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De outside the cleft

Not what you expected

Abstract: The Mandarin Chinese particle *de*'s usages as a relativiser, nominaliser, and possessor are well understood. However, *de*'s use as a sentence-final particle (SFP), as in *Wo zhao ni shiyou de* 'I'm looking for your roommate *de*,' remains underexplored. This paper presents corpus and self-constructed data to highlight the environments in which this sentence-final particle is used. Additionally, we provide a semantic analysis of *de*'s SFP use, suggesting that its primary semantics indicates that its prejacent proposition holds true, while at least one of the typical indicative circumstances associated with that proposition does not hold true on a non-at-issue level. This meaning, along with its licensing contexts, is distinguished from the use of *de* in the focus-marking *shi...de* construction. We further support this claim with structural evidence, including the resistance of bare SFP *de* to embeddability, its interaction with other SFPs, as well as possible co-occurrence of the two constructions. We believe the current study fills an empirical gap of bare SFP *de* and offers a more adequate and precise characterisation of its meaning contribution.

Keywords: Sentence-final particle, speaker-oriented meaning, syntax-semantics interface, Mandarin Chinese

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1 Introduction

Discourse particles have been argued to be syntactically independent, invariant grammatical elements, characteristically small in size and hard to define in terms of morphosyntactic categories (Simpson 2014; Egg & Mursell 2016). Across languages, discourse particles are broadly witnessed, as illustrated in (1).¹

- (1) a. You are right about that, **actually**. (English)
 b. Da hast du **ja** recht.
 there have you PRT right
 ‘You are really right, admittedly.’ (German)
 c. Hao leng **a**!
 very cold SFP
 ‘It is so cold!’ (Mandarin)
 d. Samui **yo**!
 cold SFP
 ‘It is so cold!’ (Japanese)

The Sinitic languages (and languages across East Asia) are particularly known for a rich inventory of discourse particles, which often take the form of mono-syllabic sentence-final particles (SFPs henceforth) (Chao 1968). The current study deals with the Mandarin SFP *de*, a phonological form that otherwise has been shown to assume the function of a relativiser (Li & Thompson 1981; Wan 2016), nominaliser (Chao 1968; Huang & Liao 2013) or possessor marking particle (Li & Thompson 1981; Zhu 1982), exemplified in examples (2a–c), respectively.

- (2) a. [Zuotian lai zhao wo de] (xuesheng) jintian you lai-le.
 [yesterday come look.for I REL] student today again come-ASP
 ‘The student who came to me yesterday came again today.’ (*de* as a relativiser)
 b. (Context: who are those people?)
 Kai che de (ren), mai shuiguo de (ren)
 drive car NOM person, sell fruit NOM person
 ‘A driver (one who drives), and a fruit peddler (one who sells fruit)’
 (*de* as a nominaliser)
 c. Mama de (yifu) hen piaoliang.
 mother POSS clothes very pretty
 ‘Mom’s clothes are pretty.’ (*de* as a possessive marker)

¹ The glossing terms of the paper follow the Leipzig Glossing Rules. All glossing terms are listed here: ASP: aspectual marker; COP: copula; CLF: classifier; EXCLAM: exclamative marker; IMP: imperative marker; LOC: locative; NEG: negation; NOM: nominaliser; POSS: possessive marker; PROG: progressive marker; PRT: particle; Q: question marker; REL: relativiser; RES: resultative marker; SFP: sentence-final particle.

In example (2a), *de* establishes the (restrictive) relativisation of the clausal argument to its left. *De* nominalises the predicative argument to its left in example (2b), and establishes a possession construction in example (2c).

The current study concentrates on the sentence-final use of *de*, illustrated in the following corpus-attested example in (3) (Chinese Treebank 8.0, Zhou & Xue 2015). The use of *de* in (3) distinguishes itself by disallowing an overtly realised right-attaching head, contrary to the constructions in (2), which come with a head that may be overtly realised.² In other words, (3) instantiates a true case of SFP. It does not lend itself to an analysis as a nominaliser-like morpheme.

- (3) Context: Classmates in a Beijing school are amazed by the fact that one of them, big Bai (where Bai is a common Chinese surname), can read the Japanese captions on a snack food package. Sensing the amazement, big Bai explains:

(Zai jia) wo jiang riyu de.
LOC home I speak Japanese DE

‘(Actually/despite available evidence,) I speak Japanese (at home).’ (*de* functions as a SFP)

The contribution of the *de* particle here can be understood as conveying the meaning that the information that is provided by the speaker does not conform to the expectation of the classmates. Namely, the fact that Big Bai speaks Japanese at home is unexpected, given that he appears to be otherwise typically Chinese.

With the sentence-final *de* left out, as in (4), the speaker still conveys the literal content that he speaks Japanese at home. However, the utterance no longer attends to the element of surprise that is present from the context. The speaker appears to either fail to sense the amazement, or deliberately disregard it.

- (4) Zai jia wo jiang riyu.
LOC home I speak Japanese
‘I speak Japanese at home.’

The above sentence-final use of *de* (henceforth bare SFP *de*), which the current study is interested in, is very productive in Mandarin colloquial speech, yet has received relatively little attention, compared with other functions of *de*. While there have been attempts to define its role in discourse (e.g. Lin 2016; Soh 2018), we will demonstrate that these are insufficient in a number of respects. The main empirical novelty of the current study is hence to motivate a new analysis

² Throughout the paper, constructed examples are verified by 10 native speakers. Examples extracted from corpora are indicated where they appear. They were also checked by a separate group of native speakers (8 people) to further confirm their validity.

that we argue offers a more adequate and precise characterisation of the meaning contribution of *de*.

Another sentence-final particle use of *de* is observed in a focus-marking construction similar to English *it*-clefts, often in conjunction with the copula *shi* (Li & Thompson 1981; Simpson & Wu 1999; 2002; Hole 2011). As (5) illustrates, what is located immediately after the copula *shi* is the focus information, as opposed to the rest of the clause, which encodes the backgrounded information (Hole 2011: 1710).

- (5) Context: Where do you speak Japanese (given that we know that you speak it)?

[Wo]_{Topic} shi [zai jia]_{Focus} [jiang riyu]_{background} de.
 I COP LOC home speak Japanese DE
 ‘It is at home that I speak Japanese.’

It has been proposed (implicitly by Paul & Whitman 2008, explicitly by Hole 2011) that the focus-marking (*shi...*)*de* expresses an exhaustification meaning, stating that the focus exhausts the property denoted by the backgrounded predicate. In (5), (*shi...*)*de* is said to contribute the meaning of excluding other places where the speaker speaks Japanese. We refer to the *de* in the *shi...de* construction as ‘cleft *de*’, so that we can make a distinction between its function and that of bare SFP *de* in subsequent sections.

By changing the location of the copula in the sentence, different associations with focus become available. Compare (5) with (6), for example. Differing from the clefted PP in (5), in (6) the sentence predicate is placed in focus, instantiating Hole (2011)’s predicate cleft construction.

- (6) Context: What languages do you speak at home (given that we know you speak multiple languages)?

[Zai jia wo]_{Topic} shi [jiang riyu]_{Focus} de.
 LOC home I COP speak Japanese DE
 ‘At home, it is Japanese that I speak.’

Several proposals have additionally advocated the position that the copula in the *shi...de* focus construction may be silent (e.g. Soh 2018). In other words, an underlying *shi...de* focus construction would then yield, at the surface level, an identical form as the construction with an underlying bare SFP *de*. Despite such cases of surface similarity, we believe that the two constructions should not be treated the same. Bare SFP *de* relies on its indicative inferences interacting with the common ground, contributing a contrary-to-expectation meaning. In contrast, the *shi...de* construction is not confined to addressing false expectations, and when it does, it responds to explicit linguistic material belonging to the ongoing inquiry (c.f. Velleman et al. 2012).

The position we adopt in this paper is that the two sentence-final *des* differ in their meaning contribution and discourse function. We will provide evidence to show that the two particles can co-occur in a single sentence, and that they behave differently, e.g. they differ in embeddability. However, we believe a more systematic judgment study needs to be done before a final conclusion is drawn. The bulk of this paper is dedicated to a detailed study of the stand-alone bare SFP *de*, focusing on its semantics and related structural behaviours such as its compatibility with certain sentence types and its interaction with other SFPs.

This paper is structured as follows. In section 2, we provide examples establishing distribution and meaning contribution of bare SFP *de*. This is followed in section 3 by a comparison with previous proposals. Our novel semantics for bare SFP *de* pertaining to the relation of the speaker’s evidence to default inferences is provided in section 4. Section 5 provides additional distributional evidence in support of the semantic analysis. Section 6 concludes the paper.

2 A contrary-to-expectation meaning

This section introduces the contrary-to-expectation meaning of *de*, and discusses the intuition behind this meaning. To a large extent, we analyze the meaning of this usage by contrasting it with the *de* used in *shi...de* constructions, which, while of a similar flavor, we argue serves a distinct set of discourse functions. We discuss particular continuations that offer clues into whether expectations of the addressee in a given context is violated, developing the meaning of the proposed *de* in the process. We conclude the section by presenting corpus-attested examples wherein the two *des* co-occur, offering evidence for the distinct functions and meaning contributions of the two particles. The particle carrying the contrary-to-expectation meaning will then be the focus of the remainder of this work (see Table 1 for a summary).

