VUPMC: A New Political Metaphor Corpus in Mandarin Chinese

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Abstract

This article proposes the Conventional and Novel Metaphor Identification Procedure (CNMIP) for Mandarin Chinese and applies this replicable protocol to annotate the VUPMC dataset, a new Political Metaphor Corpus developed at VU University Amsterdam. The VUPMC corpus contains three Chinese political genres (Policy Documents, Remarks, News Reports) and includes over 220,000 tokens of concordance sentences for the node word 贸易 'trade'. The corpus analysis shows that 6.64% of lexical units in the VUPMC dataset are used as metaphor-related words (MRWs) to frame trade (e.g., using 'war' to frame trade as a war). Further tests show that distributions of MRWs differ significantly across genres and Parts of Speech. Similarities in MRW distributions between the VUPMC and other datasets confirm the reliability of the CNMIP procedure. The differences, however, highlight the methodological advances in manual annotation of conventional and novel MRWs as well as the distinctive features of Chinese political genres. The VUPMC dataset serves as a valuable language resource for computational detection of Chinese conventional and novel metaphors.

Keywords: Chinese corpus analysis, conventional metaphor, novel metaphor, metaphor identification procedure, political metaphor corpus, CNMIP, MIPVU, VUPMC, VUAMC

1. Introduction

Lakoff and Johnson (1980) challenge the traditional view that metaphor is only a linguistic ornament and instead argue that it is a cognitive device. Their cognitive approach to metaphor has attracted researchers from different disciplines, e.g., cognitive linguistics, psychology, communication studies, discourse analysis, and natural language processing (NLP). These metaphor researchers reject Lakoffian handcrafted examples and rely on corpus-assisted approaches (e.g., Stefanowitsch, 2006) or dictionary-based strategies (e.g., Steen et al., 2010a,b) to identify recurring metaphorical patterns in large, natural language data. Although their identification methods have revealed the principles of linguistic systems (Partington, 2006), significant challenges remain.

One limitation is that current research has focused on binary metaphor identification that only distinguishes literal from metaphorical language (Tan and Bloem, 2024). Very few studies have identified conventional metaphors (widely known metaphorical expressions) and novel metaphors (innovative or creative metaphorical expressions) in Mandarin Chinese (Tan, 2023). The lack of identification protocols that make this metaphoric distinction results in the scarcity of publicly available, large-scale, annotated datasets about the Chinese conventional and novel metaphors across genres. This in turn constrains the comprehensive detection of metaphors in NLP (Djokic et al., 2021; Do Dinh et al., 2018; Neidlein et al., 2020).

Against this background, Reimann and Scheffler (2024) emphasize the significance of dictionary-based protocol for conventional and novel metaphor identification, as the existing Large Language Models (LLMs) (Do Dinh et al., 2018; Neidlein et al., 2020; Ge et al., 2023) were largely trained on crowdsourced, incorrect annotations. In response to this challenge, I propose a replicable procedure (CNMIP) to identify conventional and novel metaphors in Mandarin Chinese through lexical tools (particularly dictionaries), thereby improving existing metaphor identification methods and methodologically advancing metaphor research. This procedure was systematically applied by three native Chinese metaphor experts to annotate the VUPMC dataset[1] in Mandarin, a new political metaphor corpus developed at VU University Amsterdam.

The VUPMC corpus is a large and diverse corpus that comprises three Chinese government genres: News Reports, Remarks in political interviews, and Policy Documents. This new metaphor dataset can serve as a valuable language resource for NLP research that relies on annotated metaphor corpora to evaluate language technology. By comparing metaphor distributions across genres and parts of speech (POS), and comparing my results with prior research, I evaluate the reliability of the CNMIP coding procedure and offer new insights into the use of conventional and novel metaphors in Chinese political discourse (Lu and Wang, 2017).

[1] https://github.com/Tansjoukje/The-VUPMC-dataset

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2. Related work

2.1. MIPVU in VUAMC and LCMC

The current linguistic metaphor identifications in Mandarin follow Steen et al.'s (2010b) Metaphor Identification Procedure VU University Amsterdam (MIPVU), a method originally developed for English and Dutch. Annotated using MIPVU, the VU Amsterdam Metaphor Corpus (VUAMC) contains about 190,000 lexical units in four registers: conversation, fiction, academic, and news.

Lu and Wang (2017) adapt MIPVU for Mandarin; the same procedure is reported in Wang et al. (2019). Lexical units are defined by POS, with the same word in different POS tags treated as different units and multi-word expressions with one POS tag as a single unit. As Mandarin lacks white-space delimiters, determining lexical units is challenging. To address this, texts were sampled from the Lancaster Corpus of Mandarin Chinese (LCMC) (Xiao, 2017), which was word-segmented and POS-tagged using the ICTCLAS system (Zhang et al., 2003). Three registers (news, fiction, and academic) were annotated, totaling about 30,000 lexical units. Dictionaries are used to assist their decisions regarding the status of lexical units, the contextual and basic meanings of the lexical units, and the degree of distinctness between the two meanings. Following MIPVU, they annotate five categories: indirect metaphors, direct metaphors, implicit metaphors, WIDLII (when in doubt, leave it in), and metaphor flags. Despite the significance of VUAMC and LCMC datasets, neither of them distinguish conventional and novel metaphors.

