

A Lexical-Constructional Approach to Verbal Semantics: The Case of Mandarin ‘Hang’ Verbs

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ABSTRACT. This paper probes into the semantic distinctions of three ‘hang’ verbs in Mandarin with a Lexical-Constructional approach. The near-synonymous verbs, guà, xuán and diào, share a common frame as spatial configurational verbs that are typically associated with three major constructions, but they differ in mini-constructional patterns that help to delimit the profiling specifications lexicalized in each verb. Through a careful examination of their collocational skewings, the study proposes that guà is a prototypical verb of spatial configuration, with the most balanced and diverse range of uses; xuán profiles a theme-oriented spatial configuration that is stationary in nature; and diào encodes an agentive caused motion event. By showing that verbs and constructions may go hand-in-hand to display a prototype effect in form-meaning associations, the study argues for a lexical-constructional approach that takes verbs and constructions as mutually defining in a gestalt relation.

Key words: Lexical semantics; Mandarin verbs of hanging; Verbs of Spatial configuration; Lexical-constructional approach

1. **Introduction.** In recent years considerable concern has arisen over the nature of lexical meanings in linguistic studies. A great number of research has focused on how verb meanings are manifested with syntactic realizations[1-7]. Levin[1] classified English verbs into various classes according to the alternation patterns that verbs can take part in. Fillmore and Atkins[3] proposed that the meaning of a verb can only be understood with reference to a structured background of experience, belief or practices; thus, verb meanings are best described with a set of frame-related participant roles. As verbs interact extensively with constructional patterns, linguistic research has advanced over the years from a verb-centered approach to a construction-centered approach. Goldberg[8] dealt with the form-meaning correspondence of constructions whereby different uses of the same verb can be anchored in various constructions without postulating additional lexical rules. The constructional approach provides an alternative view to explain the idiosyncratic and exceptional cases of verbal behavior. However, the application of constructional analysis needs to be constrained and can be incorporated with a reference to lexical frames. Boas[9] addressed the interrelation between verbal sense and construction as follows:

‘Each sense of a verb forms a mini-construction containing frame semantic as well as syntactic information. Although the mini-construction representing the distinct sense of two verbs linked to the same frame, it was shown that their *profiling specifications* differ.’ (p. 14)

Following this line of thinking, this study asks the question: how do verbs of the same frame profile different specifications? It presents a corpus-based approach to the lexical semantics of the ‘hang’ verbs in Mandarin, namely, the three near-synonymous verbs, 掛 [guà] (hang), 懸 [xuán] (hang) and 吊 [diào] (hang), which can all be translated as ‘hang’ in English. It will investigate how the three verbs interact with collo-constructional patterns and how their profiling specifications differ from each other. As verbs of hanging, they all predicate a spatial configurational relation and may all be associated with three major types of constructions based on eventive inferences of spatial configurational predication. However, they display different ranges of distributional skewings that help shed light on their lexical semantic distinctions. By exploring the interrelatedness of verbs, events and constructions, the study ultimately shows that verbs and constructions are a continuation and may help define each other in a gestalt relation. More specifically, it argues that:

- 1) Different verb types are semantically anchored in different semantic frames, which can be realized in different constructional patterns and hence verbs and constructions may go hand-in-hand to display a prototype effect in form-meaning association.
- 2) The distinct meanings of a verb or a verb set may be related to natural inferences of an event chain. For example, verbs of spatial configuration, including verbs of hanging, may display a range of constructions manifesting an event series that goes from caused motion to locational change to Figure-Ground relation.
- 3) The semantic distinctions among near-synonymous verbs, such as the case of Mandarin ‘hang’ verbs, can be viewed as **profiling** different portions of the event chain, with lexical specifications that will be evident from collo-constructional distributions of the verb’s behavior.

The paper is organized with an introductory overview as given above, followed by a brief review of some related works. Then, corpus observations of the morpho-syntactic distributions of the three ‘hang’ verbs will be provided, which pave the way for a lexical-constructional analysis and the proposal of their semantic distinctions. Finally, the implications and significance of the study will be discussed with a conclusion.

2. Related works. First of all, we will look at how the ‘hang’ verbs are categorized in English. As Levin[1] demonstrated a systematic work on verbal semantics and verb classifications, this paper will first review how the English verb *hang* is treated. And two other works related to the Chinese ‘hang’ verbs will also be reviewed.

