The Fourth International Conference on Formal Approaches to Meaning in Chinese

第四屆漢語形式語義研究國際會議

Programme Book

2025.12.18-19
The Chinese University of Hong Kong
香港中文大學

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December 18-19, 2025
The Chinese University of Hong Kong

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Keynote speeches

Mitigation and Strengthening in Assertion and Questions: The management of trustworthiness

Manfred Krifka, Leibniz-Center General Linguistics, Berlin

Assertions can be weakened or strengthened by a range of linguistic devices (cf. Sbisà 2001), such as sentence adverbs like *certainly, presumably*, *apparently* and *definitely*, and slifting constructions like *I think, it appears* and *I swear*. I propose that such expressions are means for the speaker to manage his or her reputation of trustworthiness: If the asserted content turns out to be false, this reputation will be less affected if the assertion is mitigated, and more, if it is strengthened. I will discuss the results of an experiment that show this connection between assertion strength and trustworthiness. I will also develop a framework of interpretation of assertive speech acts that models this connection between semantics and the social face of speakers. I will furthermore discuss the occurrence of weakening devices like *probably* and *presumably* in polar questions and show how they can create an expectation bias in such questions.

Question under discussion in language comprehension

Ming Xiang, University of Chicago

Question under Discussion (QUD) is a key linguistic concept for modeling the structure and dynamics of discourse. Under the QUD framework, discourse is viewed as a goal-oriented process in which interlocutors cooperate to resolve relevant issues by addressing the current QUDs.. Most previous research on QUDs, however, has focused on highly controlled contexts with carefully curated examples, and researchers heavily rely on their own intuitions to reconstruct QUDs. A major challenge remains as to how to identify QUDs in naturalistic settings and in more principled ways, particularly given that different comprehenders may have divergent intuitions about which QUD is most salient.

In this talk, we use scalar implicature as a case study to examine the impact of QUDs on pragmatic inference. Our aim is both theoretical and methodological: we investigate experimental and computational methods for tracking and quantifying QUD variability in naturalistic discourse, under the theoretical hypothesis that variation in QUDs is closely tied to variation in pragmatic inferences.

Scalar inference (SI)—for instance, enriching "some" to mean "some but not all"—is a central topic in semantics and pragmatics. Of recent interest in the experimental literature is scalar variability: different lexical scales differ in their likelihood of leading to SI. In the first part of the talk, I will present results from controlled lab experiments to show variability in scalar inferences can be significantly reduced when a salient QUD is present. The second part of the talk examines scalar variability in naturalistic conversation. We selected a large set of short dialogues from the Switchboard corpus, with each conversation containing a target “weak” scalar term (e.g. *some*, *warm*) in the final utterance. To evaluate the QUDs that these conversations evoke, we designed a web-based crowdsourcing task to elicit questions from participants, which were then annotated for SI relevance by human raters. The results reveal substantial variability in the likelihood of SI-relevant QUDs arising across contexts, and a strong correlation between SI-relevant QUD variability and SI inference rates for different items.

Finally, we explore the potential of using large language models to track and quantify QUD variability at scale. Using human data as a benchmark, we designed two probing tasks for GPT-4o to approximate SI-relevant QUD rates on an item-by-item basis. While GPT-4o showed satisfactory accuracy in classifying the SI relevance of elicited QUDs, it is still a challenge for it to fully predict human SI inference rates. I will discuss the methodological opportunities and challenges suggested by these findings.

Demonstratives, Definites, Bare Nouns: What Competes with What

Veneeta Dayal
Yale University

Languages have demonstrative determiners, languages have definite determiners, languages have determiner-less/bare nouns. They each present substantive issues and are worthy of study in their own right. At the same time, it is also clear that the presence of one option impacts the distribution and interpretation of other options. In this talk I focus on the empirical and theoretical dimensions of this tryptich from a language-internal as well as a cross-linguistic perspective.

One aspect of noun phrases with demonstratives that has received relatively little attention in previous literature is the fact that cross-linguistically demonstratives do not take proper names as complements. In this they differ from definite articles which can take proper names in some languages. The resistance of demonstratives to proper names extends to a resistance to other uniquely denoting nouns. Switching to definite articles, while it is true that English definites are compatible with uniquely denoting nouns, there are languages like German, in which there are two forms of definite articles – one of which is incompatible with uniquely denoting nouns (the strong definite). Now, we have two potential analyses for a language in which a form X is not compatible with a uniquely denoting noun: (i) X is a demonstrative or (ii) X is a strong definite. Can we decide between them?

In this talk, I look at the options available in four languages -- Akan, English, German, Mandarin – in light of the lexical meanings of the demonstrative, the definite (weak/strong), the bare noun. We predict the distribution and interpretation of the various forms by appealing to two theoretical principles: Lexical Blocking of Type-shifts (Chierchia 1998) and Maximize Presupposition (Heim 1991).

Invited talks

Chinese relational nouns as definite singulars?

Li Xuping[1] Liu Xing[2]
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Zhejiang University[1], Huazhong University of Science and Technology[2]

The current study shifts our research focus from indefinite bare nouns (BNs for short) to definite BNs in Chinese. In view of the property of number-neutrality (Yang 2004; Rullman and You 2006) and underspecification of (in)definiteness (Li 2013; Jiang 2018), Chinese bare nouns are expected to be subject to interpretational variability w.r.t. the feature cluster of [±PL, ±Def]. Nonetheless, a subset of bare nouns, more precisely, "(human) relational nouns" à la Löbner (1985) and Baker (2009), tends to be interpreted as definite singulars in Chinese. The plural *-men*, which applies to human denoting nouns, is one of the most suitable candidates to derive definite plurals. We attempt to account for the singularity tendency for relational nouns by resorting to the principle of "Maximize Presupposition" (Heim 1991) to entertain the competition between the iota operator and the plural *-men*.

Fact 1: bare relational nouns are ambiguous between singular or plural readings on the indefinite reading; on the definite reading, a subset of nouns tend to have a singular reading, including kinship terms such as *erzi* 'son' and other social nouns like *baomu* 'maid' etc., as exemplified by (1). In contrast, relational nouns expressing part-whole relations like *yanjing* 'eyes' are consistently number-neutral, regardless of being definite or indefinite, as shown in (2).

(1) a. ta sheng-de shi erzi. [-Def, ±PL]
3SG give.birth-mod be son
'She gave birth to a son/sons.'
b. ta-de erzi hen tiaopi /#shou qian-zhe shou. [+Def, -PL]
3SG-GEN son very naughty/hand hold-DUR hand
Possible: 'His son is naughty' | Impossible: 'His sons are naughty.'
Intended: 'His sons are holding hands with each other.'

(2) ta-de yanjing jinshi le. [+Def, ±PL]
3SG-GEN eyes near-sighted PRF
'His eyes are near-sighted.' OR 'His (left/right) eye is near sighted.'

Fact 2: plural interpretations of relational nouns can be achieved via the plural marker *-men* or the distributive *dou* 'all'. It has been observed that *-men* applies to human nouns only. Li (2021) argues that the plural *-men* in Chinese is a maximality operator, akin to the French definite plural article *-les*, in that it serves to pick out the largest plural entity.

(3) a. ta-de erzi-men hen tiaopi.
3SG-GEN son-PL very naughty 'His sons are naughty.'
b. ta-de erzi dou hen tiaopi.
3SG-GEN son all very naughty 'His sons are all very naughty.'

RQ (1): How can the tendency for relational nouns to be interpreted as definite singulars be explained, under the assumption that the iota operator allows for both singular and plural readings of bare nouns?
Proposal 1: Assuming that bare NPs can denote either singular or plural individuals, we propose that the definite singular interpretation of relational nouns (e.g., kinship and social role terms) is in fact an implicature. This arises from the contrast with the overt plural marker *-men*, which is used to form plural definite descriptions.

(4) a. iota: $\lambda P: \exists x\, \forall y\, [(MAX(P))(y) \leftrightarrow y = x].\ \iota x[(MAX(P))(x)]$, where $MAX(P) = \lambda x[P(x) \,\&\, \neg\exists y\, [P(y) \,\&\, x < y]]$ (adapted from Dayal 2018)
b. $[[\text{-}men]] = \lambda s \lambda P \sigma X.[{}^*P(X)(s)]$ (adapted from Li 2021)

RQ (2): How is the definite plural marker *-men* semantically distinguished from the iota operator, the latter of which generally applies to bare nouns to encode uniqueness (Jenks 2015)?
Proposal 2: we propose that the plural *-men* in Mandarin encodes "weak familiarity" (Roberts 2003). The introduction of the NP's discourse referent is only required to be licensed by contextual entailments alone. More importantly, weak familiarity is guaranteed by giving a functional interpretation to the definite description (also see Löbner 1985; Owusu 2025).

(5) $[[\text{-}men]] = \lambda s{:}\exists!X[{}^*P(X)(s) \wedge FAMILIAR(X, C)].\lambda P \sigma X[{}^*P(X)(s)]$

This analysis not only explains why the singularity constraint applies specifically to relational nouns but also why the plural suffix *-men* is restricted to human nouns. We propose that human nouns suffixed with *-men* are first interpreted as denoting relational concepts, and that uniqueness is subsequently derived through a functional interpretation.

References:
Löbner, S. 1985. Definites. *Journal of Semantics* 4(4):279–326.
Owusu. P. A. 2025. On the strong-weak status of the Akan definiteness marker. *Natural Language & Linguistic Theory* 43:2275–2313
Roberts, C. 2003. Uniqueness in definite noun phrases. *Linguistics and Philosophy* 26(3):287–350.

The influence of information structure and processing factors on word order and argument realization in child language

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Acquiring adult-like form-meaning mappings is essential for every child to become a productive and competent speaker of their language. Research on first language acquisition shows that children can rapidly map words onto their referents, even with minimal exposure. Beyond word-to-referent/event mapping, selecting appropriate linguistic forms, including word order, argument realization, and specific lexical and syntactic constructions for specific speech contexts, is further shaped by discourse-pragmatic information structure and language processing factors, such as conceptual accessibility, givenness or newness of referents, and lexical-syntactic priming. In this talk, I will explore children's production of word order and argument structure from a range of diverse languages based on both naturalistic and experimental data. The results show that from an early age children exhibit sensitivity discourse-pragmatic constraints and processing factors that influence word order, syntactic choice, and argument realization. Children's production in some cases varies from adult norms, with developmental changes towards adult-like usage over time. I will discuss the learning mechanism underlying these patterns, the implications of children's early sensitivity to language-specific features, and the nature of their deviations from adult-like usage, concluding with directions for future research in this area.

Key words: Argument structure, information structure, language acquisition, language processing, word order, Mandarin Chinese

Chinese counterfactuals in a new key

Yan JIANG, SOAS University of London

The study of counterfactual conditionals and related linguistic constructions in Mandarin Chinese has received more attention in recent years but current research findings are still felt to be rather fragmentary.

In this talk, I wish to propose the following theses.

First, as Chinese lacks absolute tense, to try to explain the counterfactual use of its conditionals in terms of tense features is to study the issue on the wrong track.

Second, while Chinese relative tense can be studied in terms of aspectual features, it does not provide definite clues to the analysis of Chinese counterfactuals either. This is because the aspectual features in Chinese are often underdetermined.

Third, many discussions on the counterfactual meaning of Chinese conditionals are no more than philosophical discussions, since they do not identify grammatical or lexical features which, if available, are formal markers for the phenomenon under consideration.

Even if the above three approaches do not yield substantive claims, I still wish to argue that Chinese counterfactuals are not simply context dependent. I propose to look at the issue in terms of truthifying and falsifying notions, and study how truthifying and falsifying markers provide clues to the interpretation of counterfactuality. I propose that yaobushi要不是, manhao蛮好, zaozhidao早知道, and others in Mandarin and in dialects can be analyzed as either truthifying or falsifying markers. I also propose that there are other lexical items such as zhende真的, benlai本来, zao早就 which serve to support truthifying or falsifying statements. In cases where there are no markers, context can provide clues to the above effects.

This approach, I argue, provides the necessary distinction between indicative and subjunctive conditionals in Chinese. It defends a formal approach to Chinese counterfactuals. It also explains how structural and lexcial markers can interface with the context-dependent inferences which are indispensable for the grammatical mechanisms of sinitic languages. Finally, it endeavours to collect evidence from Chinese dialects for a better understanding of the expression of counterfactual, subjunctive and optative meanings.

I will show how this type of consideration matches well with possible world semantics and probability-based studies.

Negative modals in Mandarin Chinese and Shantou Southern Min dialect --- Scope Interpretation Vs. Morpho-semantic Interaction in Modal Distinctions*

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In Mandarin Chinese, the three primary negators are *bu* 'not', *mei(you)* 'not-have' and *bie* 'don't' (see Chao 1968; Li & Thompson 1981; Zhu 1982 on Chinese grammar). The relationship between the Mandarin negators *bu* and *mei* and modals is marked syntactically by differences in linear order, which reflect semantic differences in scope. This can be observed in the interaction of negators like *bu* with other scope-taking elements such as adverbs, quantifiers, and modals (Wang 1965; Mangione and Li 1993; Ernst 1995, among others).

The pattern of negation in Mandarin Chinese differs significantly from that in Southern Min. In Mandarin, when negators are used to negate modals or aspect markers, the negator negates elements within its c-commanding domain, following the structure NEG [XP], which can be classified as lexical, phrasal, or clausal negation. Southern Min is particularly rich in negatives, but in-depth study on its syntax and semantics are sparse, especially those focusing on the Shantou dialect (see e.g. Li 1971, Saillard 1992, Teng 1992, Zhou & Ouyang 1998, Tang 1999, Lin H. L. 2004, Wu 2009, Lien 2013, 2015, Xu 2007, Yang H. L. 2012, Qang 2015, Hu 2019, Chen 2020, Liao and Wang 2022).

This paper examines the semantics of modal negatives in Shantou Southern Min (henceforth Shantou dialect) in contrast with their Mandarin counterparts. Like other Southern Min dialects, the negation system of Shantou dialect is complex, with 11 negative modals found, as shown below.

Mono-/bi-morphemic forms	**Compound forms**
boi^{35}𡍮, mo^{53}𡍮, mãi^{213}勿愛, m^{35}唔, mui^{213}, miang^{53}免, meŋ^{53}甭, bo$^{55-11}$毋	**bo$^{55-11}$-piaŋ^{213}無變, m$^{35-21}$ hãu^{213}唔好, bo$^{55-11}$ ãi^{213}**

To test the use of the above negative forms, natural data were collected from native speakers of Shantou dialect in two ways: natural data collected through interviews; and pre-designed questionnaires. Negative modals in Shantou dialect express four meanings, namely dynamic, bouletic, deontic and epistemic. While seven negative modals express single meaning, four negative modals expressing multiple meanings, with two or three meanings. These negative modals are found to distribute among the modal types as shown below.

Negative modals	**Modal types**	**Negative modals**	**Modal types**	**Negative modals**	**Modal types**
boi^{35}𡍮	Dynamic, Epistemic	**mui^{213}**	Dynamic	**mãi^{213}勿愛**	Deontic, Bouletic
bo$^{55-11}$-piaŋ^{213} 無變	Epistemic, Dynamic	**m^{35}唔**	Deontic	**boi^{35}𡍮**	Epistemic, Dynamic
m$^{35-21}$ hãu^{213}唔好	Deontic, Bouletic	**miaŋ^{53}免**	Deontic	**meŋ^{53}甭**	Deontic
mo^{53}𡍮	Epistemic	**mi$^{35-11}$ ŋe$^{35-11}$ hõu$^{53-35}$**	Deontic		

The range of meanings expressible by modality varies along three basic semantic dimensions of strong, neutural and weak, referred to as the modal strength defined under the concepts of necessity and possibility (see e.g. Kratzer 1977, Klinedinst 2007, Rullmann et al 2007) of modal logic. In line with Kratzer's conversational backgrounds, every modal in Shantou dialect takes a modal base, an ordering source and a contextually selection function f_c as arguments (von Fintel & Heim 2011). We argue that modals in Shantou dialect are unambiguously universal or existential, and it is the pragmatic mechanism employed by f_c that

weakens or strengthens their interpretation (see e.g. Westerstahl 1985, Von Fintel 2004, Marti 2003, Stanley and Szabo 2000). For negative modals with strong modal strength, like strong deontic mo[53] 呒, their selection function is performed by max_P which has selected the set of $<_P$ -best worlds from any set X of worlds, and to a maximal selection, with all the best worlds selected for which there are no worlds closer to the ideal than they are. Under such an assumption, we argue that the complexity of the negation system in the Shantou dialect is attributed to its high sensitivity towards modal types, viz., epistemic, dynamic, deontic, and bouletic (see e.g. Palmer 1990), and modal strength (see e.g., Portner 2009, Matthewson 2010, 2018, Grano 2024).

Secondly, the complex modal system in Shantou dialect is attributed to its two factors: its sensitivity towards modal types and modal strengths, accompanied by the morpho-phonological properties of Shantou dialect and, and is governed by the conditions below.

(1) Conditions governing occurrences of modal negatives in Shanton Southern Min

Occurrence of modal negatives in Shantou dialect are governed by the following three conditions.

Condition 1:

Bi-morphemic modal negatives are stronger in modal force than mono-morphemic modal negatives.

Condition 2:

Modal negatives with dual or multiple meanings are governed under the following two sub-conditions with regard to their strong form.

2.1 Modal negatives with multiple meanings must have one strong form.

2.2 Modal negatives with multiple meanings can only have one strong form, leaving the remaining to be either neutral or weak.

Condition 3:

Condition 2 cannot be overridden by Condition 1.

In sum, a comparative study between Mandarin and Shantou dialect highlights the fundamental differences in the mechanisms underlying their negation of modality. In contrast with the scope interpretation of modal negatives in Mandarin, it is the intertwining between morpho-phonological properties and semantic properties of modality that attributed to the complexity of modal negative system in Shantou dialect.

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Chinese Exclamative Constructions Revisited

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In this talk, I present a new study on Chinese exclamative construction. An exclamative construction denotes the speaker's subjective evaluation of a very high degree of state. This paper examines five Chinese exclamative constructions: (i) *zhème/nàme … a*, (ii) *duōme … a*, (iii) *zěnme zhème/nàme … a*, (iv) *duō … a*, and (v) *zěnme wh*-word *dōu … a*.

First, I critically review Badan & Cheng's (2015) work on Chinese exclamatives and argue against their classification and their syntactic/semantic account. Next, following Zanuttini & Portner's (2000, 2003) WIDENING account of three properties of exclamatives: factivity, scalar implicature and not functioning in a QA pair, I discuss six semantic and discourse behaviors of Chinese exclamative constructions.

The proposition set readings and scalar implicatures of Chinese exclamative construction have three sources: *wh*-words, degree adverbials and universal quantification expressed by *wh*-word plus *dōu*. *Zhème/nàme* are deicitic and this is why the information of a very high degree of state, which function as their deictic center, must be explicitly stated in the discourse, but such information can be encoded simply in the CG for *duō*(*me*).

Sentence-final *a* is optional when a very high degree of state can be identified and the speaker's evaluation is activated some other way. It is obligatory if no prosodic feature is utilized to execute the speaker's evaluation.

Zěnme cannot go with *duō*(*me*) because it requires a very high degree of state, which *duō*(*me*) does not provide. WIDENING is required for exclamative constructions with *zěnme* because the *wh*-word requires a very high degree of state. Picking up a very high degree in a pre-determined set is not sufficient to bring out exclamation. Whether *zhème/nàme* require WIDENING depends on whether these two adverbials have a default very high degree reading.

The compositional semantics of *zhème*/*nàme*/*duō*(*me*) are proposed. They essentially present a very high degree of state. The sentence-final particle *a* is formalized as the speaker's subjective evaluation of such a degree only when taking a proposition with such a denotation. *Zěnme* in exclamative constructions provides an original domain. The sentential force of exclamative constructions is to add the speaker's evaluation into CG.

A perspective-based account of speaker-oriented adverbs in Mandarin

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Speaker-oriented adverbs have been noted to exhibit positive polarity across languages (e.g., Nilsen 2004; Ernst 2008, 2009; Liu 2009), and Mandarin Chinese patterns with this generalisation. As shown in (1), such adverbs cannot occur under negation. This study contributes a new empirical generalisation regarding their distribution in polar questions. Speaker-oriented adverbs are excluded from simple *ma*-questions but fully acceptable in *ba*-questions (2), while a subset is additionally licensed in high-negation *ma*-questions (3). This three-way contrast is not captured by existing syntactic or semantic accounts of speaker-oriented adverbs.

(1) *ta **bu** **xianran/mingming/yexu/dagai** yijing zhidao le.
he $\text{not}_{\text{LOW.NEG}}$ obviously/clearly/perhaps/probably already know PRF
Intended: 'It's not the case that he obviously/clearly/perhaps/probably already knows.'

(2) ta **xianran/mingming/yexu/dagai** yijing zhidao le **ba/*ma**?
he obviously/clearly/perhaps/probably already know PRF Q
'He obviously/clearly/perhaps/probably already knows, right?'

(3) ta **bu-shi** **xianran/mingming** yijing zhidao le **ma**?
he $\text{not}_{\text{HIGH.NEG}}$ obviously/clearly already know PRF Q
'Isn't it the case that he obviously/clearly already knows?'

We propose a perspective-based analysis that derives the observed contrasts from independently motivated properties of polar question types and the semantics of speaker-oriented adverbs. Specifically:

i. Speaker-oriented adverbs encode a fixed speaker perspective that cannot shift in matrix clauses.

ii. Mandarin *ma*-questions proffer a single projected addressee commitment ($DC^*_A + \{p\}$), anchoring the proposition to the addressee's perspective and thereby excluding speaker-oriented adverbs. In contrast, *ba*-questions proffer a single projected speaker commitment ($DC^*_S + \{p\}$), anchoring the proposition to the speaker's perspective and permitting speaker-oriented adverbs.

iii. High negation presupposes that its prejacent is already included in the projected common ground ($\{p\} \in CG^*$), whose perspective is inherently speaker-anchored. Speaker-oriented adverbs satisfying this CG^* presupposition are therefore licensed under high negation.

iv. Consistency of belief states requires the input and output propositions of negation to be anchored to different judges; negation thus obligatorily triggers a perspective shift. Since declaratives are by default speaker-anchored, negation in declaratives allows only non-speaker-perspective interpretations within its scope, thereby excluding speaker-oriented adverbs.

v. Perspective in polar questions correlates with question bias. While addressee-anchored questions may lack epistemic bias, speaker-anchored questions necessarily encode it. Nonetheless, it is question perspective, not bias, that determines the distribution of speaker-oriented adverbs.

