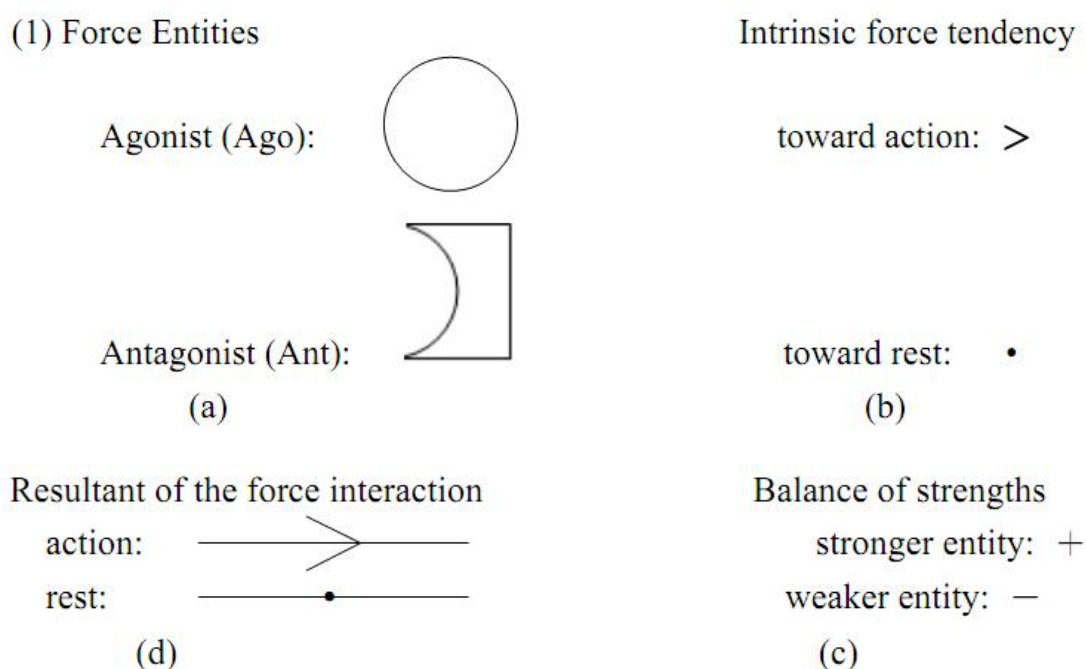


Diagram (1): the basic elements of force dynamic relations

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

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<sup>1</sup> The present analysis is mainly based on the corpus data from 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.

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 expanding 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:

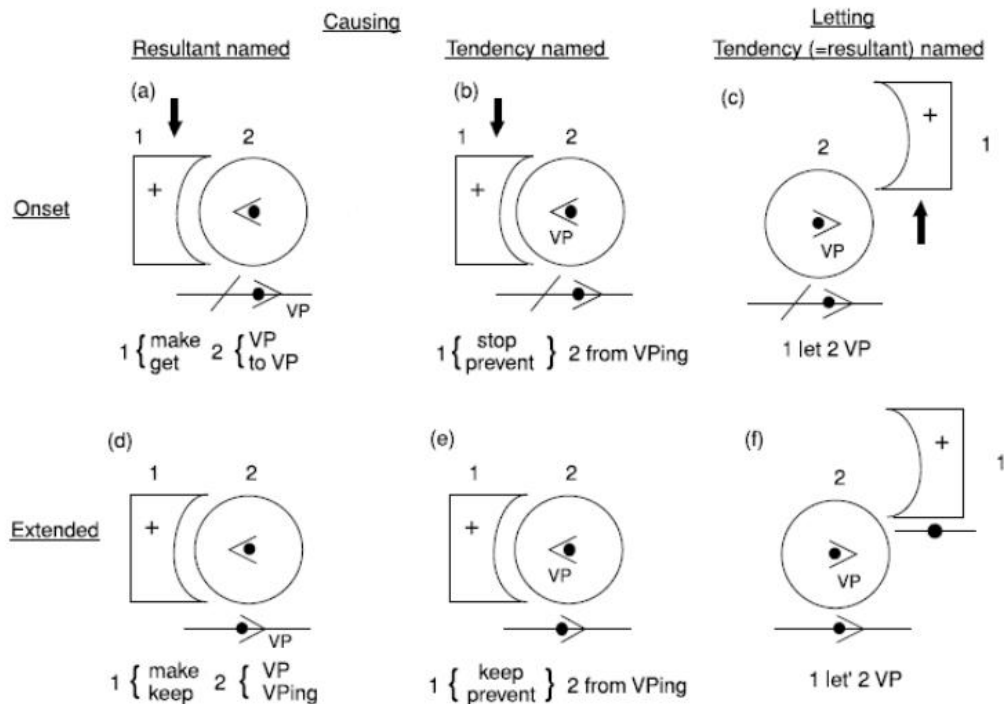


Diagram (2): the causing and letting patterns with a stronger Antagonist

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

<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.

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:

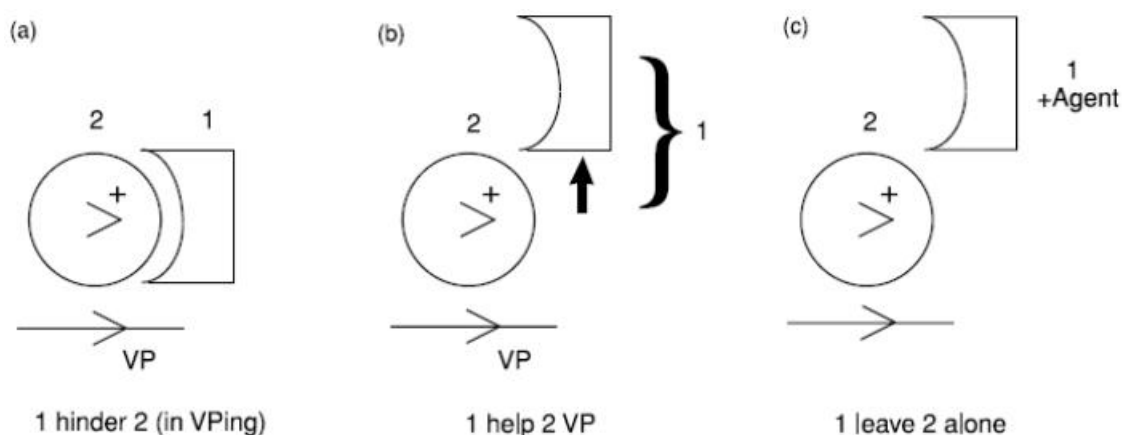


Diagram (3): FD patterns with a weaker Antagonist

(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 nine major corresponding FD schemas<sup>5</sup> (six in diagram (2) and three in diagram (3)) presented above arouse an interesting issue. 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. However, a complexity is found by comparing the Mandarin data with the English ones.

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

<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.

### 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. 3.1 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 A Comparison between English and Mandarin Social Interaction Verbs

The FD patterns lexicalized in English strong causation are graphically shown in diagram (2) in section 2 and are now exhibited lexically in Table (1) below:

	Causing		Letting
	Resultant_named	Tendency_named	Result / Tendency
<b>Onset</b>	1 <span style="border: 1px solid pink; padding: 2px;">make</span> 2 VP get to VP	1 stop 2 from VPing <span style="border: 1px solid pink; padding: 2px;">prevent</span>	1 <span style="border: 1px solid pink; padding: 2px;">let</span> 2 VP
<b>Extended</b>	1 <span style="border: 1px solid pink; padding: 2px;">make</span> 2 VP <span style="border: 1px solid blue; padding: 2px;">keep</span> VPing _____	1 <span style="border: 1px solid blue; padding: 2px;">keep</span> 2 from VPing <span style="border: 1px solid pink; padding: 2px;">prevent</span> _____	1 <span style="border: 1px solid pink; padding: 2px;">let</span> 2 VP