2.1. Levin[1] In this comprehensive work, English verbs are classified according to the syntactic alternations that they can take part in. The verb *hang* in English is categorized into two main verb classes based on its association with different syntactic alternations. It belongs to both Verbs of Putting and Verbs of Existence. Under the two classes, the verb *hang* is further sub-categorized into two subtypes: verbs of putting in a spatial configuration (a subtype of Verbs of Putting) and verbs of spatial configuration (a subtype of Verbs of Existence). The main defining alternation for verbs of putting is causative alternation, and the main defining pattern for verbs of existence is locative inversion, as illustrated below:

- (1) Causative Alternation with Verbs of Putting
 - a. Cheryl stood the books on the shelf.
 - b. The books stood on the shelf.
- (2) Locative Inversion with Verbs of Existence
 - a. A statue of Jefferson stood on the corner
 - b. On the corner stood a statue of Jefferson

The verb *hang* is classified into two different verb types under Levin’s framework, but what remains unclear is the semantic correlation between the two classes. One would wonder: what is the reason that the verb *hang* may have dual membership? Are the two uses semantically related? If so, in what way? In other words, what is unique in the semantics of *hang* that allows it to be categorized as verbs of putting and verbs of existence? Moreover, what about the three ‘hang’ verbs in Chinese? Do they show the same syntactic alternations as their English counterparts? The present study is partially motivated by these questions.

2.2. Liu [7]. A pilot study of the ‘hang’ verbs, *guà*, *xuán* and *diào* in Chinese has been done in Liu (2003). The study aims to explore the semantic characteristics of the three verbs by probing into the interdependency between syntax and lexical semantics. Adopting the analytical framework of MARVS [10], it represents the complex event structure of the three verbs as involving Motion-Boundary-State. It is also observed that *guà*, *xuán* and *diào* share three common constructions:

Three major constructions associated with the ‘hang’ verbs in Chinese:

- a) Agentive Transitive: 他把一袋錢掛/懸/吊在樹上
tā bǎ yí dài qián guà xuán diào zài shù shàng
‘He hung a bag of money on the tree.’
- b) Theme-Locative Intransitive: 一袋錢掛/懸/吊在樹上
yí dài qián guà xuán diào zài shù shàng
‘A bag of hung on the tree.’
- c) Locative Inversion: 樹上掛/懸/吊著一袋錢
shù shàng guà xuán diào zhe yí dài qián
‘On the tree hung a bag of money.’

Although sharing the three constructions, the verbs vary greatly in other collocational features. Based on the varied syntactic behavior, a preliminary analysis of their distinct semantic ‘schemas’ was proposed. The three verbs differ in their spatial configurational features:

(4) The schematic features of *guà*, *xuán* and *diào*

a. *guà*: [contact][ground support]

b. *xuán*: [no contact][no ground support]

c. *diào*: [with a trajectory]

Although the study aims to probe into the semantic distinctions of the three verbs, it failed to provide a detailed account of the semantic-to-syntactic correlations of their varied uses. Thus, two issues remain unsolved. One is the significance of their distributional frequencies over the shared constructions as well as a well-founded interpretation of the constructional variation. The other is a detailed examination of the participant roles involved in the varied uses of the three verbs. What kinds of roles and role specifics are preferred by each verb? In short, it is not clear how the three verbs differ in frequency over the observed collo-constructional patterns and how the differences should be interpreted. And it is not clear what kinds of semantic restrictions the verbs may put on their participant roles. Without looking at the frequency and semantic constraints of their participant roles, the picture of their distributional variation may not be complete.

2.3. Liu and Chang [11]. This work re-examines the characteristics of Locative Inversion (LI) in Mandarin, one of the major constructions associated with the ‘hang’ verbs. It shows that spatial configurational verbs such as 放 [*fang*] (to put) and 掛 [*guà*] (to hang) are most compatible and most ‘free’ (unrestrained) with LI in Chinese, compared to other verb types allowed in the construction. It further demonstrates that the Chinese LI is syntactically and semantically distinct from the English LI and proposes that LI in Chinese should be redefined as essentially encoding a Ground-anchored spatial relation. The LI construction differs from the existential-*yǒu* construction in profiling the role of the GROUND, highlighting a Ground-to-Figure gestalt relation. Its constructional meaning is most compatible with spatial configurational verbs, illustrating a complete fit of prototypical lexical-constructional association.

This work helps to clarify the semantic relatedness between the ‘hang’ verbs and one of their frequently associated constructions, i.e., Locative Inversion. But it is still unclear as to the semantic motivation for other constructional associations, as observed in [7] and demonstrated in (3) above. This leads to a more thorough examination of the corpus data as introduced below.