Definite Interpretations of Bare Numeral Phrases in Mandarin

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It is widely assumed since Cheng & Sybesma (1999) that in Chinese bare (i.e. without articles) noun phrases with numerals (e.g. *san-zhi-mao* 'three cats') lack definite readings. This stands in contrast to other bare noun phrases in the language, which readily accept such interpretations (via *ɪ*-shift in the neo-Carlsonian framework). This discrepancy has puzzled scholars, and several solutions have been proposed (Trinh 2011, Hall 2018, Jiang 2020).

This talk revisits the above empirical generalization and argues that bare numeral phrases in Chinese *do* have definite interpretations (see also Chen 2014). (1) offers cases of them used as anaphoric definite.

(1) a. Lisi yang-le san-zhi-mao, erqie san-zhi-mao dou shi ying-duan.
Lisi raise-asp 3-cl-cat, and 3-cl-cat dou be British-short
'Lisi has three cats, and the three cats are all British shorthairs.'

b. Ruguo ni you san-ge-xiaohai, san-ge-xiaohai dou yao da-yimiao.
If you have 3-cl-kid, 3-cl-kid dou need vaccinate
'If you have three kids, all the three kids need to be vaccinated.'

Note that *dou* (usually glossed as *all*) is needed in (1), which might suggest that these numeral phrases are "strictly speaking not the equivalent of 'the three NOUN"' (Cheng & Sybesma 1999: p. 539) and hence not true definites. However, (2a) shows that *dou* is not always necessary. Crucially, the presence of *dou* seems to depend on whether the verb phrase is interpreted collectively or distributively, as the pair in (2) illustrate.

(2) Zhangsan, Lisi and Wangwu are good friends,

a. San-ge-ren jingchang yiqi qu jiuba hejiu.
3-cl-person usually together go bar drink
'(and) the three persons often go to the bar to drink together.'

b. San-ge-ren dou xihuan hejiu.
3-cl-person dou like drink
'(and) the three perons all like drinking.'

Now the questions are whether pre-*dou* bare numeral phrases are true definites and if yes, why *dou* is needed in distributive contexts. I propose: (i) they are indeed definites obtained via standard *ɪ*-shift; (ii) *dou* is presuppositional, which requires its prejacent entail all the propositions within the current question under discussion (Liu 2017, 2021); (iii) as sentences with definite (and thus maximal) NPs and distributive VPs satisfy *dou*'s presupposition, its presence is mandatory due to the pragmatic principle Maximize Preuspposition (Heim 1991). The account straightforwardly extends the standard neo-Carlsonian account of bare noun phrases to Chinese bare numeral phrases.

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基于 LLM 的汉语反事实条件句自动推理

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本文研究利用人工智能（AI）对“反事实”（counter-factual）条件句进行自动判定的问题。

汉语没有产生相关的反事实标记，因此只能通过语义和语用的互动，结合百科知识和语境信息来进行判断。此前的研究主要集中在对反事实句中反事实成分的详尽考察上，如赵元任（1968）、陈国华（1988）、蒋严（2000）、王宇婴（2013）、王春辉（2010）、雍茜（2016）、李晋霞（2010）、章敏（2016）、张莹和陈振宇（2020）等。

所提出的影响因素包括：时间、人称、极大概率、情感、意外、量性成分、使用频率、疑问等。考察的格式有：1）关联词方面，如高度倾向反事实解读的“要不是、早知道”等，高度倾向不能表达反事实解读的“只要、万一、一旦、只有”等；2）形式特征方面，如高度倾向反事实解读的“就 X 了、早（前件）X”等，高度倾向不能表达反事实解读的“不、第二人称、了 2（前件）”等。除此之外，其他关联词和形式特征都呈现从高到低的连续统分布，有的略倾向于反事实，有的则相反，但是都不具有决定作用。

反事实解读主要由两个方面促成：一是百科知识，听说双方都知道什么是事实，什么不是事实，这一点和条件句无关，可以通过 LLM 的搜素功能直接判断。二是条件句本身的形式、语义和语用特征，但因为能够得出全概率或大概率结论的特征很少，所以主要靠母语者的语感。这是最大的难点和重点。以往的研究主要是调查统计和描写解释，都很难找到能够给出正确分析结果的形式化计算系统。

使用 LLM 自动回答文献中出现的各种典型例句，可以得到很高的正确率。主要的推理过程集中在：“中间性质”的标记或特征，虽然有一定倾向，但是相反的例子很多；这些“反例”的判断需要更多的知识和上下文推理，而这一点正是 LLM 长思维链的长处。

但是当更多文本的语料输入之后，正确率有一定的下降。需要进一步做以下三个方面的工作：1）事实性的细分类型。2）其他语句事实性的判断。3）前后件事实性关联原则。如：

（1）如果爷爷真的来香港了，你会看见他的。

如果爷爷真的来香港了，你一定已经看见他了。

“你会看见他的”是对未来的可能判断，未来是非事实（既可能是事实也可能是反事实），根据事实性关联原则，后件是非事实，前件也是非事实，因此“爷爷来香港”也是非事实。“你一定已经看见他了”是劝导对方用自己的过去的经历作为证据进行推理的语句，过去经历已经确定，所以在正常的情况下不会用认识情态来表达，这里用了“一定、了”，表示不是正常的情况，因此推导出“你看见他”可能与过去经历相反，是反事实，后件是反事实，前件也是反事实，因此“爷爷来香港”也是反事实。

当然，“前后件事实性关联原则”也有例外，如：

（2）如果你想学，早就有人给过你机会了。

后件为事实，但是前件为反事实，LLM 在这里做出错误的判断，认为并没有人给过你机会（实际上是有人给过你机会）。这才是该规则值得研究的地方。

通过以上微调，可以极大地提高 LLM 自动判断的正确率，也可以检验我们的语言研究成果是否可靠；我们还需要重新排列规则和形式表征，看哪些才是最为重要（普遍适用），哪些是特殊的。也许我们过去在特殊表征上花费了太多的时间精力，忽略了真实语用推理的价值。

Jianzhi and extremeness in Mandarin Chinese -- A degree semantic analysis

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Jianzhi is a modal adverb widely used in Mandarin Chinese. Previous research on this adverb focuses on two questions. One concerns its licensing conditions. It is generally held that *jianzhi* tends to be used in sentences expressing extreme degrees (Guo 2016; Ding 2002; Wu 2011; Li 2014; Zhao & Li 2023), yet several issues remain unresolved: (i) what is 'extremeness'? how can extreme and non-extreme expressions be distinguished? (ii) What constitutes extreme expressions in Chinese, and how do they differ from those in English? The other question pertains to its semantic/pragmatic contribution. Many scholars mention that it has a subjective flavor, triggers an intensification effect and expresses the speaker's strong emotion (Guo 2016; Ding 2002; Wu 2011; Li 2014; Zhao & Li 2023). However, since the previous studies on *jianzhi* are descriptive, the formal interpretation of *jianzhi* is not provided so that its precise contribution to the meaning of the whole sentence is still unclear.

Due to the problems above, this paper aims to investigate *jianzhi* and extremeness in Mandarin Chinese based on degree semantics. More specifically, we follow Morzycki's (2012) idea that degree quantification is subject to contextual domain restrictions, and there is a contextually provided set of salient degrees C for a scalar adjective on its scale; non-extreme adjectives relate to values within C, while extreme adjectives relate to values above C. Based on the diagnostics for extreme expressions, we have found that (i) Mandarin Chinese has lexical EAs which are mainly expressed by quadrisyllabic idioms rather than disyllabic words; (ii) it doesn't have EDMs with the same meaning as those in English like *downright*, *flat-out* and so on defined by Morzycki; degree modifiers like *jiqi* and degree complements like *zhiji* and *wubi* can combine with ordinary scalar adjectives freely to achieve an extreme reading; (iii) hyperbolic constructions are used a lot in Mandarin Chinese to express extremeness; (iv) *jianzhi* can be treated as an extreme modal adverb; it is capable of collocating with all the extreme expressions mentioned above as well as other degree expressions as long as an extreme reading is possible (e.g., *tai* 'too' + Adj), and consequently yields an extreme reading of the whole sentence. Based on these observations, we give the semantic interpretation of *jianzhi* as follows:

[[*jianzhi*]]^{s}= λp. what is asserted by *s* saying *jianzhi p* is a degree proposition involving an individual x and a gradable predicate Q_C such that max(λd.Q(d)(x))> max(C_s). p

Under this analysis, it will be shown that *jianzhi*'s contribution to sentence meaning vary with the different types of p involved.

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我们赖以生存的语意

——以杨绛“《喜剧两种》一九八二年版后记”为例

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本文以杨绛“《喜剧两种》一九八二年版后记”为例，讨论与量(quantity)有关的语意（linguistic meaning）。在一定的语境中，说什么，不说什么，说多说少，会产生一定的量含意（quantity implicature）。本文认为，说什么，不说什么，不仅与说话人的信念（belief）有关，也与说话人的意图（intention）有关。除此之外，还与说话人和听话人之间的共识（shared knowledge）或共同背景（common ground）有关。说话人和听话人之间共识建立的基础是递归心灵（recursive mind）。说话人知道听话人知道什么，也知道听话人知道自己知道听话人知道什么。但是，说话人说什么，不说什么，说多说少，不仅取决于双方的共识、说话人的信念和意图，也取决于说话人的后台（backstage）信息。说话人说什么，不说什么，是一种前台（frontstage）表演，而后台信息则是前台表演的基础。

Can Face emojis target presuppositions?

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Although face emoji are non-linguistic visual items, they have become theoretically significant for semantics and pragmatics because they interact systematically with linguistic structure. Current formal-semantic research treats face emoji primarily as operators whose contribution lies outside the at-issue dimension, raising questions about how they combine with assertion, presupposition, and discourse structure.

Within this line of research, Grosz and collaborators (Grosz 2022; Grosz et al. 2023) argue that face emoji may target presuppositions across several constructions. In particular, Grosz proposes three core cases: (i) with definite descriptions; (ii) with counterfactuals; and (iii) with interrogatives. I challenge this presuppositional analysis, arguing instead that face emoji do not target presuppositions but enrich asserted content through expressive, speaker-anchored commentary.

Comparing face emoji with Rett's (2021) class of illocutionary not-at-issue emotive markers further supports this view. While Rett does not distinguish subtypes within this class, a finer-grained semantic contrast emerges: items like *unfortunately* modify a speaker's evaluative attitude toward a proposition, whereas expressive exclamatives such as *alas* modulate the illocutionary force of the utterance itself. Face emoji pattern with the latter—they function as expressive, speaker-anchored illocutionary modifiers rather than propositional-attitude operators. This analysis is further supported by parallels with signed and spoken-language facial expressions analyzed as expressive overlays contributing non-truth-conditional affective meaning.

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焦点对“都”“只”句排他性语义表达的不同作用

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本文从下列一组例句的对比，讨论副词“都”和“只”排他性语义的异同及焦点在“都”“也”句排他语义表达中的不同作用。

（1）a. 他都吃馒头。　　b. 他只吃馒头。

（2）a. 他都吃的馒头。　b. *他只吃的馒头。

（3）a. ??他都吃了馒头。　b. 他只吃了馒头。

上面例句中，（1）组都能说，其中动词是光杆形式。（2）组a能说，b不能说，（2）是“（是）……的”结构。（3）组b能说，a不太好，其中动词带了体助词“了”。

一般认为（1）中两句表达了排他义，表示他不吃馒头以外的其他东西。以往文献对二者语义的异同进行了细致的观察，尤其对“都”字句中焦点如何引出背景集合作为“都”的量化域而得出排他性语义进行了观察。本文想进一步通过类似上面的例句，说明焦点结构如何在“都”字句的排他义表达中起决定性的作用，并把它与“只”字句作对比，指出“只”本身对排他义的编码跟“都”的排他义经推导而来之间的差异。

在上面的例子中，（2）中“（是）……的”结构标明“都”后的“馒头”是焦点。“（是）……的”结构作为汉语对比焦点标记手段，其中的“馒头”被标记为对比焦点，自动具有排他义，无需重复使用排他义标记“只”。而“都”可以使用，因为“都”本身不是排他义标记。（3）中“了”表完成的体意义使得它（和其所附着的整个动词短语）能优先成为句子的信息焦点。当整个“V了NP”作焦点时，难以引出从该短语所构建的背景集合作为“都”的量化对象。“只”不同，“只”的限定义可以作用于其辖域内的任何成分，也就是可以把辖域内任意成分标为限定（或排他）对象，而无需受句子可能的焦点结构限制。

对于“都”和“只”的不同的排他功能，在形式语义刻画时，可以做出适当的刻画。潘海华（2006）用“焦点规则”(focus rule) ，即如果述题中含有一个焦点成分，就把它映射到核心域，同时把句子的其余部分映射到量化域，来刻画“都”的排他性语义。我们认为这种刻画非常清楚地强调了焦点在排他义“都”字句中的作用。而对于“只”字句，则采用通常的全称量化加排他义组合的方式来刻画，即在全称量化刻画式旁并上不存在（$\neg\exists$）其他的对象具有同样的属性来表达。同时，“都”句的排他义和“只”句的排他义在现实蕴涵和情态蕴涵上存在区别，即“都”句为基于事实的概括，而“只”句则或是带有情态义的规则声明，只有在显性时体助词的帮助下才能对事实进行说明。

Contrastive particles: Resolving QUDs vs. Managing common ground

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Cross-linguistically, **contrastive** (and closely related, **corrective**) **particles** include, e.g., English *but* (Toosarvandani 2014), Italian *mica* (Cinque 1976, Frana and Rawlins 2019), French *mais* (Anscombre and Ducrot 1977), Chinese *dàn*, *bìng bù*, and *yòu bù* (Yuan and Liu 2025, Wu 2025). Intuitively, these particles mark **contrast** (e.g., signaling a twist between clauses) or serve a **corrective** function, countering an expectation. What is contrast or counter-expectation precisely? In this talk, I focus on two particles in Mandarin Chinese, *dàn* and *bìng bù*, and propose that they belong to two distinct categories: ***dàn* is involved in QUD resolution, while *bìng bù* manages Common Ground (CG)**.

Data The data in (1)–(6) reveal a key difference between '*q*, *dàn p*' and '*q*, *bìng bù p*'. A felicitous use of *dàn* does not require its prejacent *p* be negative (see (1)), while what follows *bìng* needs to contain sentential negation (see (2)–(6)). In particular, the contrast between

(3) and (4) shows that to felicitously use *bìng* (*bù*), a sentence with double negation cannot be reduced to a positive sentence, though there would be truth-conditional equivalence. The contrast between (5) and (6) shows that sentential negation cannot be replaced by morphological negation, though, again, there would be truth-conditional equivalence. **Basic idea** Human language processing involves an interplay between top-down prediction and bottom-up information integration. In both production and comprehension, we form expectations across various dimensions: lexical choice, syntactic structures, relevance to the current QUD, and the development of the CG. Naturally, different kinds of contrastive particles can be adopted to reverse or block expectations at different levels.

***Dàn* contributes to QUD resolution.** I propose that *dàn* marks a contrast at the level of QUD. It relates two propositions that contribute to QUD resolution in opposite directions, and the prejacent of *dàn* outweighs the other (see (7)). Thus, the felicity in using *dàn* depends on whether one can naturally accommodate a salient QUD.

In (1), the contrastive interpretation hinges on the lexical meanings of *rain* and *umbrella*, their semantic relatedness in our conceptual knowledge, and how this semantic relatedness is relevant to QUD resolution. With the use of negative operator *méi*, the presence of *dàn* is felicitous in addressing, e.g., *how likely I have an umbrella*. While the raining weather in general indicates a high likelihood for people's carrying an umbrella, the prejacent of *dàn* indicates the opposite. Without negative operator *méi*, the presence of *dàn* in (1) is felicitous in addressing the likelihood of going out. The rainy weather suggests a level of hardship, lowering the likelihood, but the possession of an umbrella mitigates that difficulty, enhancing the likelihood.

This kind of QUD-level contrast is largely grounded in lexical semantics below the level of a full clause, and does not necessarily require sentential negation. Using negation or antonyms can be equally felicitous in establishing this QUD-level contrast (see (8)).

***Bìng bù* contributes to CG management.** I propose that *bìng bù* is a speaker-oriented,

'CG management' operator. '*bìng bù p*' asserts ¬*p*, but it can only be used if, from the speaker's epistemic perspective, (i) *p* is likely given the CG, and (ii) in all worlds satisfying their conversation goals, *p* is not CG (see (9)). The contrast arises between (i) the salience and high likelihood of a certain proposition, *p*, given the current CG in the speaker's epistemic worlds, and (ii) the speaker's rejection of *p* from the CG in worlds that satisfy conversation goals. Thus, the use of *bìng bù* in (2)/(4) is felicitous when the proposition 'I have an/no umbrella' is salient and strongly expected. As a CG-management operator, *bìng bù* applies to a whole proposition and blocks its addition to the CG. In other words, *bìng bù* does more than flip truth values: it prevents an expected development of the CG. This explains why sentential negation is necessary and double negation is irreducible.

(1) wài-miàn zài xià-yǔ dàn wǒ (méi) yǒu sǎn
outside at rain but 1SG (NEG) have umbrella
'It's raining outside, but I have an/no umbrella.' ***dàn* (+ neg): counter-expect.**

(2) wài-miàn zài xià-yǔ (dàn) wǒ bìng méi yǒu sǎn
outside at rain (but) 1SG BÌNG NEG have umbrella
'It's raining outside, but I have no umbrella.' ✓ ***bìng* + neg**

(3) wài-miàn zài xià-yǔ (dàn) wǒ (*bìng) yǒu sǎn
outside at rain (but) 1SG have umbrella
BÌNG
intended: 'It's raining outside, but I have an umbrella.' **# *bìng* without neg**

(4) wài-miàn zài xià-yǔ (dàn) bìng bú shì méi yǒu sǎn wǒ
outside at rain (but) 1SG BÌNG NEG COPULA NEG have umbrella
'It's raining outside, but it's not that I have no umbrella.' ✓ ***bìng* + double neg**

(5) wǒ-men qǐng-le Zhāng-Sān (dàn) bìng bù/fēi huì lái
tā
1PL invite-PFT Zhāng-Sān but 3SG BÌNG NEG necessary can/will come
'We invited Zhāng Sān, but it's not necessary that she will come.' ✓ ***bìng* + neg**

(6) wǒ-men qǐng-le Zhāng-Sān (dàn) (*bìng) wèi-bì huì lái
tā
1PL invite-PFT Zhāng-Sān but 3SG BÌNG unnecessary can/will come
Intended meaning is the same as (5) **# *bìng* + morphological negation**

(7) $[\![(q),\ \text{dàn}\ (p)]\!] = \lambda p.\lambda q.p \wedge q$, presupposing $\exists r[r \in \underbrace{\text{QUD}}_{\text{`}} \wedge \mu_{\text{LIKELY}}(\neg r|p) \geq \mu_{\text{LIKELY}}(r|q)]$
p is opposite to and outweighs q

(see also Winter and Rimon 1994, Toosarvandani 2014's analysis of English *but*)

(8) a. Mary wants to be a basketball player, but she is not tall.
b. Mary wants to be a basketball player, but she is short.

(9) $[\![\text{bìng bù}]\!]^{c,w} \overset{\text{def}}{=} \lambda p.\neg p$, defined for p, c, w only if $\forall w' \in \text{Epi}_{\underbrace{\text{SPEAKER}_c}_{\text{The speaker is sure that}}}(w) :$

$(\underbrace{\mu_{\text{LIKELY}}}_{\text{`}}{}_{w}(p \mid \text{CG}_{w'}) \geq \theta_{c,w'} \wedge \underbrace{\forall w'' \in \text{Conver}_{\text{SPEAKER}_c}(w') : (p \notin \text{CG}_{w''})}_{\text{in all worlds satisfying their conversation goals, } p \text{ is not CG}})$
p is sufficiently likely given the CG

(see also Frana and Rawlins (2019)'s analysis of Italian *mica*)

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How many BAs are there in Mandarin? -- One BA to rule them all

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In Mandarin, the sentence-final particle BA has a wide distribution and diverse usages. It can appear in declaratives (1), interrogatives (2), and even imperatives (3).

(1) Zhangsan xihuan chi shuiguo ba.

Zhangsan like eat fruit BA

"Zhangsan likes eating fruits, I think."

(2) Lisi qu-le meiguo ba?

Lisi go-ASP USA BA

"Lisi went to the USA, right?"

(3) Chi fan ba, bu deng-le.

eat rice BA NEG wait-ASP

"Let's eat, no more waiting."

Regarding these different distributions of BA, some scholars posit the existence of multiple BAs with related meanings (Lü, 1944/1982; Zhu, 1982; Shi, 2009; a.o.), while some others argue that these are all instances of the same BA with a core meaning (Hu, 1993; Xu, 2003; Lu, 2007; Ga, 2011; Zhao & Sun, 2015; a.o.). However, whether adopting a single-BA analysis or a multiple-BA approach, existing research has largely focused on the adjustments in speaking manner and pragmatic functions brought by BA, failing to truly grasp its semantic core. Additionally, in analyses that adopt the single-BA approach, the sentence-medial BA is often not taken into account.

In light of this, by combining the semantic and syntactic analyses of both sentence-final and sentence-medial BAs, this talk argues that there is only one "X-BA" structure in Mandarin. Employing minimal-pair analysis and paraphrasing method, we further propose the core syntactic-semantic properties of "X-BA". Finally, based on the latest information structure model of Roberts (2023), we present a unified formal model for the syntax and semantics of BA.

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Oral presentations

Ungrammatical or infelicitous? Licensing condition for Mandarin *wh*-indefinites

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Introduction There are at least two groups of analyses available for licensing the declarative use of Mandarin *wh*-indefinites. One camp suggests that *wh*-indefinites need to be syntactically licensed by a (covert) operator, similar to the interrogative reading requiring a Q-operator (e.g., Li, 1992; Lin, 1998). Alternatively, some argue that the distribution of declarative *wh*-indefinites is constrained beyond syntax (Dong, 2009; V. J. Pan, 2019; Shi & Pan, 2023): *wh*-indefinites cannot be prosodically stressed or F-marked. In this paper, we argue that a solely syntactic or pragmatic account would undergenerate. We therefore argue for a hybrid account: *wh*-indefinites are syntactically licensed by an Exh(austifier) and a modal operator given their obligatory ignorance, and as a result, they would consistently violate a pragmatic constraint of informativity, if F-marked.