2.2. Conventional and novel metaphors in NLP

Computational research on conventional and novel metaphors is scarce (Tong et al., 2021), despite their importance (Shutova, 2015). First, these two metaphor types are not clearly defined or remain undefined (cf. Pedinotti et al., 2021). For example, Neidlein et al. (2020) equate novelty to the overall rare frequency of words in the VUAMC. Second, metaphors at both conceptual and verbal levels are conflated (cf. Gedigian et al., 2006). For example, Tong et al. (2021) define novel metaphors as unentrenched conceptual metaphors but illustrate this with linguistic metaphors from the VUAMC. Third, automatic metaphor detection are trained on the VUAMC that primarily contains indirect metaphors. This limits the evaluation of systems for detecting conventional and novel metaphors (e.g., Haagsma and Bjerva, 2016). Fourth, inaccurate crowdsourced annotations increase the risk of misclassifying conventional and novel metaphors. For example, Do Dinh et al. (2018) ask crowdworkers to assign novelty scores (−1 to 1) to 15,180 metaphor-related words (MRWs) in the VUAMC. Subjective ratings even vary for the same MRWs in identical contexts; for instance, the same word 'block' scored .176 and −.029 in the sentence '[...]building our state block by block[...]'. Moreover, the thresholds for novelty scores adopted in this and subsequent studies (e.g., Do Dinh et al., 2018; Neidlein et al., 2020) frequently lead to conventional metaphors being mislabeled as novel.

Rejecting crowdsourced annotations, Reimann and Scheffler (2024) use Longman Dictionary of Contemporary English (LDOCE) to classify MRWs as novel if their contextual senses are absent from the dictionary, and as conventional if both basic and contextual senses present. They re-annotated a dataset of deliberate metaphor from the VUAMC (Reijnierse et al., 2019) and identified 412 novel MRWs out of 1,160 MRWs, achieving a moderate inter-coder agreement (Cohen's κ = .73). As the original dataset may not capture all conventional and novel metaphors in the VUAMC, Reimann and Scheffler's (2024) annotation errors further limit the accuracy of the new dataset. In addition, the small size of this new dataset, like that of Del Tredici and Bel (2016) and Dunn (2014), limits the evaluation of metaphor detection systems.

I seek to be the first to systematically identify conventional and novel metaphors in Mandarin. The current, creative metaphor datasets in Mandarin are annotated by untrained crowdworkers and cover only specific grammatical constructions. For example, Li et al. (2022) identify creative nominal metaphors from 55,000 Chinese sentences through crowdsourced annotations. Shao et al. (2024) detect creative similes—defined as tenor_vehicle pairs in subject_object relations (e.g., 'her smile was like sunshine')—from about 153,000 Chinese literary sentences through crowdsourced annotations. Despite good inter-coder agreement (e.g., Cohen's κ = .84), their coding procedures lack transparency and replicability.

2.3. Conventional and novel metaphors in applied metaphor research

In applied metaphor research, cognitive linguists (e.g., Dorst, 2015; Steen et al., 2010a) differentiate conventional and novel metaphors with reference to Metaphor Career Theory (Bowdle and Gentner, 2005): Novel metaphors are cognitively processed through comparison, and conventional ones through categorization. From a corpus perspective, Steen (2011) and Steen et al. (2010b) define conventional metaphors as those whose basic and contextual meanings appear in corpus-based

dictionaries and novel metaphors as those whose contextual meanings do not. However, novel metaphors are rare in natural language, which leads discourse analysts to use limited data to qualitatively analyze metaphoric functions in a single register (e.g., Hesabi et al., 2021; Knudsen, 2005; Zibin, 2022) or rely on made-up examples (e.g., Benczes, 2013; Wearing, 2014) to explore cognitive mechanisms. Psychologists (Lai et al., 2009; Silvia and Beaty, 2012; Tang et al., 2017) study how different factors (e.g., familiarity, originality, fluency) affect the processing of these two metaphor types, but their metaphoric stimuli sometimes use inaccurate, non-natural language examples (e.g., Strugielska, 2015). So far, reliable methods remain limited to small multimodal datasets, and no replicable procedure exists for identifying conventional and novel metaphors in language (Fuoli et al., 2022; Gaskins et al., 2024), particularly in Mandarin (Tseng and Chuang, 2022).

3. Method

To address the current research gaps, I propose CNMIP, a replicable Conventional and Novel Metaphor Identification Procedure for Mandarin. Developing Steen et al. (2010a,b) and Lu and Wang (2017), CNMIP uses lexical tools and corpus methods to treat Chinese lexical units with rigor.

