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Converging and diverging variations in metaphorization of light verbs: A corpus study on four Chinese speech communities

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Abstract

Metaphorization is a robust semantic process that underpins the development of grammatical categories and associated language variation and change. This study adopts a process-based approach to investigate variations in metaphorical extension of five common light verbs from different lexical sources in four Chinese speech communities: *jiyu*給 予 "GIVE", *yu*予 "GIVE", *jia*加 "ADD", *gan*幹 "WORK HARD", and *nong*弄 "FIDDLE". Drawing on longitudinal (1995-2016) and latitudinal (Hong Kong, Taiwan, Beijing, Shanghai) data from the Pan-Chinese corpus LIVAC (https://en.wikipedia.org/wiki/LIVAC_Synchronous_Corpus) we demonstrate that light verb develop differentially, ranging from uniform progression, significant variations, to even backward development. We also propose an innovative measure to quantify the distances in metaphorization between the regions and uncover that Chinese speech communities tend to converge on the process over time as led by Mainland Mandarin, despite clustering of Hong Kong and Taiwan and of Beijing and Shanghai, as also confirmed statistically. Based on the findings, we explore how the differential developments result from the interaction of underlying mechanisms of semantic change and lexical competition, as well as contact among Chinese varieties. Moreover, we highlight the importance of a corpus that rigorously monitors multiple regions in revealing covert variations in Global Chinese varieties.

1 Introduction

Language develops through changes such as enrichment of its lexical and grammatical repertoire. Thus there could be emergence of categorical shifts or new categories with semantic change (Heine et al., 1991; Hopper and Traugott, 2003, i.a.). Metaphors have been recognized to be instrumental in meaning extension from a concrete domain to an abstract domain (Traugott, 1982; Bybee and Pagliuca, 1985; Claudi and Heine, 1986; Sweetser, 1988). A salient case associated with robust metaphorization is **light verbs**, e.g., *give a person a slip*, where *give* loses the sense of ownership transfer and becomes semantically bleached, in contrast to the lexical "heavy" verb usage *give a person a book* (Jespersen, 1954, p.117ff; see also Cattell, 1984; Butt, 2010; Mohanan, 2017). Such **metaphorization** process is ubiquitous and can be found in the Germanic and Romance families (e.g., Alvarez-Morera, 2023; Pompei, 2023), Indo-Aryan languages (e.g., Hook, 1991; Butt and Geuder, 2003), Austronesian and Austroasiatic languages (e.g., Kwon, 2004; Nugraha, 2025), Sino-Tibetan languages including Tibetan (Lai, 2024) and Chinese (e.g., Diao, 2004; Tsou and Yip, 2020; Lu and Huang, 2023), among many others.

On the other hand, synchronic grammatical variations can reflect varying trajectories of diachronic grammaticalization processes (Weinreich et al., 1968; Brinton and Traugott, 2005). Nevertheless, little is known about the contribution of metaphorization to **language variations**. The issue is especially pressing in a language like Chinese, which lacks an inflectional morphology to signal grammaticalization and thus whose change and variation tend to be covert (Tsou and Ji, 2022; Yip and Tsou, 2022; Tsou et al., 2023), in particular under the Global Chinese context (Tsou and You, 2003; Lin et al., 2019; W. C. J. Yip and Tang, 2022).

Light verbs have drawn the attention of Chinese linguists since the introduction of Modern linguistics (Lu, 1999/1980, p.294; Wang, 1985, p.142). Zhu, in his seminal work in 1985, referred to them as "bleached verbs" 虛化動詞, and identified 6 with notably different lexical sources: *jinxing*進行 (from ENTER and WALK), *zuo*作 (MAKE), *jiayi*加以 (ADD), *geiyi*給以, *jiyu*給予 and *yuyi*予以 (all from GIVE). Several works followed up

on their grammatical properties (e.g., Zhou, 1987; Li and Chai, 1995; Yan, 1998; and many others). In 2004, corpus-based quantitative studies in different Pan-Chinese regions began to emerge. Diao, based on a self-curated corpus in Mainland China, extended the scope to *congshi*從事 (WORK), as well as to monosyllabic *zuo*做 (MAKE), *guo*搞 (MAKE), *gan*幹 (WORK HARD), *nong*弄 (FIDDLE/PLAY), *jia*加 (ADD), and *yu*予 (GIVE). In the same year, Wang (2004) also drew corpus data from Taiwan to compare *zuo*做, *guo*搞, and *nong*弄.

Areal differences were less noticed until Diao's comparison in 2012 on four Pan-Chinese regions (Mainland China, Hong Kong, Taiwan, and Macau), concerning *jinxing*進行 and *guo*搞; and Huang et al's work in 2014 (later developed into Jiang et al., 2016, 2021; and Xu et al., 2022) on the variations in Mainland and Taiwan Mandarin, concerning *jinxing*進行, *congshi*從事, *zuo*做, *guo*搞, and *jiayi*加以. Focusing on syntactic properties (e.g., aspectual markers and object types, etc.), they reached a common conclusion that light verbs in Mainland Mandarin are more grammaticalized than in Taiwan Mandarin. Diao additionally suggested a convergence of the four regions by observing borrowing of fixed expressions. Most recently, Tsou and Yip (2020) initiated comparison of metaphorization on a common but understudied light verb *da*打 (from HIT) in Beijing, Hong Kong, and Taiwan with LIVAC, and similarly concluded that Beijing had a higher degree of metaphorical shift than Hong Kong and Taiwan. They also traced the longitudinal differences in metaphorization of *da*-verbs and showed how the semantic process varies across the regions (see also Yip and Tsou, 2022 for extension to Macau). Lu and Huang (2023) and Kuo (2025) provided further insights that *yuyi*予以 and *jiayi*加以 are fully grammaticalized but *jiyu*給予 is still half-way through the process, largely based on Taiwan data.[1] While there have been fruitful results on the latitudinal variations in grammaticalization and on the development trajectories of light verbs in Chinese,[2] less attention has been given to study metaphorization and its longitudinal variations (except Tsou and Yip, 2020), as well as wider implication. This calls for a large-scale quantitative study to explore whether different varieties of Chinese converge or diverge and the possible causation.