Against purely syntactic licensing Mandarin *wh*-indefinites cannot be overtly F-marked, as shown in (1) (cf. 2, where F-marking the NP). While *wh*-indefinites in simple sentences are generally considered odd, it is only the case when the indefinite is by itself at the sentence-final position—presumably, receiving a default focus (cf. 3a & 3b-c). Another contrast is shown in (4), where under the scope of a necessity modal, only the sentence-final *wh*-indefinite requires a classifier to co-occur (cf. 4a-b). These contrasts, all related to information structure, would be hard to explain merely with the presence of some syntactic operator. Alternatively, Shi and Pan (2023), adopting a QUD-based approach, propose that a declarative sentence with a *wh*-indefinite, if F-marking the *wh*-indefinite, would reconstruct a default question under discussion (QUD) (Büring, 2003). The infelicity is the result of informativity violation because the utterance in question fails to be informative to the reconstructed QUD.

Against purely pragmatic licensing Shi and Pan assume that F-marking of the declarative sentences helps reconstruct a congruent QUD: replace the F-marked phrase with a *wh*-phrase of the same type: {*what, who, where…*}. Relevance further selects a relevant *wh*-phrase, and informativity is evaluated thereafter—all the odd examples in (1-4) fail to provide an informative answer to the QUD. One direct challenge is the contrast between (5a1-2) and (5b). If the objects in (5) are all F-marked and thus replaced by *wh*-phrases for congruence, we would end up with the same QUD (either in Mandarin or English): *Who does John/Zhangsan like?* If (5b) is a bad answer, so are (5a1-2).

A hybrid solution: The *wh*-indefinites are syntactically licensed, and as a result, they cannot be F-marked due to the pragmatic constraint. Assume that Mandarin *wh*-indefinites are existential quantifiers (Liu, 2019) that trigger singleton domain alternatives (Liu & Yang, 2021). Given that Mandarin *wh*-indefinites trigger obligatory ignorance, we follow Liu and Yang (2021) and suggest that a *wh*-indefinite needs two licensors: an exhausitifer (Chierchia, 2006; Fox, 2007) and an epistemic modal—the latter can be covert (Kratzer & Shimoyama, 2002, Shi, *in prep*). Obligatory ignorance results, and the meaning of (3), for example, would be enriched to be "The speaker knows that ZS likes someone, and they don't know that ZS likes person a, person b, or person c." On the other hand, neither *someone* nor Mandarin *yi-ge ren* 'a person' observes these syntactic constraints, and thus the speaker can convey more information. For example, *John likes someone, namely, Mary* is grammatical, and the utterance of (5a1) leaves room for the specific reading of the indefinite, which is informative to the reconstructed QUD: *who does John like?*

Extention Our hybrid proposal is compatible with Erlewine's (2025) feature-based proposal for Mandarin disjunctions *haishi* vs. *huozhe*. While *huozhe* is declarative, *haishi* normally appears in interrogative sentences, but it can also be used in declarative, with speaker's ignorance/irrelevance (8). To account for the contrast, Erlewine proposes that *haishi* has an additional [uR(oot)] feature to derive the ignorance, similar to the treatment to *wh*-indefinites (Shi, *in prep*). On the other hand, data in (6-7) show that only [A *huozhe* B] can be the at-issue content, which, like the contrast observed among indefinites, is due to the same informativity constraint.

Appendix: example sentences.

(1) a. #張三看的**是** [[什麼]$_F$電影]。b. #李四出門**只**買了 [[什麼]$_F$書]]，沒買[[別的]$_F$書]。

(2) a. Q: 張三看的是[電影]$_F$嗎? A: 不，他看的**是**[什麼[話劇]$_F$]。
b. 李四出門**只**買了什麼 [書]$_F$，沒買 [別的東西]$_F$。

(3) a. #/??張三喜歡 [[什麼]$_F$人]。
b. 張三喜歡 [語言學系]$_F$的什麼人。c. (有)什麼人喜歡 [張三]$_F$。

(4) a. 你應該給人家買#{個/點兒/些}什麼禮物。
b. 你功夫這麼厲害，應該找(個)什麼人切磋切磋。

(5) a1. John likes someone. a2. 張三喜歡一個人。
b. #/??張三喜歡誰/什麼人。

(6) 張三最喜歡 [李四還是王五] 寫的那本書。 (No question reading, only declarative)

(7) a. 小林週末去了 [香港{??還是/或者}澳門]。 (For *haishi*, question reading still available)
b. 小林週末去了[香港{還是/或者}澳門] 購物，買了一大堆化妝品。
(Erlewine, 2025, citing from Yuan, 2021)

(8) Common ground: *Lin only went to Hong Kong during the weekend.*
a. 小林週末去了[香港或者澳門]購物，買了一大堆化妝品。
b. #小林週末去了[香港還是澳門]購物，買了一大堆化妝品。

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Clausal parentheticals in Chinese: the semantics of *which* in code-mixing speech

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Synopsis. This talk discusses clausal parentheticals in Cantonese and Mandarin that are introduced by *which* in code-mixing speech (=(1)-(2)). They are comparable to English (3). I argue that *which* is lexically borrowed from English (*contra* Leung 2001's & Chan 2022's idea of syntactic borrowing). It denotes an overt parenthetical force operator in the sense of Koev (2022). It introduces a proposition that is *projective*, *declarative* and *non-obligatorily at-issue*. A force operator approach to projective content is empirically superior than two-dimensional frameworks such as Potts (2005).

***Which-clauses* ≠ relative clauses**. *Which*-clauses introduce a propositional meaning distinct from the matrix clause, rather than contribute to modification (Lee 2025), despite surface similarities to relative clauses. Two particular properties support this claim:

(a) *Gap-less cases*: In (4), there is no 'gap' in the which-clause, i.e., nothing is relativized. Rather, the host clause and *which*-RC are merely discourse-related.

(b) *Cross-clausal cases*: In (5), they can be used sentence-initially without a host clause.

***Which*-clauses as clausal parentheticals**. The propositional meaning brought along with the *which*-clause is conventionally triggered, and obligatorily discourse-new. Moreover,

(i) It is *projective*. In (6), the *which*-clauses project through the conditional clauses (among other contexts, e.g., negation, epistemic modals, and interrogative sentences).

(ii) It is *illocutionarily independent*. In (7), while the matrix clause is interrogative, the *which*-clause remains declarative. Also, in (8), it can host its own SFP that is distinct from the matrix clause.

(iii) It *disallows any binding relations* from the matrix clause, as shown in (9).

(iv) It is typically *not-at-issue*. In (10), while the matrix proposition can be denied in the continuation (10a), the *which*-clause is not (10b).

Analysis. I propose that *which* is not borrowed as a relative pronoun, but an overt realization of a parenthetical operator introducing its own force. Following Koev (2022), the lexical semantic of *which* can be given in (11), and its meaning can be derived in a uni-dimensional semantic framework (Schlenker 2013, 2023).

Predictions. The proposal makes two predictions.

I. *Which*-clauses are always declarative, unlike English clausal parentheticals. This is borne out in (13b), in contrast with the English (13a).

II. *Which*-clauses can introduce at-issue content, if the matrix clause does not settle the QUD (Roberts 1996). Nothing in the proposal dictates the parenthetical meaning must be not-at-issue. It is possible that *which*-clauses can convey at-issue meaning. This is the case in (14), where the *which*-clause provides an answer to the QUD. Also, the usage in (5) also illustrates this point, since it further develops the discourse topic.

Implications. (a) On *formal semantics*. A force operator approach to parentheticality is empirically superior than the wide scope approach (Demirdache 1991; Del Gobbo 2003, i.a.), or the two-dimensional approach (Potts 2005, i.a.). It lends support to a unidimensional semantics (Schlenker 2013, 2023). (b) On *parentheticals*. Parentheticality in Chinese can be grammaticality marked, thanks to lexical borrowing from English. (c) On *code-mixing*. The current analysis eliminates a case formerly thought to be syntactic borrowing. Given that post-nominal modification is highly restricted in Chinese, a lexical borrowing account to *which* in Chinese maintains that the consequence of language contact remains at lexical level.

(1) Keoi gin-dou bou dinwaa [**which** keoi waa soeng maai wo5].
3SG see-ASP CL telephone WHICH 3SG say want buy SFP
'He has seen a telephone which he says he wants to buy.' ([C], Leung 2001:58)

(2) Changjian de zhiyou Yuenanfen [**which** wo bu xihuan]. ([M], Social media)
common DE only Vietnamese.noodle WHICH I not like
'Only Vietnamese noodle is common, which I do not like.'

(3) We do not need to begin with the children – they will follow – but with the adults.
(Blakemore 2006, modified; clausal parenthetical in gray boxes)

(4) Keoi m-hai housik cyulei ni-di si [**which** keoi wui gei sitdai]. ([C], Forum)
3SG not-be know handle this-CL thing WHICH 3SG will quite disadvantaged
'S/he doesn't handle these things well. S/he would be quite disadvantaged.'

(5) A: Ngoteng-gwo nei jung-gwo jatci wo3. | B: [**which** is mou honang ge3].
1SG hear-EXP you use-EXP once SFP WHICH IS not possible SFP
'I heard you using (it) once...' 'which is impossible.' ([C], Leung 2010:35)

(6) Ruguo Allen you shi ge zinü [**which** ta meiyou], name…
if Allen have 10 CL children (WHICH he not.have), then
'If Allen had 10 children (he didn't), then …' ([M], blog)

(7) Weishenme shuo fayu shi zuihaoting de yuyan [**which** wo conglai bu juede].
why say French be prettiest DE language WHICH 1SG always not think
'Why French is said to be the prettiest language? I never think so.' ([M], Social media)

(8) Nei di sausai m-gongzeng wo5 [**which** nei zigei jiging singjing-zo laa1].
You CL skill not-clean SFP WHICH you self already admit-PFV SFP
'Your skills are not good enough. You already admitted (that).' ([C], forum)

(9) *Nidou mui-bun syu$_i$ dou hougwai, **which** keoi$_i$ ge zokze houcoetmeng. [C]
here every-CL book all expensive WHICH it GE author famous
Int.: 'All the books$_i$ here are expensive, whose$_i$ author is very famous.'

(10) Cyun-coeng dak jat-zoeng toi hai ji-jan-toi, [**which** keoidei zung sik-gan zyucoi].
whole-venue onlyone-CL table be 2-person-table WHICH 3PL still eat-PROG main.course
([C], Lee 2024:10)
'There's only one 2-person table - they're still having the main course.'
→ a. #No, they are having deserts. → b. ^{OK}No, there are two such tables.

(11) **P**arenthetical OP: **P-DECL**$^{p}{}_{c}$ (φ) for ∃p ∧ φ_p ∧ $c + p$ cf. ⟦which⟧ = λp. **P-DECL**$^{p}{}_{c}$ (p)
(where $c + p$ commits the speaker of (the referent of) context c to the proposition p; at-issueness remains unspecified)

(12) Derivation of (2) *(where r-decl indicates Root OP, and c ⊕p indicates at-issueness)*
a. [$_{\text{ForceP1}}$ **R-DECL**$^{p}{}_{c}$ [$_{\text{TP}}$ he^{x} saw phone [$_{\text{ForceP2}}$ **P-DECL**$^{p}{}_{c}$ [$_{\text{CP}}$ he$_{x}$ says want buy]]]]
b. ∃p ∧ ∃x ∧ $see_p(x, phone)$ ∧ $c \oplus p$ ∧ ∃q ∧ $say_q(x, want.buy.phone)$ ∧ $c + q$
= **r-decl**$^{p}{}_{c}$ (∃x ∧ $see_p(x, phone)$ ∧ **p-decl**$^{q}{}_{c}$ ($say_q(x, want.buy.phone)$)

(13) a. The driver—what was his name again?—had disappeared. (p.c. ******)
b. *go sigei datyin siusat-zo, **which** keoi giu me meng waa2? [C]
CL drive suddenly disappeared WHICH 3SG call what name SFP
'The drive disappeared suddenly – what was his name again?'

(14) [In response to the question "Why don't you say a word?"]
gin si houfukzap, **which** ngo mou me zingsan heoi gong. [C]
CL matter complicated WHICH I not.have any energy to talk.about
'The matter is complicated, and I don't have any energy to talk about it.'

_Wh_-doublets in Cantonese and their encoding of evidentiality and plurality

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Synopsis. This talk discusses the semantics of two types of *wh*-doublets (bare in (1a) vs. clausal in (1b)) in Cantonese, both interpreted existentially (cf. Li 1992, Lin 1998), with additional meanings undocumented in the literature, namely:

① *Evidentiality*: both convey an evidential component. They thus represent cases of what we call *evidential indefinites*, in contrast with a similar phenomenon known as epistemic indefinites (cf. Alonso-Ovalle & Menéndez-Benito (2010, 2015)).

② *Plurality*: only clausal *wh*-doublets obligatorily convey (a type of event) plurality (cf. Hofherr (2010)), whereas bare *wh*-doublets are number-neutral (Yu 1964, Xu 2010).

We propose that (i) the evidential component is a presupposition encoded in a functional morpheme in *wh*-doublets, and that (ii) the difference in plurality is rooted in their non-uniform derivation. These properties further our understanding on non-interrogative *wh*s.

Cantonese *wh*-doublets as specific indefinites. Both types of Cantonese *wh*-doublets show two unusual properties and thus deserve an analysis on their own.

i. Both are used existentially only (i.e., as indefinites; see (2)). They resist interrogative contexts, in sharp contrast with *wh*-doublets in Korean, , Yaeyaman, Tagalaog, Turkish and Mongolian (Chung 1999, Davis 2015, Hong 2016, Lim & Jang 2024, and Jang & Kim 2024), which can be used interrogatively.
ii. Both are used as specific indefinites and resist a non-specific reading (see (3)), different from Mandarin bare *wh*-singlets as discussed in Li (1992) and Lin (1998).

① **A shared evidential component**. We argue that the additional meaning is distinct from:

a. an ignorance component (as in epistemic indefinites), since (4) shows that the speaker knows the referent, but rather not to name it for pragmatic reasons.
b. a quotative implicature (Koev 2017) or a metalinguistic quantification (Sudo 2013), since quotative contexts are at best preferred (=1), but not required (=5).

We therefore suggest that the additional meaning of *wh*-doublets has an evidential character, realized as a *presupposition* of the speaker's *access to information source*:

> **The evidential component in *wh*-doublets**
> The use of *wh*-doublets presupposes that *the speaker has access to the source of information of the referent denoted by the* wh-*expression*.

② **An asymmetry in plurality**. A crucial contrast between the two types lies in plurality.

i. Bare *wh*-doublets are number-neutral. (6) is compatible with a singular interpretation, under the presumption that only one person got the gold award.
ii. Clausal *wh*-doublets are obligatorily plural in number, and incompatible with a singular interpretation, as in (7). Establishing a plural context in (8) restores the felicity.

A non-uniform analysis. We propose that the two *wh*-doublets are derived differently, but both involve a morpheme that comes with the presupposition relating to evidentiality.

- **Bare *wh*-doublets** involve morphological reduplication: a reduplication morpheme denotes a choice function (Kratzer 1998), and the *wh*-expression is interpreted as a specific indefinite. (Lee & Wong 2018, Davis 2015, Jang & Lim 2024). → (9a)
- **Clausal *wh*-doublets** involve syntactic conjunction: a covert conjunction morpheme applies exclusively to clauses (cf. Adams & Tomioka 2012, Cheung 2015). The morpheme connects two clauses that denote two events, hence plurality. The *wh*-expression specifies the dimension over which the events are distributed. → (9b)

The lexical semantics of the choice function morpheme and the conjunction morpheme are given in (10a) and (10b), both of which similarly comes with an evidential presupposition, implemented under Potts' (2005) two-dimensional framework.

(1) a. Bare *wh*-doublets
Aaming waa keoi hai zizocaan sik-zo ***matje-matje****, gei baabai.*
Aaming say he at buffet eat-PFV **what-what** how cool
'Aaming said he ate something at the buffet. How cool!'

b. Clausal *wh*-doublets
Aaming waa keoi hai zizocaan ***sik-zo matje sik-zo matje****, gei baabai.*
Aaming say he at buffet **eat-PFV what eat-PFV what** how cool
'Aaming said he ate something at the buffet. How cool!'

(2) a. * *Aaming soengzidou* ***bingo-bingo*** *lai-zo.*
Aaming wonder **who-who** come-PFV
Int.: 'Aaming wonders who came.'

b. * *Aaming soengzidou* ***bingo lai-zo bingo lai-zo****.*
Aaming wonder **who come-PFV who come-PFV**
Int.: 'Aaming wonders who came.'

(3) a. # *keoi soeng maai* ***matje-matje*** *zing daangou, daan mei-namdou maai matje.*
he want buy **what-what** make cake but not-think.of buy what
'He wants to buy something to bake a cake, but hasn't thought of what to buy.'

b. # *keoi soeng* ***maai matje maai matje*** *zing daangou, daan mei-namdou maai matje.*
he want **buy what buy what** make cake but not-think.of buy what
'He wants to buy something to bake a cake, but hasn't thought of what to buy.'

(4) *Aaming maijiging ceng-zo* ***bingo-bingo*** *lo1, batgwo ngo mwui tung nei gong.*
Aaming MAI already hire-PFV **who-who** SFP however I won't to you tell
'Aaming had already hired someone, but I won't tell you (who).'

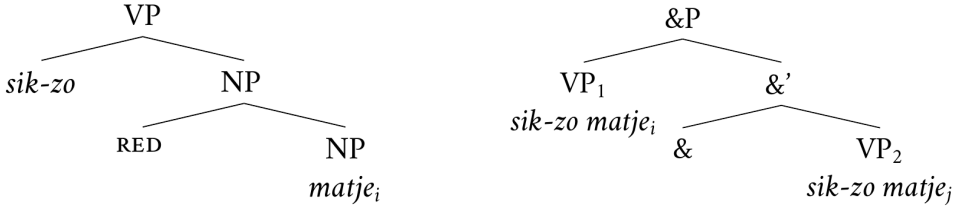
(5) *gaamfei zeoi zungjiu mhai haanzai* ***sik mat sik mat****.*
keep.fit most important not.be limit **eat what eat what**
'The most important thing when keeping fit isn't limiting what to eat.'

(6) *sanman tai-dou gampaai hai* ***bingo-bingo*** *ling.*
news.report mention gold.medal be **who-who** obtain
'The news report mentioned the gold medal belongs to somebody.'

(7) *#sanman tai-dou gampaai hai* ***bingo ling bingo ling****.*
news.report mention gold.medal be **who obtain who obtain**
'The news report mentioned the gold medal belongs to somebody.'

(8) *sanman tai-dou gam ngan tung paai hai* ***bingo ling bingo ling****.*
news.report mention gold silver bronze medal be **who obtain who obtain**
'The news report mentioned the gold, silver and bronze medals belong to somebody.'

(9) a. Bare *wh*-doublet in (1a) b. Clausal *wh*-doublet in (1b)



(10) a. $[\![\text{RED}]\!]^g$ =< $g(i) \in D_{choice\ function}$, **access-to-information**(*Speaker, g*(i)) >
b. $[\![\&]\!]^g$ =< λP.λQ.[P(*g*(i) ^ Q(*g*(j)] , **access-to-information**(*Speaker, g*(i))⊕*g*(j) >

Affectedness in Mandarin *bei*-passives in monolingual and bilingual children

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Mandarin *bei*-passives appear in an [NP_1-*bei*-NP_2-VP] sequence, where *bei* is a passive marker, and the two NPs are AGENT and PATIENT arguments of the event. Semantically, *bei*-passives interact with grammatical aspect and are associated with aspectual and event semantic meanings (Xiao et al., 2006). Affectedness has been proposed to account for many such semantic properties of *bei*-passives (Law & Hirschberg, 2025). Affectedness captures the **change** of a THEME/PATIENT *x* during an event *e* (Beavers, 2011). For example, in *Qiang ye bei ni da-huai le a.* 'The gun was broken by you', *qiang* 'gun' (*x)* was damaged during the event *da* 'break' (*e*), undergoing a change of state from being intact to broken.

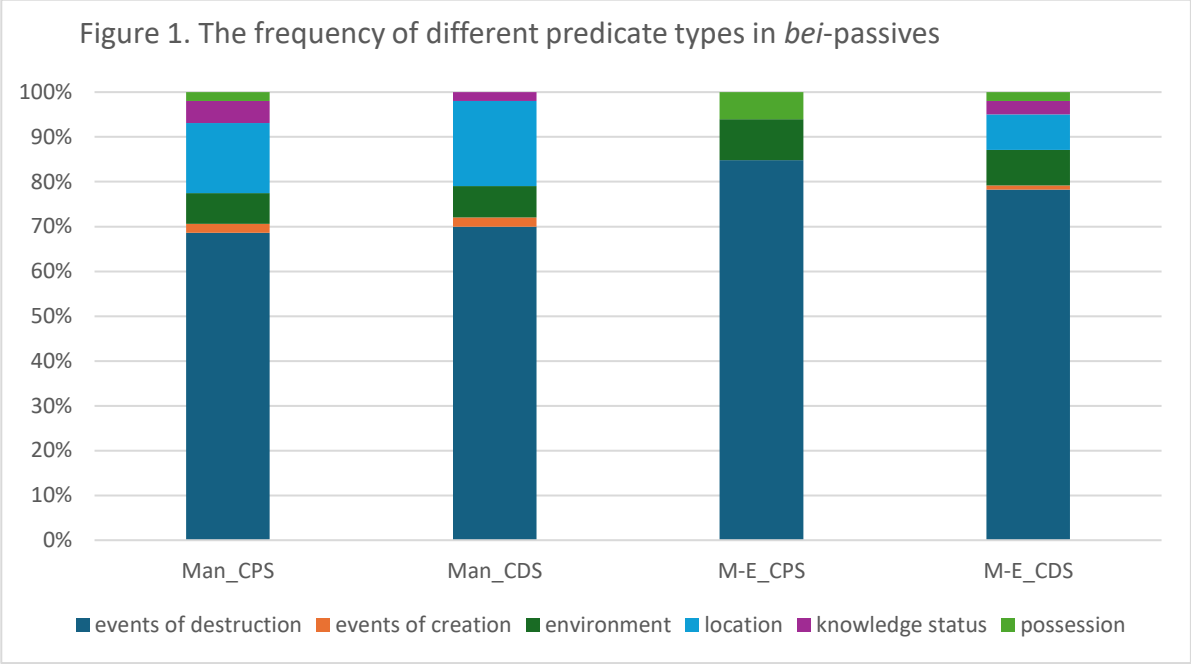
Cross-linguistically, passives are one of those late acquired grammatical constructions, produced at low frequencies in naturalistic child speech (Borer & Wexler, 1987). *Bei*-passives emerge in Mandarin children's speech around ages 2-3. Early *bei*-passives usually have telic predicates and perfective aspect markers, reflecting patterns in the input (Deng et al., 2018). Mandarin children produce more passives with actional verbs (e.g., *dahuai* 'break') than with non-actional verbs (e.g., *kanjian* 'see') and more long passives with agent than short passives without agent (Liu et al, 2024). However, little has been done to understand how affectedness is (not) encoded in Mandarin *bei*-passives in child-produced speech (CPS) and child-directed speech (CDS). English passives also have a THEME/PATIENT as a subject but not constrained by affectedness in the same way. The cross-linguistic difference raises the question of whether bilingual children's Mandarin passives are influenced by English, or the reverse. This study fills these gaps by investigating the affectedness of NP_1 in the relevant event in the CDS and CPS of Mandarin monolingual and Mandarin-English bilingual children using naturalistic speech samples.