3.1. Corpus

The VUPMC dataset is a political corpus retrieved by searching terms 贸易 'trade' in titles and bodies of text from Renming database, the largest official database of the Chinese government.[2] The raw corpus contains 1907 articles about trade across three government genres (Policy Documents, News Reports, and Remarks; see Table 1) from 2017 to 2021, totaling 3,235,258 words (Tan et al., 2024). Annotated concordance sentences with trade as the node word total 220,895 tokens. The VUPMC enables cross-corpus comparison of Chinese MRWs with Lu and Wang's (2017) LCMC and cross-linguistic comparison with Steen et al.'s (2010b) VUAMC. Similar to the academic register in the VUAMC, the Policy Document genre is formal and abstract, consisting of documents that convey policy information. News Reports, like the news register in the VUAMC, are informational and persuasive. Remarks include interviews from press briefings and conferences, with interactive Q&A sequences similar to the spoken register in the VUAMC. The VUPMC was segmented into words by lexical systems of the Sketch Engine (Kilgarriff et al., 2014) and POS-tagged by the Stanford Log-linear POS Tagger (Toutanova et al., 2003) using the Chinese Penn Treebank tagset.

Table 1: Document types across political genres

Genre	Types of political documents
Policy Documents	政府工作报告 'Chinese Government Work Reports'; 国家政策信息 'Important Information on Chinese Policy'; 共产党重要文献信息 'Important Documents and Information on the Chinese Communist Party'
News Reports	人民日报新闻报道 'News Reports from People's Daily'; 领导人活动报道 '(News) Reports of Leaders' Activities'
Remarks	外交部发言人言论 'Remarks by the Spokesmen of the Ministry of Foreign Affairs (in Press Briefings and Press Conferences)'

3.2. Tools

Following MIPVU, I define lexical units by word class and use lexical tools to determine their basic and contextual meanings. As there are no fully corpus-based dictionaries in Mandarin, I use 现代汉语词典 'Contemporary Chinese Dictionary' (CCD) and 汉典 'Dictionary of Chinese' (DC). CCD is the only Mandarin Chinese dictionary that partially uses corpus tools to compile entries, while DC (`zdic.net`) is an online dictionary providing comprehensive word definitions. Both dictionaries are authoritative and updated, with examples illustrating each sense. For idiomatic expressions (成语 'idioms', 惯用语 'short frequent expressions', 歇后语 'two-part allegorical sayings', and 谚语 'proverbs') that are not recorded in these two dictionaries, I resort to 成语大全 'Idiom Encyclopedia' (IE; `chengyudaquan.org`) and 百度百科 'Baidu Baike' (BB). IE is the most comprehensive online idiom dictionary, containing over 90,000 idiomatic expressions. BB is a digital encyclopedia that supplements dictionaries by including unrecorded entries, having over 30,000 idioms, 8,000 short frequent expressions, 15,000 two-part allegorical sayings, and 12,000 proverbs.

Like Lu and Wang (2017), I use punctuation marks and conjunctions to delimit distinct senses of a lexical unit. For instance, in DC the verb 上升 'rise' is defined as 位置、等级、程度、数量等由低向高移动 'the movement of location, rank, degree, quantity, etc. from low to high'; the concrete sense of 'location' is listed alongside the abstract senses of 'rank' and 'degree', separated by the slight-pause mark ('、'). I treat the concrete sense

[2] http://data.people.com.cn/

as the basic meaning, since the abstract uses are derived from it.

I use the Chinese Web (2017 edition) and BCC (BLCU Corpus Center) corpora when lexical units are not recorded in abovementioned lexical tools. The Chinese Web corpus is the largest general corpus in Mandarin available in Sketch Engine, allowing metaphor identification through corpus statistics. The BCC corpus is the largest contemporary general corpus in Mandarin, covering new words and novel uses of existing words across genres (e.g., microblog, news, and fiction).

3.3. Segmentation of Chinese-specific lexical units

POS errors in the VUPMC are corrected by following the ICTCLAS tags. Segmentation errors, mainly caused by incorrectly tagging fixed multiword expressions as separable words, were corrected with reference to the BCC corpus and dictionaries. For example, the idiom 命悬一线 ('someone's life hangs by a thread') is incorrectly segmented into four words. It is corrected as a single lexical unit as it appears as one entry in IE. Unlike Lu and Wang (2017) and Steen et al. (2010b), who treat certain proper names (e.g., personal names) and idioms as separate lexical units, CNMIP regards all proper names and idioms as indivisible units, since they designate a single referent or process in discourse. Additionally, CNMIP treats a Chinese compound as a single lexical unit if it is listed as one dictionary entry or segmented by Sketch Engine as one lexical unit in the VUPMC. However, verb–object compounds (VOCs) and resultative verb compounds (RVCs) are separable. When they are segmented by Sketch Engine into separate words with individual POS tags, each word is treated as a distinct lexical unit.