Table (1): the English lexicalization of the FD patterns with a stronger Antagonist subject

Table (1) displays two interesting ambiguities in English lexicalization patterns. Firstly, it is possible in English to distinguish onset causation from extended causation by using different verbs. For example, the verb *keep* denotes extended causation whereas the verb *get* and *stop* represent different onset causations. Verbs in pink squares such as *make*, *prevent*, and *let* are used to lexicalize both onset and extended causations. Secondly, distinctive extended causations in English can be expressed by the same verb *keep* as marked in blue squares in table (1). The verb *keep* takes either a resultant VP (ex. *I keep him moving.*) or a tendency-named VP (ex. *I keep him from moving.*).

While applying these FD patterns to Mandarin, two observations are found. Table (2) is used to demonstrate the lexicalization of the FD patterns in Mandarin:

	Causing		Letting			
	Resultant_named		Tendency_named		Result / Tendency	
<b>Onset</b>	1 令/使 迫使/強使/逼使	2 VP	1 阻止/阻擋 阻撓/阻礙 中止/終止	2 VP	1 讓 /允讓 允許/同意 任憑/放任	2 VP
<b>Extended</b>	1 令/使 迫使 強使 逼使	2 一直 VP 不斷 繼續	1 阻止/阻擋 阻撓/阻礙 中止/終止	2 VP	1 讓 /允讓 允許/同意 任憑/放任	2 VP

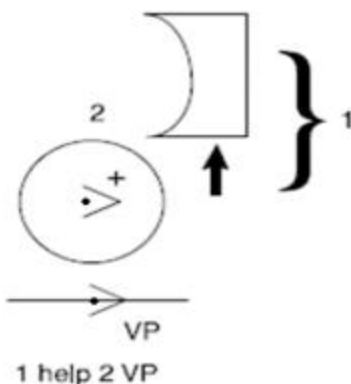
Table (2): the corresponding lexicalization of the FD patterns in Mandarin

Firstly, the distinction of onset and extended causation is seemingly unnecessary in Mandarin. Verbs in table (2) denote both onset and extended patterns. Verbs in pink squares such as 迫使 *pòshǐ* ‘to make,’ 阻止 *zǔzhǐ* ‘to stop~from,’ and so on are representative examples.

Secondly, Mandarin does not have verbs exclusively for the pattern of extended strong causation. It is expressed by the onset causative verbs with an adverb *yìzhí/jìxù/búduàn* 一直/繼續/不斷 ‘continuously’ adding before the complement VP. (ex. 我讓她一直為我工作。)

### 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 only illustrated with two examples by Talmy (2000) as in diagram (3)



*Smoothing the earth helped the logs roll down the slope.*

*Removing the benches helped the marchers cross the plaza.*

below:

Diagram (3): the FD schema of 'help' in English

The force interaction encoded here is the Antagonist impinges against the Agonist and 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 where the Antagonist leaves impingement so that the Agonist can move toward the action. Semantically, the Antagonist helps the Agonist by removing a potential obstacle.

The concept of *help* in Mandarin, however, is an engaging one rather than disengaging. It is lexicalized into different but synonymous lexical items such as *bāng* 幫, *bāngmáng* 幫忙, and *xiézhù* 協助.