The current study proposes a novel **process-based** approach to investigate the metaphorization variations in Chinese. The empirical basis consists of five light verbs: *jiyu*給予, *yu*予, *jia*加, *gan*幹, and *nong*弄. Unlike other light verbs that are fully metaphorized and no longer have the literal sense (e.g., *jinxing*進行 "do" and *jiayi*加以 "do/impose"), these five verbs are still undergoing metaphorization, as indicated by the polysemy between a literal meaning (lexical verb) and a metaphorical meaning (light verb), such as *jiyu shuben*給予書本 "give books" and *jiyu zhichi*給予支持 "give support". They offer us a window to probe into the dynamic *process* of semantic bleaching resulting from metaphorization, over time and across regions.

Adopting such a dynamic perspective, we draw data in LIVAC from 1995-2016 among four Chinese speech communities: Hong Kong (HK), Taiwan (TW), Beijing (BJ), and Shanghai (SH) to compare the differential developments in their metaphorization processes. The key findings are:

(i) Light verbs may develop differentially: while some have uniform progressions, some are still in flux and even develop "backwards";

(ii) There is a clear clustering between regions: the HK-TW cluster and the BJ-SH cluster;

(iii) Despite the clustering, Mainland Mandarin has been leading the metaphorization process: (a) the light verbs are overall more metaphorized in BJ and SH; (b) other regions, especially TW, converge with BJ and SH in recent years.

The rest of the paper is organized as follows. Section 2 introduces the corpus base LIVAC and the methodology for quantitative analyses. Section 3 overviews the polysemy and metaphorization of the five light verbs. Section 4 investigates the converging and diverging variations among the four speech communities. Section 5 concludes with remarks on the implications for light verb development and the importance of a rigorously curated corpus in large-scale measurement of variations in Global Chineses, as well as prospects.

2 Corpus base and methodology

Our data are drawn from the Pan-Chinese synchronous database LIVAC (Tsou and Kwong, 2015;

[1] They classified these three light verbs as the GIVE-group despite the fact that jiayi加以 comes from ADD.

[2] See also Cai et al. (2019) for comparison on "semantic prosody" between *jinxing*進行 and *shaodao*受到in different registers; Jiang (2020) for the event semantics of light verbs.

	HK	TW	BJ	SH
Jiyu 給	6570	**5202**	**13099**	**6766**
(%)	(22)	(37)	**(50)**	**(39)**
Yu 予	9667	1567	714	435
(%)	(32)	(11)	(3)	(3)
Jia 加	**10876**	**5132**	4136	3872
(%)	**(36)**	**(36)**	(16)	(22)
Gan 幹	947	1015	6894	3168
(%)	(3)	(7)	(26)	(18)
Nong 弄	2158	1206	1318	3097
(%)	(7)	(9)	(5)	(18)
Total	30218	14122	26161	17338
(%)	(100)	(100)	(100)	(100)

Table 1: Distribution of the five light verbs in 1995–2016 across regions

http://www.livac.org/),[3] featuring an innovative "Windows" approach that supports the process-based comparative perspective adopted here. Since 1995, LIVAC has regularly and rigorously cultivated over 750 million characters of representative media texts from Pan-Chinese communities including Beijing, Guangzhou, Hong Kong, Macau, Shanghai, Shenzhen, Singapore, and Taiwan, on a weekly basis and involving different subject domains. The curated data over three decades in LIVAC provide a unique basis for both latitudinal and longitudinal comparisons.

In total 87839 tokens of the five light verbs, *jiyu* 給予, *yu*予, *jia*加, *gan*幹, and *nong*弄, were found in LIVAC from 1995 to 2016 in HK, TW, BJ, and SH. A breakdown in Table 1 shows that the distribution is not even across regions. Boldface indicates the most common light verb(s) within a region (two for TW as the difference is less than 0.5%), and underlining indicates the top region in which a light verb is most frequently used as compared to other regions. Some clustering already emerges: while HK and TW use *jia*加 the most, BJ and SH (as well as TW) use *jiyu*給予 the most.

All raw sentences were assigned a random number (using Excel's `=RAND()`) and reordered. For each light verb, a maximum of 50 sentences were sampled from each year of two time periods: (a) 1995-2000, and (b) 2011-2016, from each region, giving **9781** sentences in total (i.e., over one tenth of total tokens). Both sampling and ordering are hence randomized, avoiding oversampling similar uses in consecutive sentences. Two annotators manually classified each token as literal (Type I), intermediate (Type II), or metaphorical (Type III) (criteria to be exemplified in Section 3), with disagreement adjudicated by a third annotator (i.e., each annotation is agreed upon by at least two annotators). To boost reliability, each rater attended a training session in which they were required to annotate a trial of 50 sentences with a follow-up work group meeting to resolve disagreement, before the actual annotation began. Krippendorff's alpha was measured for inter-coder reliability using the `irr` package in R (with `ordinal` metric). The pre-adjudication agreement level is satisfactory ($\alpha = 0.82$), which is improved further after adjudication ($\alpha = 0.93$, counting the adjudicator and the closest rater). A sample annotation guideline is provided in Appendix A.