3.3.1. Verb–object compounds (VOCs)

VOCs are composed of a verb and a direct object in syntactic relation (Li and Thompson, 1981), which display different degrees of separability (Badan, 2013; Feng, 1998; Huang, 1984). CNMIP uses strict criteria to determine whether VOCs are separable. Following Badan (2013), VOCs are separable if they violate any of the four criteria: (1) the object of VOCs can neither be topicalized nor appear in the 把 'ba' construction; (2) VOCs can take an additional object but do not allow a copying construction of the verb; (3) VOCs can be only in ABAB rather than AAB lexical form; (4) the verb of VOCs cannot occur alone without its overt object and the object of VOCs cannot be replaced with another object. For example, the VOC 薅羊毛 hāo-yángmáo 'pulling up-wool; getting the best deal' is segmented as a single lexical unit and labeled as a verb when used intact. However, it is separable because it violates each of the four criteria for inseparability. For example, it violates criteria 3 because It's ABAB form (薅羊毛薅羊毛, hāo-yángmáo-hāo-yángmáo) is grammatically incorrect but its AAB form(薅薅羊毛, hāo-hāo-yángmáo) is grammatically correct. When used separably, as in 薅全球贸易的羊毛 'pull up global trade's wool' in the VUPMC, 薅 'pull up' and 羊毛 'wool' are treated as two distinct lexical units, each with its own POS tag. Both units are metaphorical because their contextual senses (get; the best deal) are understood by comparison with their basic senses (pull up; the wool). Their metaphorical uses are cognitively motivated by the bodily experience of collecting wool from sheep. Similarly, other VOCs in the VUPMC, such as 挖墙角 'poach' and 翻烧饼 'change the situation' are separable. When used separably, each lexical unit (挖 'dig', 墙角 'wall corner'; 翻 'turn', 烧饼 'baked roll') receives its own POS tag.

3.3.2. Resultative verb compounds (RVCs)

RVCs appear as V1V2(V3), where V1 indicates the action and V2 and/or V3 indicates the result. Though more lexicalized than VOCs, some directional and attainment RVCs are separable, as different verbs function as salient event structures (Chen, 2017; Deng, 2018; Kang, 2001). When the negative morpheme 不 'not' is inserted between V1 and V2, it indicates that the action expressed by V1 cannot achieve the result expressed by V2. Idiomatic negative attainment RVCs in the VUPMC are taken as single lexical units (e.g., 经不起 'can't withstand') rather than separate units (e.g., 经-不-起 'endure-not-stand' as proposed by Lu and Wang, 2017). However, non-idiomatic negative forms in the VUPMC are segmented into three separate units, like 带不来 'bring-not-arrive; not bring'. Directional and attainment RVCs (e.g., 做下去 'do-go down; to continue'; 拉出来 'pull-come out; pull out'), with resultative endings (e.g., 下去 'go down'; 出来 'come out') are taken as two lexical units (V1-V2V3) rather than three (V1-V2-V3 as proposed by Lu and Wang, 2017). The endings V2V3 are often metaphorical, as their basic meanings denote directional actions or movement attainment.

3.4. (De)lexicalized verbs

I exclude delexicalized verbs with low lexical content (e.g., 弄/搞/干/打/做 'make/do') but annotate their lexical counterparts (Feng, 1998; Sinclair and Renouf, 1988; Xie, 2008). For example, I code 打 'fight' in phrases like 打仗 'fight a battle' because here it is a lexical verb carrying the basic sense of 攻击 'attack' in CCD and DC.

4. Metaphor Annotation

MRWs are limited to (i) words within concordance sentences containing the node word 贸易 'trade', and (ii) words denoting trade metaphors, where trade is the target domain. Hence, the lexical unit 支持 'support' in the sentence 中国坚定支持贸易自由化 'China firmly supports trade globalization' is annotated by CNMIP as an MRW because it indicates a trade-related metaphorical mapping (TRADE IS A PHYSICAL OBJECT).

Three dictionaries (CCD, DC, IE) and one digital encyclopedia (BB) serve as four primary lexical tools. Idiomatic expressions recorded with only contextual meanings in any of these tools are coded as conventional MRWs, as their basic meanings can be inferred from the basic sense of each constituent. The remaining lexical units that are recorded with only contextual meanings in CCD or DC are taken as non-MRWs.

4.1. Lexical units recorded with both basic and contextual meanings in primary lexical tools

When a lexical unit has both basic and contextual meanings in any of the four primary lexical tools, I follow three steps to identify whether it is a conventional MRW.

Step 1: Determine the basic and contextual meanings of the lexical unit.

Step 2: Assess whether its basic meaning is distinct from its contextual meaning. If it is, proceed to Step 3; if not, code the lexical unit as non-MRW and return to Step 1 to analyze the next lexical unit.