We extracted 79 tokens of *bei*-passives in the CPS of children aged 1;7 to 6;9 from three longitudinal and cross-sectional corpora in CHILDES, including the monolingual Tong Corpus (Deng & Yip, 2018), Beijing Child Mandarin Corpus (BJCMC, Mai et al., 2024) and the Mandarin recordings of the Hong Kong Mandarin-English Child Corpus (HKMECC, Mai et al., 2024). CDS data are from the Mandarin-speaking adult interlocutors in the aforementioned corpora (54 and 127 tokens from the monolingual and bilingual corpora respectively). We manually coded the passives based on the type of CHANGE that NP_1 undergoes in the VP event, details in Table 1.

The results (Figure 1) show that passives with VPs denoting internal change (especially destruction events) are most frequent in CPS and CDS of the monolingual and bilingual children (> 72%), followed by those denoting spatial and relational changes (> 9% and 2%). Those denoting changes of social impact and no change are unattested. The high percentage of destruction events corroborates previous observations that *bei*-passives are typically associated with "negative and "adversative" meanings (Wang, 1980; Xiao et al, 2006). However, the small yet non-trivial number of the other types demonstrates that negativity or adversity is not a necessary condition. Our findings also indicate that the development of *bei*-passives by Mandarin-learning children is semantically constrained by affectedness from earliest stages, whether they are monolingual or bilingual, and that the distribution of type of change in the CPS is highly consistent with that in the CDS. We speculate that young children are highly sensitive to "change" encoded in physical events, guiding their analysis of patterns of the *bei*-passives in the input. The analysis is efficient and effective even when the amount of Mandarin input is limited and potential cross-linguistic influence is likely (as in the bilinguals' case). Our study contributes to the understanding of how semantic notions interact with input patterns in early language development through a new analysis of the *bei*-passive with newly published data. (Word counts: 611)

Table 1. Coding scheme of affectedness of NP_1 based on VP event in [NP_1-*bei*-NP_2-VP] (created based on Dowty, 1979; Law & Hirschberg, 2025; Smith, 1991; Vendler, 1967; and Wunderlich, 1997)

Type of change		Examples of VP (in Chinese)
Internal	Events of destruction	打坏, 灼伤, 吃掉, 戳穿, 砸死, 吃
	Events of creation	(房子)盖好, (油画)画完
Spatial	Environment	遮住, 困住, 围起来
	Location	放到, 拿走, 扣掉, 掀起来, 弄丢
Relational	Possession	卖, 送, 给, 买, 寄, 捐, 租, 借
	Knowledge status	拍到, 发现, 听见, 看到, 知道,
Social impact	Perception verbs	欣赏, 追捧,喜爱, 憎恨, 忘记
No change	Activities	唱(歌), 打(球), 看(书), 收藏



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Counterfactual reasoning and counterfactual expressions in Mandarin-speaking preschoolers

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Counterfactual reasoning (CFR) is a special type of conditional reasoning that requires imagining an altered version of known reality to infer how outcomes would be otherwise (e.g., *If Napoleon had won the Battle of Waterloo (but he didn't), London's Waterloo Station would not have its name (but it does)*). CFR is different from basic conditional reasoning (BCR), which is logical deduction based on unknown or hypothetical conditions plus general knowledge of event causalities and probabilities (e.g., *If Taylor marries Travis (which may or may not happen), she will probably be very happy (but we don't know)*). Although both engage conditional reasoning and knowledge of causality, CFR is more complex than BCR in that it additionally involves mental manipulation of known reality, and thus taps into working memory and event cognition, which presents great cognitive challenges for young children.

Counterfactuality can be linguistically encoded through obligatory morphosyntactic devices like tense backshifting, attested in English (e.g., *if…hadn't…*) and German; it can also be inferred from the context and "enhanced" by optional lexical markers like adverbs, negators and aspect markers, as in Mandarin (e.g., *ruguo…bushi…le; ruguo…meiyou…*). Recent research found that Mandarin preschoolers aged 4-5 displayed higher accuracy in performing CFR (close to 80%) than age-matched German and English preschoolers (< 60%) tested in respective languages under the same "Location Change" paradigm, in which children hear short stories and answer counterfactual conditional questions by identifying the whereabouts of the protagonists (e.g., *If… hadn't…, where would… be?,* Rafetseder & Perner, 2010; Francis, 2020; Wu 2024). This suggests that morphologically marked counterfactual expressions seem to restrict, rather than facilitates early development of CFR.

This study takes the first and closest look at the development of CFR in Mandarin, as well as its associations with linguistic enhancers (bushi… le vs. meiyou) and general linguistic and cognitive factors. 58 near-monolingual Mandarin children (age 3-6, 20 girls) were tested in a kindergarten in Shenzhen, China. CFR was assessed using an adapted version of the Location Change paradigm, balanced between the two lexical enhancers, shown in (1). Children's responses were recorded as CFR, BCR, and ERROR based on their responses to the prompt questions in (1) and the control question in (2). Receptive grammar, verbal and spatial working memory and event cognition were evaluated through Mandarin Receptive Grammar Test (Zhou et al., 2024), Memory of Digits (adapted from Wagner et al., 1999), Zoo Location (Wechsler, 2012), and Picture Sequencing (adapted from Baron-Cohen et al., 1986).

Results show that CFR response increased from 35% at age 4 to 83% at age 5, and reached ceiling at age 6 (Figure 1), replicating the high accuracy of the Mandarin 5-year-olds reported in Wu (2024). Crucially, 3- to 4-year-olds predominantly employ BCR (63-67%) in their responses, suggesting that children at this age have not yet fully mastered CFR and instead adopted BCR as a compensatory strategy. BCR was discarded by Mandarin children very rapidly when responding to counterfactual conditional questions at age 5 (17%) and 6 (3%). Interestingly, between the two linguistic enhancers, questions with *bushi… le* elicited slightly more CFR responses than those with *meiyou* in the 5-year-olds (58 vs. 51), while this difference is absent from the 3-, 4-, and 6-year-olds (0 vs. 1, 14 vs. 13, 60 vs. 61, respectively), uncovering a previously overlooked role of linguistic enhancer for 5-year-olds. Among the linguistic and cognitive abilities under investigation, receptive grammar and event cognition scores were significantly correlated with their CFR response accuracy ($rs > .48$, $p < .01$). In conclusion, in addition to age, children's ability to reason counterfactually are associated with their general language and cognitive maturity. The role of the linguistic enhancers in developing CFR for Mandarin children opens up new questions, which are being further investigated in our on-going analysis of recently collected data from another 82 Shenzhen children.

(1) Prompt question counterbalanced between meiyou (a) and bushi… le (b)

a.	*Ruguo*	*Xiao Ming*	***meiyou***	*zhuangshang*	*xigai,*	
	If	Xiao Ming	not have	hit-hurt	knee	
	yisheng	*xianzai*	*hui*	*zai*	*na?*	
	doctor	now	will	at	where	
b.	*Ruguo*	***bushi***	*Xiao Ming*	*zhuangshang*	***le***	*xigai,*
	If	not be	Xiao Ming	hit-hurt	ASP-perfective	knee
	yisheng	*xianzai*	*hui*	*zai*	*na?*	
	doctor	now	will	at	SFP	

'If Xiao Ming had not injured his knee, where would the doctor be now?'

(2) Control question asked immediately after the prompt question

Weishenme	*ni*	*juede*	*yisheng*	*hui*	*zai*	***[Answer to (1)]***
Why	you	think	doctor	will	at	

'Why do you think the doctor would be at [Answer in (1)] ?'

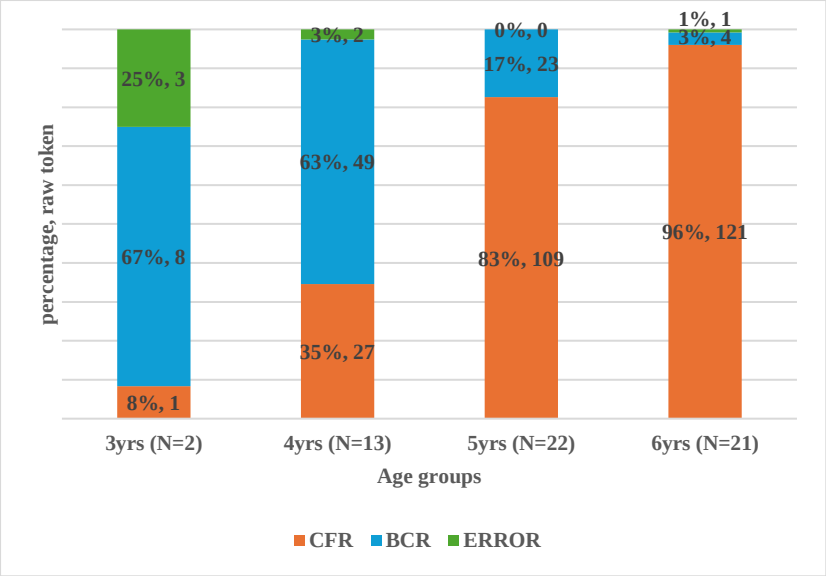

Figure 1. Children's (age 3-6, 20 girls) responses (CFR = counterfactual reasoning, BCR = basic conditional reasoning, ERROR) in the adapted Location Change task

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Focus and Positioning of *zài*-PPs in Child Mandarin: Evidence from Corpora and Prosody

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Mandarin allows *zài*-prepositional phrases both preverbally and postverbally, but the two positions correlate with different syntactic functions and semantic roles. Preverbal *zài*-PPs typically act as adjuncts denoting LOCATION, whereas postverbal *zài*-PPs canonically serve as complements denoting GOAL and are licensed by verbs with a state component (dynamic states such as posture or existence; telic transitions such as directional movement, placement, appearance), but not by activity verbs lacking a state component. Yet spontaneous speech shows "exceptions" where an adjunct *zài*-PP occurs postverbally with an activity predicate (see sentence (1)). While Deng and Mai (2025) attribute such patterns in UK heritage Mandarin to English influence, similar cases in monolingual child Mandarin call for a language-internal account at the syntax–semantics–prosody interface.

This study includes three experiments. In Experiment 1, we analyze the Zhou1 (14–32 months) and Zhou2 (36–72 months) corpora in CHILDES. Using CLAN, we extract child-produced tokens of *zài* and exclude non-locative uses (temporal, progressive, existential, metaphorical), retaining locative *zài*-PPs functioning as adjuncts or complements. Each token is annotated for position (preverbal or postverbal), function (adjunct or complement), information structure (focus, topic, or neutral), focus realization (syntactic or pragmatic), and age. Analyses stratify adjuncts and complements, using 2×2 contingency tests (Pearson's chi-square; Fisher's exact when expected counts are fewer than five).

In Experiment 2, we examine developmental change in Zhou1 and Zhou2, restricting analyses to adjunct *zài*-PPs. Part 1 estimates monthly postverbal rates: for each age in months, the proportion of adjunct PPs realized postverbally. Part 2 tests focus sensitivity among postverbal adjuncts by modeling each token's focus status (focus versus non-focus) as a function of age using binomial logistic regression.

In Experiment 3, we analyze the CHILDES Tong corpus (ages 1;7–3;4), targeting child productions; caregiver turns inform context only. A 2×2×3 design crosses Grammar (Adjunct versus Complement), Position (preverbal versus postverbal), and Information Structure (Focus versus Topic versus Neutral). Utterances are segmented in Praat with TextGrid tiers: Utterance, Verb (main lexical verb), Prepositional Phrase (from preposition to object), Pre-focal region, Post-focal region, and Notes. Pitch is extracted via autocorrelation with a 200–600 Hz range, adjusted per session. Measures include duration and fundamental frequency span for the Prepositional Phrase and Verb; prominence indices ΔDuration and ΔSpan are computed. Post-focal compression is defined as 1 − (Post_range/Pre_range), with insufficient voiced Post coded as missing.

The results show that postverbal adjunct *zài*-PPs in child Mandarin are focus-driven rather than structural anomalies. Distributional evidence from Zhou1 and Zhou2 (N = 163) shows adjunct *zài*-PPs are likelier to surface postverbally under focus than under neutrality (Fisher's exact $p = 0.006$); Topic versus Neutral is null ($p = 1.00$). Complements remain consistently postverbal across discourse conditions, plausibly reflecting processing priorities in Mandarin SVO. Developmentally, focused postverbal adjuncts appear early but remain infrequent and unstable, indicating sensitivity to information structure without stable production. A prosodic examination of the Tong corpus validates the focus account: focused postverbal adjuncts show clear Prepositional Phrase–over–Verb prominence (longer duration, larger robust F0 span), whereas a neutral postverbal complement shows only sentence-final lengthening, not focus-induced prominence.

(1) Chī zài Guǎngzhōu.
Eat at Guangzhou.
'eat in Guangzhou.'

Causality and modality:
A formal semantic analysis of causative

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Introduction This study explores the intricate relationship between causality and modality in natural language, drawing on original fieldwork on (Shantou) Teochew periphrastic causatives. Causation has long been central to both philosophy and linguistics, yet the prevailing treatment in formal semantics often reduces it to a primitive CAUSE operator (Dowty 1979; cf. Lewis's counterfactual theory (1973)). This simplification neglects the complexity of causal relations. Building on Kratzerian and Portnerian modal semantics as well as the Modal Component Hypothesis (Koenig & Davis 2001; Martin & Schäfer 2017), this work argues that causality and modality are two sides of the same coin: causal relations can be formally analyzed as modal dependencies between events.

Empirical domain Empirical evidence comes from five causative verbs in Teochew — *mue* 'make', *kə* 'give', *hai* 'hurt', and two semantically distinct *bun* 'separate' (courteous and permissive). Despite sharing the surface structure 'causer + causative verb + causee + embedded predicate', these constructions diverge across four major dimensions of causation: (i.) direct vs. indirect, with three subdimensions (temporality, spatiality, and participant configuration), (ii.) deterministic vs. probabilistic, (iii.) attitude-bearing vs. attitude-neutral, and (iv.) permissive vs. non-permissive.

The modality-based analysis I argue for a modal semantics analysis paired with event semantics, where each of the last three dimensions corresponds to a distinct modality sublexically encoded in the causative verb, distributed across at-issue meaning, presupposition, or conventional implicature, as summarized in Table 1. These findings show that causatives encode more than causal linkage and systematically exploit the resources of modal semantics.

Table 1: Different types of sublexical modalities in each Teochew causative verb

Causative verb	At-issue	Presupposition	Conventional implicature
mue	metaphysical	-	-
kə	volitional	-	-
hai	metaphysical	doxastic (malefaction)	-
courteous *bun*	volitional	doxastic (benefaction)	-
Permissive *bun*	volitional	-	deontic

Alternative Beyond a modality-based account, the study contrasts this approach with Causal Models in philosophy and cognitive science, particularly Structural Causal Models (Pearl 2000, 2009; and a series of recent works done by Bridget Copley, E. Bar-Asher Siegal, Prerna

Nadathur among others). While Causal Models provide powerful tools for representing counterfactual dependencies and are useful for capturing the deterministic vs. probabilistic dimension, they struggle to address the other three due to inherent weaknesses in representing time, space, participant roles, speaker perspectives, causal manners, and pragmatic information. Modal semantics, by contrast, offers finer granularity by distinguishing different layers of causal meaning. Nevertheless, Causal Models contribute valuable insights into event chain development and the contrast between causal necessity vs. sufficiency, and a comparison between thesse two frameworks highlights their complementary strengths.

Conclusion Taken together, this work develops a novel theoretical framework that reinterprets causation through modality rather than the monolithic CAUSE operator, while situating modal semantics alongside causal modeling approaches. By integrating fine-grained semantic diagnostics with cross-disciplinary theories of causation, the study contributes not only to the semantics of causatives but also to broader understanding of how human language encodes causal reasoning. Teochew serves as a case study, yet the framework is designed to extend cross-linguistically, offering a framework for future research into the interplay between causality and modality in natural language.

The semantics of *zhiyou*-conditionals: A CT-based account

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Synopsis: This paper proposes a compositional analysis for the Mandarin *zhiyou*-conditional (1). It argues that morpheme *cai* in the consequent is a special exhaustivity operator O_{CAI} specific to a conditional structure and associates with contrastive topic (CT). O_{CAI} quantifies over the relevant subset of subquestions triggered by CT-marking, and yields the assertive content that every alternative subquestion has a negative answer. *Zhiyou*, by contrast, is analyzed as a presuppositional HIGH operator. Exhaustification by O_{CAI} guarantees that ϕ is highest-ranked.

Background: Wimmer (2022) observes that (1) expresses insufficiency (2a) along with necessity (2b). His account consists of several steps, summarized in (3). He takes the source of the conditionality of *zhiyou*-conditionals to be *zhiyou*, the latter a composite of *zhi* 'only' (an intensional type of *only*) and *you* 'have' (an existential modal). Applying this entry to (1) yields (4). In prose, this says some world w' is such that you go in w' & I go in w', and there is no p' in C such that (i) p' does not equal the proposition *that you go*, and (ii) there is a world w'' such that p' holds in w'' & I go in w''. This derives both insufficiency and necessity.

There are several issues. **First**, *cai* is assumed to be an agreement marker (Hole 2004) without an inherent semantics. However, it is known that conditional *cai* can also co-occur with *chufei* 'unless' and *bixu* 'must' in the antecedent. It is thus unclear how to formalize the agreement relation between *cai* and its matching element. **Second**, as Wimmer acknowledges himself, his account fails to apply uniformly when an overt modal or Q-adverb is present in *cai*'s consequent clause. For example, (6) is a case displaying both sufficiency and necessity (it cannot be felicitously continued by 'and it's also possible that hard work does not lead to success'). Wimmer notes that this is captured by (7), but the ∀-quantification in (7) does not follow from (3). Regarding (6), I observe that it is in fact compatible with (6) that if one doesn't work hard, there is still a chance to succeed. This is evidenced by (8a) and (8b), both felicitous. Crucially, even in the absence of any modal/Q-adverb in the consequent, a *zhiyou*-conditional passes this test (9). These observations are summarized in (10). **Third**, note that in response to (11a), (11b), which matches Wimmer's (3)/(4), is felicitous, but the *zhiyou*-conditional in (11c) is not. Hence, Wimmer correctly predicts that a proposition with the semantics in (3)/(4) can be used in the context of (11a), but incorrectly predicts that (11c) can do the same. I argue that this is due to a QUD condition of *zhiyou*-conditionals: (11c) must be licensed by the polar question 'Did you go jogging?, a QUD that is not available in the context set up by (11a). Based on this and related data points, the complete QUD conditions of *zhiyou*-conditionals are formulated as (12).

Analysis: I argue that the conditionality of a *zhiyou*-conditional stems not from *zhiyou* but from *cai*, and that *cai* is CT-sensitive. The ordinary semantic value of a *zhiyou*-conditional is simply its prejacent, i.e., 'If ϕ, φ' (13a). Due to CT-marking on the antecedent ϕ or something within ϕ, a *zhiyou*-conditional additionally activates the CT-value (Büring 2003) in (13b), a set of conditional polar questions [?ϕ' → φ] where ϕ' is an alternative of ϕ. The derivation of the CT-value proceeds in two steps (14). The result of Step 1 (14a) is the singleton set of polar questions in (15a); the result of Step 2 (14b) is a non-singleton set of polar questions in (15b). *Cai* itself is defined as (16a), which can be paraphrased as (16b). (17) shows how this analysis applies to (17a): The assertion (17b) says every subquestion in (17c) which is not identical to 'If one publishes 5 papers, can one be promoted?' has a negative answer. This derives the necessary condition that publishing 5 papers is necessary for you to be considered for promotion, while also satisfying the QUD conditions. Cases with an overt necessity modal in the consequent can be analyzed analogously. Finally, *zhiyou* is defined as HIGH (18): It is truth-conditionally vacuous but presupposes that p is ranked higher than all relevant alternatives. Since *zhiyou*/HIGH is only presuppositional, its presence in a *zhiyou*-conditional doesn't affect the latter's assertive content, and its scalarity is consistent with the semantics of O_{CAI}/*cai*. In short, this paper provides an account of *zhiyou*-conditionals that fares better than Wimmer (2022).

(1) 只有你去，我才去。

(2) a. Insufficiency: There is a chance for the speaker not to go even if the hearer goes.
b. Necessity: There is no chance for the speaker to go if the hearer does not go.