3. Database and Analytical Framework.

3.1. **Database.** The paper includes two Chinese contemporary corpora: Academic Sinica Balanced Corpus (Sinica Corpus) and Chinese News Agency (CNA), both of which are included in the Chinese Word Sketch Engine (CWSE). The total occurrences of the three verbs in the two corpora are shown below:

(5) Numbers of occurrences of *guà*, *xuán* and *diào* in the database:

	<i>guà</i>	<i>xuán</i>	<i>diào</i>
Sinica	344	46	50
CAN	331	36	63
Total	675	82	113

3.2. **Analytical Framework: lexical–constructional approach.** As mentioned above, the study adopts a lexical-constructional approach[9] that is mainly based on theories of Frame Semantics[3] and Constructional Grammar[8]. Frame Semantics focuses on the conceptual background underlining lexical senses as words are situated at a “structure background of experiences, beliefs and practice, constituting a kind of cognitive prerequisite for understanding meanings”[3]. The experiential prerequisite can be described in terms of frame-specific elements (participant roles) that are central to the meanings of verbs and these elements are typically realized in a syntactic pattern that helps to define the semantics of the frame. From another perspective, the syntactic pattern associated with a given frame may itself convey the meaning components of the frame, which are assumed to be shared by verbs in that frame. In other words, verbs of a particular frame may be most compatible with the constructional pattern substantiating the semantics of the frame. This is where Constructional Grammar[8] comes from, as it argues that constructional patterns are also form-meaning pairing units like lexical items. Taking the two approaches as complementing to each other, we propose that a frame-based lexical analysis can be strengthened with constructional definitions, and constructional variations can be fine-tuned with lexical associations, a position similar to that of Boas[9]. From a lexical constructional perspective, there are three questions to be answered: 1) How do the three verbs vary in their collo-constructional associations and selection of frame elements? 2) What kinds of semantic distinctions can be drawn from their distributional variations? 3) How do the three verbs differ in their profiling specifications and frame-related features? The section below is meant to answer these questions.

4. **Distributional variations: Verbs of Hanging in Mandarin.** The three verbs belong to the same semantic frame as they may all involve an Agent (Hanger) causing an Entity (Hung Figure) to move to a Location (Ground). As mentioned in Liu[7], they are interchangeable in three shared constructional patterns exemplified in (3) above, but the unsolved issue is whether they are equally distributed among the three constructions.

4.1. **Constructional Collocations.** A careful examination of their corpus distributions shows that the verbs are actually skewed towards different constructional realizations.

(6) The distributional skewing of *GUÀ/XUÁN/DIÀO*

Major patterns	<i>GUÀ</i> N=675	<i>XUÁN</i> N=82	<i>DIÀO</i> N=113
Agent prominent	135 (20%)	4 (5%)	84 (74%)
Theme prominent	237 (35%)	46 (57%)	16 (14%)
Location prominent	303 (45%)	32 (39%)	13 (12%)

It is obvious that *guà* shows a more balanced distribution among the three patterns; *xuán* prefers intransitive uses with theme as subject (57%) and seldom occurs with an agent (5 %); *diào* is highly agentive and used predominantly as a transitive verb (84%). Further observations of their constructional skewing are given below:

4.1.1. **Agent-prominent: Transitive use with agentive subject.** The transitive pattern with an agentive subject can be realized more specifically as the following mini-constructions. Potentially the three verbs may all be used as a transitive verb, but they differ in their association with these mini-patterns:

(7) BA-construction with 在[zài] (at): Agent [NP] > BA > Theme > V > zài > Location

- a. 你把項鍊掛在胸前
nǐ bǎ xiàng liàn guà zài xiōng qián
'You hang a string of necklace before the chest.'
- b. 有人把炸彈懸在垃圾桶內
yǒu rén bǎ zhà dàn xuán zài lè sè tǒng nèi
'Someone hangs a bomb in the trash can.'
- c. 民進黨把一隻豬仔吊在半空之中
mín jìn dǎng bǎ yì zhī zhū zǎi diào zài bàn kōng zhī zhōng
'The DPP hangs a pig in the air.'

(8) BA-construction with 到[dào] (to): Agent [NP] > BA > Theme > V > dào > Goal

- a. 我把他的襯衫掛到椅背上

wǒ bǎ tā de chèn shān guà dào yǐ bèi shàng
'I hang his shirt onto the back of the chair.'

b. 他把球吊到門前

tā bǎ qiú diào dào mén qián
'He lobs the ball to the door.'

(9) Transitive with Inchoative 起: Agent[NP] > zài > Location > V > 起[qǐ] (up) > Theme[NP]

a. 夫婦在牆上掛起心愛的收藏品

fū fù zài qiáng shàng guà qǐ xīn ài de shōu cáng pǐn

(10) Transitive with Directional 上: Agent[NP] > V > 上 > Theme[NP]

a. 中華僑民掛上長長的加油布條

zhōng huá qiáo mín guà shàng cháng cháng de jiā yóu bù tiáo
'The Chinese compatriots hangs a long cheerful banger.'