Step 3: Determine if the contextual meaning can relate to the basic meaning through a cross-domain mapping of trade. If yes, classify the lexical unit as a conventional MRW. For example, 支持 'support' in the phrase 支持贸易 'support trade' is a conventional MRW because both its contextual meaning (赞同、鼓励 'agree; encourage') and basic meaning (支撑 'hold something in position') are recorded in DC, and its contextual meaning can be interpreted by comparison with its basic meaning.

4.2. Lexical units recorded with only basic meanings in primary lexical tools

4.2.1. Lexical units with a relative frequency below .05 times per million tokens

Current studies (cf. Sections 2.2 and 2.3) classify words as novel MRWs if only their basic meanings, but not contextual meanings, are listed in corpus-based dictionaries. CNMIP does not follow this criterion, as Chinese dictionaries are not fully corpus-based and lag behind actual usage. A relative frequency threshold of .05 per million tokens is applied to filter false positives, since using Chinese dictionaries alone may overcount novel MRWs due to under-documented metaphorical uses. Hence, a lexical unit, which falls below this threshold in the Chinese Web corpus and has only basic meanings in the CCD and DC, is coded as a novel MRW when its contextual meaning in the VUPMC can be inferred from its basic meaning.

4.2.2. Lexical units with a relative frequency over .05 times per million tokens

If a lexical unit occurs over .05 times per million tokens in the Chinese Web corpus and its contextual meaning in the VUPMC can be understood by comparison with its basic meaning in any of the primary lexical tools, I further examine its collocation statistics. First, if its significant collocates above the threshold value include both abstract and concrete words, it is coded as a conventional MRW. The threshold is calculated using Ahrens and Jiang's (2020) 'mean of means' formula

$$\text{Thresh.} = \frac{1}{n-1}\sum_{i=1}^{n-1}\text{Mean}(\text{Saliency}_1, \ldots, \text{Saliency}_{i+1})$$

which averages the mean association strength (saliency value) of all collocates in a corpus, by the WordSketch interface of Sketch Engine. Saliency values reflect how strongly each collocate is statistically linked to the node word.

(1) 众多国家在二战后被纳入了全球化的生产贸易链条。'Many countries were incorporated into the globalized production and trade chain after the World War II.' (People's Daily, 22/07/2017).

Table 2: Values of collocates (noun_modifier) of 链条 'chain' in the Chinese Web corpus

Collocate	Freq.	Saliency	Mean
利益 'interest'	6,654	8.8	-
产业 'industry'	42,075	8.6	8.700
抵扣 'deduction'	1,306	8.2	8.533
证据 'evidence'	1,129	7.5	8.275
供应 'supply'	1,675	7.0	8.020
正时 'timing'	367	6.7	7.800
起重 'lifting'	410	6.7	7.643
传动 'transmission'	534	6.3	7.475
价值 'value'	1,574	6.1	7.322
逻辑 'logic'	776	6.0	7.190
链轮 'sprocket'	207	5.9	7.073

In Example 1, 链条 'chain' has only basic meanings in CCD and DC (e.g., 机械上传动用的链子

'mechanical transmission chain') and occurs over .05 times per million tokens in the Chinese Web corpus. It is modified by 贸易 'trade', a collocate functioning as a noun modifier. Accordingly, I extract the collocation frequencies of all collocates (noun_modifier) of 链条 'chain' in the Chinese Web corpus. Table 2 shows that its significant collocates above the threshold value (5.63) are mostly abstract (e.g., 利益 'interest') and few concrete (e.g., 起重 'lifting'). This means that while its concrete use is significantly present, its metaphorical (non-concrete) use, as in Example 1, is more dominant. It is thus a conventional MRW.

Second, if all significant collocates of a lexical unit above the threshold in the Chinese Web corpus are concrete, its basic sense is considered significantly primary and thus its metaphorical use is novel. For example, 蛋糕 'cake' has only a basic meaning in CCD and DC: 由鸡蛋、面粉以及糖、油等制成的一种松软的糕点 'a soft pastry made from eggs, flour, sugar, oil, etc.'. In Example 2, it is modified by 贸易 'trade', a collocate functioning as a noun modifier. Table 3 shows that its significant collocates (noun_modifier) above the threshold (6.99) are all concrete including brands and types of cake. This indicates that 蛋糕 'cake' is significantly used in a concrete sense, making its metaphorical use in the trade context relatively novel. Therefore, it is identified as a novel MRW.

(2) 共同做大服务贸易蛋糕。'Jointly expand the cake of service trade.' (People's Daily, 21/07/2017).