Verbs of helping in Mandarin display force interactions in which an Antagonist rather than disengaging, exerts a force to 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. That is to say, the tendency of the Agonist is shared by the Antagonist. Since the FD schemas proposed by Talmy (2000) are not completely adequate in representing force relation in Mandarin, a modified FD schemas for verbs of helping in Mandarin are proposed here as diagram (4) and example (1)-(2) below are used as illustration:

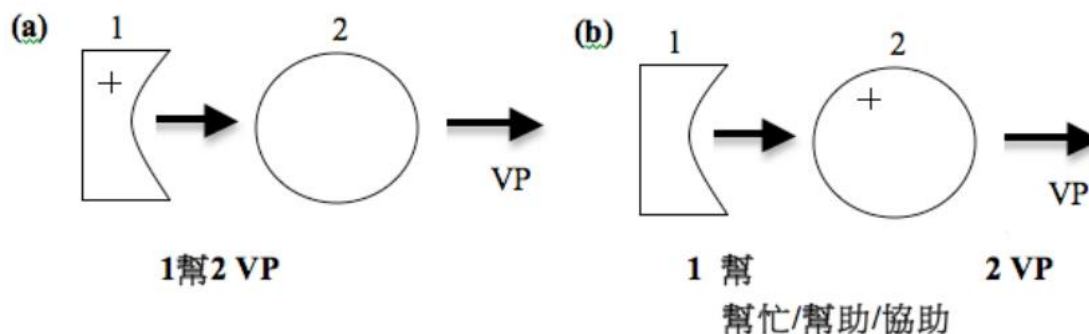


Diagram (4): the FD schema of 'verbs of helping' in Mandarin

- (1) 父母親 幫/幫助/幫忙/協助 孩子選朋友，  
*fùmǔqīn bāng/bāngmáng/bāngzhù/xiézhù háizi xuǎn péngyǒu*  
 parents BANG/BANGMANG/BANGZHU/XIEZHU children choose friend  
 'Parents help their children choose their friends.'
- (2) 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 kètí.*  
 many times review can BANG/BANGMANG/BANGZHU/XIEZHU students  
 memorize some difficult and not easy comprehend DE issues  
 'Reviewing many times helps students memorize some difficult and  
 incomprehensible issues.'

The force-dynamic exhibited in verbs of helping is that the Agonist has an intrinsic force tendency toward a certain action, and the Antagonist, sharing with this tendency, exerts a same directional and assisting force to the Agonist. In other words, the Agonist plays the primary role to execute the action, and the Antagonist acts as an assistant. The force of the Antagonist is weaker than that of the Agonist, but the action is done by both force-exerting parties because of the shared tendency as illustrated in diagram (4b). The semantic role of Antagonist is a collective actor with less effort and that of Agonist is a collective actor with more effort. Semantically, (4b) implies the Antagonist helps the Agonist in the sense of assisting the Agonist.

Yet, among verbs of helping in Mandarin, *bāng* is indeed a unique one. It may lead to ambiguous readings as in (3):



(3) 我到廚房幫媽媽做一點事。

*Wǒ dào chúfáng bāng māma zuò yìdiǎn shì.*

I to kitchen BANG 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 (3a) implies that the action is done by both the Antagonist *I* and the Agonist *mother*, whereas the interpretation of (3b) 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 him or herself did the action for the Agonist. The Antagonist may take charge of the whole action regardless of the presence of the Agonist. It further implies that the force of Antagonist is stronger than that of Agonist, which matches to diagram (4a). The semantic role of Antagonist is more like an Agent, and that of Agonist is more like a Beneficiary. Semantically, (4a) implies that the Antagonist helps the Agonist in the sense of doing the Agonist a favor by performing the target act. 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.

(4) 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 BANG he pay-ASP fine, BA he guarantee out

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

(5) \*這場雨幫那些樹苗復生。

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

This-CL rain BANG those saplings revive

‘\*The rain revived for those saplings.’

In (4), the interpretation of the person who paid the fine must be Hushi’s friend rather than Hushi himself. Compared with (4), (5) 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 of Agent from Agonist to 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., *fùshēng* 復生, *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:

(6) 輿論支持這項判決。

*Yúlùn zhīchí zhè-xiàng pànjué.*

public opinion ZHICHI this-CL judgment

'Public opinions support this judgment.'

(7) 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 ZHICHI 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 non-impingement: 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 that *bāng*, *bāngmáng*, *bāngzhù*, and *xiézhù* encode.