We follow Tsou and Yip (2020) and quantify the metaphorization degree of each light verb w within a given region r with the **Metaphorization Index (MI)** (0=fully literal; 100=fully metaphorized):

$$MI_r^w = \frac{\left(\frac{t_{II}^w}{2}\right) + t_{III}^w}{t_I^w + t_{II}^w + t_{III}^w}$$

($t_{I/II/III}^w$ = raw tokens of Type I, II, or III uses of w)

Variations in metaphorization can be measured by comparing the MI of a given light verb across regions, and changes can be measured by comparing the MI in different time spans. Note that the distribution of light verbs is uneven across regions, which might induce potential bias. MI avoids this by calculating the ratio without counting in frequency, allowing direct comparison between regions.

Nevertheless, discarding frequency entirely might create confounds for the overall pattern. Although we may aggregate the MI of all light verbs, two caveats follow: (i) while w_1 may have a higher MI in r_x than r_y, w_2 may well have a reversed distribution, a distinction that would disappear after direct aggregation; (ii) even if w_1 has the same MI in both regions, it might be far more frequent in one region over the other, which is not reflected by the MI itself.

To measure the magnitude of variations without masking data as such, we propose the **Metaphorization Distance Index (MDI)** below. It calculates the distance in metaphorization across regions. For ease of interpretability and avoiding

[3] "Synchronous" means the corpus actively cultivates data every year and hence monitors development in real-time.

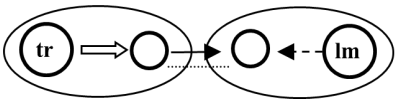


Figure 1: The image-schematic structure of TRANSFER (Langacker 2008, p.242)

confusion with MI, the MDI value is divided by 20 (hence, 0=closest; 10=furthest).

$$MDI_{r_y}^{r_x} = \frac{\Sigma_{i=1}^{n} |(t_{r_x}^{w_i} \times MI_{r_x}^{w_i}) - (t_{r_y}^{w_i} \times MI_{r_y}^{w_i})|}{20}$$

(r_x and r_y = two given regions; n-total number (type) of words; t_r^w and MI_r^w = normalized tokens and MI of a given word w in r respectively.)

The MDI sums the *differences* in the number of metaphorized tokens between two regions. The higher the MDI of r_x relative to r_y, the larger the difference between r_x and r_y. It is equipped with both word frequency and metaphorization degree to reflect synchronic variations in the above scenarios (i) and (ii). Longitudinal variations can be further measured by comparing the MDI values in different time periods.

Furthermore, we conducted **Ordinal Linear Regression (OLR)** by ORDINAL package in R (4.4.2), to model the degree of metaphorization (`Type I/II/III`) for each light verb. The model included `region` and `time` as fixed effects, along with their interaction, to examine whether regional variations and diachronic changes influenced the degree of metaphorization. Post hoc pairwise comparisons were performed to determine whether the latitudinal and longitudinal distributions of metaphorization types were statistically significant, with p-values adjusted using the Tukey method.

For a holistic analysis of the metaphorization process of all five light verbs in each region, we built a full model with three fixed effects from region, time, and individual verbs (`Type~region+time+verb`) to examine the variation due to these three factors and their contribution in the metaphorization process.

3 Metaphorization of light verbs

Metaphorization, according to Heine et al. (1991, p.46), "involves a transfer, or a mapping of an image schema [in the sense of Sweetser (1988)], from one domain of conceptualization onto another". It is a unidirectional process and proceeds from a concrete domain to an abstract one (Claudi and Heine, 1986), which results in generalization of meaning (Bybee and Pagliuca, 1985). During the course, semantic complexity may be lost with subsequent de-categorization, leading to development of a new category (Claudi and Heine, 1986). In other words, metaphorization is a process that leads to further semantic bleaching and grammaticalization.

The five light verbs under discussion are polysemous and have literal (**Type I**), intermediate (**Type II**) and metaphorical uses (**Type III**). The sample sentences extracted from LIVAC are given in the Appendix B. We propose that such polysemy is a result of metaphorization, and different senses share an image-schematic structure. One common schema is TRANSFER (Langacker, 1991, 2008; Halverson, 1999), which underpins the polysemy of GIVE verbs like ***jiyu***給予 and ***yu***予. In Figure 1, two participants are involved: the giver (trajector) and the recipient (landmark), with their own dominion (=ellipses). The trajector causes the object to move, such that the recipient gains subsequent access to it.

The literal uses of GIVE (I) involve a transfer of ownership of the object and corresponds to the TRANSFER schema, e.g., jiyu shuben給予書本 "give books". The object does not need to be tangible, e.g., jiang tudi chanquan yizhuan yu taren將土地産權移轉予他人 "transfer the land property right to the others". The intermediate uses (II) involve a causative meaning instead, e.g., yu ren yixiang shenke予人印象深刻 "impress people", where the impression is not "transferred" but rather caused by an individual to be perceived by another one, who is hardly counted as a recipient. Here, with conceptual metaphors (Lakoff and Johnson, 1980) like EMOTIONS ARE PHYSICAL OBJECTS, the causative uses can still be understood using the TRANSFER schema (Cervel, 2004). The same lexical items can thus extend their meaning from "transfer" to "cause". The metaphorical uses (III) like jiyu paichu給予排除 "to eliminate" and zai-yu qianghua再予强化 "to strengthen (it) again" only involve transitive actions "elimination" and "strengthening", and both GIVE verbs do not seem to contribute any concrete meaning. We regard these uses as genuine light verb usage, which, unlike Type I/II, can be replaced with other fully metaphorized light verbs yuyi予以/jiayi加以, and sometimes with jinxing進行, but generally not the lexical verb gei給 "give". Again, with the metaphor ACTIONS ARE PHYSICAL OBJECTS, this use conforms to the TRANSFER schema where an ac-

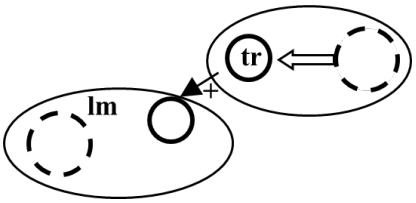


Figure 2: ADD's image schema

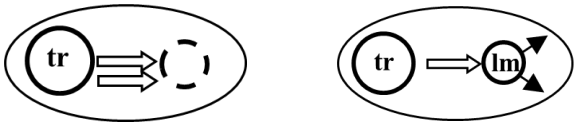


Figure 3 (left): WORD HARD's image schema
Figure 4 (right): FIDDLE's image schema

tion is imposed on the landmark by the trajector.