Table 1: A summary of the contexts to be discussed for the two target constructions, bare SFP *de* and cleft *de* (i.e., *de* in cleft constructions)

Expectation of addressees	Continuation ‘I think so too’	Bare SFP <i>de</i>	<i>Shi...de</i>
contrary	✗	✓	✓
non-contrary	✓	✗	✓

In both 2.1 and 2.2, we provide contexts where addressees hold false expectations to test if the target *de* particle is compatible with these contexts. We then test the felicity of the target *de* in contexts in which there is no contradicted anticipation held by addressees.

2.1 Context and continuation for bare SFP *de*

Our core observation is that bare SFP *de* is associated with expectations. In communicating some propositional content to the addressee for update to the common ground, the speaker signals by using *de* that some expectations that would normally be indicative of that proposition contradict the mutual knowledge already in the common ground. In other words, rather than providing a truth-conditional contribution, bare SFP *de* adds a *contrary to expectation* colouring to the speech-act: The addressee may find the uttered proposition to be unlikely, given what is known prior to utterance, as shown in the attested corpus example (7).³

- (7) Context: Yisheng opens the door, sees Xiaoyan and lets her in. Qingchen, who shares the room with Yisheng, greets her and walks away to give them some privacy, since he is not acquainted with her.

Yisheng: Xiaoyan zuo ba. Ni zenme le?

Xiaoyan sit SFP you how ASP

‘Take a seat, Xiaoyan. What’s going on?’

Xiaoyan: Wo zhao ni shiyou **de**.

I look.for you roommate DE

‘I’m actually looking for your roommate (Qingchen, not you).’

Qingchen: Wo?

I

‘Me? (His hand shook for a second while making tea for her, thinking to himself that he was not close to Xiaoyan.)’

(Chinese Treebank 8.0, Zhou & Xue 2015)

In this example, both roommates, Yisheng and Qingchen, expect that Xiaoyan intends to visit Yisheng. This comes off as plausible, given Xiaoyan’s close relationship with Yisheng but not with Qingchen. Now, upon realising this misunderstanding, Xiaoyan resorts to *de* to signal that the expectation is not met. In other words, bare SFP *de* targets a false expectation by the addressee. Note here the expectation is not explicitly mentioned: the modified proposition does not directly address the prior *wh*-question (i.e. the ongoing issue in the immediate discourse).⁴ Rather, it challenges implicit knowledge that is not entailed by the prior question, thereby changing the shape of discourse.

³ This and subsequent examples extracted from corpus have been simplified to include only the relevant part.

⁴ A direct response to the ongoing query (i.e. *Ni zenme le?* ‘What happened to you?’) would involve providing information that resolves the issue of what happened to Xiaoyan, leading to anticipated interactions between Xiaoyan and Yisheng. The assumption behind the query is that Yisheng expects Xiaoyan’s visit to involve a request for a favour, making the goal of the question to understand Xiaoyan’s situation in order to determine the nature of the favour. However, with Xiaoyan’s utterance, the discourse shifts towards future interactions between Xiaoyan and Qingchen instead.

Evidence that the modified proposition being proposed to the common ground contradicts expectations can be seen by the fact that the proposed content cannot be naturally followed up with the addressee responding something like ‘I think so too’ or ‘Just as I expected’. Take the above example (7) for illustration. A response as in (8) does not serve as a felicitous reply on the part of the addressee Yisheng, since the contextual information so far suggests Yisheng did not see it coming.⁵

(8) Context: (Same as in 7)

- Yisheng: Xiaoyan zuo ba. Ni zenme le?
 Xiaoyan sit SFP you how ASP
 ‘Take a seat, Xiaoyan. What’s going on?’
- Xiaoyan: Wo zhao ni shiyou de.
 I look.for you roommate DE
 ‘I’m actually looking for your roommate (Qingchen, not you).’
- Yisheng: ??Wo ye juede shi.
 I too feel true
 ‘I think so too.’

This offers us a way to diagnose whether newly updated information aligns with expectations from the current common ground. An update is expected relative to the common ground if the addressee can follow up with a continuation that indicates that the information being updated is somehow anticipated; failure to do so signals the opposite.

We can construct further contexts to test the above intuition. Consider a context where the addressee boarding an incoming train attempts to locate their assigned seat but is unable to find the seat number specified on their ticket stub. Upon seeking assistance from train staff, the staff could naturally respond with an utterance with bare SFP *de* appended to it, as in the utterance in (9).

- (9) Ni zuo cuo le! Zhe tang lieche zai Gaoxiong bu jingting de!
 You sit wrong ASP this CLF train LOC Gaoxiong NEG stop.over DE
 ‘Wrong train! Actually this train does not make a stop at Gaoxiong.’

The act of boarding and looking for the designated seat is evidence for the addressee’s mistaken belief of being on the correct train. Upon checking the addressee’s ticket, the staff member

⁵ Throughout the paper, ‘*’ indicates syntactic ungrammaticality, as in (ia), while ‘#’ marks semantic anomaly, as in (ib). The symbol ‘??’ is used to denote pragmatic infelicity, as in (ic).

- (i) a. *Read you a book about modern syntax.
 b. #(Linda has never written novel before.) Has Linda stopped writing novels?
 c. ??(The speaker knows that John is in the kitchen) John is in the kitchen or in the bathroom.

recognises the mistake and thus employs *de* to signal that the information provided about the train's destination contradicts the addressee's expectation.

Similarly, *de* attaches to a proposition when embedded in the prior context as in (10).

- (10) Context: At a farewell party the colleagues congratulate John on his new position and wish him all the best in his future endeavors, mistakenly believing he is off to a permanent job transfer. The director reminds the colleagues:

Ta hai huilai de!
 He still come.back DE
 'He is actually gonna come back again.'

Here, by overhearing the congratulations, the director believes the colleagues expect that John is not coming back. By using bare SFP *de*, he indicates that he is aware of the others' mistaken expectations. As in (8), both (9) and (10) cannot be felicitously followed up with the 'I think so too' continuation, attesting to the conflict between the modified proposition and the common ground.

While, in the above, *de* is compatible with contexts that involve certain expectations, it cannot be felicitously used in a context that features no pre-existing expectations. Thus, adding bare SFP *de* to the following train broadcast in (11) gives rise to oddness.

- (11) Context: A train is approaching the platform. The broadcast announces:

??16 hao zhantai de lieche kaiwang Gaoxiong fangxiang de.
 16 number platform REL train head.to Gaoxiong direction DE
 Intended: 'Actually, the train on platform 16 is heading to Gaoxiong.'

A routine train announcement is normally not biased towards any previously held belief, hence the oddness of (11). In this context, the implicit question under discussion is construed as some neutral question like 'Where is the incoming train heading for?' with no pre-existing information favouring a particular destination.

In addition, bare SFP *de* cannot be felicitously used to agree with the addressee's expectation. Example (12) illustrates a scenario where A's knowledge state supports the statement of B. This can be evidenced by the fact that Speaker A may follow up on the B-utterance with a continuation of the form *wo ye juede shi* 'I think so, too', indicating that B's newly updated information is anticipated. In this scenario, adding *de* to the B-utterance makes it less acceptable.

- (12) A: Zhezhou tianqi yinggai haocha ba?
 This.week weather ought.to really.bad Q
 'The weather this week oughtta be really bad, right?'

B: Wo kan le xia wo shouji shang zheliangtian de tianqiyubao,
 I look.at ASP one.time my phone on these.day poss weather.forecast
 tianqi henchā (??de)!
 weather pretty.bad DE
 Intended: ‘I take a look at the weather forecast of these few days on my phone, and
 it’s (actually) very bad!’

In sum, this subsection examines the function of bare SFP *de* in discourse. We show that *de* serves to signal that its prejacent is contrary to the addressee’s expectation. Consequently, it is felicitously used in contexts where the prejacent conflicts with prior expectations, and is not felicitous in cases where no expectation is provided or when the prejacent aligns with the addressee’s expectation.

2.2 A comparison with cleft *de*

Unlike bare SFP *de*, cleft *de* (i.e. the *de* within focus-marking *shi...de* constructions) is not constrained by the counter-expectational requirement, which means it is compatible in principle with a broader range of prior context types. To explicitly test this prediction, in this subsection we subject cleft *de* to the same test ground as that of bare SFP *de*, in order to see if cleft *de* behaves differently than bare SFP *de*.

First, consider the above contexts where the addressee holds some false expectations, specifically in examples (7), (9) and (10). When addressed with a *shi...de* construction, a subtle yet consistently degraded judgment arises for the speakers we consulted. In (13)–(15), we repeat these previous contexts, and replace the bare SFP *de* response by a corresponding *shi...de* response.⁶

(13) Context: (Same as in 7)

??Wo **shi** zhao ni shiyou **de**.
 I COP look.for you roommate DE
 Intended: ‘It is your roommate that I’m looking for.’

⁶ A reviewer calls attention to the fact that the *shi...de* construction (in some of its uses) also operates on a notion of contrast. In receiving a contrastive focus reading, the cleft focus is contrasted against some alternative entity or property. Thus, relevant to our purpose, the cleft may correct prior misinformation regarding a wrongly identified individual.

- (i) Context: A boards a train and asks the conductor: ‘I would like to purchase a ticket to Taipei, please.’ The conductor responds:
 Ni zuo fan le. Zhe tang lieche shi kaiwang gaoxiong fangxiang de.
 you sit reverse ASP this CLF train COP head.to Gaoxiong direction DE
 ‘You took the wrong direction. It is towards the Gaoxiong direction that this train is heading.’