Table 3: Values of collocates (noun_modifier) of 蛋糕 'cake' in the Chinese Web corpus

Collocate	Freq.	Saliency	Mean
生日 'birthday'	27,660	11.7	-
雅达 'Yada'	7,576	10.5	11.10
巧克力 'chocolate'	5,289	9.6	10.60
芝士 'cheese'	3,832	9.6	10.35
水果 'fruit'	4,431	8.6	10.00
戚风 'Qifeng'	1,693	8.4	9.73
婚礼 'wedding'	3,345	8.4	9.54
慕斯 'mousse'	1,304	8.1	9.36
鲜花 'flower'	1,915	7.8	9.19
海绵 'sponge'	1,555	7.8	9.05

4.3. Lexical units absent from primary lexical tools but present in the Chinese Web corpus

4.3.1. Lexical units with a relative frequency below .05 time per million tokens

When lexical units are not recorded in any of the primary lexical tools, but present in the Chinese Web corpus with a relative frequency below .05 times per million tokens, I examine their concordance citations in the Chinese Web corpus to determine whether it is a (novel) MRW. For example, 朋友圈 'friend circle' is a new word, occurring only 382 times (.02 times per million tokens) in the Chinese Web corpus. Its concordance citations show that it is mainly used in two basic senses: (i) Friendship network, or groups of friends, and (ii) WeChat Moments, a social interface in the WeChat application for sharing and viewing friends' updates. Its contextual sense in Example 3—sets of all countries with which China trades in goods—can be understood by comparison with the basic sense of 'friendship network' (TRADE IS FRIENDSHIP). Hence, 朋友圈 'friend circle' is a novel MRW.

(3) 目前, 我国货物贸易的 "朋友圈" 多达 232 个。'Now China has up to 232 "friend circles" in goods trade.' (National Policy Information, 02/07/2019).

However, some infrequent lexical units are rare non-MRWs, but not novel MRWs. For example, 冲突论 'conflict theory' and 零和论 'zero sum theory' in the VUPMC are only rare non-MRWs, since all their concordance citations in the Chinese Web corpus show no evidence of concrete usage, despite their low frequency (0.01 per million tokens). This method helps prevent many rare, non-MRWs from being erroneously labeled as novel metaphors in current NLP and metaphor studies.

4.3.2. Lexical units with a relative frequency over .05 times per million tokens

For lexical units absent from the primary lexical tools but with a relative frequency above .05 times per million tokens in the Chinese Web corpus, I further examine their concordance citations. If their contextual meanings in the VUPMC can be interpreted by comparison with their basic meanings in the Chinese Web corpus, they are identified as MRWs. MRWs are coded as novel (e.g., 踩踏 'stampede' in the VUPMC) if all significant collocates above the threshold in the Chinese Web are concrete, and as conventional if their significant collocates are both concrete and abstract words. For example, 拉向 'pull towards' is unlisted in the CDD and DC yet occurs .08 times per million tokens in the Chinese Web. It is coded as an

MRW in Example 4 because its contextual meaning ('guiding') can be interpreted by comparison with its basic sense ('pull toward'). As 贸易 'trade' functions as its object, I examine collocation statistics of its collocates functioning as objects. Table 4 shows that its significant collocates above the threshold value (5.42) are mostly concrete (e.g., 腹股沟 'groin') and few abstract (e.g., 神界 'divine realm'). This indicates that its basic sense is more primary than its metaphorical/contextual meaning, though both are significantly present. Hence, it is identified as a conventional MRW.

(4) (...) 把世界拉向贸易保护主义的旧时代。
'(...) is pulling the world toward the old days of trade protectionism.' (People's Daily, 19/06/2019)

Table 4: Values of collocates (as object) of 拉向 'pull towards' in the Chinese Web corpus

Collocate	Rel.F.	Saliency	Mean
神界 'divine realm'	82	6.4	-
腹股沟 'groin'	6	6.0	6.200
倒退 'retreat'	14	6.0	6.133
谈判桌 'negotiation table'	7	5.5	5.975
臀部 'buttocks'	25	4.7	5.720
右脚 'right foot'	14	4.7	5.550
胸前 'chest'	28	4.6	5.414
深渊 'abyss'	29	4.6	5.313
极 'pole'	9	4.5	5.222
后跟 'heel'	5	4.3	5.130

4.4. Inter-annotator reliability test

20% of potential MRWs within each genre were independently annotated by three native speakers of Mandarin with PhD degrees in cognitive linguistics (metaphor research). The most experienced annotator created the annotation scheme and trained the other two annotators to code conventional and novel MRWs accordingly. Around 2930 lexical units were randomly sampled from 14,660 potential MRWs for reliability tests. Mean Fleiss' Kappa values indicate almost perfect inter-coder agreement in News Reports (.82), Policy Documents (.87), and Remarks (.89).

Coding errors were mainly caused by overlooking personified use. Annotators also misclassified conventional metaphorical compounds (e.g., 搭上 'hitch a ride') being absent from dictionaries as novel MRWs, and non-metaphorical compounds (e.g., 出台 'introduce') as conventional MRWs. Such errors result from coders' failure to follow the annotation scheme, e.g., inferring a compound's basic meaning from its components.