Jia 加 means addition of an object in its literal uses (I) like *jia shui* 加水 "add water" and *jia xi* 加戲 "add a scene". We propose an image schema of ADD in Figure 2: the object (trajector) is added to another object's dominion (landmark), forming a part-whole relation. The causer of the addition is backgrounded (dotted lines). Addition of an action/event is classified as intermediate uses (II), e.g., *jia kao* 加考 "have an additional exam" where *jia* serves as a manner modifier. Likewise, this use is enabled by the metaphor ACTIONS ARE PHYSICAL OBJECTS. The metaphorical light verb uses (III) do not contribute lexical meaning and can be replaced by the disyllabic *jiayi* 加以, e.g., *da-jia zanshang* 大加讚賞 "to praise greatly". This use falls under the image schema, where the causer (often foregrounded) "adds" a praise (via similar EMOTION/ACTION metaphors) to the target object that is understood as a person. The meaning of addition is also bleached, just like how the meaning of transfer is bleached for GIVE.

Gan 幹's literal sense (I) is WORK HARD, e.g., *gan zhonghuo* 幹重活 "do hard labor". Its image schema is in Figure 3, where the trajector imposes extra force on an underspecified, backgrounded object. The intermediate uses (II) are generalized to "work/engage in a job" with a foregrounded object and backgrounded effort, e.g., *gan baoan* 幹保安 "be a security guard" and *gan liang ge ban* 幹兩個班 "work two shifts". They can often be replaced with *congshi* 從事/*zuo* 做. We also regard the sense of "conflict" as intermediate uses, where the hard effort remains foregrounded, e.g., *dui-zhe gan* 對著幹 "to work against (someone)".

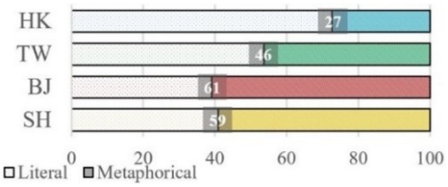


Figure 5: Aggregated MI of the four regions (95∼16)

The metaphorical uses (III) are fully generalized to "do" and can only be replaced with *zuo* 做, e.g., *gan shashi* 幹傻事 "do silly things" and *gan-xia duo qi xiji shijian* 幹下多起襲擊事件 "do/commit multiple attacks". Here, the object in the schema is a foregrounded vehicle for the event/action. Note that only one participant is involved, unlike GIVE and ADD.

Nong 弄 literally means FIDDLE (often with hands) (I), e.g., *nong toufa* 弄頭髮 "fiddle hair". Its image schema is in Figure 4, where the trajector causes an object (landmark) to move around but still within their own dominion. The intermediate uses (II) include "make" and "obtain", e.g., *nong zaocan* 弄早餐 "make breakfast" and *nong qian* 弄錢 "earn/obtain money", which we characterize as transformation of the landmark, either from an object A to B or from non-existence to existence. The metaphorical uses (III) include "do" (can be replaced with *zuo* 做) and "cause" (can be replaced with *gao* 搞), e.g., *nong shiqing* 弄事情 "do something" and *nong qingchu* 弄清楚 "make it clear". Again, these uses are covered by the image schema and EMOTIONS/ACTIONS ARE PHYSICAL OBJECTS, with the loss of semantic complexity that the objects move around repeatedly.

Next, we demonstrate how metaphorization of these five light verbs develops differentially.

4 Variations in Chinese

The overarching observation is that BJ and SH are highly advanced in metaphorization, followed by TW, whereas HK is the least sensitive. Figure 5 shows the aggregated MI in each region, i.e., the ratio of metaphorical tokens of all five light verbs. The results of the OLR model confirm the regional variations. BJ serves as the reference level for regional comparisons. Among the three regions, SH does not differ significantly from BJ ($B = -0.11$, $p = 0.085$). In contrast, HK and TW are significantly different from BJ. HK shows the greatest divergence ($B = -0.98$, $p < 0.001$), followed by TW, with a smaller but statistically meaning-

	HK	TW	BJ	SH
HK	0.0	**1.0**	2.5	2.2
TW	1.0	0.0	2.3	1.9
BJ	2.5	2.3	0.0	**1.3**
SH	2.2	1.9	1.3	0.0

Table 2: The MDI matrix of the four regions (95∼16) (boldface=lowest value for each region)

	HK	TW	BJ	SH
HK	0.0	**-0.6**	0.1	0.0
TW	-0.6	0.0	-0.1	**-1.5**
BJ	0.1	-0.1	0.0	**-1.1**
SH	0.0	-1.5	-1.1	0.0

Table 3: Change in MDI in the four regions (95∼00 vs. 11∼16) (boldface=lowest value for each region)

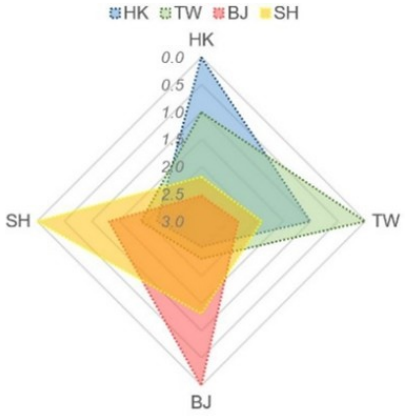
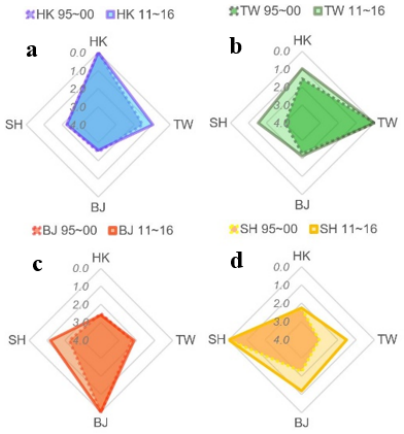


Figure 6: The radial graph of MDI of the four regions (95∼16)



Figures 7a-d: Radial graphs of change in MDI of HK, TW, BJ, and SH (95∼00 vs. 11∼16)

ful divergence, and a lower degree ($B = -0.15$, $p = 0.016$). As we will reveal below, however, the development of the light verbs is not uniform.