(3) $[\![\text{zhiyou}_C]\!] = [\![\text{zhi'}_C\ \text{you}_\Diamond]\!] = [\![\text{zhi'}_C]\!]([\![\text{you}_\Diamond]\!])$ (Wimmer 2022: 411)
$= \lambda R_{p,\langle p,p\rangle}\lambda p\lambda q.\ R(p)(q)\ \&\ \neg\exists p' \in C\ [p' \neq p\ \&\ R(p')(q)]\ ([\![\text{you}_\Diamond]\!])$
$= \lambda p\lambda q.\ [\![\text{you}_\Diamond]\!](p)(q)\ \&\ \neg\exists p' \in C\ [p' \neq p\ \&\ [\![\text{you}_\Diamond]\!](p')(q)]$
$= \lambda p\lambda q.\ \exists w'\text{: } p(w')\ \&\ q(w')\ \&\ \neg\exists p' \in C\ [p' \neq p\ \&\ \exists w''\text{: } p'(w'')\ \&\ q(w'')]$

(4) $\exists w'\text{: } [_p \text{ you go}](w')\ \&\ [_q \text{ I go}](w')\ \&\ \neg\exists p' \in C\ [p' \neq [_p \text{ you go}]\ \&\ \exists w''\text{: } p'(w'')\ \&\ [_q \text{ I go}](w'')]$ (Wimmer 2022: 411)

(5) {除非, 必須}你去，我才去。

(6) 只有努力，才<u>一定</u>會成功。

(7) $\forall w'\text{: } [_\phi \text{ diligent}](w') \rightarrow [_{\phi'} \text{ succeed}](w')\ \&\ \neg\exists p' \in C\ [p' \neq [_\phi \text{ diligent}]\ \&\ \exists w''\text{: } p'(w'')\ \&\ [_{\phi'} \text{ succeed}](w'')]$ (Wimmer 2022: 431)

(8) a. 只有努力，才一定會成功；如果不努力，不一定會成功。
b. 只有努力，才一定會成功；如果不努力，成功的機會很小，儘管不是不可能。

(9) 只有你去，我才去；如果你不去，我不一定去。

(10) a. *zhiyou* [p], *cai* [□(q)]: p is sufficient but not necessary for q
b. *zhiyou* [p], *cai* [q]: (i) p is necessary but not sufficient for q, or
(ii) p is sufficient but not necessary for q

(11) a. 張三：你上個月去法國好不好玩？都去做了什麼？
b. 李四：如果天氣好，我偶爾去跑步。其他時候，我都待在酒店。
c. 李四：#只有天氣好，我才去跑步。其他時候，我都待在酒店。

(12) QUD conditions of a *zhiyou*-conditional
a. The QUD of [*zhiyou* ϕ, *cai* φ] must supply at least one alternative polar question Q with the form [?ϕ' → φ], where p' is an alternative of p.
b. All such instances of Qs have a negative answer.
c. The negative answers to all such instances of Qs are consistent with [ϕ → φ].

(13) a. $[\![\phi_{CT}, \text{ cai } \varphi]\!]^o = [\![\text{cai}(\phi \rightarrow \varphi)]\!]^o = \phi \rightarrow \varphi$
b. $[\![\phi_{CT}, \text{ cai } \varphi]\!]^{ct} = [\![\text{cai}(\phi \rightarrow \varphi)]\!]^{ct} = \{?\phi' \rightarrow \varphi \mid \phi' \in D_{st}\}$

(14) a. Step 1: Change the prejacent of *cai* into a polar question.
b. Step 2: Replace the antecedent ϕ in the result of Step 1 with its alternatives.

(15) a. $\{\phi \rightarrow \varphi\}$ (denotation of the polar question 'Is it the case that if ϕ, φ?')
b. $\{\{\phi' \rightarrow \varphi\} \mid \phi' \in D_{st}\}$ (CT-value of [ϕ, *cai* φ])

(16) a. $[\![\text{cai}(\psi)]\!] = [\![O_{CAI}(\psi)]\!] = \psi\ \&\ \forall Q \in C_{subq}\ [Q \neq [\![?\psi]\!] \rightarrow \forall p[p \in Q \rightarrow \neg p]]$
b. "$O_{CAI}(\psi)$" is true iff
(i) ψ is true, and
(ii) every subquestion in C_{subq} which is not identical to [?ψ] has a negative answer.

(17) a. 發五篇論文，才能升等。
b. Assertion: [If one publishes 5 papers, one can be promoted] & $\forall Q \in C_{subq}$ [$Q \neq [\![$'If one publishes 5 papers, can one be promoted?'$]\!] \rightarrow \forall p[p \in Q \rightarrow \neg p]]$
c. C_{subq}: {'If one publishes 5 papers, can one be promoted?',
'If one publishes 4 papers, can one be promoted?'}

(18) $[\![\text{zhiyou}]\!] = [\![\text{HIGH}]\!] = \lambda p\text{: } \forall p' \in C\ [(p' \neq p) \rightarrow (p > p')].\ p$

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Intervention effects are not uniform: evidence from exclusive doubling in Cantonese

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Introduction. Intervention effects (IEs) are important for the syntax-semantics interface. Previous proposals range from syntactic minimality (Rizzi 2004, Yang 2012) to semantic crashes (focus/alternatives: Beck 2006, Li & Law 2016, Erlewine 2025; quantifier: Swart 1992, Mayr 2014). I argue that IEs are **non-uniform** across ① *interveners* and ② *dependencies*, with evidence from doubling of exclusive focus particles in Cantonese, and offer a semantic account.

Exclusive doubling. Cantonese allows adverbial *zinghai* 'only' and SFP *zaa3* 'only' to jointly associate with a single focus (7)a, conveying the same truth condition as (7)b-c with only one particle. An apparent syntax-semantic mismatch arises: (7) has a single-'only' reading rather than a multiple one (*pace* Lee 2019). As Yip (2024) argues, the mismatch can be reconciled if *zaa3* is a scalar operator (2) rather than exclusive, but crucially, it is semantically dependent on *zinghai* (=true 'only') (1). Informally, *zaa3* accesses the alterative set quantified by *zinghai* and ranks its prejacent (=M buy lamb) to be lowered than some salient excluded alternative (e.g., M buy beef) on a contextual scale. The dependency is modeled as co-indexation of Rooth's (1992) C variable (like binding), as in (3) (composition omitted, see Yip 2024).

(1) $[\![zinghai]\!](C_i)$ = A(t)-I(issue) $p(w).\forall q[(q \in C_i \wedge q(w)) \rightarrow p \subseteq q]$ | N(ot-)AI $p \in CG$

(2) $[\![zaa3]\!](C_i)$ = AI $\lambda r \lambda w.r(w)$ | NAI $\exists p,q \in C_i[(r \cap q = \emptyset \wedge r \cap p \neq \emptyset) \rightarrow p <_s q]$

(3) LF: [CP *zaa3*(***C*****$_i$**) [TP *zinghai*(***C*****$_i$**) [vP2 **∼*C*$_i$** [vP1 Ming [v' buy [DP lamb$_F$]]]]]

IEs in exclusive doubling. I provide novel data that this dependency is subject to IEs. In (8)a, while doubling is possible when *zinghai* takes wide scope over aspectual negation *mou* 'didn't', it is *impossible* with narrow-scope *zinghai* in (8)b, i.e., *mou* triggers IEs to *zinghai* and *zaa3*:

(4) LF: *[CP ***zaa3***(C_i) [NegP *mou* [vP2 ***zinghai***(C_i) [∼C_i [vP1 M buy beef$_F$]]]]] (¬ > only)

The choice of negation is important, e.g., sentential negation is too high to intervene between *zinghai* & *zaa3* in (9). The interveners need to be syntactically lower than *zaa3* for valid testing. Also, IEs are not specific to negation. Other Q(uantificational-)elements like modals 'may' (10), Q-adverbs 'always' (11), and Q-subjects 'no one' (12) (and also 'few NP') all trigger IEs.

Non-interveners. However, some quantificational and even *focus* elements do not trigger IEs.

❶ Witnessable quantifiers: In (13), *mui-go jan* 'everyone' is compatible with doubling, even with distributive *dou* before *zinghai*. Same for other non-downward-entailing quantifiers, e.g., 'most NP, 3 NP, some NP (spec. indef.)'. Generalization: they are witnessable (Reinhart 1997), on par with Jin's (2020) proposed non-interveners for *weishenme* 'why'-questions in Mandarin.

(5) a. A quantifier is witnessable iff it entails the existence of a minimal witness set.

b. A set *W* is a witness set of *G* iff $W \in G$ and *W* is a subset of the smallest live-on set of *G*.

❷ Focus operators: In (14), additive *dou* 'also' takes scope over *zinghai* in doubling, with the associate below *zinghai*. In (15), *lin* 'even' with its associate can intervene between *zinghai* and *zaa3* without causing ungrammaticality. Same for cleft focus marker *hai* 'be' (not shown).

The radical immediate scope constraint. I propose (6) to capture the distribution of IEs. *Zaa3* requires its own prejacent to exclude at least one proposition in the alternative set. Interveners above *zinghai* render the proposition non-exclusive (e.g., negated or modalized) and hence IEs.

(6) a. Let the exclusive proposition (EXCL *p*) be *r*, alternative propositions excluded by *zinghai* be *q* (i.e., $[\text{EXCL } p] \vDash \neg q$), and the prejacent of *zaa3* be *s*.

b. In LF, no elements *α* may intervene between *zinghai* & *zaa3* (i.e., takes *r* & returns *s*), s.t. (i) *r* does not entail *s* ($r \not\subseteq s$) and (ii) there is no *q* ***in***compatible with *s* ($\neg\exists q[q \cap s = \emptyset]$)

Focus operators in ❷ are presuppositional, i.e., (partial) identity functions truth-conditionally, conforming (6). As for ❶, Jin (2020) shows that only witnessable quantifiers can be topicalized (under pl.def. readings) to have the highest scope (i.e., > *zaa3* in LF), thus triggering no IEs.

Conclusion. In exclusive doubling, quantifiers but not focus trigger IEs, a *flipped* pattern with *wh*-dependencies (focus-IEs only, *cf.* Li & Law 2016), showing dual non-uniform nature of IEs.

(7)a. Mingzai **zinghai** maai-zo *joengjuk*$_F$ **zaa3**
Ming only buy-PFV lamb SFP.only
'Ming only bought lamb.' = $\neg\phi_{b(eef)} \wedge \neg\phi_{p(ork)}$

b. Mingzai **zinghai** maai-zo *joengjuk*$_F$
c. Mingzai maai-zo *joengjuk*$_F$ **zaa3**
(b-c): 'Ming only bought lamb.'=$\neg\phi_b \wedge \neg\phi_p$

NOT: 'the only thing that happened/Ming did was (Ming's) buying only lamb.' (=multi-'only')

(8)a. [M. **zinghai** mou maai *ngau*$_F$] **zaa3**
M. only not.PFV buy beef SFP.only
'M. only did not buy beef.' (only > ¬)

b. [M. mou **zinghai** maai *ngau*$_F$] (***zaa3**)
M. not.PFV only buy beef SFP.only
'M. did not only buy beef.' (¬ > only)

(9) Aaming m-hai [[**zinghai** maai-zo *joengjuk*$_F$] **zaa3**].
Ming not-be only buy-PFV lamb SFP.only
'It is not the case that Ming only bought lamb.' (he bought beef in addition to lamb) (¬ > only)

(10) [Keoi hoji **zinghai** sik *sou*$_F$] (??**zaa3**)
3SG may only eat veggie SFP.only
'S/he can eat solely veggie.' ($\diamond_{Deo}$ > only)

(11) [Keoi sengjat dou **zinghai** sik *juk*$_F$] (??**zaa3**)
3SG always DOU only eat meat SFP.only
'S/he always only eats meat.' ($\forall_{always}$ > only)

(12) [Moujan **zinghai** gaau *jat*$_F$-bin zaakjiu] (***zaa3**)
no.one only submit one-CL abstract SFP.only
'No one submits only one abstract.' (we always submit two when it's allowed.) (¬∃ > only)

(13) [Mui-go jan dou **zinghai** gaau-zo *jat*$_F$-bin zaakjiu] **zaa3**.
every-CL person DOU only submit-PFV one-CL abstract SFP.only
'Everyone only submitted one abstract.' (∀ > only)

(14) Aaming zinghai gaau-zo jat-pin zaakjiu (zaa3).
Ming only submit-PFV one-CL abstract SFP.only
[Keoi dou$_1$ **zinghai**$_2$ *review*$_{F1}$-zo *jat*$_{F2}$-pin zaakjiu] **zaa3**.
3SG also only review-PFV one-CL abstract SFP.only
'Ming only submitted one abstract. He also only reviewed one abstract.' (also > only)

(15) [Context: There are three papers assigned each week for a given course. Ming is the best student who always reads all the assigned papers beforehand. However, this week's reading is difficult and all the students, including Ming, have only read one paper.]
[Lin$_1$ *Aaming*$_{F1}$ dou **zinghai**$_2$ tai-zo *jat*$_{F2}$-bin man] **zaa3**.
even Ming DOU only read-PFV one CL paper SFP.only
'Even Ming has only read one paper.' (even > only)

(16) (Non-)intervention to exclusive doubling in Cantonese

Interveners	Truth-cond. effect	Domain	Witnessability	Doubling
Negation	YES	Proposition	—	*
Modal	YES	World	—	*
Q-adv: 'seldom, always'	YES	Time/situation	—	*
Q-subj.: 'no, few, some$_{non\text{-}ref}$'	YES	Individual	NO	*
Additive ALSO (e.g., *dou*, *zung*)	NO	Proposition	—	OK
EVEN (e.g., *lin*, *samzi*)	NO	Proposition	—	OK
Cleft focus marker *hai* 'be'	NO	Proposition	—	OK
Q-subj.: 'every, most, some$_{ref}$'	YES	Individual	YES	OK

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Embedded clauses and future-shifted readings

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This talk investigates constraints on the time reference of embedded clauses in Mandarin, a language with no overt grammatical tense, in comparison with English, a tensed language. We show that while past-tensed embedded clauses in English (1) disallow future-shifted readings in intensional contexts on a *de dicto* construal (Abusch 1988), bare relative clauses in Mandarin (2) yield temporally free readings across the board (Sun 2015, Sun & Demirdache 2022).

(1) Lily was looking for a fan who saw Harry Potter.

(2) Dāngshí, Lìli zài zhǎo yí-ge kàn Hālǐ Bōtè de yǐng-mí.
at.that.time Lili PROG look-for one-CL watch Harry Potter DE movie-fan.
'At that moment, Lili was looking for a fan who saw/was watching/**would see** H.P.'

We argue that the contrast between the temporal interpretations of bare embedded clauses in Mandarin vs. past-tensed embedded clauses in English is not due to a putative contrast between 'tenseless' languages (as Mandarin is traditionally assumed to be) and 'tensed' languages. Even in languages with no grammatical tense, the temporal interpretations of bare embedded clauses show different patterns. While in Guaraní, bare complement clauses only allow simultaneous readings wrt the matrix event time (ET) (Thomas 2012), they allow both simultaneous and past-shifted readings in Washo (Bochnak et al. 2019).

To account for the temporal readings of embedded clauses, Thomas argues for an underspecified version of the pronominal tense Mbyà Guaraní, bound by the matrix ET, which thus rules out the shifted readings. To derive the past-shifted reading, Bochnak et al. make use of Abusch' *res*-movement, an independent interpretational mechanism that allows the embedded variable in attitude contexts to be bound outside the scope of the embedding clause. Adding a post-syntactic interpretational *de re* mechanism does indeed make shifted readings available for the complement clause, but it also predicts future-shifted readings contrary to fact. To rule out future-shifted readings, they appeal to the *Upper Limit Constraint* (Abusch 1994), according to which, the matrix time provides the upper limit for the denotation of the embedded temporal pronoun: the state denoted by the embedded predicate can only be prior or simultaneous to the speaker's belief state.

We compare in the talk analyses of temporal interpretation of embedded clauses in both tensed and tenseless languages, and argue for a covert tense for Mandarin, restricting the reference time of bare sentences (both root and embedded clauses) to non-future times. Mandarin superficially tenseless embedded clauses with overt—be it perfect, perfective, durative / progressive—aspectual marking do not allow later-than-matrix readings on a *de dicto* construal, just like tensed embedded clauses in English. We conclude that the freedom of interpretation of bare embedded clauses in Mandarin cannot be imputed to null semantically underspecified tense, but rather to null semantically underspecified aspect (3).

(3) $[\![_{\text{Asp}^\circ}\text{Ø}]\!]^{g,c} = \lambda p_{<v,s,t>}.\ \lambda t_i.\ \lambda u_i.\ \lambda w_s.\ \exists e[p(e)(w) = 1\ \&\ \tau(e) = t]$

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Events with a threshold: the case of Mandarin V+ phase complement DAO 'arrive/to'

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This work posits a notion of EVENTS WITH A THRESHOLD, in a refinement to the Vendlerian inventory of event structure categories, to account for the distribution and interpretation of the "phase complement" *dào*'arrive/to' in Mandarin Chinese (1)-(2). The proposal adopts Piñon's (1997) analysis of achievements as "boundary happenings" – an eventuality that ensues over a very brief interval, followed by a new state of affairs, and/or preceded by a prior event. I propose that V-*dào* describes a boundary happening, which constitutes a threshold fulfilling the minimum requirement for the occurrence of an event described by V. **Phase complement *dào***: The morpheme *dào* 'arrive/to' may be used as a main verb to mean "arrive", or with a manner of motion verb to mark a goal of motion. In addition, it acts as a "phase complement" (Chao 1968) to the verb as in (1)-(2), the topic of interest here. Informally, *dào* indicates the successful realization of an event described by the preceding verb,with a conversational implicature of preceding effort, as the English glosses for (1)-(2) suggest with 'get to V' and 'manage to V'. **V-*dào* describes an achievement:** V-*dào* is not clearly telic – the "in X time" adverbial in (3) indicates the interval after which the eating of cherries *started*, resembling activity predicates (Kearns 2000). Yet V-*dào* cannot occur in the progressive (4), suggesting it is telic. Two further observations support achievement status for V-*dào*: First, V-*dào* is unacceptable with achievement verbs: (5)-(6) are acceptable if *-dào* is absent. I assume this incompatibility arises from the redundancy of adding an achievement-like meaning to an achievement predicate. Second, *-dào* combines with semelfactive verbs of contact such as *tī* 'kick', *cǎi* 'step (on)', etc. which may describe singular situations with a change from no contact to contact, but may also be interpreted iteratively with an activity reading. With such verbs, V-*dào* allows only a singular interpretation: V-*dào* events can only be counted using the classifier *xià* 'instance' that counts instances of kicks (or punches, slaps, etc.) but not with the classifier *dùn* 'round', which counts periods of iterative kicking (or punching, slapping, etc.) (7), but the bare verb may combine with either (8). **Apparatus:** Piñon (1997) re-categorizes eventualities as "happenings" (states, activities, accomplishments) and "boundary happenings" (achievements), to express the intuition that achievements are short-lived eventualities that lead into or out of a longer-lived one. In Piñon's terms, a BH provides a transition into or out of an H, e.g. an arrival is the end (right boundary) of a process of motion as well as the beginning of a new locative state. More formally, Piñon defines the relations Beg(in) and End such that a BH u begins/ends an eventuality v of type P just in case there is no eventuality w immediately preceding/following v such that the sum of w and v is of type P (9)-(10). **Proposal** Based on the above, I propose that V-*dào* describes a THRESHOLD for the success of a V event: a BH that both ends a preparatory H and begins another H, i.e., the state arising as the end result of a successful V event. For example, *mǎi-dào piào* 'buy-*dào* ticket, i.e., manage to buy (a) ticket(s)' describes the BH e which ends a happening e1 of an agent x preparing to buy tickets, and begins a happening e2 of x possessing some number of tickets. **Illustration** This analysis captures the 'manage' inference of V-*dào* sentences and how it survives negation: *méi* V-*dào* implicates that one tried to V -- the preparatory H that the V-*dào* event ends, not available with *méi* V: *méi mǎi piào* 'did not buy tickets' does not implicate trying to buy. Since V-*dào* describes the threshold event, its single instance interpretation for semelfactive verbs of contact (from non-contact to contact) is expected. Verbs of discovery e.g. *fāxiàn* 'discover' may describe serendipitous discovery, or discovery after a search (14), but *fāxiàn-dào* 'discover-*dào*' disallows the serendipity interpretation (15), as predicted if V-*dào* describes an End to a prior process (of seeking out problems). A threshold is conventionally lexicalized in verbs of perception such as k*à*n-dào 'see, lit. look-*dào*'. **Conclusion** This work has proposed a novel type of THRESHOLD achievement event based on the mereological and temporal contour of an

event description. The work offers potential for future research on implicative predication, e.g., in English *manage* sentences, which, as Baglini and Francez (2016) argue, assert the crossing of a "trajectory" from preceding conditions to the situation described by the complement of *manage*.

1. wǒ chī-dao zhū-tou-ròu le
   1SG eat-DAO pig-head-meat PRT
   I got to eat meat from the pig's head.

2. wǒ mǎi-dao-le yè-chǎng de piàozi
   1SG buy-DAO-PFV night-show ASSOC ticket
   I managed to buy tickets for the night show.

3. xiāofèizhě 48 xiǎoshí-nèi chī-dao-le yīngtao
   consumer 48 hour-within eat-DAO-PFV cherry
   Consumers got to eat cherries in 48 hours.

4. *wǒ zài mǎi-dao piào
   1SG PROG buy- DAO ticket
   Intended: I was managing to buy tickets.

5. Chē-tāi bào(*-dao) le
   1SG eat-DAO PRT
   The tyre exploded.

6. fāshēng(*-dao) shìqing le
   buy-DAO-PFV matter PRT
   Something happened.

7. tī-(*-dao) tā yí xià/*dùn
   kick-DAO 3SG one instance/period
   kick him/her once/*for a period

8. tī tā yí xià/dùn
   kick 3SG one instance/period
   kick him/her once/for a period

9. Beg:= $\lambda u \lambda v \lambda P[\mathrm{BH}(u)\& \mathrm{H}(v)\& \mathrm{LeftBoundary}(u,v)\& P(v)\&\sim\exists w\ (w \ll u\ \&\ P(w \oplus v))]$
10. End:= $\lambda u \lambda v \lambda P[\mathrm{BH}(u)\& \mathrm{H}(v)\ \&\ \mathrm{RightBoundary}(u,v)\& P(v)\&\sim\exists w\ (u \ll w\ \&\ P(w \oplus v))]$
11. mǎi-dào piào 'buy-dào ticket, i.e., successfully purchase a ticket':
    $\lambda x \lambda e \exists y[BH(e)\& \exists e1[End(e,e1,\lambda u[prepare.to.buy.ticket'(u)\ \&H(u)\ \&Agent(u,x)])\&$
    $\exists e2[Beg(e,e2,\lambda v[Possess'(v)\ \&\ H(v)\&\ Possessor(v,x)\ \&\ Possessed(v,y)\ \&\ ticket'(y))]]$

12. wǒ méi mǎi-dao yè-chǎng de piàozi
    1SG NEG buy-DAO night-show ASSOC ticket
    I didn't manage to buy tickets for the night show.