(14) Context: (Same as in 9)

??Ni zuo cuo le. Zhe tang lieche **shi** zai Gaoxiong bu jingting **de**.
 You sit wrong ASP this CLF train COP LOC Gaoxiong NEG stop.over DE
 Intended: ‘Wrong train! It is that this train does not make a stop at Gaoxiong.’

(15) Context: (Same as in 10)

??Ta **shi** hai huilai **de**.
 He COP still return DE
 ‘It is that he is gonna come back.’

Furthermore, unlike bare SFP *de*, cleft *de* occurs naturally in context types that do not feature pre-existing expectations.⁷ In the context of (16), the addressee is late and meets John down at

This raises the question of why the *shi...de* focus is not always compatible with the above counter-expectational scenarios. We suggest the difference lies in the explicitness required of the preceding discourse. When used contrastively, the cleft requires that a focal antecedent be explicitly mentioned in the immediate discourse context. The antecedent must be part of the literal content, or otherwise entailed by it (the ongoing inquiry, Zimmermann & Onea 2011; Velleman et al. 2012; Jin & Chen 2022, cf. also Halliday 1967; Chafe 1976; Rooth 1992). In contrast, bare SFP *de* does not require the presence of a focal antecedent in the discourse, only that the previous knowledge (to the point of utterance) contradicts at least one of the default inferences that is indicated from *de*’s prejacent. The previous knowledge thus defined is not necessarily asserted or presupposed, but could be conversationally implicated or belongs with common sense and world knowledge.

Notably, in the above scenarios of (7)–(10), the contrary-to-expectation use of *de* targets implicitly held beliefs that are not part of the ongoing issue in the immediate discourse. Rather than directly addressing the addressee’s immediate query (and any antecedent contained in it), the speaker instead shifts the discourse to provide an update that, while not a response to the immediate question under discussion, more effectively resolves the overall conversational goal. In example (7), for example, the implicit belief is that Yisheng thinks that Xiaoyan is coming to ask him for a favour (henceforth asking *what’s going on* so as to figure out the favour being asked), satisfying the required ‘expectation’ of bare SFP *de*. Under a corrective cleft analysis of *de*, an antecedent could presumably be an alternative to ‘your roommate’, which is nevertheless not explicitly listed in the preceding discourse. In other words, there is nothing to be corrected, hence the infelicity of cleft *de* compared with bare SFP *de*.

Note that the overlapping requirements of these two types of contrast render the consequence that the distribution of bare SFP *de* and the corrective *shi...de* cleft are not mutually exclusive. A corrective cleft can occur in a contrary-to-expectation environment in cases in which an anaphoric relation to an antecedent is established. Similarly, a bare SFP *de* may be contrasted against explicit linguistic material.

⁷ We would further like to draw attention to the behaviour of *shi...de* constructions in the wild from our corpus search (Chinese Treebank 8.0, Zhou & Xue 2015). They often come with a phrase, for example ‘according to the statistics’, ‘according to our reliable news source’. An example is provided in (i).

- (i) Ju tongji, zai waishang touzi qiye de renminbi zhong, you yiban shi
 according.to statistics LOC foreign.business invest firm REL RMB in have half COP
 Zhongguoyinhang tigong de.
 bank.of.China provide DE

the platform. The addressee does not have time to check where the train at the platform is going, and John informs her with the following utterance.

- (16) Zhe tang lieche **shi** kaiwang Gaoxiong fangxiang **de**.
 this CLF train COP head.to Gaoxiong direction DE
 ‘It is towards the Gaoxiong direction that the train is heading.’

The addressee in this example has no expectation or knowledge whatsoever about where the train goes. Here John simply employs the cleft answer to convey the information that he knows about this train.

Similarly, announcements at train stations do not assume a rich prior knowledge on the part of the addressee either. As mentioned in section 2.1, the addressee does not hold a biased belief as to where the announced train is heading, or what stations are along the way. Given the context in (17), one may utter an announcement featuring *shi...de*.

- (17) Context: A train is approaching the platform. The broadcast announces:
 16 hao zhantai de lieche **shi** kaiwang Gaoxiong fangxiang **de**. Qing
 16 number platform REL train COP head.to Gaoxiong direction DE please
 zhan zai huangxian hou denghou.
 stand LOC yellow.line behind wait
 ‘It is Gaoxiong that the train on platform 16 is heading for. Please wait behind the yellow line.’

Finally, unlike bare SFP *de*, which signals a contradiction to prior expectations, the *shi...de* construction can be used when contextual information supports the modified proposition. Consider the following example in (18).

‘According to the statistics, among the RMBs that belong to foreign investment firms, half are provided by the Bank of China.’

We do not propose this as a diagnostic, since the phrase counts do not reach statistical significance. In other words, *shi...de* is observed to be compatible with the type of ‘according to a certain source’ phrases without necessarily entailing a robust co-occurrence correlation pattern. Note however that phrases such as ‘according to the statistics’ are never observed with bare SFP *de* in the corpus. Additionally, if the *shi...de* construction of the above sentence is replaced by bare SFP *de*, it becomes unacceptable according to our consultants, as in (ii).

- (ii) Ju tongji, zai waishang touzi qiye de renminbi zhong, you yiban
 according.to statistics LOC foreign.business invest firm REL RMB in have half
 Zhongguoyinhang tigong (??de).
 bank.of.China provide DE

‘According to the statistics, among the RMBs that belong to foreign investment firms, half actually are provided by the Bank of China.’

- (18) A: Zhezhou tianqi yinggai haocha ba?
 This.week weather ought.to really.bad Q
 ‘The weather this week oughtta be really bad, right?’
 B: Wo kan le xia wo shouji shang zheliangtian de tianqiyubao,
 I look.at ASP one.time my phone on these.day POSS weather.forecast
 tianqi **shi** henchā **de**!
 weather COP pretty.bad DE
 ‘I take a look at the weather forecast of these few days on my phone, and it is indeed very bad!’

Now, what B proposes here finds a congruent follow-up in ‘I think so too’ or ‘Just as I expected,’ as in (19), suggesting that the updated proposition by B is in line with the addressee’s previously held belief.

- (19) Wo ye juede shi.
 I too feel true
 ‘I think so too.’

To summarise, bare SFP *de* carries a contrary-to-expectation meaning, felicitously occurring in a context that comes with some expectation, either from explicit beliefs under discussion or from implicit beliefs of the addressee. In contrast, the *shi...de* construction is not contingent upon contexts that come with an expectation. These two sentence-final *de* particles differ in terms of distribution, indicative of distinct meaning contributions.

2.3 Two *des* in one clause

We have provided types of evidence supporting the assumption that cleft *de* and bare SFP *de* come with different meanings. We should hence be able to find cases where both occur together. However, identifying corpus attestations of two simultaneous *de* particles is not a straightforward task due to several complicating factors. First, the Obligatory Contour Principle (Goldsmith 1976; McCarthy 1986; Yip 1998; Tang 2000) in phonology forbids the consecutive co-occurrence of two units that share the phonetic form. To avoid violating this principle, we searched for instances in which a third sentence-final particle intervenes between the two *des*, specifically settling on the scalar focus *eryi* ‘just’ particle that conforms to our criteria by structurally positioning above cleft *de* and below bare SFP *de* (see Section 5 for additional discussion). Second, we limited our search to cases with an overt copula to ensure that the first occurrence of *de* instantiates a *shi...de* focus structure.

Factoring in these criteria yields several corpus-attested utterances that bear out the prediction of the co-occurrence of both *de*-particles (Chinese Web 2017 (zhTenTen17) Simplified). Two of them are illustrated in (20).⁸

- (20) a. Yikaishi wo qishi jiu shi xiang rang ta lai da ge zar de_{CLEFT}
 at.first I actually just COP want make her come do CLF errands DE
 eryi de_{SFP}.
 ERYI DE
 ‘At first, I just wanted her to come and do some odd jobs.’
- b. Qiujier de fuqin zhi shi qidai gongjue de cizi,
 Churchill poss father only COP seven.generation duke poss second.son
 meiyou zige jicheng Bulunhaimu gong. Qiujier buguo shi zai
 NEG qualifications inherit Blenheim palace Churchill just COP LOC
 nali chusheng he jiehun de_{CLEFT} eryi de_{SFP}.
 there be.born and get.married DE ERYI DE
 ‘The father of Winston Churchill was only the second son of the seventh generation of Dukes. He was not qualified to inherit Blenheim Palace. Winston Churchill was simply born and got married there.’

The rest of corpus attestations are listed in the appendix. All examples underwent further verification with a group of eight native speakers who converged in the acceptability of said utterances, suggesting that cleft *de* and bare SFP *de* can co-occur. The limited size of attested instances is likely due to independent processing costs associated with establishing an online representation of focus associations (involving both *shi...de* and the scalar *eryi*) alongside the simultaneous interpretation of the conflict-of-expectation meaning. However, we believe a systematic judgment study in an experimental setting is needed to bring empirical clarity. We will leave this task for the future.