(11) Location as beneficiary with 為[wèi] (for): Agent[NP] > wèi + Beneficial > V > Theme[NP]

a. 老師為一百多種植物 掛 名牌

lǎo shī wèi yì bǎi yī shí duō zhǒng zhí wù guà míng pái
'The teacher hangs name cards for hundreds of vegetables.'

While the three verbs may all take the BA-construction with the locative *zài* in (7), only *guà*, and *diào* are found in the caused motion construction¹ with a goal marker *dào* as shown in (8). The caused motion pattern marked by *dào* is most compatible with prototypical caused motion verbs, such as *bān* 'to move' and *dài* 'to bring', which seldom co-occur with the locative *zài* (*把書搬在那裏 [*bǎ shū bān zài nà lǐ*] '#move the books at there'). Thus, collocation with a path-goal marker *dào* may be a critical test that sets apart verbs of caused motion (collocating with *dào* from other types of verbs. Unlike *guà*, and *diào*, the verb *xuán* does not seem to lexically encompass a caused-motion event, as it is not found in the corpus to collocate with the goal marker *dào*. It is relatively stative and stationary in its meaning and use. In all the other mini-constructions, the more frequently used *guà* is more widely distributed than *xuán* and *diào*. It is quite evident that *guà* is the most generic or default verb representing the subclass of 'hang' verbs as it displays a full and balanced range of uses.

4.1.2. Theme-prominent: Locative Intransitive with Theme as subject. Besides the transitive use, *guà*, *xuán* and *diào* can all participate in the theme-prominent patterns as in (12), but differ again in other mini-constructions with Theme as subject:

¹ Talmy (2000) proposed that a motion event contains four components: Figure, Move, Path and Ground. A typical motion event – an object (the Figure), under a motional act (Move), moving or located with respect to a location (the Ground) following a path or site.

(12) Locative construction with 在: Theme[NP] > V > zài > Location[NP]

- a. 花環都掛在門上或牆上
yì huā huán dōu guà zài mén shàng huò qiáng shàng
‘The wreath hangs on either the door or the wall.’
- b. 殘枝懸在枝間
cán zhī xuán zài zhī jiān
‘The remained branch hang between the branches.’
- c. 一桿一桿的衣服吊在蛇窩周圍
yì gǎn yì gǎn de yī fú diào zài shé wō zhōu wéi
‘A shaft of cloth hangs besides the snake cave.’

(13) Locative Passive with 被[bèi] (Be-passivized): Theme[NP] > bèi [agemt] > V > zài > Location[NP]

- a. 結婚照被人掛在電線桿上
jié hūn zhào bèi rén guà zài diàn xiàn gǎn shàng
‘The picture of marriage was hung on the light pole.’
- b. 無依無靠的農民不願被吊在樹上
wú yī wú kào de nóng mǐn bú yuàn bèi diào zài shù shàng
‘The poor farmer is reluctant to be hung on the tree.’

(14) Locative path with 上[shàng] (up): Theme[NP] > V > shàng > Location[NP]

- a. 甜甜的微笑掛上額頭
tián tián de wéi xiào guà shàng é tóu
‘A sweet smiles hangs on the forehead.’
- b. 他吊上5層樓高
tā diào shàng wǔ céng lóu gāo
‘He hangs himself on the fifth floor.’

(15) Preverbal Locative with : Theme[NP] > (zài) > Location[NP] > V 著[zhe]

- a. 奶子在他小腹上懸著
nǎi zǐ zài tā xiǎo fù shàng xuán zhe
‘The nipple hangs on the belly.’

(16) With preverbal Manner: Theme[NP] > Manner > V

- a. 衣服都得翻過來反面掛
yī fú dōu de fān guò lái fǎn miàn guà
‘The cloth should be hung inside out.’
- b. 雙腳左翻右懸
shuāng jiǎo zuǒ fān yòu xuán
‘Both of the legs are twisted.’

(17) With postverbal resultative: Theme[NP] > V > 得[de] > Complement

- a. 這些畫都掛得很好

zhè xiē huà dōu guà de hěn hǎo
'The paintings are hung well.'

(18) With preverbal Instrument: Theme >用[yòng] (with)+Instrument[NP] > V> 下[xià]
(down)/ shàng >Location[NP]

a. 這棵樹用大卡車合力吊上車

zhè kē shù yòng dà kǎ chē hé lì diào

'The tree was hung onto the truck with a crane.'