4.1 Convergence and divergence in the metaphorization process

First, clear **clustering** is obtained when measuring the distances between regions. The MDI of each pair of regions is given in Table 2, HK and TW are the closest to each other as indicated by the lowest MDI, so as BJ and SH. In contrast, HK-BJ is the most dissimilar pair, followed by BJ-TW and HK-SH. In other words, HK and TW converge together but diverge from BJ and SH in metaphorization. This is represented by the radial graph in Figure 6, where overlapping area indicates convergence and non-overlapping area indicates divergence.

Longitudinal comparison is achieved by subtracting the MDI value in 1995-2000 from that in 2011-2016, as shown in Table 3. Negative values signal a decrease in the distance, i.e., the two given regions have become more similar. Most values are negative, suggesting an overall convergence. The change in MDI is represented in Figures 7a-d for each region. Expansion of the light shaded area (from the dark one) indicates decreased distance (i.e., increased similarity) with other regions. HK tends to converge with TW whereas BJ with SH. On the other hand, TW also develops towards SH in addition to HK, and SH becomes more like both BJ and TW. Interesting, BJ does not converge towards TW, suggesting that SH's convergence with TW is independent of BJ's influence, which invites further explanation. Overall, we conclude that over time Chinese speech communities generally become more uniform in metaphorization.

To further observe the convergence/divergence of the light verbs in the four regions, we classified the light verbs into three groups: (A) in flux with significant variations; (B) uniform progression towards the final stage; (C) uniform incipient metaphorization with backward development.

4.2 Group A: Metaphorization in flux

The first group consists of GIVE light verbs *jiyu* 給予 and *yu* 予. As for *jiyu* 給予, all four regions are in the **mid-stage** of the process, with BJ and SH having the highest **MI** (both=**65**), followed by TW (**43**), and HK the lowest (**34**). *Yu* 予 shows a similar pattern except that it is more metaphorized in SH (88), BJ (84), and TW (60) but not in HK (23). The metaphorization process is led by BJ and SH.

Figure 8 and Figure 9 show the breakdown of

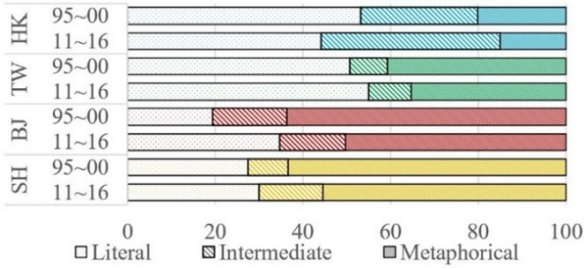


Figure 7: Variations in metaphorization of *jiyu*給予

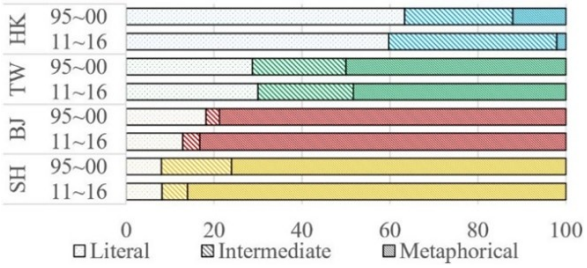


Figure 8: Variations in metaphorization of *yu*予

changes in each type of usage for both light verbs. HK shows an expansion of the intermediate usage. In addition, there is a complementary development in BJ and SH: they both have decreased metaphorical usage for *jiyu* 給予 yet increased metaphorical usage for *yu*. TW, on the other hand, remains relatively stable.

These observations are further confirmed by statistical analyses. BJ and SH show no significant difference in metaphorization for both *jiyu* 給予 ($B = -0.14$, $p = 0.420$) and *yu* 予 ($B = -0.01$, $p = 0.987$). However, HK and TW exhibit significantly lower odds of metaphorization for *jiyu* 給予 (HK: $B = -1.63$, $p < 0.001$; TW: $B = -1.20$, $p < 0.001$) and *yu* 予 (HK: $B = -3.04$, $p < 0.001$; TW: $B = -1.24$, $p < 0.001$).

4.3 Group B: Uniform progression

The second group consists of *gan* 幹 WORK HARD and *nong* 弄 FIDDLE. All the regions show uniform progression towards the final stage. For *gan* 幹, TW has the highest MI (81), followed by HK (76) and BJ (74), and lastly SH (69). *Nong* 弄 is more advanced overall, with HK having the highest MI (94), closely followed by SH (91), TW (88), and BJ (88). The breakdowns by usage are provided in Figure 10-Figure 11. BJ and SH share significant development of *gan* 幹 from intermediate usage to fully metaphorized usage, catching up on TW. HK shows a similar but weaker trend. *Nong* 弄 in BJ has additional progression of metaphorization, contrasting the slight regression in TW.