To summarise, in this section, we have observed that bare SFP *de* expresses the meaning that the content of its preadjacent is not compatible with pre-established common ground. We have further

⁸ A further glimpse into the meaning contribution of *de* is enabled via the high-frequency collocation pattern of *de* with the speaker-oriented adverb *qishi* ‘actually’. The sentence-final particle literature has used the co-occurrence patterns of SFPs and collocating adverb as a diagnostic for identifying the position/height of the projection of said SFP (e.g. the collocation between *yijing* ‘already’ and the aspectual marker *le*, *jiu* ‘just’ and the scalar focus particle *eryi*, and *zhengzai* ‘in the process of’ and the aspectual marker *ne*, cf. Shyu 1995: 33, Cinque 1999: 89, Hole 2004: 50;70, Badan & del Gobbo 2015: 45, Hole 2017: 396). The investigation of speaker-oriented adverbs thus provides a useful probe into *de*’s syntactic position. In this regard, it is informative to note that speaker adverbs such as *qishi* ‘actually’ have a far-larger-than-chance tendency to co-occur with bare SFP *de* in oral speech, which would be explained if such adverbs function as the specifier of the functional projection of *de*. However, a proper corpus research spelling out the correlating of *de* with *qishi* ‘actually’ will have to await a future study.

pointed out behavioural differences vis-à-vis cleft *de*. Cleft *de* is not subject to a contrary-to-expectation requirement, and may occur in contexts with no prior knowledge.

3 Previous accounts

In this section, we compare the current proposal with earlier semantic proposals of *de*. We do this by first providing an overview of individual accounts before pointing out some potential issues, which we then show can be straightforwardly accounted for under our analysis.

3.1 *De* as a private evidence marker

Soh (2018) characterises bare SFP *de* as a discourse marker of *private* evidence. Certain evidence is defined to be private to the speaker if it is accessible to the speaker, but not to the addressee, as in example (21).

- (21) Context: The speaker knows that the girl standing across the room has a boyfriend, and believes that the addressee does not know that.
- a. Ta you nan-peng-you de.
 she have boyfriend DE
 ‘I’m telling you, she has a boyfriend.’ (Soh 2018: 3)

Meanwhile, *de* is claimed to be not felicitous when evidence for the modified proposition is shared with the addressee, or when minimal effort is needed for the evidence to be accommodated.

Soh (2018) additionally observes cases in which the modified proposition of *de* does not require private evidence. These exceptional cases, Soh argues, do not involve bare SFP *de*, but rather cleft *de* with a silent *shi* (hence the apparent similarity). The latter is subject to a distinct discourse condition, specifically, cleft *de* “serves to confirm the relevant proposition in response to a contrary view or doubt held by the addressee” (Soh 2018: 11).⁹ This is supported by example (22), in which the evidence in the possession of speaker B is not entailed to be private at the utterance time.

- (22) Context: A is looking for his watch. B indicated that he believed that the watch was in the room (where A and B are), but A expressed doubt about that and thought that he might have left it somewhere else.

⁹ We thank an anonymous reviewer for pointing out the contrast-based analysis of Soh’s and its relevance to our proposal.

- B: kan! shou-biao (shi) zai zher de.
 look watch COP at here DE
 ‘Look, the watch is here.’ (Soh 2018: 11)

While the felicity conditions proposed for both *des* in Soh (2018) clearly anticipate our proposal, they differ in non-trivial ways. First, predicting the use of bare SFP *de* in terms of private evidence encounters several issues. For one thing, bare SFP *de* is not restricted to situations in which the speaker *alone* has exclusive, ready access. An illustration at hand is (23).

- (23) Context: I asked a volunteer helper on the track about when my train would arrive. The volunteer pointed to me a piece of information about the specific train on his timetable and said:
 Ni gai qu 16 zhantai deng che de!
 you should go 16 platform wait train DE
 ‘You should actually wait at platform 16!’

The immediate context involves the speaker explicitly directing the addressee’s attention to a sensory source, such that the evidence for the modified proposition becomes readily available to the addressee, hence no longer private. The fact that bare SFP *de* fits well in this context runs counter to what Soh (2018) predicts.

Conversely, the reverse does not always hold, as scenarios that establish private evidence for the speaker do not necessarily license a felicitous use of bare *de*. Example (24) illustrates a case where *de* is unacceptable, even when Speaker B has evidence that the addressee neither knows nor can readily infer.

- (24) A: A seeks advice from B, a stockbroker.
 Gupiao wo gai mai nei-ge, Pingguo haishi Yingweida?
 shares I should buy which-CLF Apple or Nvidia
 ‘Which shares should I buy, Apple or Nvidia?’
 B: Mai Yingweida (??de).
 buy Nvidia DE
 ‘Buy the Nvidia shares.’

In (24), A seeks certain private knowledge of B’s. Under Soh’s (2018) account, bare *de* should be compatible with this context in B’s response, contrary to fact. In other words, private evidence is neither sufficient nor necessary for licensing *de*, posing a challenge to Soh’s characterisation. Our analysis (to be spelled out in Section 4), however, makes the right prediction on both accounts. In (23), a clear conflict with the addressee’s prior expectation arises. By contrast, the response

in (24) is not perceived as counter-expectational, as the choice of a neutral *haishi* ‘or’-question indicates that A holds no pre-existing preference for either of the alternatives.

We next consider Soh’s contrastive meaning proposed for the *shi...de* focus construction. While we believe this offers a partial account for the use of *shi...de* focus,¹⁰ we do not find it desirable to extend this meaning wholesale to subsume the contrary-to-expectation use of bare SFP *de*. As discussed in Section 2, we suggest that the function of the *shi...de* focus construction relies on contrasting with an antecedent (an entity or a property) in the immediate discourse context. The referent of the cleft focus corrects an antecedent that is one of its focal alternatives (Destruel & Velleman 2014). Notably, the example (22) from Soh falls into this category. In fact, the intuition of our consultants suggests that if the context in (22) is modified so that A does not explicitly indicate doubt about the whereabouts of the watch but instead leaves it to B to infer, the insertion of the copula would become less acceptable. This indicates that *shi...de* focus’ acceptability is tied to the extent to which the property in question is an active point of inquiry in the discourse (Velleman et al. 2012). We therefore believe that *shi...de* operates on a semantic notion of contrast, distinguishing it from the discourse-based contrast against expectations that we attribute to bare SFP *de*.

In short, while sharing the use of the ‘contrary-to-expectation’ colouring/meaning component with Soh (2018), our current proposal differs in tying the contrary-to-expectation meaning specifically to SFP *de*, instead of the *shi...de* construction. Moreover, we do not assume the use of confirming a supposition is the same as ‘contrary-to-expectation,’ see Büring 2003 for a discussion of supposition. Still, we acknowledge the affinity between Soh’s account and ours, and it remains possible that Soh’s accessibility condition can be further refined to accommodate the above data. However, it falls beyond the scope of this article to address this issue.

3.2 *De* as a confirmative marker

Lin (2016) proposes that *de* assumes the function of confirming the truthfulness of the proposition uttered in the *de* sentence. Accordingly, given a prejacent *p*, *de* gives rise to the paraphrase ‘it is the case that *p*’ (see also Lü 1982; Huang & Liao 2013; Wan 2016 and Li 2006). A problem facing this line of analysis is that if bare SFP *de* encodes a confirmative meaning, it should in principle be quite compatible with a context (knowledge state of the addressee) that supports the statement uttered by the speaker. However, as we have already discussed in Section 2, this is not the case. As (25) shows, with A’s knowledge state supporting B’s statement, it is not felicitous to use *de*.

¹⁰ We frame it this way because we believe the *shi...de* focus serves broader functions beyond responding to a contrary belief ascribed to the addressee. It contrasts with the prior context more generally, for instance, it rules out other focal alternatives by exhausting the reference of the focused property (Cheng 2008; Hole 2011; Onea 2019).

- (25) A: Zhezhou tianqi yinggai haocha ba?
 This.week weather ought.to really.bad Q
 ‘The weather this week oughtta be really bad, right?’
 B: Wo kan le xia wo shouji shang zheliangtian de tianqiyubao,
 I look.at ASP one.time my phone on these.day poss weather.forecast
 tianqi henchu (??de)!
 weather pretty.bad DE
 ‘I have looked at the weather forecast for these few days on my phone, and it’s very bad!’

While this result follows naturally from the contrary to expectation meaning of bare SFP *de*, it presents itself as a puzzle under a confirmative semantics. It is further more unclear how characterising *de* as confirming the truthfulness of the modified proposition can be made compatible with question contexts, given that a question is inherently unspecified for a truth value. An example where *de* appears with a *wh*-question is given in (26).

- (26) Context: B: ‘I just need to make one transfer then I will be there! It will only take 5 minutes.’ 30 minutes later B finally arrived, to which A responds:
 Ni huancheng ji-hao xian de (ya)?
 you transfer WHICH-number line DE (EXCLAM)
 ‘Which line did you transfer to?’ (Wh-question)

Lin (2016) addresses further support for a confirmative semantics of *de* by observing that *de* is subject to a constraint against expressing future events. He argues that *de*’s preadjacent necessarily anchors a non-future tense, which requires that an event/state has occurred or is ongoing at the time of utterance. Note that Lin’s analysis differs from previous attempts to characterise *de* as a past tense marker (Simpson & Wu 1999; 2002). For instance, Lin shows that the examples in (27) clearly encode non-past readings.

- (27) a. Ta zhidao lu de.
 he know way DE
 ‘He knows the way.’
 b. Zhe gongzuo hen shihe ni de.
 this job very suitable you DE
 ‘This job is very suitable for you.’