From the above examples, we see that *guà*, *xuán* and *diào* can all participate in the theme-locative intransitive construction as in (12), describing the spatial position of a Theme-Figure in relation to a Ground. However, only *guà* and *diào*, but not *xuán*, are able to have the passive alternation in (13), confirming that *xuán* disfavors an agentive-passive use. This can also be seen from (14), where *guà* and *diào* can collocate with the direction marker *shàng* 'upward' or *xiàng* 'downward', but *xuán* cannot, reconfirming its stative nature as opposed to a caused motion event capable of taking Path-Direction. As a contrast, in (15), only *xuán* is found with a preverbal locative and the durative aspectual *zhe*, signaling the durative state inherent in the use of *xuán*. In (16), a preverbal manner adjunct is found with *guà* and *xuán*, to modify the spatial configurational state. In (17), a postverbal resultative is used with *guà*, to complement the end result of a motion. In (18), what needs to be noted is that only *diào* tends to collocate with an overt Instrument, reinforcing the agentive-causative nature of its meaning.

4.1.3. **Location-prominent: Locative Inversion.** The 'hang' verbs *guà*, *xuán* and *diào* may all participate in Locative Inversion (LI), which encodes a Ground-to-Figure spatial relation that is durative and stationary in nature, according to [11]. This can be illustrated in (19) below:

(19) Locative Inversion: Location[NP] > V > *zhe* /了 [*le*] > Theme[NP]

a. 樹上掛著/了燈

hù shàng guà zhe/le dēng

'On the tree hangs a lamp.'

b. 樑上懸著/了火腿

liáng shàng xuán zhe/le huǒ tuǐ

'On the beam hangs a piece of ham.'

c. 井中吊著/了蠟燭，

jǐng zhōng diào zhe le là zhú

'In the shaft hang some candles.'

All three verbs can appear in this Location-prominent construction that describes the spatial configurational relation from a Ground-anchored perspective. The Mandarin Locative Inversion construction (LI) has received substantial discussion in the literature [2,12-14]. More recently, Liu and Chang[11], as reviewed above, proposed that LI in

Mandarin is not meant for encoding existence per se as previously thought, but is meant for describing a Ground-to-Figure spatial configurational relation, as opposed to a Figure-to-Ground relation. The verbs that may participate in the construction denote a means or manner for the Figure to enter the locative Ground. As evidenced in (20) below, the verb 燒[*shāo*] (burn) may appear in Mandarin LI while it has nothing to do with the existence of 稻[*dàocǎo*] (straw) ‘the hay’.

- (20) 稻田裡燒著稻草 (google 2014),
dào tián lǐ shāo zhe dào cǎo
 ‘#In the rice field burns the hay.’

The example shows that while the verb *burn* is not allowed in the English LI, it is perfectly fine in the Chinese LI. This indicates that Chinese LI has a distinct function from marking ‘existence’, which is previously thought to be true for both English and Chinese. What is more relevant to the present concern is that as LI is redefined as a Ground-to-Figure spatial configurational construction, the prototypical verbs most compatible with the construction are verbs denoting spatial configuration, such as ‘hang’ verbs. This can be seen from (19) above, where *guà*, *xuán* and *diào* demonstrate the most ‘free’ and unconstrained use in LI, collocating with either the durative marker *zhe* or the inchoative marker *le*. For non-spatial configurational verbs, they may enter the construction only with the use of *zhe*:

- (21) 白雲的下面跑著/*了潔白的羊群 (cws)
bái yún de xià miàn pǎo zhe le jié bái de yáng qún
 ‘Under the white clouds run a flock of white sheep.’

4.2. Lexical Collocations. After looking at constructional collocations of the three verbs, this section will examine lexical collocations specific to *guà*, *xuán* and *diào* respectively. It will be clear that all verbs may have semantic extensions from spatial to non-spatial uses and their lexical collocates may help delimit the semantic ranges of their meanings.

4.2.1. Lexical collocates with GUÀ. The verb *guà* is semantically broad and morphologically flexible to be used as a base verb in VV compounds wherein the other two serve as a verbal specifier as in (22a), and with its spatial configurational attributes, it may be used as a nominal modifier as in (22b). As a verb, it constantly collocates with the postposition *shàng* to signal direct contact with the Ground as in (22c):

- (22) **a.** V-V: 吊掛[*diào guà*] (to hang), 懸掛[*xuán guà*] (to hang)
 (*guà* as the 2nd verb)
b. M-N: 掛鐘[*guà zhōng*] (a wall clock)/掛畫[*guà huà*] (a wall painting)
 (*guà* as a modifier)
c. V-LOC: 掛在牆上[*guà zài qiáng shàng*] (to hang on the wall)/肩[*jiān*]

shàng] (to hang on the shoulder)/樹上[*shù shàng*] (to hang on the tree)
(direct contact with a physical Ground)

The spatial uses of *guà* with an upward movement and direct contact provides the conceptual basis for its non-spatial uses through metaphorical or metonymic extensions:

(23) From spatial to non-spatial *guà*

- a. Metaphor: 把笑容掛到臉上 [*bǎ xiào róng guà dào liǎn shàng*]
(to hang a smile onto the face)/
把戶籍掛在 A 縣 [*bǎ hù jí guà zài xiàn*]
(to register the residence at county A)
- b. Metonym: 掛電話[*guà diàn huà*] (to hand up the phone)/
掛急診[*guà jí zhěn*] (to have an emergency treatment)/
掛號[*guà hào*] (to register with a number)

Through conceptual manipulations, *guà* can be used to describe non-spatial events. As exemplified above, ‘for someone to have a smile on the face’ can be described as ‘hanging a smile unto the face’ (via direct contact) as in (23a). In (23b), ‘hanging up the phone’ may still preserves the upward movement and direct contact with the phone stand; and ‘registering with a number’ may have its source in the original scene of hanging up a number on the wall.