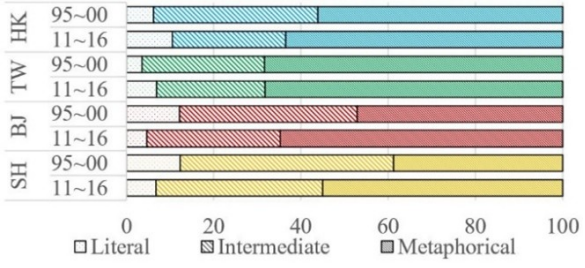


Figure 9: Variations in metaphorization of *gan*幹

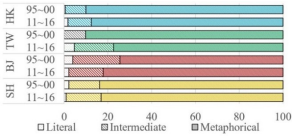


Figure 10: Variations in metaphorization of *nong*弄

Statistically, the pairwise comparison of regional variation supports the trend above. For *gan* 幹, BJ and SH show significant difference as compared to TW in 95-00, but in 11~16 only SH is significantly lower than TW in metaphorization ($B = -0.5$, $p = 0.032$). As for *nong* 弄, in 95~00, BJ has significantly lower metaphorization degree than HK ($B = -1.14$, $p < 0.001$), but it is no longer significant by 11~16 ($B = -0.42$, $p = 0.314$). Instead, a meaningful difference emerges between HK and TW during the latter period ($B = -0.74$, $p = 0.006$).

4.4 Group C: Incipient and backward development

The last group is a single light verb, *jia* 加ADD. Unlike other light verbs, its metaphorization is in an **initial stage** in all four regions, as indicated by its lowest **MI** values: **29** in TW, **13** in BJ, **11** in SH, and **10** in HK. Strikingly, all the regions show **backward development**, as illustrated by the breakdown in Figure 12. TW undergoes drastic regression, "catching up" on HK, BJ, and SH.

The model results of time-wise comparison within each region also highlight the uniform regression in metaphorization of *jia*加. There is a significant decline from 95∼00 to 11∼16 for BJ ($B = -0.986, p = 0.0001$), HK ($B = -0.739, p = 0.006$), and TW ($B = -1.731, p < 0.001$). For SH, the decline of metaphorization is slower with a marginal statistical significance ($B = -0.468, p = 0.073$).

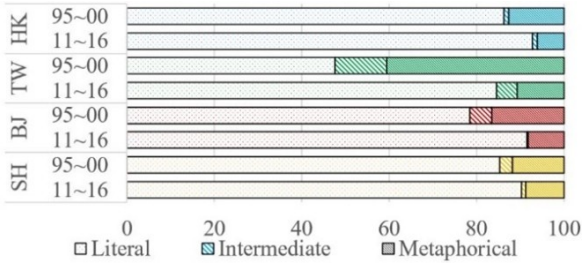


Figure 11: Variations in metaphorization of *jia*加

5 Concluding remarks

5.1 On the development of light verbs

One of our key findings is that light verbs are developed differentially, which may stem from some deeper mechanisms of categorial shifts as well as language variation and change. First, the grouping can be tied to the difference in their **image-schematic structures**. *Jiyu* 給予 and *yu*予 share the TRANSFER schema and show parallel variations in metaphorization (BJ/SH > TW > HK). On the other hand, *gan*幹 and *nong*弄, with similar uniform progression towards final stages, also both have a one-participant image schema, unlike TRANSFER with a second participant (recipient). Given that metaphoric extension is a systematic mapping between domains constrained by a semantic structure (e.g., Sweetser, 1988; Heine et al., 1991), light verbs with similar semantic structures are predicted to pattern together in diachronic development, which results in parallel synchronic variations. The grouping is corroborated by a previous insight that Chinese light verbs can be categorized into the GIVE-group and the DO-group (Jiang, 2020; Lu and Huang, 2023; Kuo, 2025). We suggest that the semantic underpinning of these two groups lies in whether a second participant is required in the underlying conceptual structures.

Second, some trajectories are attributable to **competition** among light verbs with similar semantic structures. *Yu*予 is ahead of *jiyu*給予 in metaphorization. They even show complementary development in BJ and SH: progression for *yu*予 but regression for *jiyu*給予. The preference of *yu*予 in expressing the metaphorical meaning is plausibly due to lexical competition and specialization of meaning to reduce the functional load of each lexical item (e.g., Clark, 1987). This perspective offers a potential explanation for the unexpected trends of jia加, which has backward development and contrasts the claim in Claudi and Heine (1986) that metaphorization is unidirectional. While ADD and GIVE both have a two-participant schema, they differ in the lexical inventories in Chinese. GIVE is lexic alized as the morphemes gei給 and yu予, whereas ADD is only lexicalized as jia加. Unlike yu予/jiyu給予, gei給 remains a lexical verb and lacks the light verb usage (e.g., ungrammatical *zai-gei qianghua 再給强化vs. zai-yu qianghua再予强化 "to strengthen (it) again").[4] It could well be that the lexical verb *gei*給 "frees up" the room of metaphorization for *yu*予 and *jiyu* 給予, but jia加 still bears the functional load to express the literal meaning, and hence the resistance to metaphorization. [5] Third, some convergence we witnessed can be traced to **contact** between speech communities. One such case is yu予 in BJ and SH, which associate with similar socio-cultural backgrounds. We notice that the significant increase of *yu*予's Type III uses in SH (11 16) is largely due to popular usage of *yu jianwaizhihang*予監外執行 "temporary releases (from prison)". In LIVAC, this usage first appeared in BJ in 1999 (see Appendix B Example (6)) but was not found in SH from 95∼00, which presumably entered SH in a later time. Another possible case is the advanced development of *gan*幹 and *nong*弄 in HK, which is unexpected given HK's general insensitivity to metaphorization (with the lowest MI), and low frequency of these two light verbs (see Table 1, in total only 10%). Both verbs are not commonly used in Cantonese, the predominant spoken language in HK, and hence are likely borrowed from other regions. If the time of borrowing is after the verbs well on the way to metaphorization, the uniform progression in HK can be explained.