13. fāxiàn(-dao) xīn wènti
    discover-DAO new problem
    (seek and) discover new problems

14. fāxiàn(*-dao) xīn dàlù
    discover-DAO new continent
    stumble upon a new land

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A compositional analysis of Mandarin Chinese experiential marker *-guò*

Nan WANG, Thomas STEPHEN and Fausto CARCASSI

The particle -guò is a frequently used perfective marker in Mandarin, which has received some attention in previous literature (Li & Thompson, 1989; Smith, 2013; Lin, 2006). However, its precise meaning and behaviour in different semantic contexts remains poorly characterized. This is due to several surprising features of -guò. First, -guò interacts in complex ways with lexical aspects. For activities, accomplishments and states, -guò acts like a perfective aspect marker, shifting the focus to the event's completion without specifying its resultant state. For achievements, however, -guò acts differently depending on the predicate it modifies, sometimes acting like a perfective aspect marker, and sometimes introducing a new resultant state and maximizing it. Second, -guò displays a 'discontinuity effect', which states that when a predicate is modified by -guò, the state resulting from the event no longer holds (Lin, 2006). We discuss these observations and develop for the first time a compositional lexical entry for -guò. We propose that -guò is a function that takes three arguments: a predicate, a reference time, and an event, and conveys the following:

$$[\![\textit{-guò}]\!] = \lambda P \lambda t_{ref} \lambda e[\tau_{end}(e_r) < t_{ref} \wedge Max(R, e_r) \wedge P(e)]$$

Where e_r is the resultant state of event e, R picks out the resultant state that is relevant for the discontinuity effect, and τ_{end} is a function that returns the end time of an event. Intuitively, -guò contributes an assertion that the maximal relevant resultant state is in the past. Figures 1 and 2 show an example of how this lexical entry composes in the simple sentence of gloss (1) (next page), within a standard syntactic picture. This entry straightforwardly predicts the discontinuity effect. The study contributes to the understanding of the aspectual system in Mandarin in three ways. First, it provides a fully formalized lexical entry for -guò, filling a gap in the literature where previous accounts remained largely descriptive. Second, it challenges and refines earlier claims: for example, that -guò is incompatible with non-repeatable events (Li & Thompson, 1989). Third, it identifies and formalizes the open puzzle of formulating the criteria that make a state relevant to -guò. Counterexamples discussed here show that -guò is semantically more flexible than previously assumed. Thus, in contrast with previous assumptions we demonstrate that -guò is not merely an experiential marker but a complex aspectual operator that introduces both perfective temporal information and maximalization over resultant states. Future research is invited to refine the criteria for selecting relevant resultant states and to explore how -guò interacts with definiteness, quantification, negation, and modality.

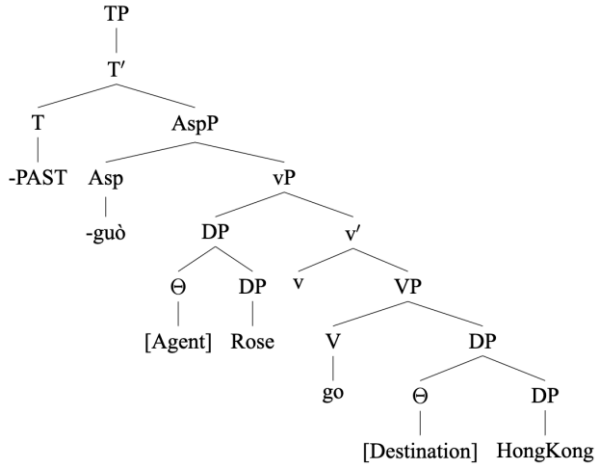

Figure 1: Syntactic analysis of sentence (1)

$[\![\text{go}]\!] = \lambda e[\mathbf{go}(e)]$

$[\![\text{Rose}]\!] = \mathbf{Rose}$

$[\![\text{HongKong}]\!] = \mathbf{HongKong}$

$[\![agent]\!] = \lambda x \lambda e[\mathbf{ag}(e) = x]$

$[\![destination]\!] = \lambda x \lambda e[\mathbf{dest}(e) = x]$

$[\![\text{-}guò]\!] = \lambda P \lambda t_{ref} \lambda e[\tau_{end}(e_r) < t_{ref} \wedge Max(R, e_r) \wedge P(e)]$

$[\![Rose_{ag}]\!] = \lambda e[\mathbf{ag}(e) = \mathbf{Rose}]$

$[\![HongKong_{dest}]\!] = \lambda e[\mathbf{dest}(e) = \mathbf{HongKong}]$

$[\![\text{Rose go HongKong}]\!] = \lambda e[\mathbf{go}(e) \wedge \mathbf{ag}(e) = Rose \wedge \mathbf{dest}(e) = HongKong]$

$[\![\text{Rose go-guo HongKong}]\!] = \lambda t_{ref} \lambda e[\mathbf{love}(e) \wedge \mathbf{ag}(e) = Rose \wedge \mathbf{dest}(e) = HongKong \wedge \tau_{end}(e_r) < t_{ref} \wedge Max(R, e_r)]$

$[\![\text{Rose go-guo HongKong}]\!] = \exists t_{ref} \exists e[\mathbf{love}(e) \wedge \mathbf{ag}(e) = Rose \wedge \mathbf{dest}(e) = HongKong \wedge \tau_{end}(e_r) < t_{ref} \wedge Max(R, e_r)]$

$Max(R, e_r) = \mathbf{at}(e_r) \wedge [\mathbf{ag}(e_r) = \mathbf{ag}(e)] \wedge [\mathbf{loc}(e_r) = \mathbf{dest}(e)] \wedge \neg\exists e'[\mathbf{at}(e') \wedge [\mathbf{ag}(e_r) = \mathbf{ag}(e')] \wedge [\mathbf{loc}(e_r) = \mathbf{loc}(e')] \wedge e_r \subset e']$

$[\![\text{Rose go-guo HongKong}]\!] = \exists t_{ref} \exists e[\mathbf{go}(e) \wedge [\mathbf{ag}(e) = Rose] \wedge [\mathbf{dest}(e) = HongKong] \wedge [\tau_{end}(e_r) < t_{ref}] \wedge \mathbf{at}(e_r) \wedge [\mathbf{ag}(e_r) = \mathbf{ag}(e)] \wedge [\mathbf{loc}(e_r) = \mathbf{dest}(e)] \wedge \neg\exists e'[\mathbf{at}(e') \wedge [\mathbf{ag}(e_r) = \mathbf{ag}(e')] \wedge [\mathbf{loc}(e_r) = \mathbf{loc}(e')] \wedge e_r \subset e']]$

Figure 2: Compositional analysis of sentence (1)

Glosses with a example of why '-guò' is compatible with non-repeatable verbs:

(1)萝丝 去 过 香 港

luósī qù guò xiāng gǎng

Rose go EXP Hong Kong

'Rose has been to Hong Kong'

(2)他 去 年 赢 过 奥运会 金 牌

tā qù nián yíng guò àoyùnhuì jīn pái

3SG last year win EXP Olympic.Games gold medal

'He has won the gold medal in Olympic Games last year'

Winning a gold medal at Olympic Games 2024 is non-repeatable, but compatible with '-guò'.

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Against Three-Way Ambiguity: A Monosemous Account of *Henduo*

Yuli FENG and Lei CHU

This experimental study revisits the debate on the interpretational possibilities of the Mandarin *many*-type quantifier *henduo*. Previous research has identified three interpretations—cardinal, proportional, and reverse proportional. Some accounts treat these readings as independent, while others attempt to coalesce them into one or two general types. For *henduo*, we argue that the cardinal reading constitutes its core meaning, with the two proportional readings arising only as context-dependent elaborations. In other words, rather than reflecting genuine lexical ambiguity, *henduo* encodes a single basic sense, whose proportional extensions surface only under specific contextual conditions.

To test this proposal, we designed five contextual conditions. Condition A supports the cardinal reading; conditions B_1 and B_2 support the proportional reading; and conditions C_1 and C_2 support the reverse proportional reading. Within each interpretive pair (B_1–B_2 and C_1–C_2), the critical difference lies in whether the cardinal requirement is satisfied. In B_1 and C_1, the entities associated with *henduo* are restricted to a very small cardinality (fewer than five), which challenges the naturalness of its use. This setup allows us to examine whether the proportional readings can surface independently of the cardinal reading.

The experimental results reveal a consistent pattern. Contexts in which the cardinal condition is met—namely A, B_2, and C_2—behave alike, showing high acceptance of *henduo*. By contrast, contexts that do not meet the cardinal condition—B_1 and C_1—show substantially reduced endorsement, suggesting that proportional readings cannot surface independently for the majority of participants. What determines the availability of interpretational options, therefore, is not whether a context is designed to support a proportional or reverse proportional reading, but whether it also satisfies the condition required for the cardinal reading.

These findings cast doubt on the view that *henduo* is lexically ambiguous. If the three readings were genuinely independent, contexts supporting proportional and reverse proportional uses should yield equally robust acceptance regardless of whether the cardinality requirement is satisfied. Instead, the observed asymmetry shows that proportional readings are contingent on the cardinal one: they are latent extensions that depend on the same semantic foundation, rather than seperate alternatives.

In sum, the results support an analysis of *henduo* as monosemous but pragmatically flexible. This account not only resolves the puzzle surrounding *henduo* but also contributes to broader debates about how the meanings of *many*-quantifiers are represented and how apparent ambiguity is shaped by contextual conditions.

Paucal Operators in Mandarin: Numeral-Bound Ji vs. Nominally-Anchored Xie

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This paper develops a lattice-theoretic, atom-based account of the paucal operators *ji* and *xie* in Mandarin. Contrary to quantifier-only treatments, the two differ systematically in distribution and interpretation. I argue that *ji* is tightly integrated with simplex numerals and composes with decimal bases to yield an upper-bounded, numeral-anchored paucal range. By contrast, *xie* is a domain-anchored paucal whose quantity is capped only by the contextually available total for the noun it modifies. The proposal links these truth-conditional differences to syntax: *ji* is a modifier of Num within NumP, whereas *xie* heads a paucal projection that scopes over CLP.

Numeral-bound vs. Nominally-anchored

First, like the numerals one (*yi*) to nine (*jiu*) in Mandarin, ji can combine with decimal bases to form complex numeral expressions (e.g., *ji–shi*, *shi–ji*), yielding a numeral-anchored paucal range constrained by the base: *shi–ji* denotes 'between ten and twenty', whereas *ji–shi* denotes 'a few tens'. When used bare, *ji* is typically interpreted on the simplex scale as fewer than ten; for example, *Wo yao ji ben shu* (I want a few books) is interpreted as more than a minimal amount but fewer than ten books.

By contrast, *xie* is not constrained by the numeral scale; its interpretation is anchored to the nominal domain it modifies. In *Wo yao yi xie shu* (I want some books), if the common ground contains two hundred books, the sentence is true just in case the quantity referred to is fewer than two hundred; if the domain contains only fifty books, the truth condition shifts accordingly (fewer than fifty)

Deriving Paucity in ji and xie

To capture the 'few/some' denotations of ji and xie, I adopt an atom-based analysis of paucity (Harbour 2014; Martí 2015). Specifically, see Fig 1, the nominal domain is modelled as a lattice of pluralities built from atoms (Chierchia,1998); a paucal denotes a low-quantity subregion of this lattice (see Fig 2). The paucal region is downward-closed (any subpart of a paucal plurality is still paucal) but not closed under sum: adding atoms can cross a contextually set upper threshold. The vagueness of this threshold yields the familiar 'uncertain quantity' reading associated with 'few'. In the account developed here, ji realises a numeral-anchored, upper-bounded paucal range, whereas xie leaves the upper bound to be domain-anchored and context-dependent; I attribute this contrast to their distinct syntactic positions.

Syntactic location of Ji and Xie.

See the tree diagrams in 1. Building on He (2015), I assume an articulated NumP: only simplex numerals project as Num head, while complex numerals are derived by internal composition. Adopting Kayne's (2005) view that quantificational modifiers target a silent NUMBER head, I analyse *ji* as a paucal modifier of (possibly silent) Num. Thus the surface *Ji–CL–NP* sequence is underlyingly *ji–(Num)–CL–NP*. To briefly present the compositional process of the phrase *ji ben shu*: NP is number-neutral (Zhang 2014), *ben* partitions the domain into atomic book-units (Rothstein 2011), and Num supplies the value–either an overt numeral (e.g. 'san ben shu') or a paucal value when *ji* merges with Num. In the latter case, *ji* constrains the value to a small, contextually delimited range (typically less than ten), yielding the intended 'few books' reading.

Compared with *ji*, *xie* is more syntactically constrained: it combines only with the numeral *yi* and may precede the general classifier (e.g., *yi xie ge ren* 'some people'). I therefore analyse *xie* as a paucal operator that merges above and scopes over CLP. Semantically, CLP denotes a set of atoms (and possibly sums) in the relevant nominal domain; *xie* selects a subregion of this lattice, so that [xie–CLP] denotes a proper subset of the CLP domain. This subregion has no fixed upper bound: its size is capped only by the contextual total made available by the noun's denotation. Hence in *yi xie*, the quantity is underspecified but cannot exceed that contextual total.

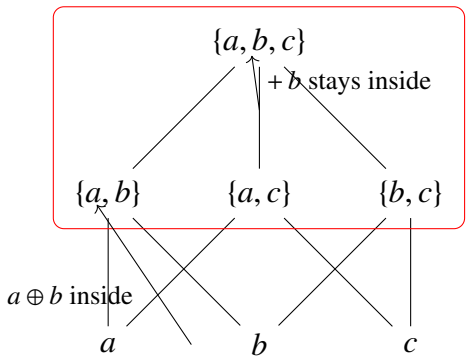


Figure 1: Plurality as a complete, sum-closed region of the lattice

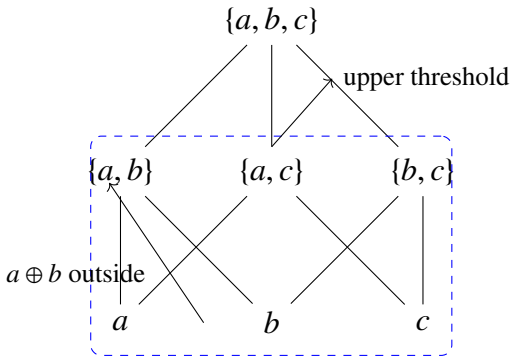
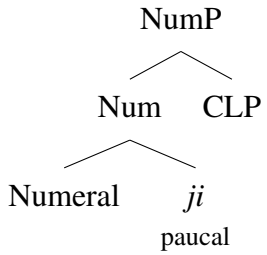
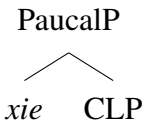


Figure 2: Paucity as a downward-closed, contextually upper-bounded subregion of the plurality lattice

(1) .



(a) *ji* modifies Num (numeral-bound paucal)



(b) *xie* scopes over CLP (domain-anchored paucal)

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Revisiting existential and scalar presuppositions:
Insights from two EVENs in Mandarin Chinese

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Background: This paper discusses the behavior of two distinct Chinese counterparts of English *even*—*shenzhi* and *lian…dou*—from the perspectives of existentiality and scalarity. Prevailing analyses of the two Chinese EVENs, largely extrapolated from accounts of English *even*, remain contentious regarding their presuppositional requirements, namely, the entity-based existential presupposition and the likelihood-based scalar presupposition (see Shyu 2004; Chen & Greenberg 2022; Liao & Jheng 2025 among others). Focusing on these core components, this paper demonstrates that neither the entity-based existentiality nor the likelihood-based scalarity is predictive of the felicity of *shenzhi* or *lian…dou*, indicating the necessity of reconsidering the semantics of the two EVENs.

Observations: Drawing upon empirical data on *shenzhi* and *lian…dou*, this paper argues that (i) the entity-based existential presupposition is not obligatory, challenging the conventional view that *lian…dou* is inherently additive (e.g., Shyu 2004; Liao & Jheng 2025), and (ii) the scalar presupposition is not fundamentally (un)likelihood-based, but instead constructed on a contextually determined scale (see also Greenberg 2018 for a similar view). Crucially, by paying particular attention to the co-occurrence of *shenzhi* and *lian…dou* within a single clause, this paper identifies four distinct syntactic patterns, including (a) *shenzhi* (*lian*)*…dou…*, (b) *shenzhi…lian…dou…*, (c) (*lian*)*…shenzhi dou…*, and (d) (**lian*)*…shenzhi* (*dou*)*…*, and further unravels a divergence in the focus association domains between *shenzhi* and *lian…dou*.

Analysis: Prompted by *shenzhi*-(*lian…*)*dou* co-occurrence, I propose their division of labor as follows: *lian…dou* provides a proposition that marks the scalar endpoint, and *shenzhi* asserts the truth of this extreme proposition. Specifically, I analyze *shenzhi* as a focus adverb akin to *even*, carrying a scalar presupposition by associating with the strongest proposition on a contextually determined scale, and decompose *lian…dou* into a focus marker *lian* and a universal quantifier *dou*, with the former anchoring an extreme item to introduce a set of alternatives (either entity-based or degree-based) and the latter universally quantifying over entities or degrees.

Contributions: This study makes three key contributions. First, it presents empirical evidence against the entity-based existentiality and likelihood-based scalarity assumed for *shenzhi* and *lian…dou*, shedding light on the cross-linguistic landscape of *even*-like expressions in terms of presupposition. Second, it systematically analyzes the co-occurrence of *shenzhi* and *lian…dou*, and provides a novel account of their interaction to characterize their semantic disparity. Third, employing and sharpening the universal quantificational approach to *dou* (cf. Feng & Pan 2022), this study derives the *even*-like reading of *lian…dou* by assuming that *dou* can operate on both entities and degrees, which better accounts for the variable presence of the existential inference associated with *lian…dou*.

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单调还是否定：“都”“也”极项句的允准本质

牛长伟（中南财经政法大学）

摘　要：很多学者对“都”“也”极项句（任指句、极小量句、连字句）的语义实现路径和句法分布进行过对比研究，往往由于否定词隐现的因素，将否定（negation）作为研究焦点，进而得出两类极项句的语义实现路径完全不同的结论，但这样的分析无法解释所有“都”式的肯定式和连字句的肯定式为何也合法。

本文所关注的语言事实如下[①]：

（1）a. 我什么都不说。　b. 我什么都（敢）说。　[任指句“都”式]
　　c. 我什么也不说。　d. 我什么也*（敢）说。　[任指句“也”式]
（2）a. 一粒米都没拿到。　b. ?一粒米都赶忙拣起来。　[极小量句“都”式]
　　c. 一粒米也找不到。　d. ?一粒米也要拾起来。　[极小量句“也”式]
（3）a. 连蔬菜都不常吃。　b. 连汤都喝干净。　[连字句“都”式]
　　c. 连蔬菜也买不起了。d. 连蔬菜也种在水上。　[连字句“也”式]

任指句否定式中，“都”式（1a）和“也”式（1c）均合法；肯定式中，仅“都”式（1b）合法，“也”式需加“敢”才合法。极小量句否定式中，“都”式（2a）和“也”式（2c）均合法；肯定式中，“都”式（2b）和“也”式（2d）若要获得极项解读，取决于具体语境[②]。而连字句否定式中，“都”式（3a）和“也”式（3c）均合法；肯定式中，“都”式（3b）和“也”式（3d）也均合法。汇总如表 1 所示。

表 1　“都”“也”极项句否定式与肯定式的分布

句式 / 副词	任指句		极小量句		连字句	
	否定式	肯定式	否定式	肯定式	否定式	肯定式
都	√	√	√	?	√	√
也	√	×	√		√	√

本文在分析前人的观点后，尝试在形式语义框架内对两类极项句的语义进行分析，然后从量化词的单调性（monotonicity）入手，结合两类极项句否定式与肯定式的句法分布来探究极项句的允准本质。

本文认为，两类极项句的语义实现路径趋同，“都”“也”极项句的焦点候选项是一样的，“都”的总括操作和“也”的添加操作使句式呈现全称义。从句法分布来看，两类极项句的允准本质是向下单调，而并非否定。“都”、（隐形）否定词、表可能性的情态词和全称量化句的限定部分均为极项句提供了左下单调环境。

① 未标注的合法句子均来自 CCL 语料库（http://ccl.pku.edu.cn:8080/ccl_corpus/）。
② 极小量句的肯定式的极项解读取决于“极小量”是否处于获取谓词特征可能性候选序列的最低值。如（2b）中，若“一粒米”是“拣”的可能性候选序列中的最低值，最低值被拣起来了，即可推导出其他值也被拣起来了，此时就表现为极项解读。若“一粒米”不是“拣”的可能性候选序列中的最低值，则无法推导出其他值也被拣起来了，此时仅表述“拣起来了一粒米”，无极项解读。

基于语境信息的表客观认识情态“会”的语义

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情态是与主观性关系紧密的语义范畴。认识情态的主观性一般被认为相对较强，但一些学者指出部分认识情态动词具有与言者的主观态度、信念关系不紧密的用法，称为客观认识情态（objective epistemic modality）（Lyons，1977；Nuyts，2001；Papafragou，2006；Portner，2009）。现代汉语情态动词“会”就具有认识情态的用法，且已有一些学者或直接或间接地指出其表客观认识情态的用法，如表示“可预测性”（许和平，1993）、“惯常”（柯理思，2014）、“条件必然”（范晓蕾，2020）、“自然趋向性”（陈振宇，2020）等。针对以上研究现状，本文拟探讨以下问题：方家对“会”的客观认识情态用法的描写是否全面？这类“会”（以下简写为“会$_{OBJ}$”）在语义上有怎样的特点？如何形式化描写其客观认识情态语义？

文章发现：允准“会$_{OBJ}$”的使用环境至少有条件、因果、惯常、证据、意外、表征和言说。这样几类。共同特征是：句法上，“会$_{OBJ}$”嵌套于一定的句法环境中；语义上，“会$_{OBJ}$”依赖于**明确的或外显的语境信息**（context information），如条件、原因、经验、证据等，或是表征词或言说词。

据此，文章认为：**语境信息是“会”表达客观认识情态的必要条件**，起到相当于Yalcin（2007）提出的更新“信息状态”（information state, S）的作用：令嵌于一定环境的“会φ”所涉及的信息状态为S_0，语境信息的作用在于将S_0更新为S，即“会$_{OBJ}\varphi$”的语义运算是在信息状态S中进行的。那么“会$_{OBJ}\varphi$”为真就可以被描写为：在符合信息状态S的可能世界中，所有可能世界都使得命题φ成立。以“马上会有一场暴风雨来了”为例，“会”其所基于的判断标准应当是言者的主观态度或信念（若将“会”视为认识情态动词）；而在（4）中，“会”则基于证据类的语境信息“起大风”、“雷声隆隆”，表示在符合这些证据的可能世界中，所有可能世界都使得“马上有一场暴风雨来了”成立。

以上想法，是将“会$_{OBJ}$”认定为必然算子展开，然而“会$_{OBJ}$”的情态强度似乎是一种特殊的必然。文章根据追补测试（林刘崴，2019）的结果，指出表认识情态的“会”情态强度倾向于必然而非必然，其原因似乎可从“会$_{OBJ}$”的另一项特征中窥见：不难想象，存在这样一个“只刮风打雷但并未下暴风雨的夏日午后”，但这并不妨碍言者说出（4），因为前者相对于（4）来说是不合常理的。因此，文章进一步认为“会$_{OBJ}$”量化的并非全部“符合语境信息的可能世界”，而是“符合语境信息的可能世界中，那些理想的可能世界”。

基于以上想法，我们将“会$_{OBJ}$”的语义描写为：

$[\![会_{OBJ}\varphi]\!]^{S,g,w}=1$ 当且仅当：对所有符合信息状态S的可能世界u，都存在一个符合信息状态S的可能世界v，使得：

（i）$v\leqslant_{g(x)}u$，

且

（ii）对于所有$z\in S$：如果$z\leqslant_{g(x)}v$，那么$z\in\varphi$。

例句（未标注出处的皆为自拟例句）

（1）[条件] 如果你不去，他就会发脾气。

（2）[因果] 他之所以会失败是因为太过轻敌。

（3）[惯常] 春天花会开。

（4）[证据] 起大风了，工地上刮起了滚滚的泥沙，连工棚上的芦席也卷得飞起来了，远处雷声隆隆，看样子就会有一场暴风雨来了。（《人民日报》1958 年）

（5）[意外] 她没想到东阳会有这么多心路，竟自想起教她去作所长！（老舍《四世同堂》）

（6）[表征] 我相信他会成功的。

（7）[言说] 她说你会来的。

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Pretense, Falsity and Negation

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Background This study concerns privatives like *jiǎ* 'fake' and anti-factives like *jiǎ-zhuāng* 'pretend'. Guerrini (2024) proposed that *a fake* P is "intended to resemble a P" and "not a P", accounting for the "fake N is (not) N" puzzle via distinct syntactic parses. (I retain his fragment (1) for illustration, though my analysis differs in the scope of INTENDED and the definition of SEEM-LIKE, which I will not detail here.) In his account, the deceptive intention is mentioned but not emphasized, which I take as key to the ambiguity of *jiǎ* (e.g., *jiǎ-sǐ* 'fake/false death', depending on whether it is intentional), formally described in (2).