4.2.2. **Lexical collocates with XUAN.** The verb *xuán* displays a more semantically loaded use as a verbal specifier in V-V compounds as in (24a). When it is used as a nominal modifier, it specifies a spatial configurational attribute similar to ‘suspended’, as in (24b). What is peculiar about *xuán* is that it collocates frequently with a detached, unbounded or vacant locative such as 空中[*kōng zhōng*] (in the air) to signal a detachment (null contact) of the hung entity from a ground support.

- (24) a. V-V: 懸掛[*xuán guà*] (to hang), 懸吊[*xuán diào*] (to hang), 懸繫[*xuán xì*]
(to hang)
(*xuán* as a verbal specifier)
- b. M-V: 懸崖[*xuán yái*] (a precipice), 懸牆[*xuán qiáng*] (a suspended wall)
(*xuán* as the modifier)
- c. V-LOC: 懸在空中[*xuán zài kōng zhōng*] (to hang in the air)/半空中[*bàn kōng zhōng*]
(to hang in the middle of the air)/枝間[*zhī jiān*] (to hang between branches)
(detached from a vacant Ground)

The spatial features of *xuán* in denoting a suspended Figure devoid of physical contact with a vacant Ground provides the conceptual basis for its non-spatial uses through metaphorical extensions:

such as ‘to hook someone’s heart or stomach’, based on the motional notion of ‘uplifting something’ as in (27a). In (27b), the motion of ‘hanging up a bottle of saline solution’ may be used to refer to the treatment of having IV. This metonymic extension preserves the motional feature of *diào*.

4.3. **Locative markers.** As the ‘hang’ verbs lexically encode a locative Goal (the Ground), it is worthwhile to look at the locative markers they collocate with. It is found that *guà* collocate most frequently with a locative marker than the other two verbs, which may be a result of its higher frequency of occurrence. But what is worth noting is that *xuán* seldom takes a locative marker denoting a Path-direction *shàng*/向[*xiàng*](toward) or Goal *dào*/至[*zhì*](to); *diào* collocates least frequently with the typical locative marker *zài* and may even take the opposing directional marker *xià* ‘downward’:

(28) Collocation with Locative markers:

Collocation	<i>guà</i>	<i>xuán</i>	<i>diào</i>
<i>zài</i>	256	35	14
<i>dào</i> /	2	0	3
<i>xiàng</i>	2	0	0
<i>shàng</i>	58	0	5
<i>xià</i>	0	0	2
<i>qǐ</i>	11	1	3

5. **Lexical-Constructional Analysis of Verbs of Hanging *guà/xuán/diào*.** Having seen the distributional patterns of each of the verbs, we will now address the question: what motivates the compatibility of the verbs with their respective collocational associations? And based on their observed mini-constructional variations, what can be said about the semantic distinctions among the three verbs?

5.1. **Lexical-constructional association and eventive inference.** As shown above, the three verbs are associated with three major constructions that are Agent-prominent, Theme-prominent, or Locative-prominent. The three constructions are semantically related in view of the fact that in a prototypical scenario, a caused motion event is a precondition for the relocation of a Figure that ends up in a spatial relation with a Ground. Thus, the observed lexical-constructional association is made possible by eventive inferences from a volitional caused motion to locational change to a result of spatial configuration. Such an

‘event chain’ seems to be characteristic of spatial configurational verbs in Mandarin, as the prototypical verbs 放[fàng] (to put) ‘to put’ and 掛[guà] (to hang) both display such a range of uses. Given the prominence of a causal event for encoding spatial configuration, the two verbs have been constantly recognized as caused-motion verbs in some previous works [15-16]

The complex event encoded in the ‘hang’ verbs may thus be viewed as a causal chain [17] from Cause-to-Move to Cause-to-BE and to BE-at-Location. Conceivably, there are three different stages involved: from an initial caused motion, via locational change along a possible path and direction, to a resultant state of Figure-Ground configuration. The three stages of the causal chain are profiled in the observed constructions: Stage 1 is realized with a Caused-Motion Construction, Stage 2 with an Inchoative Construction (marked by a path marker or inchoative LE), and Stage 3 with either a Figure-prominent or a Ground-prominent Locative Construction. The lexical-constructional associations clearly show that spatial configurational verbs encompass all three stages in their lexical specifications, as further illustrated below.