5.2 Large-scale dynamic measurement of variations with LIVAC, and prospects

Using an innovative measure, MDI, we revealed how speech communities converge and diverge in metaphorization of light verbs, including the clustering of HK-TW and BJ-SH and the tendency of the four speech communities to converge as led by the Mainland. While the convergence has been suggested before (e.g., Diao, 2012a, 2012b), this study is the first of its kind to recruit a quantitative tool to measure **distances** between regions in light

[4] Interestingly, *gei*給 enters another grammaticalization path to become a benefactive marker, e.g., *gei ta zuo dangao*給他做蛋糕 "make a cake for him/her".

[5] How backward development arises might involve multiple factors and invites more future explanation.

verb development. By comparing the two time periods (95∼00 / 11∼16), the measurement is bidimensional for tracking down how the trajectory of a dynamic process varies. Such a measurement can only be developed with a large-scale synchronous corpus like LIVAC, with both latitudinal and longitudinal dimensions from 30 years of texts in 6 major Chinese speech communities. Its rigorous "Windows" approach validates the comparison between regions and between time periods. LIVAC therefore provides an important basis for the study of grammatical and semantic processes in Chinese.

The characteristic absence of overt markings of grammatical categories in Chinese does not shield it from universal grammatical processes such as metaphorization. This is also reflected by other cases where words which could have different grammatical functions such as being a noun or a verb, e.g., *ai*愛 "love" and 服務 "service/serve" (ta fuwu *shehui*他服務社會 "s/he serves the society" vs. *ta wei shehui tigong fuwu*他為社會提供服務 "s/he provides service to the society"). With a rigorously cultivated database, it can be shown that the preference in BJ for nominal uses, and hence more formal register, exceeds that in TW and HK (Kwong and Tsou, 2003). This contributes to the appreciation of **covert variations** within Chinese communities (Tsou and Ji, 2022) and deserves to be studied so as to better understand the Chinese language and its internal developments.

Achieving a better understanding of covert grammatical variations requires quantitative comparisons to measure the extent of a usage in a variety, which, under globalization, inevitably influences other varieties via cross-regional communication. A crucial task is to track the variations that may result from a change of feature-spreading from one region to another. This calls for a corpus **monitoring multiple regions**, which is uncommon in most existing ones. The current study showcases how a corpus with comparable cross-regional longitudinal data like LIVAC allows for systematic investigation of grammatical variation and change in **Global Chineses** (e.g., Tsou and You, 2003; Yip and Tsou, 2022).

5.3 Towards the future

Going forward, we plan to include more recent data after 2016 to closely monitor the development of metaphorization, as enabled by the unique synchronous feature of LIVAC. We expect to reveal more intricate converging and diverging variations between Chinese varieties.

We also expect the current approach to illuminate studies in different mechanisms of metaphorization, for example, via a metaphorical agency in the object as for another light verb *da* (Kwong and Tsou, 2003; Tsou and Yip, 2020). Instead of direct metaphorical extension via image-schematic structures, *da*'s metaphorization relies on the type of its object, forming a continuum from concrete, quasi-concrete (as in *dazao qicheye de hangkongmujian* 打造汽車業的航空母艦 "(forge) an aircraft carrier of the automotive business"), to abstract nouns. How argument structures interact with metaphorization, and furthermore, how variations in argument structures (see Jiang et al. 2016, 2021 for variations in verb transitivity) correlate with variations in metaphorization, are yet other intriguing questions awaiting exploration.

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A Sample annotation guidelines for yu 予

(*only instructions translated*)

Type I

- General meaning: Transfer ownership
- Object type: usually concrete nouns
- Auxiliary means for classification: Be able to identify and/or recover a **giver/subject**, a recipient/indirect object, and a patient/direct object.
- Examples:

- //外交部應會分階段，分國家，分地區、分時期，漸進◆予東協8國及印度免簽、落地簽或電子簽//
- No explicit patient: //甚至由法官/檢察官口述◆予書記官記錄//
- No explicit recipient or patient: //說得嚴苛點是「天◆予不取、反受其咎」。//
- No explicit give or recipient: //將◆予5-10萬元（人民幣）的獎勵//
- Property rights and power's (temporary) transfers count as Type I, e.g., //授權◆予董事會通過// and //始得將土地產權移轉◆予他人//
- Information transfer (via any media) count as Type I, e.g., //傳短訊◆予胞弟道別//

Type II

- General meaning: Causative/let/allow
- Object type: usually abstract nouns, as in: 「予...的感覺」"give... feeling"、「予...的印象」"give ... impression"、「予人口實」"give one's critics a handle"、「予人方便」"give convenience", etc.
- Auxiliary means for classification: usually can be replaced with *gei* 給"give"
- Examples:
  - //他不願◆予人以「鷹派」的印象//
  - //甚至◆予人有草率之譏//
  - //同時也跨海放映該會「重生」紀錄片◆予北京清大師生觀賞。//

Type III

- General meaning: Do/ implement an action
- Object type: usually eventive noun (including verb noun), as in: 「予支持」"support"、「予懲罰」"punish"、「予排除」"eliminate", etc.
- Auxiliary means for classification: cannot be replaced with *gei* 給"give"
- Examples:
  - //最近星國政府正打算修法再◆予强化//
  - //均◆予不起訴。//

Borderline cases

- ～建議 "suggestion": Type I (information)
- ～評級/評價 "rate": Type I
- ～榮譽 "honour": Type I
- ～時間 "time": Type II
- ～機會 "opportunity": Type II
- ～壓力 "stress": Type II
- ～回答 "answer": Type II
- ～保障 "protection": Type II
- ～自治 "autonomy", ～獨立 "independence": Type II
- ～豁免 "exemption": Type III
- ～安排 "arrangement": Type III
- ～肯定 "affirmation", ～關心 "care": Type III
- ～治療 "treatment": Type III
- ～指引 "guidelines": if the context implies actual guidelines (e.g., by distribution), count as Type I; otherwise Type III
- ～援助 "aid": if the context implies money or supplies, count as Type I; otherwise Type III