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. Namely, the concept whether the Antagonist is stronger or weaker is not lexicalized in the verb *zhīchí*. Yet semantically, (5a) implies the Antagonist supports the Agonist by active agreement and (5b) implies the Antagonist supports the Agonist by passive permission.

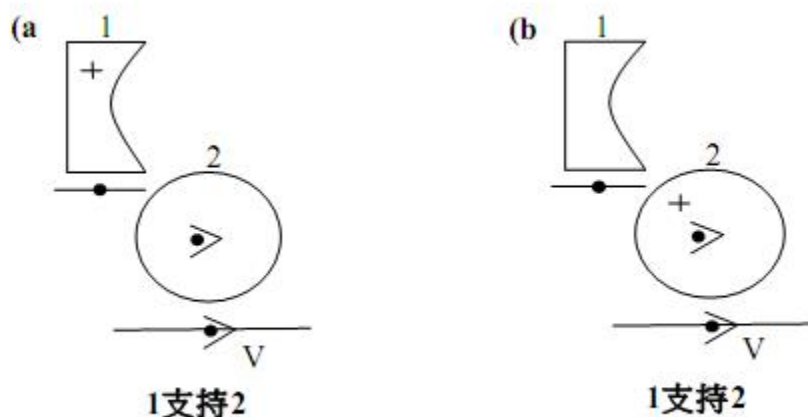


Diagram (5): the FD schema of 'verbs of helping' in Mandarin-2

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 force interactions where 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 encoding this concept are *hézuò* 合作 and *jìngzhēng* 競爭, illustrated in the following examples.

(8) 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 HEZUO

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

(9) 他們一定會合作。

*Tāmēn yídìng huì hézuò.*

they certainly will HEZUO

‘They certainly will cooperate with each other.’

(10) 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 tāmen jìngzhēng.*

we can by quality and price with they JINGZHENG

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

(11) 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 JINGZHENG

‘Many enterprises compete in the global market.’

The Agonist and Antagonist from (8) to (11) 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. In such case, 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 (6).

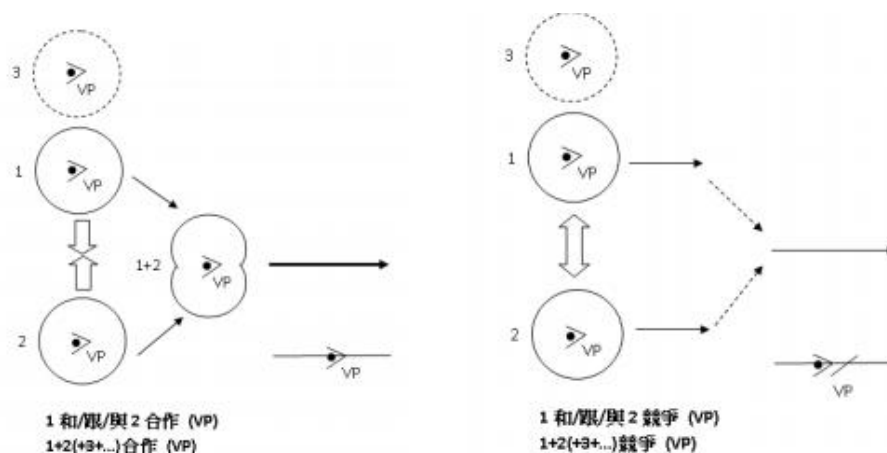


Diagram (6): the FD schema of collateral interactions in Mandarin

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.

## 5. Conclusion

Based on Talmy's (2000) force dynamics, this paper explores the force relations and the conceptual basis of social interaction verbs (SIVs) in Mandarin.

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).

To better accommodate Mandarin SIVs in the frameworks of force dynamics, 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). This indeed take a further research in identifying the characteristics of Mandarin SIVs through more data of 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 classification of Mandarin SIVs, and ultimately provides preliminary evidences to support force dynamics to be a natural and unique semantic category in a cross-linguistic level.

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