Lin argues that the *de*-sentences give rise to either the present or the past tense reading, depending on whether the propositions encode states or events, respectively. Lin notes that the examples in (27) with their present tense interpretations involve situations that are states. By contrast, sentences with non-stative, telic verbs overwhelmingly have past tense interpretation because the default tense of events is the past tense. Compare (27) with (28):

- (28) a. Ta zaoshang lai xuexiao de.
 he morning come school DE
 ‘He came to school in the morning.’
 b. Wo gen Lisi jie de.
 I from Lisi borrow DE
 ‘I borrowed it from Lisi.’

As mentioned before, Lin claims that *de* cannot combine with a proposition relating to the future tense (contrast 29a with 29b), unless an overt modality/futurity operator is present, as in (29c).

- (29) Examples provided by Lin (2016)
 a. Wo mingtian tongzhi ni.
 I tomorrow inform you
 ‘I will inform you tomorrow.’
 b. *Wo mingtian tongzhi ni de.
 I tomorrow inform you DE
 c. Wo mingtian hui tongzhi ni de.
 I tomorrow will inform you DE

According to Lin, *de*’s future reading constraint is expected under the confirmative analysis. This is because the truth value of a non-future proposition is not influenced by time. Propositions denoting future events, on the contrary, have their truth values altered by the unknown possibilities of the future. This, under the assumption that *de* expresses a confirmative meaning, would be ruled out: As speakers can only commit to the truth of events and states happening in the past or present, it follows that *de* is confined to non-future-denoting propositions.

Lin provides a further explanation for the fact that the modal *hui* improves a future-denoting sentence. He suggests that modals are anchored in the present world, and they achieve a future reference by means of the accessibility relation between the present world and future worlds. This way, sentences with *hui* can still be evaluated with respect to the present world. Note that, *hui* is special among future-denoting modals in Mandarin, in the sense that the use of *hui* (despite referring to a future action) expresses a speaker’s belief that the event will definitely take place, and can be interpreted similarly to an event that has *already* taken place. Thus, *hui* anchors what is considered to be the only possible future world, according to the expressed stance of the speaker. This way, it can further be combined with the confirmative use of *de*.

Our own investigation into the non-futurity constraint reveals a more complex picture than was previously formulated. For one, we find that the generalisation that *de* is incompatible with a future reading in non-modal contexts may be too strong: As the following actually attested utterance in (30) reveals, when enforced by a temporal adverbial, a future reading is possible in the absence of modals.

- (30) Ni jide dai san o. Mingtian houtian dou xia dayu de.
 you remember bring umbrella PRT tomorrow day.after.tomorrow all fall shower DE
 ‘Remember to bring your umbrella. There will be heavy rainfall tomorrow and the day
 after.’

Second, among modals, the amelioration effect is not homogeneous. Rather, there is a cline of acceptability depending on the choice of particular modals: Modals encoding (inter)subjectivity that indicate the speaker’s commitment towards the performance of a future action, like *hui* and *yao* receive the best judgment, while the objective futurity modal *jiang* receives degraded judgments, as in (31).

- (31) a. Wo mingtian hui/yao tongzhi ni de.
 I tomorrow HUI/YAO inform you DE
 ‘I will inform you tomorrow.’
 b. *Wo mingtian jiang tongzhi ni de.
 I tomorrow JIANG inform you DE
 ‘I will inform you tomorrow.’

We will discuss our own take on the non-futurity constraint after presenting our contrary-to-expectation analysis in Section 4.2.

3.3 Similar particles in other languages

We note in this subsection that discourse particles in other languages have been shown to play a similar role as Mandarin *de* in modulating speaker-hearer belief states, raising the prospect of a broader typological generalisation. McCready (2008) analyzes the English expressive use of *man*, in sentence-final position, in terms of a pragmatic effect where the speaker expects her interlocutor to resist accepting the truth of the modified proposition (cf. analyses of German discourse particles *ja*, *doch* and *wohl*; Zimmermann 2011; Egg & Zimmermann 2012; Grosz 2014; Eckardt 2018; Gutzmann 2019; Grosz 2020). Compare the following three sentences in (32), where the particles assume doubts on part of the addressee.

- (32) a. John came to the party.
 b. John came to the party, man.
 c. John war doch auf der Party.
 John was PRT LOC the Party
 ‘John was yet at the party’

A further connection can be drawn with the sentence-final particle *yo* in Japanese. When associated with a falling intonation, it appears to indicate a counter-expectational meaning.

According to Davis, *yo* signals that the speaker believes that the addressee was biased against the truth of the asserted proposition (Davis 2011), as in (33, from Davis 2011: 122).

- (33) Context: K is a famous singer who one presumes is comfortable being on TV. T interviewed K, and asked: “I think there are people wondering why you don’t appear on TV, so I was wondering if I could ask you about that.”

K: Atashi, terebi tte agacchau ndesu yo.
 I TV TOP get.nervous PRT YO
 ‘I get nervous appearing on TV *yo*.’

Given that K knows that T (and probably everyone else for that matter) expected her to be perfectly at ease in front of TV, the answer that she provides contradicts T’s expectation. We believe it would be valuable future work to examine in detail the extent to which a unified meaning underlies both Chinese *de* and Japanese *yo*, as well as to compare the merits of Davis’ analysis with our own, which will be further developed in the next section.

3.4 Interim summary

This section summarised the accounts by Soh (2018) and Lin (2016), including their merits and challenges. Soh (2018) provides a semantic characterisation of the *de* particle as marking ‘private evidence’. Lin (2016) assumes that *de* functions as a confirmative marker of the truthfulness of the proposition it combines with. Both accounts are able to achieve a broad coverage of data with theoretical simplicity (and Lin’s has also offered original and important empirical insights regarding the futurity constraint). Nevertheless, we have shown that the current expectation-based account provides empirical advantages in accommodating the complex range of data.

4 Our analysis

The previous sections have made the case for bare SFP *de* making its own semantic contribution. In what follows, we propose an analysis that formally characterises the meaning of bare SFP *de*. We will present additional evidence in support of this analysis in Section 5.

We propose that *de* encodes a contrary-to-expectation meaning as its semantic core, the idea being that at least one of the default inferences that normally come along with the assertion of *de*’s prejacent is contradicted by the conversational common ground.

Drawing upon Eckardt (2009)’s treatment of adverbial *eigentlich* in German, this contrast can be represented in terms of two sets of worlds defined in terms of *de*’s prejacent, namely $NOM(p)$ and $PH\ddot{A}N(p)$, given in (34).

- (34) i. $\text{NOM}(p)$ = those worlds where p (the prejacent of *de*) holds true.
 ii. $\text{PHÄN}(p)$ = conjunction of propositions $\{Q_1, Q_2, \dots, Q_n\}$ that are normally indicative of the worlds in $\text{NOM}(p)$ (i.e. those worlds that are normally accessible from the p -worlds $\text{NOM}(p)$).

Here, the accessibility relation is understood in terms of likelihood, such that an indicative proposition Q_i relative to $\text{NOM}(p)$ is one which, under normal circumstances, is likely to be true given the proposition p . The *de*-operator, when taking as input a prejacent p , encodes the following at the non-at-issue level:¹¹ $\text{NOM}(p)$ holds true, and the conjunction of propositions $\text{PHÄN}(p)$ that are indicative circumstances given by p is not true.¹²

To see how the interaction of both meaning components derives the counter-to-expectation reading, consider the following corpus-attested discourse in (35), partially repeated from (7).

- (35) Context: Yisheng opens the door. He sees Xiaoyan and lets her in. Qingchen, who shares the room with Yisheng, greets her and walks away to give them some privacy, since he is not acquainted with her.

Yisheng: Xiaoyan zuo ba. Ni zenme le?

Xiaoyan sit SFP you how ASP

‘Take a seat, Xiaoyan. What’s going on?’

Xiaoyan: Wo zhao ni shiyou de.

I look.for you roommate DE

‘I’m looking for your roommate (Qingchen, not you).’

- (36) Assume $p = \text{‘I’m looking for your roommate,}$

$$^1de(p)^o = \lambda p. \lambda w : (\text{NOM}(\text{LOOK.FOR}(\text{I, YOURROOMMATE}, w))$$

$$\wedge \neg \text{PHÄN}(\text{LOOK.FOR}(\text{I, YOURROOMMATE}, w))).$$

$$p(w) = 1$$

¹¹ At the at-issue level, *de* denotes identity function that outputs the proposition fed into it.

¹² Eckardt (2009) observes that the German particle *eigentlich*, when receiving stress, encodes a contrastive *actually*-reading as illustrated by the following example (English translation provided by Eckardt):

- (i) Eigentlich heiße ich Thomas. Aber jeder nennt mich Ede.
 actually am.called I Thomas but everyone call me Ede

‘My name is Thomas really. But everybody calls me Ede.’

Eckardt proposes a similar formal analysis of *eigentlich* that anticipates the current proposal. However, Eckardt crucially relies on a focus accent falling on *eigentlich*, which triggers the meaning of incongruent indicative inferences of the prejacent as the focus alternative to the prejacent’s literal meaning. We have diverged from Eckardt’s analysis for the reason that Mandarin *de* is not stressed (Indeed *de* is necessarily de-stressed). Furthermore, our multi-dimensional (non-at-issue) approach meshes well with the growing consensus that speaker-oriented items tend to target a separate dimension of meaning from what is asserted (see Simons et al. 2010 for detailed discussions).