5.1.1. **Caused Motion: caused to move.** While denoting a caused motion event, the verbs are compatible with the typical path marker *dào*, which is the characteristic of the prototypical caused-motion verbs as in (29a-b) and also shows up in the use of *guà* and *diào* as in (29c-d):

- (29) a. 老師們帶小孩到公園 (Google 2015/04/22)
lǎo shī men dài xiǎo hái dào gōng yuán
 ‘The teacher brought the children to the park.’
- b. 故宮把文物遷到台灣
gù gōng bǎ wén wù qiān dào tái wān
 ‘The Palace Museum moved the antiques to Taiwan.’
- c. 母親把那些畫掛到牆上(Google 2015/04/22)
mǔ qīn bǎ nà xiē huà guà dào qiáng shàng
 ‘My mother hung the objects onto the wall.’
- d. 工人把貨櫃吊到山區
gōng rén bǎ huò guì diào dào shān qū
 ‘The workers hung the containers to the mountain

As we have seen from their distributional skewings in (5) above, among the three verbs, *diào* has the highest frequency with Agentive-transitive uses that pertains to a caused motion. Moreover, judged by its lexical collocates as spelled out in Section 4, it prefers to denote a transitive motion by taking an direct object of Theme, Goal, or Instrument and it occurs least often among the three verbs with the locative marker *zài* ‘be at’, but favors a more dynamic path marker such as *dào* ‘to’ or *qǐ* ‘up to’. Thus, *diào* can be said to behave more like a caused-motion verb, profiling the ‘caused-to-move’ stage of the event chain by denoting a volitional, agentive motion preceding a spatial configurational state.

5.1.2. **Locational Change: Caused-to-be-at.** As an entity is caused to move, it undergoes a locational change and ends up at a new location. This intermediate stage is profiled by the transitive use of the verb with a stative locative marker *zài*, while prototypical caused-motion verbs such as *bān*, *qiān* and *yí* would not collocate with the non-path marker *zài*. The full acceptability of *zài* with verbs of hanging to denote the stage of ‘cause-to-be’ is illustrated below:

- (30) a. 我把畫掛在牆上
wǒ bǎ huà guà zài qiáng shàng
 ‘I hang the painting on the wall.’
 b. 有人把炸彈懸在垃圾桶內
yǒu rén bǎ zhà dàn xuán zài lè sè tǒng nèi
 ‘Someone hangs a bomb in the trash can.’
 c. 湯姆克魯斯把自己吊在空中
Tom Cruise bǎ zì jǐ diào zài kōng jhōng
 ‘Tom Cruise wire-fly himself in the airs’

Although all the three verbs *guà*, *xuán* and *diào* are compatible with the locative marker *zài*, they have shown different constructional and lexical skewings as discussed above. Among them, the verb *diào* occurs least often with *zài*, demonstrating a more dynamic nature of its meaning. The verb *xuán* occurs more often in intransitive constructions with a Theme-Figure or Locative-Ground as the subject, thus profiling a more stative relation of spatial configuration.

The stage of ‘cause-to-be’ can also be realized as a locational change in an Inchoative Construction predicating the change of state of the moved Theme-Figure:

- (31) a. 畫掛在牆上了
huà guà zài qiáng shàng le
 ‘The painting has been hung on the wall.’
 b. 蚊帳已經吊起來了
wén zhàng yǐ jīng diào qǐ lái le
 ‘The mosquito net has been hung around the bed’

The Inchoative Construction describes the locational change of the moved entity with the Theme-Figure as the subject which collocates overtly with an inchoative aspect marker *le* or an inchoative path marker 起來 [*qǐ lái*] (up). Smith[18] contended that the aspectual marker ‘*le*’ signals inchoative point of an event which focuses on the initial point of the state. The inchoative change is then followed by a durative, stationary relation between the Figure and Ground that leads to the next stage of a relatively stable configurational state.

5.1.3. **Locative state: Figure-Ground spatial relation.** The third stage of the event chain is the final state of a configurational relation of Figure and Ground. The locative relation can be described from either a Theme-anchored or a Ground-anchored point of view. Although *guà*, *xuán* and *diào* can all signal the configurational relation, it is *xuán* that

shows the highest frequency in predicating the locative, as shown in (6) above.