(1) $[\![\text{fake}]\!] = \lambda P.\lambda x.[\text{INTENDED}(x, \text{SEEM-LIKE}(x, P)) \wedge \neg P(x)]$

(2) $[\![\textit{jiǎ}]\!] = [\![\text{fake}]\!]$ or $[\![\text{false}]\!]$; $[\![\text{false}]\!] = \lambda P.\lambda x.[\text{SEEM-LIKE}(x, P) \wedge \neg P(x)]$

A similar ambiguity arises in the verbal domain. As Lin & Zhang (2024: 367) noted, *jiǎ-zhuāng* 'pretend' is ambiguous between anti-factive and non-factive readings under different syntactic conditions, and *pretend* behaves similarly, as shown in (3):

(3) a. They pretend that he has fallen down. *Anti-factive with finite Comp*

b. They pretend to fall down/to be sad. *Non-factive with non-finite Comp*

Analysis These ambiguities can be illustrated by different combinations of some basic concepts, semantic negation, resemblance (similarity), and epistemic/dynamic modality.

(4) $\text{Pretense}_{\text{pretend}}$: $\text{modality}_{\text{epistemic}}$ + $\text{pretense}_{\text{fake}}$ e.g. $\textit{pretend}_{\text{anti}}$

$\text{Pretense}_{\text{fake}}$: $\text{modality}_{\text{dynamic}}$ + falsity e.g. *fake*; $\textit{pretend}_{\text{non}}$

Falsity: resemblance + negation e.g. *false*

In the nominal domain, falsity and pretense are composed from semantic negation and differ in modality, cf. (1) and (2), for example, *false signal* seems like but is not a signal; *fake signal* is not only false but also is intentionally made so. In the verbal domain, both kinds of pretense involve a deceptive intention, hence a dynamic modality. The $\textit{pretend}_{\text{anti}}$ further involves an epistemic modality (by virtue of KNOW and BELIEVE), taking a proposition (p) as an argument, whereas the $\textit{pretend}_{\text{non}}$ selects a predicate (P) as an argument. (A more precise version can be given in event semantics with an extended SEEM-LIKE, but I keep it simple in (5) for clarity.)

(5) a. $[\![\text{pretend}_{\text{anti}}]\!] = \lambda p.\lambda x.[\text{INTENDED}(x, \text{SEEM-LIKE}(x, \text{BELIEVE}(x, p))) \wedge \text{KNOW}(x, \neg p)]$

b. $[\![\text{pretend}_{\text{non}}]\!] = \lambda P.\lambda x.[\text{INTENDED}(x, \text{SEEM-LIKE}(x, P)) \wedge \neg P(x)]$

To illustrate, consider $\textit{pretend}_{\text{anti}}$: "John pretended that others cannot hear him, and stole the bell". John acts as if he believed that others could not hear him, but from speaker's view, he knows this is impossible. Since "KNOW" is factive, it presupposes "$\neg p$", thereby capturing the anti-factivity. As for $\textit{pretend}_{\text{non}}$, without any presupposition triggers, it denotes a fake event resembling that of the infinitival clause. What counts as a fake event depends on encyclopedic knowledge (and can, to an extent, be captured by SEEM-LIKE), e.g., to fake "falling down" may require similar actions, whereas to fake "being sad" may only require staying calm and silent. Hence, the (anti-)actuality implicature of *jiǎ-zhuāng* is very controversial in the literature.

Discussion If the analysis is on the right track, we can derive Pretense and Falsity, in favor of compositionality, with semantic Negation, in both nominal and verbal domains. And it should be able to extend to other phenomena, such as the so-called pragmatic negation, e.g., *suǒ-wèi* 'so-called' which is "said to be P" and "not P" when the speaker is not (one of) the sayer(s).

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On Semantic Licensing Conditions of Pre-Classifier Modification and Related Problems

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The ability to be modified by adjectives is an important grammatical feature of classifiers. However, compared to adjective-noun (A-N) modification, adjective-classifier (A-Cl) modification is highly restricted—only a few adjectives denoting the property of size or proportion are permitted, and classifiers, nouns, and even numerals are subject to various constraints (Lu 1987). To uncover the underlying reasons for these restrictions, the primary task is to clarify the semantic conditions that license A-CL modification. Based on both previous research and our own observations, this paper identifies four main linguistic facts concerning the restrictions on A-CL modification:

Fact 1: Adjectives that can enter A-Cl modification should be divided into two categories, comprising three groups: (A) Size Group A, which includes *dà* 'big' and *xiǎo* 'small'; (B) Size Group B, which includes *cháng* 'long', *duǎn* 'short', *hòu* 'thick', and *báo* ('thin'); and (C) Proportion Group, which includes *zhěng* 'whole' and *mǎn* 'full'. The licensing conditions for the proportion group are relatively straightforward: *zhěng* is permissible as long as it activates a proportional interpretation of the classifier as a unit, see (1); *mǎn*, in addition to activating a unit-based proportional reading, further requires the classifier to be a container classifier, see (2). On the other hand, the semantic constraints for size adjectives modifying classifiers are different. Specifically, the conditions for Group B entail those of Group A plus additional requirements. Therefore, the following three facts will focus primarily on the adjectives *dà* 'big' and *xiǎo* 'small'.

Fact 2: The acceptability of A-Cl modification is orthogonal to the broad category of the classifier. Following Hao (2023), we divide classifiers into four major categories: individual-level classifiers, group-level classifiers, kind-level classifiers, and measure classifiers. We observe that within each major category, some members can be modified by *dà* 'big' and/or *xiǎo* 'small', while others cannot, as illustrated in example (3) on the next page.

Fact 3: The object-mass distinction of nouns influences the acceptability of A-Cl modification. Within the category of individual-level classifiers, the specific noun paired with a given classifier can significantly affect the acceptability of adjectival modification, as shown in example (4). Interestingly, in cases of high acceptability, the noun tends to receive a mass or material interpretation, semantically parallel to English mass nouns (*paper, luggage, meat,* and *bread*). In contrast, in cases of low acceptability, the noun is interpreted as an individual object, parallel to English count nouns (*ticket, T-shirt, watch,* and *lip*).

Fact 4: Three types of contextual interpretations can significantly enhance the acceptability of *dà* 'big' and *xiǎo* 'small' modifying individual classifiers. The previous two facts demonstrate that individual classifiers in the narrow sense do not license A-Cl modification. We further find that three specific interpretations of the noun—namely, edibility (food interpretation), informational content, and spatial occupancy—can markedly improve the acceptability of such modifications, as illustrated in example (5).

Previous studies have offered several analyses regarding the licensing conditions on A-Cl modification (e.g., Cheng and Sybesma 1998; Liu et al. 2004; Jin 2016; Luo et al. 2017; Sun and Yuan 2020, a.m.o.), yet no one can adequately account for all the four facts listed above. We propose that the semantic condition for size adjectives modifying classifiers can be characterized as the **Flexible Granularity Condition**: size adjectives require that the unit encoded by the classifier reflects a flexible granularity of the noun at a specific ontological level (individual, group, or kind), which can be formalized as follows: $\forall s.\, \forall x.\, [x \in \gamma_{s,l}([\![N(Cl)]\!]) \rightarrow \exists y \leq_M x.\, \exists s'.\, [ACC(s, s') \wedge y \in \gamma_{s',l}([\![N(Cl)]\!])]]$($l = i$(individual), g(roup), or k(ind)). This semantic condition arises because A-CL modification only occurs along the dimension of "**cumulative size**", which stems from the fact that the ontological meaning of classifiers is "unit of measurement." (Hao 2020)

Examples

（1）a. 一整场手术都很成功。　　Compare：*一整例手术都很成功。
b. 整颗子弹由铅铸成。　　Compare：?整发子弹由铅铸成。

（2）朋友！这两个字就像是酒，一满杯热酒，流入了叶孤城的咽喉，流进胸膛。（古龙）

（3）a. individual-level classifiers：一大团泥，一小滴水； ?一大只猫，?一小辆车；
b. group-level classifiers：一大摞手套，一小堆象棋； ?一大双手套，?一小副象棋；
c. kind-level classifiers：一大类药物（被列入违禁名单）； *一大种动物（灭绝了）；
d. measure classifiers： 一大杯水，一小碗肉； *一大升水；*一小斤肉。

（4）a. 一大/小张纸 > ?一大/小张票； b. 一大/小件行李 > ?一大/小件衬衫；
c. 一大/小块肉 > ?一大/小块表； d. 一大/小片面包 > ?一大/小片嘴唇。

（5）a. food interpretation：小张一顿饭就能吃掉一大只鸡。
compare： ?小张在院子里养了一大只鸡。
b. information content：小张一下午就读完了一大本小说。
compare： ?书店今天卖出去了一大本小说。
c. spatial occupancy：他屋里家具太多，摆放的也不讲究。一进门右边一大张旧式木床，左边一个大立柜，桌子，椅子。（罗远林，1987：8）
compare： ?家具店卖出去了一大张木床。

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Parentheses as Prominence Operators: Ascending–Descending Effects with *Or* as a Case Study

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Parentheses are used to background the bracketed material and foreground what remains outside, producing a robust asymmetry of attention.We call this *ascending–descending effect*: outside content becomes relatively more prominent (ascends), while inside content becomes less prominent (descends). Disjunction makes the contrast vivid: *A (or B)* intuitively presents A as preferable/likelier/more appropriate than B, even though its truth conditions remain those of classical A ∨ B. Parallel effects with prosody and typography (intonation, italics, boldface) indicate a general mechanism that is not specific to disjunction.

The question is where such prominence asymmetries come from and how to capture them compositionally without encoding order in the lexical semantics of connectives like *or*. We argue that the effect is pragmatic: parentheses inherit the discourse function of parentheticals, marking their content as secondary relative to a host ([1,3]). This leaves at-issue truth conditions intact but adds a layer of prominence that interfaces with information structure and modality. The "ordered" flavor observed with *or* is therefore an instance of a more general interface property of parentheses.

We argue this point with an information-structural explanation ([2]). Parentheses act as a non-focal marker: in contexts where both A and B are viable focus alternatives for the current Question Under Discussion (QUD, Roberts 1996), A (or B) reconfigures the information structure so that A remains focal while B is backgrounded. This shift in focus status changes which QUDs the utterance appropriately answers, predicts contrasts in answerhood and follow-ups with rather/instead, and explains why the asymmetry persists (or weakens) under embedding depending on whether the embedding environment preserves focus structure. On this view, parentheses guide the allocation of attention over alternatives, and the perceived priority relations are consequences of that guidance.

To implement the account, we enrich ordinary denotations with a prominence tier. Each constituent contributes a proposition p and a non-negative prominence weight $w(p) \in \mathbb{R}\_\{\geq 0\}$. Parentheses apply a demotion operator to their content and may mildly promote the host:

$$\pi_\delta(\langle p, w\rangle) = \langle p, \delta\cdot w\rangle \ \ (0 < \delta < 1), \quad \rho_\varepsilon(\langle p, w\rangle) = \langle p, (1+\varepsilon)\cdot w\rangle \ \ (\varepsilon > 0).$$

Connectives compose truth conditions classically, while the prominence tier induces a context-sensitive preorder on alternatives. For disjunction:

$$\langle p_A, w_A\rangle \ \text{or} \ \langle p_B, w_B\rangle \ = \ \langle p_A \vee p_B, \ \max(w_A, w_B)\rangle, \quad A \succcurlyeq B \ \text{iff} \ w_A \geq w_B.$$

In A (or B) the demotion of B yields $A \succ B$ on the prominence tier. In addition, the ascending–descending effect also affects certain pragmatic reasoning. For example, consider the deontic free choice reasoning triggered by disjunctive statements with parentheses, such as OUGHT A (or B). Unlike the classical analysis, which derives two possibilities (MAY A and MAY B), we observe that both A and B are permitted, but A is strongly suggested by the speaker. For instance, in a sentence like "You ought to have surgery (or take medicine)," having surgery is strongly suggested, while taking medicine remains a permissible alternative. It seems that the modality associated with the outside part is also ascended. We discuss this phenomenon further in the paper.

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定比测量与定序测量

——谈“整整”与“足足”的测量差异

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“整整”与“足足”是现代汉语中的一对近义词，两者都涉及对个体、事件或程度量的测量。本文提出“整整”与“足足”涉及两种不同的测量方式，其中“整整”表示定比（ratio）测量，“足足”表示定序（ordinal）测量。两者的测量差异在测量尺度是否具有绝对零点、是否具备差值，以及是否能够搭配固定量等方面存在明显差异。首先，“整整”必须和具有绝对零点的维度相搭配，而“足足”则没有相应的限制。其次，在与平比句的搭配方面，只有“足足”可以与平比句兼容，说明其无需反映程度间的差别比较。“整整”与“足足”在是否具备差值上的不同，还体现在两者与特定动量词“阵（子）”“番”等的搭配上。再次，“整整”与“足足”的测量差异，还体现在两者在搭配固定量和序数值上的差别。

本研究进一步表明，“整整”与“足足”的测量差异会带来明显的句法效应，具体表现在个体测量的搭配与分布差异、事件测量的搭配与分布差异。在个体测量的搭配与分布方面，“整整”与“足足”的差别体现在与全称量化词“都”的搭配以及与“度量短语+的+N”搭配时的不同解读。在事件测量的搭配与分布方面，“整整”与“足足”的差别体现在与时量结构搭配时的不同解读，当时量结构表示整体测量义时，只能在其中添加“整整”，不能添加“足足”。“整整”与“足足”的测量差异还会引发两者在主观性上的差别，“足足”表定序测量的语义内核为其发展为主观大量标记创造了条件，并在此基础上发展出比拟的用法。同时，通过与情态词的位置关系以及共现时的位置关系等句法测试可以证明，“整整”与“足足”在小句中占据不同的句法层次。

本文进一步对“整整”与“足足”主观性差异的产生根源及“足足”从定序到定类的语义演变机制进行了分析。“整整”与“足足”的主观性差异源于构词语素形容词“整”与“足”的主观性差异，其中“足”可以通过“无错误分歧”（faultless disagreement）测试（Kennedy 2007, 2013），是具有主观性的形容词，而“整”无法通过“无错误分歧”测试，是具有客观属性的形容词。“足足”从定序发展为定类，实际上是借助量的排序表达更为抽象的质的准入，定序到定类的演变也为汉语中量到质的演变提供了新的例证。

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Towards a Unified Analysis of Mandarin *Hái*: Evidence from Comparative Constructions

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Competing Analyses of Mandarin *Hái* Mandarin *hái* 'still' has attracted considerable attention due to its notorious multifunctionality. From an abstractionist perspective, three mainstream analyses compete to account for its semantics. The **scalar approach**, was initially proposed by König (1977) for German *noch*, arguing that its temporal, marginal, comparative, and concessive uses can all be explained uniformly by reference to different types of scales; Liu (2000) applies this analysis to Mandarin *hái.* The second account established by Michaelis (1993) based on König (1977) reduces English *still* to **'continuity'**, generally understood as the persistence of a state, relation, or property, or the sustained progression of an event, operating across different scalar domains; Gao (2002) employs a similar opinion towards Mandarin *hái*. The third perspective takes an **'additive'** approach, claiming that the function of *noch* is 'adding up to a larger whole' (van der Auwera 1993), a position Min (1997) also endorses for Mandarin *hái.*

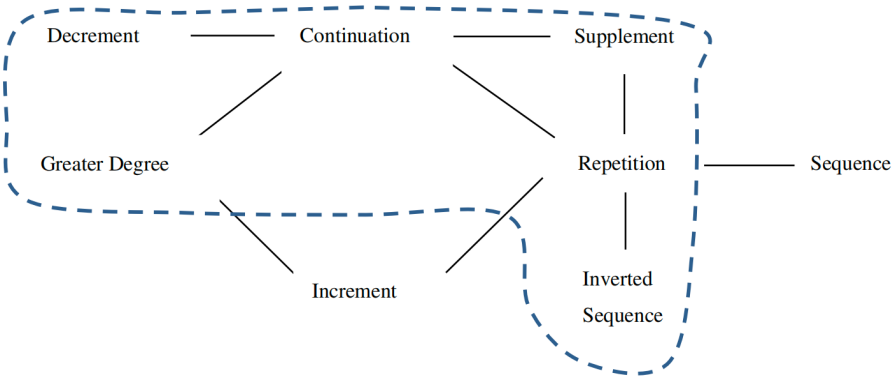
Evidence Supporting the Continuative Analysis Three lines of evidence support the continuative analysis of *hái*, distinguishing it from the scalar and additive alternatives. First, neither scalarity nor additivity constitutes a function unique to *hái*; both are widely attested in Mandarin adverbs such as *yě* 'also', *yòu* 'again' and *zài* 'again', as well as in particles of other languages. Second, a semantic map of *hái*, constructed within the conceptual space proposed by Zhang (2017) through a cross linguistic investigation, identifies Continuation as a central semantic notion (see Figure 1, appendix). Third, comparative constructions involving *hái* indicate that its fundamental concept corresponds to the continuity of an increment along a scale. This is also consistent with the close connection between the notion of Continuation and Greater Degree in the semantic map (see Figure 1, appendix).

***Hái* in Comparative Constructions** Guo (2022) argues that *dōu* 'all' and *hái* in comparative constructions are essentially unmarked *lián…dōu*/*hái* sentences and are largely interchangeable, both conveying a highly difficult situation. However, this analysis does not adequately capture the compositional contributions of *dōu* and *hái* to the semantics of these constructions. The major claim of this paper is that *dōu* denotes universal quantification while *hái* encodes continuative meaning in comparative constructions. First, the co-occurrence of *dōu* and *hái* in comparative constructions (see (2)) indicates that their contributions are semantically distinct. Second, *hái* consistently triggers an evaluative effect (see (3a)), which disappears when the first comparative standard is explicitly realized (see (3b)). This pattern can be explained by the requirement that *hái* conveys a continuation along the 'taller' relation, with the lexical entry exhibited in (5). Specifically, the prior mention of the 'taller' relation between B and A in (3b) satisfies this presupposition, whereas in (3a), it remains unsatisfied unless B exceeds the implicit threshold, giving rise to the evaluative reading. In contrast, *dōu* imposes universal quantification over the standards as shown in (6), accounting for the deviant reading in (4b) compared to (4a).

Conclusions and Additional Details The above observations highlight that *hái* in comparative constructions offers crucial evidence for a unified, continuation-based semantic account. Furthermore, if time permits, I will provide additional evidence showing that *yòu* and *zài* are grounded in eventive repetition, which results in Increments in the nominal domain and a Greater Degree in the degree domain. In contrast, *hái* is based on the continuation of a state or property rather than on changes in an event; consequently, the Greater Degree associated with *hái* attenuates dynamism while emphasizing comparability.

Appendix

(1) **Figure 1** Semantic Map of Mandarin *Hái*



(2) B 比 A 都還高。
B bi A dou hai gao.
B than A all still tall
'B is even taller than A.'

(3) a. B 比 A 還高。
B bi A hai gao.
B than A still tall
'B is even taller than A.'
→The evaluative reading: A is tall.
b. B 比 A 高，C 比 B 還高。
B bi A gao, C bi B hai gao.
B than A tall C than B still tall
'B is taller than A. C is even taller than B.'
→# The evaluative reading: B is tall.

(4) a. B 比 A 高，C 比 B 還高，但是 D 最高。
B bi A gao, C bi B hai gao, danshi D zui gao.
B than A tall C than B still tall but D most tall
'B is taller than A, C is even taller than B, but D is the tallest.'
b. ?B 比 A 高，C 比 B 都高，但是 D 最高。
?B bi A gao, C bi B dou gao, danshi D zui gao.
B than A tall C than B all tall but D most tall
'B is taller than A, C is even taller than B, but D is the tallest.'

(5) The lexical entry for *hái* in comparatives
$[\![hai]\!] = \lambda g_{\langle e,d\rangle}.\ \lambda x.\ \lambda y:\ \exists z\ [g(y)>g(z)].\ g(x)>g(y)$
The continuation of the > relation using *g(y)* as an intermediary node.