Paraphrase: The current world w is one of the worlds in which that
that I'm looking for your roommate holds true, w does not
have the typical features of all the phenomenological worlds.

Given (35), *de*'s prejacent p expresses that the speaker Xiaoyan wants to meet with the addressee's roommate Qingchen (another participant in the immediate context). $\text{NOM}(p)$ holds true for those worlds in which Xiaoyan comes for Qingchen. One plausible inference Q_i that is accessible from the worlds where $\text{NOM}(p)$ holds true could be, for example, that Xiaoyan is well acquainted with Qingchen, as she pays a visit to him. This Q_i , however, is not compatible with the information already known in the common ground (Xiaoyan is not well acquainted with Qingchen). Consequently, the conjunction of $\{Q_1, \dots, Q_i, \dots, Q_n\}$ (i.e. $\text{PHÄN}(p)$) as a whole contradicts the common ground, predicting the felicity of bare *SFP de*.

In the same vein, in example (37), plausible indicative circumstances that normally come along with *de*'s prejacent p (that the speaker speaks Japanese at home) might be that the speaker attends a Japanese school or has a Japanese name.

- (37) Context: Classmates in a Beijing school are amazed by the fact that one of them, big Bai (a common Chinese surname), can read the Japanese captions on a snack food package. Sensing the amazement, big Bai explains:

Wo zai jia jiang riyu de.

I LOC home speak Japanese DE

'(Actually/Despite available evidence,) I speak Japanese at home.'

[Chinese Treebank 8.0, Zhou & Xue 2015]

However, these indicative inferences have already been falsified by the context: It is known that the speaker has a Chinese surname and attends school in Beijing. Thus, *SFP de* indicates the exclusion of the intersection of indicative worlds from the common ground.

4.1 Explaining the non-futurity constraint

Compared with the confirmative account (cf. Section 3.2), the contrary-to-expectation analysis does not assume that *de* is confined to future contexts. A future-denoting sentence is predicted to be fine, as long as the speaker informs the addressee of a future event that contradicts what the addressee is assuming regarding the future at the moment of utterance. Certain future contexts are unnatural, nevertheless, especially when the speaker is providing discourse-new information about a certain situation based on their own source. The use of *de* signals that not only does the new information stem from the speaker evidence, but also that the addressee already holds a belief about said situation prior to the speaker's utterance, and such belief is not compatible

with what the speaker is going to convey. While contexts instantiating such convoluted speaker-addressee negotiation are hard to come by when the conveyed information is based on the speaker source, much more natural contexts can be formulated if the speaker's utterance is based on a third person source known to be accessible, in principle, to both interlocutors. This explains the felicity of (30). In this case, the speaker knows that the listener could acquire information from the same source as her (e.g. weather forecast). Hence when the speaker receives new information from that external source, she may know what the addressee's belief state is if the latter has not received the updated information (e.g. the addressee who has not kept track of the weather forecast for the coming days would reasonably assume the weather condition to be similar to today).

Furthermore, under the current analysis, the distinction among various modals can be accounted for in terms of the speaker's commitment levels. Subjective modals like *hui* and *yao* express the speaker's stance (Wu & Kuo 2010). The speaker uses *de* in committing herself when such commitment is previously in doubt/under negotiation. Modals like *jiang* are different: They signal that the likelihood of a future event is determined by social convention or other external circumstances irrespective of the speaker's own stance, and is hence not typically subject to negotiation (Wu & Kuo 2010; Huang 2015). Note that with proper contextualisation showing that external obligations (e.g. 'swear') are unknown to the addressee, the non-subjective *jiang* can also more easily combine with the *de*-particle on a par with the subjective *hui/yao*, as shown in (38).

- (38) a. Context: A sasses her friend B about never having submitted anything on time. B answers angrily, "How can you humiliate me like this!"
 Wo dou fashi le zheci wo jiang anshi tijiao lunwen de.
 I DOU swear PRF this.time I will on.time submit paper DE
 'I have sworn already that I will submit the paper on time!'
- b. Context: A is panicked that the group project may not be submitted on time. B reassures her:
 Wo dou anpai hao le. Women hui/yao anshi tijiao lunwen de.
 I DOU arrange good.PRF we will on.time submit paper DE
 '(Don't worry,) I have arranged everything. We will submit it on time.'

5 Additional evidence

This section supports the analysis proposed in the previous section. We show that bare *sfp de* cannot be targeted by negation, and other distributional constraints pertaining to sentence types. We argue that this behaviour is compatible with our proposed semantics. We also present

evidence from a structural perspective, wherein bare SFP *de* interacts with other SFPs in a way typical of lexical items within the speaker-oriented category.

5.1 *De* cannot be targeted by negation and interacts with sentence type

The current analysis locates bare SFP *de* at the non-at-issue level of sentence content, rather than as part of what is asserted. This treatment finds support in the failure of *de*'s encoded meaning to be targeted by negation, which serves as a yardstick diagnostic for non-at-issue-ness in the literature (Potts 2005). As (39) demonstrates, the negative reply cannot felicitously address the meaning component contributed by *de*. If *de* made up part of the at-issue (asserted) content, it should be able to take scope below sentential negation, contrary to fact.

- (39) A: Song xiaojie yong-le taosheng louti **de**.
 Song Ms. use-PRF emergency stair DE
 ‘Actually, Miss Song used the emergency exit.’
 B: Bu.
 NEG
 ‘No.’
- (i) ✓ ‘Miss Song did not use the emergency exit.’
 (ii) * ‘It is not unexpected that Miss Song used the emergency exit.’

We further show that our semantic analysis accounts for *de*'s distributional constraints in different sentence type environments, and henceforth applies to the level of utterance rather than the propositional level. First, we note that bare SFP *de* is, generally speaking, compatible with an interrogative environment, as in (40).

- (40) (Zenme zheme jiu?) Ni huancheng ji-hao xian de (ya)?
 (how.come so long) you transfer WHICH-number line DE (YA)
 ‘Why does it take so long? Which line did you transfer to?’ [Wh-question]

There are nevertheless some constraints regarding the occurrence of *de* in question contexts. As (41) shows, *de* is excluded from appearing in an A-not-A question, a non-biased yes-no question type in Mandarin.

- (41) Ni xiang-bu-xiang qu (#de)?
 you want-NEG-want go DE
 ‘Do you want to go or not?’ (A-not-A question)

Furthermore, *de* is excluded from appearing in questions under a rhetorical question reading, as illustrated in (42).

- (42) Shei xihuan shengbing (#de)?
 who like being.sick DE
 ‘Who likes to be sick?’
 ($\approx$ ‘No one would like to be sick.’) (Rhetorical question)

The above distribution follows from our semantics. Assuming a Hamblin-Karttunen interpretation of the question as denoting a set of propositions (set of sets of worlds) P_i , it follows that the indicative inferences can be computed by deriving from each $\text{NOM}(p_i)$ the corresponding $\text{PHÄN}(p_i)$ (i.e. the conjunction of propositions indicative of p_i , Eckardt 2009). Suppose that ‘which’ in (40) ranges over the alternatives $\{A, B\}$. From *de*’s semantics we derive that certain indicative inferences based on the proposition associated with bus line A are excluded from the common ground, and also certain indicative inferences based on the proposition associated with bus line B are excluded. This interpretation of conjoined indicative inferences is unproblematic in our analysis. It also accords with native intuition, according to which uttering a question with bare *SFP de* attached is used to convey the speaker’s attitude that none of the alternative possible answers available to them are plausible based on what they already knew beforehand.

Now, we believe there is an independent reason for the infelicity of *de* in A-not-A questions. Here the sentence radical that *de* would modify expresses (the disjunction of) two polar opposites, i.e. a proposition p and its negated counterpart $\neg p$. Thus the question, with *de* added, would have to be uttered in a context in which the speaker believes that both p and $\neg p$ describe some state of affairs that run counter to what is expected from the current common ground. Given (41), the speaker attaches *de* to express her belief that both the state of ‘want to go’ and the state of ‘not want to go’ are unexpected. However, this goes against the partition of logical spaces in yes-no question contexts. Whereas in the case of a *wh*-question it is conceivable that all individuals within some domain (corresponding to the *wh*-restrictor) give rise to states of affairs that beat normal expectations, the same cannot be said of a neutral yes-no question. Instead, it is logically necessary that if a certain state of affairs (p) is not compatible with normal expectations, then those states of affairs that are the polar opposite of the former ($\neg p$) are. (41) hence can be ruled out via the competition between two incompatible semantic requirements.

We argue that rhetorical questions differ from information-seeking questions by expressing a negative assertion (Han 2002; Cheung 2009). In our mechanism, this negative assertion interpretation arises via a pragmatic implicature. The rhetorical question construction in (42) introduces Hamblin-style alternative propositions defined on a contextually determined set of individuals. The context where a rhetorical question is uttered, however, is typically one where the intersection between its restrictor of *wh*-quantification and its nuclear scope contains no

members. As a result of the null set of individuals, the corresponding Hamblin set also contains no propositions. The question radical in (42) thus has an empty set as its denotation. The addressee computes this empty set from context, and accordingly infers that the context verifies the truthfulness of a negative statement.