5.1.3.1. **Figure-anchored Locative Intransitive.** After the Figure is placed at a specific location, the Figure will assume a spatial configuration with the Ground:

- (32) a. 畫掛在牆上
huà guà zài qiáng shàng
‘The painting hung on the wall’
- b. 兩隻褲管懸在椅上
liǎng zhī kù xuán zài yǐ shàng
‘The pants hung on the chair.’
- c. 一桿一桿的衣服吊在蛇窯周圍
yì gǎn yì gǎn de yī fú diào zài shé yáo zhōu wéi
‘A shaft of cloth hangs besides the snake cave.’

The examples in (32) are all headed by a Figure and denote its spatial position in relation to a Ground. This Theme-anchored Locative Intransitive construction is featured by the Figure taking the sentence initial position and collocating with the locative marker *zài*, as opposed to a motional path-marker.

5.1.3.2 **Ground-anchored Locative Intransitive: Locative Inversion.** The Ground-anchored locative intransitive construction is traditionally termed as Locative Inversion (LI). As already mentioned, Liu and Chang[11] re-defined Locative Inversion in Mandarin as a construction which encodes a Ground-to-figure relation. In predicating the Ground-to-Figure configuration, the existence of the Figure is certainly presupposed [12-13] but what is more important is the role of the Ground that serves to anchor the Figure as a spatial landmark:

- (33) a. 樹上掛著燈
shù shàng guà zhe/le dēng
‘On the tree hangs a lamp.’
- b. 樑上懸著一盞水晶燈
liáng shàng xuán zhe yì zhǎn shuǐ jīng dēng
‘On the beam hung a chandelier.’
- c. 井中吊著一盞蠟燭
jǐng zhōng diào zhe le yì zhǎn là zhú
‘In the shaft hang a cup of candle.’

The three stages of the event chain can actually render five different constructions that *guà*, *xuán* and *diào* may enter with varied frequencies. The five constructions help to express the progressional series from caused-to-move, to caused-to-be, to inchoative change of state, and finally to figure-anchored or ground-anchored spatial configuration. The event series gives rise to the polysemous uses of the verbs and provides the semantic motivation for their constructional associations.

5.2. **Event chain and lexical profiles of GUÀ, XUÁN and DIÀO.** The lexical-constructional associations not only demonstrate a cognitively salient event chain as discussed above, but also help to delimit the lexical profiles of the three verbs as they show varied frequencies in their distributional patterns. Based on their distributional preferences, we may plot the three verbs into the event series expressed by the five differentiated constructions with different semantic profiles. Among the three verbs, *diào* is most motional and dynamic, inclined to denote the Agent-initiated caused motion along a Path to a Goal; *xuán*, on the other hand, is most stative and durative in specifying the configurational state of the hung Figure typically detached or suspended from a Ground boundary; *guà* is the most prototypical and balanced verb of spatial configuration that display a full range of uses along the event schema. The lexical-constructional associations can be summarized and represented below:

(34) Lexical-constructional alignment along the event chain:

Event chain	Caused-to-move	Caused-to-be	Inchoative Change	Figure-to-Ground state	Ground-to-Figure state
	➡	➡	➡	➡	
Semantic Profile	Motional Path	Path Endpoint	Locational change	Spatial Configuration	Spatial Configuration
Construction	Agentive Trans. with <i>dào</i>	Agentive Trans. with <i>zài</i>	Inchoative construction	Theme-Locative	Locative Inversion
Associated Vs	<i>bān</i> , <i>guà</i> , <i>diào</i>	<i>fàng</i> <i>guà</i>	<i>fàng</i> <i>guà</i>	<i>fàng</i> <i>guà</i> , <i>xuán</i>	<i>fàng</i> <i>guà</i> , <i>xuán</i>

As clear in the table, the verbs may occupy different portions of the event chain as they lexicalize different semantic profiles [20] and demonstrate varied interactions with the associated constructions. Their behaviors confirm our initial claim that verbs go hand-in-hand with constructional patterns in defining the form-meaning mapping relations in Mandarin.

6. **Conclusion.** This study has examined the corpus distributions of the three ‘hang’ verbs *guà*, *xuán* and *diào* in Mandarin and showed that a lexical-constructional approach may be useful in differentiating the semantic ranges of each verb. It is proposed that the three verbs have different categorical membership based on their distributional skewings: *diào* is more of a volitional caused-motion verb, *xuán* is more of a stative predicate of configurational relation, and *guà* is the default verb of the class denoting a full range of the event series implicated by eventive inference from caused motion to locational change and then to Figure-Ground relation. The three verbs lexicalize varied semantic components and tend to be associated with different constructions that encode different stages of the event chain. It ultimately argues that verbs and constructions are mutually defining as verbs serve to

substantiate constructional frames and constructions help to delimit the categorical statuses of verbs. It is reasonable to conclude that verbs and constructions form a continuum of form-meaning mapping constructs and they are mutually dependent and interrelated as in a gestalt relation.

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