5. Corpus data analysis

5.1. Metaphors across genres

Only 6.61% (14,660 tokens) of the VUPMC are MRWs, less than the proportion of MRWs in the VUAMC (12.65%) and LCMC (11.22%). This is because only trade-related MRWs (e.g., 'engine' in 'trade engine') are counted as MRWs in the VUPMC, while all MRWs are counted in the other two datasets. News Reports show the highest share of MRWs (7.01%) in the VUPMC, followed by Remarks (6.53%), and Policy Documents the lowest (5.90%). This differs from the VUAMC results, where conversations have the lowest MRW proportion and academic texts the highest. My χ^2 test shows a significant difference in MRW proportion across genres ($\chi^2(2)$ = 9.3083, p = .0095). This resonates with significant register difference (news, conversation, academic texts) in the VUAMC ($\chi^2(2)$ = 559.1002, p = .0026). Pairwise χ^2 tests further reveal that News Reports in the VUPMC have a significant higher proportion of MRWs than Policy Documents ($\chi^2(2)$ = 9.0658, p = .0026). This echoes the VUAMC results, where news contains a significantly higher proportion of MRWs than more abstract register (academic texts) ($\chi^2(2)$ = 17.2737, p = .0000).

Further χ^2 tests (Table 5) show a significant difference in the proportion of conventional and novel MRWs across genres ($\chi^2(2)$= 27.6625, p = .0000). News Reports have a significantly higher proportion of novel metaphors and a significantly lower proportion of conventional metaphors than Policy Documents (χ^2 = 27.234, p = .0000). Remarks have a significantly higher proportion of novel metaphors and a significantly lower proportion of conventional metaphors than Policy Documents (χ^2 = 9.3591, p = .0022). Similar to the VUAMC, where indirect MRWs dominate across English registers, my results show that conventional MRWs predominate across Chinese genres in the VUPMC. Just as indirect MRWs dominate academic texts and direct MRWs dominate news texts in the VUAMC, conventional MRWs dominate Policy Documents and novel MRWs dominate News Reports in the VUPMC.

Table 5: Distribution of novel and conventional MRWs across genres

Genre	Type	Novel	Conv.	Total
Policy Documents	Count	34	3215	3249
	%	1.05	98.92	100
Remarks	Count	30	1912	1942
	%	1.54	98.35	100
News Reports	Count	185	9284	9469
	%	1.95	98.02	100

The consistency and discrepancy of findings between the VUAMC and VUPMC can be explained by features specific to genre or register. First, Policy Documents in the VUPMC, like academic texts in the VUAMC, are abstract, written texts. They rely heavily on indirect and conventional MRWs to communicate political or academic knowledge. Second, News Reports in the VUPMC, like news in the VUAMC, are persuasive, written texts. News writers need the most MRWs across genres, in particular novel and direct metaphors, to engage and persuade readers who are far away from the reported events. Third, Remarks in the VUPMC, like conversations in VUAMC, are spoken, interactive texts. They require fewer MRWs than news, especially less direct and novel ones for face-to-face communication. However, Remarks serve a stronger persuasive role for policy legitimization than everyday conversations and Policy Documents, which explains Remarks' medium (novel) MRW proportion across genres and conversation's lowest (direct) MRW proportion across registers.

5.2. Metaphors across word classes

A χ^2 test shows that MRW proportions differ significantly across POS ($\chi^2(7)$ = 5541.6450, p = .0000). Nouns account for the largest share (42.12%), followed by verbs (40.37%), prepositions (7.75%), adjectives (6.50%) and localizers (2.54%). This pattern is similar to the LCMC, where verbs (39.9%), nouns (16.1%), prepositions (12.0%) and localizers (8.5%) are the main metaphorical categories. The high frequency of metaphorical localizers and prepositions in both Chinese datasets is because an English metaphorical preposition (e.g., 'in') corresponds to a Chinese locative phrase (e.g., '在... 中'), combining a metaphorical preposition (e.g., '在') and a metaphorical localizer (e.g., '中') (Lu and Wang, 2017). Metaphorical adjectives, frequent in the VUPMC but the second least in the LCMC, highlight their role in metaphorically framing trade properties (e.g., balanced) in the VUPMC. Additionally, verbs are the most densely metaphorical POS in the VUPMC: they have the highest within-category proportion, with 13.27% of them being MRWs.

Table 6 shows the distribution of MRWs by POS in each genre. Across genres, Remarks contain the most metaphorical adjectives, Policy Documents contain the most metaphorical prepositions, and News Reports contain the most metaphorical verbs. These patterns reflect interactions between genre and POS. Remarks at press briefings/conferences are persuasive, on-spot communication, which favors metaphorical adjectives to express feelings and legitimize public opinions. Policy Documents are formal and abstract, preferring metaphorical prepositions to express conditions and constraints (e.g., location, time) of political procedures. News reports are informational and narrative, which require metaphorical verbs to frame political events dynamically and vividly, so as to effectively engage readers.