However, the null answer set in rhetorical questions gives rise to an interpretation problem in the presence of *de*. *De*'s indicative inferences are computed from the question radical's Hamblin alternatives, which are in turn based on the alternative individuals denoted by the *wh*-phrase. With a null individual set, it follows that the indicative worlds within $\text{PHÄN}(q)$ (assuming q is the question radical) is empty. As a result, no incompatibility arises between the indicative inferences $\text{PHÄN}(q)$ and the pre-utterance common ground (we assume that an empty proposition is vacuously compatible with any proposition whatsoever), thereby violating *de*'s semantic requirement.

Here we distinguish rhetorical questions from explicit negative assertions: The latter are compatible with *de*, e.g. (43).

- (43) Meiyou ren xihuan shengbing de.
 no person like being.sick DE
 'No one would like to be sick.' (Negated declarative)

Importantly, a negative assertion differs from its corresponding rhetorical question in that the former gives rise to a non-empty propositional prejacent. In (43), the indicative worlds of *de*'s prejacent are not empty: They are those worlds accessible from the worlds wherein no one likes to be sick.

Aside from rhetorical questions, we further observe that *de* is ill-formed in imperatives, as witnessed by (44).

- (44) *Kai men de (ba)!
 open door DE (IMP)
 Intended: 'Open the door!' (Imperative)

We argue that another interpretation failure underlies the infelicity of (44). In imperative sentences, the sentence radical to which the force/speech act operator (e.g. command) attaches does not denote a proposition anchored to parameters of the utterance context such as temporal indices. Rather, it represents a tenseless propositional primitive that does not receive a truth value evaluation (Belnap 1990; Mastop 2011). The sentence radical in (44) is not a description of a particular situation of door opening. It merely denotes an abstract, proposition-level concept such that the speaker commands the addressee to act in a certain way, by which a situation instantiating the concept holds after the utterance. Only after the addressee brings about a change of state does the proposition expressed by the imperative sentence radical become true

(van der Wurff 2007: 32). Since no situation of door opening has taken place during the utterance, there are also no indicative circumstances that follow from the opening of the door, hence there can be no exclusion from the common ground. Once again, the semantic requirement of *de* is violated.

Note further that from a syntactic perspective, imperatives are structurally reduced, where the CP layer of the sentence is assumed to be truncated (evidenced by cross-linguistic tendency for subject-drop and minimal verb inflection, etc. cf. Sadock & Zwicky 1985; König & Siemund 2007). One therefore might alternatively motivate a purely structural explanation, according to which an imperative sentence does not host a high projections that a speaker-oriented category could sit in.

5.2 Structural evidence from *de*'s interaction with other SFPs

In fact, there is structural evidence supporting the claim that bare SFP *de* occupies a high position, based on its interaction with other sentence-final particles. We follow the assumption that Chinese SFPs are functional heads of their respective projections and that these projections in the Chinese C domain are head-final (see Erlewine 2017 for more discussion). It then follows that a C-domain particle positioned to the right of another is structurally higher. To probe the position of bare SFP *de*, we looked into its relative position with regards three independent SFPs of varying heights (Zhu 1982; Soh 2009; Hole 2017). First, the sentence-final use of *le* in Mandarin signals a state of change, associated with the low tense and aspectual layer (Soh 2009). Next, the sentence-final *eryi* 'just' is situated above *le*, heading a layer of scalar focus (ScalarFocusP, Hole 2017). An even higher position is assumed for the sentence-final *ba₂* which marks confirmative *yes-no* question, postulated to sit at the Mood_{speech act} layer (Paul 2014; Pan 2015). With this, we arrive at a partial linearisation between SFPs as functional heads within their corresponding projections, as illustrated in (45).

- (45) (TP/AspP) *le* < (ScalarFocusP) *eryi* < (Mood_{speech act}) *ba₂* (*a* < *b* if *a* linearly precedes *b*)

We can now incorporate bare SFP *de* into this hierarchy in a bottom-up style. Starting from its interaction with the aspectual marking *le*, (46) illustrates that *de* is positioned to the right of *le* during co-occurrence. The alternative ordering is not available.

- (46) a. Xiaomin yinggai gele shuangyanpi le de.
 Xiaomin should have.cut double.eyelid ASP DE
 'Xiaomin should have double-folded her eyelids already.'
 b. *Xiaomin yinggai gele shuangyanpi de le.
 Xiaomin should have.cut double.eyelid DE ASP

As with *le*, the SFP *eryi*, as the head of ScalarFocusP, must precede *de*, cf. (47a). Switching the order leads to ungrammaticality, cf. (47b).

- (47) a. Wo jiu limaoxingde wen ni yixia eryi de.
 I JIU politely ask you once ERYI DE
 'I am simply asking you about it for courtesy's sake.'
 b. *Wo jiu limaoxingde wen ni yixia de eryi.
 I JIU politely ask you once DE eryi

Contrary to *le* and *eryi*, the example in (48a) shows that the confirmative yes-no question marker *ba*₂ must follow *de*. Note incidentally that *le* is inserted to the left of *de*, echoing our claim from above.

- (48) a. Ta qishi yijing kuai chiwan le de ba₂?
 he actually already almost eat.ASP ASP DE BA
 'Hasn't he actually already almost finished it?'
 b. *Ta qishi yijing kuai chiwan le ba₂ de?
 he actually already almost eat.ASP ASP BA DE

Finally, as our previous examples illustrating the co-occurrence of both *de* particles have shown (repeated here as 49), the two *des* occupy opposite ends of sentence-final *eryi*. From this we conclude that cleft *de* is in a structurally lower position. Example (50) additionally shows that cleft *de* is structurally higher than *le*.

- (49) Yikaishi wo qishi jiu shi xiang rang ta lai da ge zar
 at.first I actually JIU COP want make her come do CLF errands
 de_{CLEFT} eryi de_{SFP}.
 DE ERYI DE
 'At first, I just wanted her to come and do some odd jobs.'
 (50) a. Wo qeshi jiu shi ba shiqing gaoza le de eryi.
 I truly JIU COP OBJ thing screw.up ASP DE ERYI
 'I truly simply just screwed things up. (Nothing more, so there is no need to throw tantrums here.)'
 b. *Wo qeshi jiu shi ba shiqing gaoza de le eryi.
 I truly JIU COP OBJ thing screw.up DE ASP ERYI

Combining all the above linearisation possibilities allows us to incorporate bare SFP *de* and cleft *de* into the hierarchy of SFPs, arriving at the generalisation in (51).

- (51) (TP/AspP) *le* < cleft *de* < (ScalarFocusP) *eryi* < bare SFP *de* < (Mood_{speech act}) *ba*

Additionally, cleft *de* and SFP *de* differ in embeddability, which follows if they are characterised differently in terms of structural position.

(52) Subject clause:

- a. Songxiaojie cong taosheng louti qu bangongshi **de**.
Miss.Song from emergency stair go.to office DE
'Miss Song used the emergency stairs to go to her office.'
- b. [Songxiaojie cong taosheng louti qu bangongshi (??**de**)] gei-le
Miss.Song from emergency stair go.to office DE provide-ASP
zhentan poan de xiansuo.
detective solve.case REL clue
'(The fact that) Miss Song used the emergency stairs to go to her office provided the detective clues to solve the case.'
- c. [Songxiaojie **shi** cong taosheng louti qu bangongshi **de**] gei-le
Miss.Song COP from emergency stair go.to office DE provide-ASP
zhentan poan de xiansuo.
detective solve.case REL clue
'That it is the emergency stairs that Miss Song used to go to her office provided the detective clues to solve the case.'

6 Conclusion

This study had sought to draw attention to a separate, under-studied use of sentence-final *de*. We proposed that this *de* expresses a contrary-to-expectation meaning. The prejacent proposition of *de* encodes a breach of certain plausible expectations on the part of the addressee. By uttering *de*, a non-at-issue meaning is conveyed according to which the available context prior to the utterance does not support the normal expectations associated with *de*'s prejacent. Further evidence for this analysis comes from the fact that *de* is incongruent with follow-up replies that indicate *de*'s proposition to be in line with the addressee's expectation. By contrast, the contrary-to-expectation meaning is not part of the meaning of the distinct *de* particle that participates in the focus-marking *shi...de* construction in Mandarin. Our meaning analysis of *de* converges with a structural position in the low C domain, which can be evidenced by the ordering constraints between *de* and other sentence-final particles. More tests in support of this analysis of *de* include its unembeddability, failure to be targeted by negation, and its interaction with sentence type. We showed that the present proposal not only enjoys empirical merits over previous accounts; it further exemplified a broader application of the possible worlds semantics method to the speaker meaning of discourse particles across various languages. What's more, the data and methods that were used to pinpoint the meaning and structure of *de* may benefit future studies of other particles (of Chinese and cross-linguistically).

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Appendix

Sources

Two major source corpora are used in this paper:

1. Chinese Treebank 8.0 (Zhou & Xue 2015): LDC2013T21
2. This corpus contains 3,007 text files, comprising 71,369 sentences. The texts span various genres, including magazine articles, broadcast news, and broadcast conversation programs.
3. Chinese Web 2017 (zhTenTen17) Simplified (Jakubíček et al. 2013): Sketch Engine
4. This corpus consists of 667,201,792 sentences, totaling approximately 13.5 billion words. The texts were extracted from 40,233,300 webpages in Mandarin.

Further attested corpus examples with two *des*

The following sentences are attested in the source corpora. Each has further been independently verified by 8 native speakers, who converged in finding these utterances to be natural.