(6) The lexical entry for *dōu* in comparatives
$[\![dou]\!] = \lambda g_{\langle e,d\rangle}.\ \lambda y.\ \lambda D.\ \forall x \in D\ [g(x)>g(y)]$

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Fragment questions in Mandarin Chinese

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1 Introduction. Mandarin Chinese exhibits *fragment questions* (FQs), which consist of a fragment followed by the topic particle *ne*, as illustrated in (1). Building on Merchant's (2004) analysis of fragment answers, the prevailing view holds that FQs involve ellipsis, following a movement-and-deletion approach (Wei 2013, 2018; Li 2016 a.o.). This paper argues against such an ellipsis-based account and instead proposes a direct dynamic analysis.

2 Against the ellipsis-based approach. First, FQs can be uttered out of the blue and receive a default *where*-question interpretation (Lu 1982), as shown in (2). This challenges all ellipsis-based accounts, since there is no antecedent question available to license the ellipsis.

Second, the fragment can be a connective, such as *suoyi* 'so' (see, e.g., Yang 2018), as in (3). Under a movement-and-deletion approach, it is unclear what motivates connective movement, how it can function as a contrastive topic (CT), or what constituent is being deleted.

Space constraints prevent a full discussion, yet these two facts already pose significant challenges to the ellipsis-based approach.

3 Proposal. We claim that, like regular CTs, (i) the fragment functions as the topic of the current QUD, specifying the restriction of the *wh*-QUD (see also Bledin & Rawlins 2021); and (ii) it presupposes the existence of at least one other topic that specifies a different restriction of the same QUD (Büring 2003). In this analysis, FQs are not CT remnants of elided questions; rather, CTs are FQs, exhibiting the same dynamics.

We define discourse contexts as in (4). We adopt a structured approach to modeling questions (von Stechow 1991; Krifka 2001 a.o.). Each question on the stack $\mathscr{L}$ is represented as a pair $\langle \mathscr{B}_Q, \mathscr{R}_Q \rangle$, where $\mathscr{B}_Q$ denotes the background of the question, and $\mathscr{R}_Q$ its restriction. When the fragment is nominal, we model an FQ update as in (5).

(5) **FQ update**

$c' = c +\ulcorner$ *Fragment ne* $\urcorner = \langle cs_c, \mathcal{A}_c, \text{push}(\langle \mathscr{B}_{\text{QUD}c}, \{[\![\textit{Fragment}]\!]^c\}\rangle, \mathscr{L}_c)\rangle$

defined only if (i) $[\![\textit{Fragment}]\!]^c \in \mathscr{R}_{\text{QUD}c}$.

(ii) $\exists i\colon 0 \leq i < |\mathscr{L}_c|.\ \exists x\colon x \in \mathscr{R}_{\text{QUD}c} \wedge x \neq [\![\textit{Fragment}]\!]^c.\ \mathscr{L}_c[i] = \langle \mathscr{B}_{\text{QUD}c}, \{x\}\rangle$.

In discourse-initial contexts like (2), we propose that FQs trigger QUD accommodation to ensure that existential condition (ii) is satisfied. Since interlocutors' location is the most salient (and perhaps the only) accessible information, the accommodated QUD can be approximated as *Who is where?* The interlocutors then provide the restriction of a vacuous sub-question *Where are we?*, the answer to which is already part of the common ground. The fragment thus serves to refine the QUD into *Where is Anna?*

As for connective fragments, consider *suoyi ne*. Its dynamics are modeled as in (6). Like standard *suoyi*, *suoyi ne* presupposes a causal or inferential relationship between the prior assertion and at least one answer to the QUD. Following Biezma & Rawlins (2017), we assume that *suoyi* combines with a covert *pro* that is anaphoric to the QUD.

(6) ***Suoyi ne* update**

$c' = c +\ulcorner (\phi)$ *Suoyi ne* $\urcorner = c + \text{Accept}(\phi) + \text{QUD}_c? = \langle cs_c \cap [\![\phi]\!]^c, \mathcal{A}_c, \text{push}(\text{top}(\mathscr{L}_c), \mathscr{L}_c)\rangle$

defined only if (i) $\exists\phi$, where ϕ is an assertion move in c awaiting evaluation.

(ii) $\exists\psi \in \text{QUD}_c[\phi \Rightarrow \psi]$.

(iii) $\exists c, c'\colon [\![\phi]\!] \notin cs_c \wedge [\![\phi]\!] \in cs_{c'}.\ \text{QUD}_c = \text{QUD}_{c'}$.

In broad outline, updating a context c with *suoyi ne* involves two steps: (i) accepting the prior assertion; and (ii) re-posing the QUD. By re-posing the QUD, the speaker signals that the prior assertion is irrelevant to the QUD and thus fails to resolve it.

Examples

(1) A: What did Libai drink?
B: Red wine.
A: ***Dufu ne?*** '≈ What did Dufu drink?' (Li 2016: ex.5)

(2) [Out of the blue]
A: ***Anna ne?*** '≈ Where is Anna?'
B: She has gone to Hongkong.
B': #She drank coffee.

(3) A: Anna won't agree.
B: ***Suoyi ne?*** '≈ So what?'
B': ***Ranhou ne?*** '≈ And then?'
B'': ***Wanyi ne?*** '≈ What if she does?'

(4) **Contexts:**
A context c is a tuple $\langle cs_c, \mathcal{A}_c, \mathscr{L}_c \rangle$ such that:
a. cs_c is a context set.
b. $\mathcal{A}_c$ is a stack of propositions (the assertion stack).
c. $\mathscr{L}_c$ is a stack of sets of propositions (the topic stack).

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The Attitude Meaning of the Mandarin Repetition Adverb *chóngxīn* 'again'

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This research proposes an analysis of the Mandarin repetition adverb *chóngxīn* 'again', which, like English *again* (Rapp & von Stechow, 1999; Beck 2005), permits either a repetitive reading or a restitutive reading when used with predicates that encode result states, as in (1)[1].

(1) *XiaoMing chóngxīn huídào le Beijing.* 'XiaoMing returned to Beijing again.'
Rep: XiaoMing returned Beijing before. | **Res**: XiaoMing was in Beijing before.

Predicates that do not encode result states, however, only permit a repetitive reading of *chóngxīn*. In addition, with these predicates, *chóngxīn* entails an **attitude meaning** (AM), as in (2), defined in (3).

(2) *XiaoMing chóngxīn xiě le yìpiān wénzhāng.* 'XiaoMing wrote an article again.'
Rep: XiaoMing wrote an article before. | **Res**: #
AM: XiaoMing thinks the previous event of writing an article is unsatisfactory.

(3) AM of *chóngxīn:* a salient person in the discourse is unsatisfied with the previous event.

As shown in (4), (1) is acceptable in a context which entails the falsity of the AM, while (2) is not, indicating that (2) entails the AM while (1) doesn't. Even though there exist objective negative facts, as the underlined part in Context 3, if XiaoMing doesn't have a negative attitude towards it, uttering *chóngxīn* is also infelicitous.

(4) Context 1: XiaoMing was in Beijing in 2005 and left there in 2006. He returned to Beijing in 2007 and he was very happy with the life there. This year, after having left Beijing for months, (1). [pure restitutive]
Context 2: XiaoMing wrote an article last month and it was accepted for publication. XiaoMing was happy about it, and yesterday, #(2).
Context 3: XiaoMing wrote an article last month and it was accepted for publication. However, the publisher's computer broke down and lost all the manuscripts. XiaoMing wasn't sad about it since he decided not to publish at the last minute. After that, #(2).

The AM is entailed by *chóngxīn* only when a restitutive reading is not possible, based on which I adopt a lexical approach to the AM and propose that *chóngxīn* is ambiguous. After testing the projective properties (Tonhauser et al., 2013) of both the repetition meaning and the AM of *chóngxīn*, I argue that both of them are presuppositions[2] and that while the former is anaphoric (Beck, 2007), the latter is informative (Tonhauser, 2015). I propose the lexical entries below: an AM is entailed by *chóngxīn1* but unspecified for *chóngxīn2.*

(5) [[*chóngxīn1*]] = $\boldsymbol{\lambda}$e'.$\boldsymbol{\lambda}$P$_{v,t}$.$\boldsymbol{\lambda}$e. ∂[P(v) =1 & $\boldsymbol{\tau}$(e') $\ll$ $\boldsymbol{\tau}$(e)& a salient person $\boldsymbol{\alpha}$ in the discourse thinks e' is unsatisfactory]. P(e).
[[*chóngxīn2*]] =$\boldsymbol{\lambda}$e'.$\boldsymbol{\lambda}$ P$_{v,t}$.$\boldsymbol{\lambda}$e. ∂[P(v) =1 & $\boldsymbol{\tau}$(e')$\ll$ $\boldsymbol{\tau}$(e)]. P(e).

[1] I generate the examples and make judgements based on my native language intuition.

[2] Tests given in the appendix.

By contrast, since the Rep-Res ambiguity arises with both *chóngxīn,* I adopt a structural analysis that different readings are due to various modification scope of *chóngxīn* in the LF.

Appendix

Data &Tests: What is the property of the attitude meaning of *chóngxīn1?* (a truth-conditional meaning, a presupposition, a conversational implicature or a conventional implicature?)

(6) XiaoMing *chóngxīn1* made a budget.

- Assumption 1: the salient person holding the attitude is XiaoMing: α=XM.
- Assumption 2: the presupposed event e' is a previous event of XM making a budget.
- e* is the topic event of XM making a budget at the topic time.

AM = XiaoMing is unsatisfied with e'.

Test 1: non-cancelability: a conversational implicature?

(7) *XiaoMing chóngxīn1* made a budget. At the same time, #he liked the first budget.

AM is **not a conversational implicature** since it cannot be cancelled by a context.

Test 2: family-of-sentences test: projective or truth-conditional?

(8) *XiaoMing yǒukěnéng chóngxīn zuò le yífèn yùsuàn.* "It's possible that XiaoMing made a budget again."

(9) Context: XiaoMing liked his first budget very much. #(8). [One might ask: why would he possibly *chóngxīn* made a budget if he liked the first one?]

AM is **projective**, but not truth-conditional, since it projects in family-of-sentences.

Test 3: presupposition holes test: presupposition or conventional implicature?

(10) [Background: Speaker is Wang. Everyone knows that XiaoMing made a budget last week and that he made a budget yesterday.]
Wang: Li thinks that XiaoMing *chóngxīn* made a budget, but that's ridiculous because XiaoMing liked his first budget. He just made a new one.

The AM embedded in a propositional attitude context, which is a presupposition hole, can only be attributed to the subject of the matrix clause, not to the speaker. Therefore, it's **not a conventional implicature**, but a presupposition. This property is referred to as having an obligatory local effect in the terminology proposed by Tonhauser et al., (2013).

Test 4: out-of-blue context: anaphoric or informative presupposition?

(11) Context (no information about AM): XiaoMing made a budget last week. Yesterday, (6).

The AM of *chóngxīn* is informative and new information, since it can occur in out-of-blue contexts while anaphoric presuppositions must be entailed by a salient context (Beck, 2007; Kripke, 2009). This property is also referred to as not imposing a strong contextual felicity constraint in the terminology proposed by Tonhauser et al., (2013).

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The Telicity Constraint in Mandarin *Shi-de* Clefts: A Reassessment

Xue XIA

The telicity constraint of the *shi-de* cleft construction: Mai (2011) and Mai and Yuan (2016) argue that the particle *de* in the Mandarin *shi-de* cleft construction carries a [+telic] feature, which imposes a "telicity" condition requiring that (i) the event must possess a temporal endpoint or result, and (ii) both the result and the participants of the result cannot serves as the focus pivot. This accounts for the ill-formedness of sentences (1a-d) where the subject of an intransitive event, the affectee of a transitive event, or the result itself (for an intransitive event, the event is the result according to Mai (2011)). Adverbs like *xian* ("first") and *guyi* ("intentionally") improve the acceptability of the sentence since *xian* indicates that the event is the first of a sequence thus not the result, and *guyi* encodes volition, marking the subject as a causer rather than an affectee.

Re-evaluate the telicity constraint: We identified plenty counterevidence challenging this telicity condition, moreover, the data suggests that other factors are also at play.

(i) **Definite event reference**: when the event is definite, that is, one uniquely salient or familiar to the discourse participants, the subject of an intransitive verb can serve as the pivot, as shown in (2a), where the crying event is salient and situational unique. However, a **unergative/unaccusative asymmetry** emerges: unlike unergatives such as *ku* ("cry"), the subject of unaccusative verbs such as *si* ("die") cannot be licensed as the focus pivot merely by situational salience or discourse mention, as in (2b). A stronger definiteness condition seems to apply: the event must be a definite member of a sequence that is known to all the participants, as in (2c). This also accounts for the ameliorating effect of ordinal adverbs such like *xian* ("first") or *zuihou* ("last")[1]. Another strategy to improve the sentence involves the sentence-final particle *laizhe*. In (2d), *laizhe* marks the speaker's uncertainty of a particular detail of an event that is presupposed to be known, strengthening the definiteness of the event.

(ii) **A distinction between the clause-final *de* and the pre-object *de***: the *shi-de* cleft construction exhibits stricter constraints when the particle *de* appears in the clause-final position compared to the pre-object position. Specifically, *shi-de* cleft sentence with pre-object *de* exempt from the so-called "telicity" condition. For example, the focus pivots of the cleft sentences in (3) are either the affectee of a transitive event or the participant of a result event, however, the sentences sound natural according to the judgments of native Mandarin speakers.

Discussion: We found that the telicity condition proposed by Mai (2011) and Mai and Yuan (2016) does not accurately capture the selectional restriction of the *shi-de* cleft construction. However, *shi-de* clefts with the clause-final *de* indeed exhibit certain condition on the availability of a subject focus pivot, which can be ameliorated by the strengthening of event definiteness. We propose an analysis involving the competing of two *DE*s in the clause-final position: one is a mood marker that requires the subject to be the responsible person for certain result, thus incompatible with unergative verbs such as *si* ("die"), and the other is the corresponding form of the pre-object *de*, which signaling the definiteness of the event. The former reading is preferred, unless strong cues of event definiteness is provided by the context.

[1] Mai (2011)'s analysis cannot explain why *zuihou* ("last") also improves the sentence like *xian* ("first").

Example sentences:

(1) a. Shi Zhangsan *(xian/guyi) ku de.
Be Zhangsan first/intentionally cry DE
'It was Zhangsan that cried *(first/intentionally).'
b. Shi Zhangsan da de zhen.
Be Zhangsan take DE needle
'It was Zhangsan that conducted an injection.' (Zhangsan is the doctor.)
#'It was Zhangsan that was injected.' (Zhangsan is the patient.)
c. *Shi beizi bei Zhangsan da sui de
be cup PASS Zhangsan hit into.pieces DE
int. "It was (this) cup that was broken by Zhangsan.'
d. - Zhangsan xiao le ye ku le.
Zhangsan smile PERF also cry PERF
- Bu, ta meiyou xiao, *shi ku de.
NEG 3SG NEG smile be cry DE
int.: '-Zhangsan smiled and cried. –No, he did not smile. *He cried.'
(adapted from Mai (2011))

(2) a. context: in the class, Zhangsan was secretly reading a novel and couldn't help crying. The teacher and others heard someone crying, so the teacher asked:
- (Ganggang) Shi shui ku de?
just.now be who cry DE
- Shi Zhangsan ku de .
be Zhangsan cry DE
'-Who is it that cried? -It was Zhangsan who cried.'
b. context: Zhangsan saw the funeral in the street, so he asked:
- Shi shui *(xian/zuihou) si de?
be who first/last die DE
int.: '-Who is it that died *(first/at last)? '
c. context: a village was cursed, and one person dies every day. Zhangsan asked:
- Zuotian shi shui si de?
yesterday be who die DE
'-Who is it that died yesterday?'
d. ?Zuotian shi shui si de laizhe?
yesterday be who die DE SFP
'Who is it that died yesterday?'

(3) a. Shi Zhangsan shui de jiao.
be Zhangsan sleep DE sleep
'It was Zhangsan that slept.'
b. Shi Zhangsan da de zhe zhong zhen.
be Zhangsan take DE this type injection
'It was Zhangsan that took this type of injection.'
c. Shi beizi bei Zhangsan reng jin de xiangzi li.
be cup PASS Zhangsan throw into DE box inside
'It was (this) cup that was thrown into the box by Zhangsan.'

Bare SELF *kozen* as verum operator in Huarong Sinitic: type-shifting and pragmatic reasoning

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Background: The reflexive form *geren* 各人, primarily found in Southwestern Mandarin (SWM), is reported to have developed non-reflexive usages: as an evaluative adverb (documented as indicating temporal, sequential, emphatic, etc.) or as a counter-expectation marker (Xiao 2017; Zhang 2023). Crosslinguistically, it is not uncommon for reflexives (or say, self-intensifiers) to extend their function to become pure focus markers (Eckardt 2011; König & Gast 2006; Tsai 2018). Such specialized functions are rarely reported for reflexives within Sinitic languages, though.

The scope of current study: This study focuses on *ko^{13}ʐen^{33}* (*kozen* henceforth) in the Huarong dialect, a SWM located in northeastern Hunan. Huarong *kozen* exhibits properties identical to Mandarin *ziji* when being a reflexive marker (see (1)). Crucially, *kozen* is found to extend beyond reflexivity, exhibiting no sortal restriction (Edmondson and Plank 1978, see (2)). Its semantic interpretation in non-reflexive contexts proves highly variable as shown in (3)-(4). For the present study, I set aside the complex interaction between *kozen* and *dou* illustrated in (4). The analysis will therefore concentrate exclusively on giving a unified account on the reflexive *kozen* and its non-reflexive uses exemplified in (3) (though haven't exhausted here).

Basic properties of non-reflexivity *kozen* under discussion: (i) Syntactically: a. It is restricted to matrix clauses (i.e., non-embeddability) (see (5)); b. It obligatorily follows topic constituents, indicating *kozen* scopes over a proposition; c. Its associated predicate cannot be a bare property adjective or a bodily perception unaccusative verb, as these denote properties rather than propositions (Chierchia 2006; see (6)). Thus, *kozen* is located within or even higher than CP. **(ii) Semantically:** a. Its use consistently triggers a set of possible alternative propositions, yielding an exclusive reading, though not necessarily an exhaustive one; b. *kozen* itself is not the focus; c. *kozen* operates relative to a scale of expectation, which results in its interpretation as a counter-expectation marker in specific contexts, as in (7). **(iii) Pragmatically:** The felicitous use of *kozen* is discourse-licensed and contingent upon the common ground. Assertions based on evidence accessible to the speaker but not (yet) to the addressee are generally felicitous with *kozen*. Conversely, assertions based on evidence mutually known to both speaker and addressee are infelicitous with *kozen* (see (8)).

Main proposal: (i) *kozen* is a verum operator, emphasizing the truth value of the proposition (Gutzmann et al. 2020). (ii) VERUM *kozen* and SELF *kozen* is a single lexical entry, instantiating an identity function. Their distinct interpretations result from semantic type-shifting, dynamically mediating the semantic reconfiguration from individual identification to propositional identification through pragmatic reasoning.

Implications: (i) The situation of *kozen* mark verum but not focus supports the LOT (lexical operator thesis) as extensively discussed by Gutzmann et al. (2020), according to which verum marking is not an instance of focus. (ii) *kozen* resists classification within Déchaine & Wiltschko's (2017) universal typology of reflexives. Its distinctive typological features merit further investigation.

***Examples*:**

(1) na^{33} ɕi^{21}xuŋ^{33} ŋa^{33} **ko^{13}ʐen^{33}**.
3SG love 3SG KOʐEN
'He loves **himself**.' [elicited]

(2) yi^{13}pao^{13} pen^{21} ɕy^{33} **ko^{13}ʐen^{33}** tɕ^{h}iu^{33} zou^{13}gou^{35} ta^{21}.
ten CL book KOʐEN then enough PERF
*'Ten books themselves are enough' [Reflexive reading] ✗
'**(It is true that)** Ten books are enough.' [Non-reflexive reading] ✓ [elicited]

(3) A. na^{33} ti^{33} pa^{33}pa^{33} ma^{33}ma^{33} li^{33}?
3SG POSS father mother QM
'Where are his parents?'
B. pa^{33}pa^{33} ma^{33}ma^{33} **ko^{13}ʐen^{33}** xa^{33} [tsou^{21}]$_{F}$ luo^{33} ta^{21}.
father mother KOʐEN all die TEL PERF
'**(It is true that)** His parents are both dead.' [spontaneous]

(4) na^{33} mang^{13} te^{33} **tou^{33}** **ko^{13}ʐen^{33}** pu^{13} tɕ^{h}i^{13} fan^{33} ta^{21}.
3SG busy COM DOU KOʐEN NEG eat meals PERF
'He's so busy he **even** skipped meals.' [spontaneous]

(5) a. na^{33} tiŋ^{33}tiŋ^{33} tɕ^{h}i^{13}wai^{33}mai^{33} **ko^{13}ʐen^{33}** tei^{13} seŋ^{33}t^{h}i^{21} pu^{13} xau^{21}.
3SG every day eat takeout KOʐEN for health NEG good
'**(It is true that)** That he eats takeout every day is unhealthy.' [elicited]
#b. na^{33} **ko^{13}ʐen^{33}** tiŋ^{33}tiŋ^{33} tɕ^{h}i^{13}wai^{33}mai^{33} tei^{13} seŋ^{33}t^{h}i^{21} pu^{13} xau^{21}.
3SG KOʐEN every day eat takeout for health NEG good

(6) a. ke^{13} k^{h}o^{33} ɕy^{33} **ko^{13}ʐen^{33}** men^{33} kao^{33}.
DEM CL tree KOʐEN very tall
'**(It is true that)** The tree is very tall.' [elicited]
#b. ke^{13} k^{h}o^{33} ɕy^{33} ko^{13}ʐen^{33} kao^{33}.
DEM CL tree KOʐEN tall

(7) [*Context: Dinner is over. The son (age 16) makes a silly face at his sister (age 26) while she's cleaning up, making her laugh and drop a spoon.*]
a. (Sister) Hey, stop that!
b. ŋi^{21} **ko^{13}ʐen^{33}** tou^{33} tɕ^{h}i^{21} dʑia^{21}dʑia^{21} lai^{13}ta^{21}.
2SG koʐen tease ASP sister SFP
'**(Surprisingly)** You are now teasing your sister!' [spontaneous]

(8) [*Context:* Two friends, Aya and Ben, are sitting together watching a live football match on TV. The team they support has just scored a goal, making the score 1-0. They both saw the goal happen clearly on the screen.]
na^{33} **ko^{13}ʐen^{33}** tɕ^{h}iŋ^{33} tɕ^{h}iu^{13} ta^{21}.
3SG KOʐEN score goal PERF [elicited]

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