B Sample sentences of the five light verbs from LIVAC

The polysemy of **jiyu** 給予

(1) Type I: ownership transfer
*Wunv jianzhuang, jingkong xia quchu siqian yibai yuan **jiyu** zeiren* 吳女見狀，驚恐下取出四千一百元給予賊人 "Noticing the situation, Ms. Ng gives the robber $4100 in fear." (HK 1997)

(2) Type II: causative
*Jiji zhengqu guojia **jiyu** benshi xianshixianhang de teshu zhengce*積極爭取國家給予本市先試先行的特殊政策 "(Our city) strives for the "try first" special policy offered by the central government." (SH 2013)

(3) Type III: light verb DO, "impose"
*Yifa yigui jinxing jiemian yuetan, tongbao piping shenzhi **jiyu** xingzheng chufen*依法依規進行誡勉約談、通報批評甚至給予行政處分 "(The new government) legally performs exhortations, condemnations and even presents administrative punishments." (BJ 2014)

The polysemy of **yu** 予

(4) Type I: ownership transfer
*Guotai churang guquan **yu** Zhonxintaifu duonian*國泰出讓股權予中信泰富多年 "Cathay Pacific has been transferring their shares to CITIC Pacific for many years." (TW 1997)

(5) Type II: causative
*Qizhong you liang-wei zhuangaoren **yu** wo yinxiang shenke*其中有兩位撰稿人予我印象深刻 "Among them, two writers impressed me" (TW 2012)

(6) Type III: light verb DO, "impose"
*Dui youguan bumen banli jianxing, jiashi, zan-**yu** jianwaizhihang, baowaijiuyi zhong de weifaqing kuang, tichu jiuzheng yijian 9672 jianci*對有關部門辦理減刑、假釋、暫予監外執行、保外就醫中的違法情況，提出糾正意見9672件次 "According to the illegal situations in relative agencies' commutation of sentences, paroles, temporary releases and compassionate releases, rectifications are declared 9672 times." (BJ 1999)

The polysemy of **jia** 加

(7) Type I: addition of objects
*Jingye de shenjianhong shuo, ru **jia** zhe chang xi neng rang juqing geng you xiaoguo, mei wenti*敬業的沈建宏說，如加這場戲能讓劇情更有效果，沒問題 "The dedicated Shen says, 'No problem if adding this scene makes the plot more impressive.'." (TW 2015)

(8) Type II: addition of events (manner)
*Zai bixuankao de yi men kemu zhiwai , zai yaoqiu **jia**-kao yi zhi liang ge kemu*在必選考的一門科目之外，再要求加考一至兩個科目 "Apart from the single compulsory subject, one or two subject(s) is/are required to be additionally taken." (SH 1998)

(9) Type III: light verb DO, "impose"
*Bushaoren dui qiaobusi da-**jia** zanshang*不少人對喬布斯大加讚賞 "Many people greatly praise Jobs." (BJ 2012)

The polysemy of **gan** 幹

(10) Type I: "work hard"
*Quancun nannvlaoyou da-**gan** ku-**gan***全村男女老幼大幹苦幹"The whole village, men and women, young and old, all worked hard through the tough jobs." (BJ 1995)

(11) Type II: "work/engage in a job"
*Cong biaomian shang kan **gan** de shi guoji zixun yewu zhe yi hang*從表面上看幹的是國際諮詢業務這一行 "It looked like they were doing the international consulting business from the surface." (SH 1996)

(12) Type II: "conflict"
*Buguo Yashi xinwenbu que andili "dui-zhe **gan**"* 不過亞視新聞部卻暗地裏「對著幹」"But ATV news department was working against them secretly." (HK 2011)

(13) Type III: Light verb DO
*Ni haipa wu-**gan** shashi*你害怕誤幹傻事 "You're afraid of doing something stupid by mistake." (TW 2015)

(14) Type III: Light verb DO, "commit (crimes)"
*Youde huangniu luzi geng wai, zhijie **gan**-qi-le jiapiao goudang* 有的黃牛路子更歪，直接幹起了假票勾當 "Some ticket scalper even took a dirtier route and went straight into selling fake tickets." (SH 2014)

The polysemy of **nong** 弄

(15) Type I: "fiddle, play" (often with hands)
*Chenrongsen geng chen Keyi **nong** toufa zhiji, liuzhidaji*陳容森更趁可頤弄頭髮之際，溜之大吉 "Chan Yung Sam quietly ran away while Ho Yee was fixing her hair." (HK 2000)

(16) Type II: creation, "make"
*huidao jia hai de wei qinv he liang ge gege **nong** chide*回到家還得為妻女和兩個哥哥弄吃的 "He still had to prepare food for his wife, daughter, and two brother when he got home. " (SH 1996)

(17) Type II: "obtain, get"
Qiudui de mubiao shi "zhan dian xianqi, tian

dian baqi, ***nong*** *dian yunqi, xue dian caiqi"* 球隊的目標是「沾點仙氣，添點霸氣，弄點運氣，學點才氣」 "The team's goal is to "Catch some magic, add some aura, get some luck, and have some talent" (SH 2013)

(18) Type III: light verb DO
Laoyang, zhe ge shi ni kan zenme ***nong*** *a?*老楊，這個事你看怎麼弄啊？"Old Yang, how should we do about this?" (BJ 2013)

(19) Type III: light verb CAUSE
bushao guanzhong bei ta paianjiaojue de fangshi ***nong****-de xinyangyang*不少觀眾被他拍案叫絕的方式弄得心癢癢 "Many viewers got excited by his amazing selling style." (TW 2016)