χ^2 analyses also show significant differences in MRW proportions across POS within Policy Documents ($\chi^2(7)$ = 5711.0271, p =.0000), Remarks ($\chi^2(7)$ = 3355.3182, p = .0000), and News Reports ($\chi^2(7)$ = 17519.7667, p = .0000), mirroring significant POS variation in each register in the VUAMC. Whereas prepositions dominate MRWs in VUAMC news and academic texts, their comparable VUPMC counterparts (News Reports and Policy Documents) are dominated by metaphorical nouns. This difference occurs because VUPMC contains only trade-related MRWs, which often form noun–noun phrases (e.g., 'trade war').

6. Conclusion

This article proposes CNMIP, a first replicable method to annotate conventional and novel metaphors in Mandarin. Built on former well-established procedures of linguistic metaphor identifications, it rigorously demarcates lexical units specific to Chinese lexical types, based on highly accurate word segmentation tools (e.g., ICTCLAS) and POS tagging (Stanford Log-linear POS Tagger). It uses both (corpus-based) dictionaries and a digital encyclopedia (BB) to differentiate meanings of idiomatic expressions, while non-idiomatic expressions rely on two online and/or corpus-based Chinese dictionaries. CNMIP offers robust corpus methods to identify conventional and novel metaphors in terms of lexical units that 1) have both basic and contextual meanings in lexical tools, 2) have only basic meanings in lexical tools, and 3) are absent from lexical tools but present in the general corpus (Chinese web). For Cases 2 and 3, CNMIP determines the basic and contextual senses of lexical units using concordance citations and collocation frequencies. Concordance citations from the general corpus (Chinese Web) are used for low-frequency items ($<$ 0.05 per million tokens), while collocation frequencies are used for higher-frequency items ($\geq$ 0.05 per million tokens).

Based on the annotations, I have shown cross-linguistic comparisons of MRWs between the VUPMC and the VUAMC, and cross-corpus comparisons of Chinese MRWs between the VUPMC and the LCMC. The findings extend Steen et al.'s (2010b) and Lu and Wang's (2017) research on interplay of metaphor density, POS, and register. First, the VUPMC shows lower metaphor density than the VUAMC and the LCMC, as I only annotate trade-related metaphors. News Re-

Table 6: MRW Distributions across POS by genre

POS	News		Remarks		Policy Document	
	No.	%	No.	%	No.	%
Nouns	4032	0.43	803	0.41	1340	0.41
Verbs	3848	0.41	768	0.40	1302	0.40
Adjectives	620	0.07	155	0.08	197	0.06
Prepositions	657	0.07	156	0.08	323	0.10
Adverbs	41	0.00	3	0.00	18	0.01
Localizers	250	0.03	54	0.03	68	0.02
Pronouns	10	0.00	1	0.00	0	0.00
Rest	11	0.00	2	0.00	1	0.00
Total	9469	1.00	1942	1.00	3249	1.00

ports have the highest metaphorical density, while Policy Documents the lowest, due to effects of genre differences (informational vs. abstract) on metaphor(Tan, In press; Tan et al., 2026). Second, consistent with Lu and Wang (2017), nouns, verbs, prepositions, and localizers are dominant metaphorical POS. Third, there is a significant effect of genre on metaphor type: e.g., the proportion of conventional metaphors in Policy Documents is the highest across VUPMC's genres, which parallels the highest proportion of indirect metaphors in academic texts across VUAMC's registers. Finally, the use of metaphorical POS is also related to the genre difference. For example, Policy Documents have the highest proportion of metaphorical prepositions across genres, which reflects its abstract nature.

To conclude, CNMIP goes beyond the previous protocols by seeking to capture, for the first time, conventional and Novel metaphors at the Chinese word level. The proposed VUPMC corpus, annotated with CNMIP, offers a reliable resource for studying conventional and novel metaphors in political discourse that are otherwise difficult to detect. It also serves as a valuable training dataset for NLP applications in automatic identification of Chinese metaphors. By doing so, both the dataset and the annotation procedure bridge linguistic and computational approaches to political metaphor. However, please also note that the CNMIP procedure annotates only two categories of metaphors (Conventional vs. Novel) from a static perspective. More complex annotation procedures are needed in order to capture the dynamic metaphoricity of words in natural language datasets(Bas et al., In press; Tan and Cienki, In press, 2024).

7. Limitations

Despite its contribution, the VUPMC corpus is restricted to trade metaphors centered on a single "node" word ("trade") across only three Chinese political genres. This results in a relatively small dataset, which limits the generalizability of the findings. Therefore, when comparing the corpus findings of the VUPMC dataset with other fully annotated datasets, such as VUAMC, the quantitative results (e.g., metaphor density) should be interpreted with caution. Future work should focus on building a parallel English trade corpus to allow cross-linguistic comparison with the VUPMC dataset, expanding the range of political genres, and incorporating additional semantic domains beyond trade. Such developments would improve the representativeness of the corpus, enhance the reliability of quantitative analyses, and provide a more comprehensive understanding of metaphorical framing in political discourse across languages and cultural contexts.

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