- (53) Yinwei duifang dui ni mei you renhe ganjue, zuizhong ni zhi shi
 because opponent toward you NEG have any feeling at.final you only COP
 gandong le ziji de eryl de.
 move ASP self DE ERYI DE
 ‘Because the opposite side doesn’t have any feelings for you, you only simply moved
 yourself at the end.’ [Chinese Web 2017 (zhTenTen17) Simplified]
- (54) A: Nijia Xiaowu zheme lihail, tamen hui weixie dao ta ma?
 your.house Xiaowu this.much shrewd, they will threaten PRF her Q
 ‘Your Xiaowu is so shrewd, will they be able to threaten her?’
 B: Haoxiang ye shi o.
 seemly too COP PRT
 ‘You seem to be right.’
 A: Suoyi a, tamen zhi shi xiahu ni de eryl de, xiaci yiding yao xian
 so PRT they only COP bluff you DE ERYI DE, next.time surely will first
 baoquan ziji de xingming.
 preserve self REL life
 ‘So, they are simply just bluffing you. Make sure to preserve your own life first next
 time.’ [Chinese Web 2017 (zhTenTen17) Simplified]

- (55) Ta de zhe fan hua juehui bu shi suibian shuoshuo de eryi de.
 He REL this CLF talk absolutely NEG COP casual talk DE ERYI DE
 ‘What he said is absolutely not something said casually.’ [Chinese Treebank 8.0]

References

- Badan, Linda & Francesca del Gobbo. 2015. The *even*-construction and the low periphery in Mandarin Chinese. In Wei-Tien Tsai (ed.), *The cartography of Chinese syntax*, vol. 11. Oxford: Oxford University Press. <https://doi.org/10.1093/acprof:oso/9780190210687.003.0002>.
- Belnap, Nuel. 1990. Declaratives are not enough. *Philosophical Studies* 59(1). 1–30. <https://doi.org/10.1007/BF00368389>.
- Büring, Daniel. 2003. On D-trees, beans, and B-accent. *Linguistics and Philosophy* 26(5). 511–545. <https://doi.org/10.1023/A:1025887707652>.
- Chafe, Wallace. 1976. Givenness, contrastiveness, definiteness, subjects, topics and point of view. In Charles N. Li (ed.), *Subject and topic*, 27–55. New York: Academic Press.
- Chao, Yuen Ren. 1968. *A grammar of spoken Chinese*. Berkeley: University of California Press.
- Cheng, Lisa. 2008. Deconstructing the *shi...de* construction. *The Linguistic Review* 25(3–4). 235–266. <https://doi.org/10.1515/TLIR.2008.007>.
- Cheung, Yam-Leung. 2009. Negative *wh*-construction and its semantic properties. *Journal of East Asian Linguistics* 18(4). 297–321. <https://doi.org/10.1007/s10831-009-9051-2>.
- Cinque, Guglielmo. 1999. *Adverbs and functional heads: A cross-linguistic perspective*. Oxford: Oxford University Press. <https://doi.org/10.1093/oso/9780195115260.001.0001>.
- Davis, Christopher. 2011. *Constraining interpretation: Sentence final particles in Japanese*. University of Massachusetts Amherst dissertation. <https://doi.org/10.7275/2176105>.
- Destruel, Emilie & Leah Velleman. 2014. Refining contrast: Empirical evidence from the English *it*-cleft. *Empirical Issues in Syntax and Semantics* 10(1). 197–214.
- Eckardt, Regine. 2009. The real, the apparent, and what is *eigentlich*. *Oslo Studies in Language* 1(1). 77–108. <https://doi.org/10.5617/osla.7>.
- Eckardt, Regine. 2018. Evidentials in different kinds of questions the case of German *wohl*. *Semantics and Pragmatics*. 1–36.
- Egg, Markus & Johannes Mursell. 2016. The syntax and semantics of discourse particles. In Josef Bayer & Volker Struckmeier (eds.), *Discourse particles: Formal approaches to their syntax and semantics*, 15–48. Berlin: de Gruyter. <https://doi.org/10.1515/9783110497151-002>.
- Egg, Markus & Malte Zimmermann. 2012. Stressed out! Accented discourse particles: The case of ‘*doch*’. In *Proceedings of sinn und bedeutung*, vol. 16(1), 225–238.
- Erlewine, Michael. 2017. Low sentence-final particles in Mandarin Chinese and the Final-over-Final constraint. *Journal of East Asian Linguistics* 26(1). 37–75. <https://doi.org/10.1007/s10831-016-9150-9>.
- Goldsmith, John. 1976. *Autosegmental phonology*. Massachusetts Institute of Technology dissertation.
- Grosz, Patrick. 2014. German “*doch*” an element that triggers a contrast presupposition. In *Proceedings of the Chicago Linguistic Society* 46, 163–178. <https://doi.org/10.1002/9781118788516.sem047>.

- Grosz, Patrick. 2020. Discourse particles. In Daniel Gutzmann, Lisa Matthewson, Cecile Meier & Hotze Rullmann (eds.), *The companion to semantics*, 1–34. Oxford: Wiley.
<https://doi.org/10.1002/9781118788516.sem047>.
- Gutzmann, Daniel. 2019. *The grammar of expressivity*. Oxford: Oxford University Press.
<https://doi.org/10.1093/oso/9780198812128.001.0001>.
- Halliday, Michael. 1967. Notes on transitivity and theme in English II. *Journal of Linguistics* 3. 199–244.
<https://doi.org/10.1017/S0022226700016613>.
- Han, Chung-hye. 2002. Interpreting interrogatives as rhetorical questions. *Lingua* 112(3). 201–229.
[https://doi.org/10.1016/S0024-3841\(01\)00044-4](https://doi.org/10.1016/S0024-3841(01)00044-4).
- Hole, Daniel. 2004. *Focus and background marking in Mandarin Chinese: System and theory behind cai, jiu, dou and ye*. London: Routledge. <https://doi.org/10.4324/9780203565193>.
- Hole, Daniel. 2011. The deconstruction of Chinese *shi...de* clefts revisited. *Lingua* 121(11). 1707–1733.
<https://doi.org/10.1016/j.lingua.2011.07.004>.
- Hole, Daniel. 2017. A crosslinguistic syntax of scalar and non-scalar focus particle sentences: The view from Vietnamese and Chinese. *Journal of East Asian Linguistics* 26(4). 389–409.
<https://doi.org/10.1007/s10831-017-9160-2>.
- Huang, Borong & Xudong Liao. 2013. *Xiandai hanyu (Modern Mandarin)*. Beijing: Higher Education Press.
- Huang, Nick. 2015. On syntactic tense in Mandarin Chinese. In Hongyin Tao, Yu-Hui Lee, Danjie Su, Keiko Tsurumi, Wei Wang & Ying Yang (eds.), *Proceedings of the 27th North American Conference on Chinese Linguistics (NACCL-27)*, vol. 2, 406–423. CA: University of California Los Angeles.
- Jakubíček, Miloš, Adam Kilgarriff, Vojtěch Kovář, Pavel Rychlý & Vít Suchomel. 2013. The TenTen corpus family. In *7th International Corpus Linguistics Conference*, 125–127. Valladolid.
- Jin, Dawei & Jun Chen. 2022. Towards the biclausal status of cleft–Evidence from diachrony. *Acta Linguistica Academica* 54(1). 89–132. <https://doi.org/10.1556/2062.2022.00423>.
- König, Ekkehard & Peter Siemund. 2007. Speech act distinctions in grammar. In Timothy Shopen (ed.), *Language typology and syntactic description*, vol. 1, 276–324. Cambridge: Cambridge University Press Cambridge. <https://doi.org/10.1017/CBO9780511619427.005>.
- Li, Boya. 2006. *Chinese final particles and the syntax of the periphery*. University of Leiden dissertation.
- Li, Charles & Sandra Thompson. 1981. *Mandarin Chinese: A functional reference grammar*. Berkeley: University of California Press. <https://doi.org/10.1525/9780520352858>.
- Lin, Jo-Wang. 2016. The structure, modal and inference of *de*. *Studies of the Chinese Language* 23(2). 131–151.
- Lü, Bisong. 1982. Several questions about the constructions of *shi...de*. *Language Teaching and Linguistic Studies* 4(4). 21–37.
- Mastop, Rosja. 2011. Imperatives as semantic primitives. *Linguistics and Philosophy* 34(4). 305–340.
<https://doi.org/10.1007/s10988-011-9101-x>.
- McCarthy, John. 1986. OCP effects: Gemination and antigemination. *Linguistic Inquiry* 17(2). 207–263.
<https://doi.org/10.2307/4178486>.
- McCready, Elin. 2008. What man does. *Linguistics and Philosophy* 31. 671–724.
<https://doi.org/10.1007/s10988-009-9052-7>.

- Onea, Edgar. 2019. Exhaustivity in *it*-clefts. In Cummins Chris & Katsos Napoleon (eds.), *The Oxford handbook of experimental semantics and pragmatics*, 401–417. Oxford: Oxford University Press. <https://doi.org/10.1093/oxfordhb/9780198791768.013.17>.
- Pan, Victor Junnan. 2015. Mandarin peripheral construals at the syntax-discourse interface. *The Linguistic Review* 32(4). 819–868. <https://doi.org/10.1515/tlr-2015-0005>.
- Paul, Waltraud. 2014. Why particles are not particular: Sentence-final particles in Chinese as heads of a split CP. *Studia Linguistica* 68(1). 77–115. <https://doi.org/10.1111/stul.12020>.
- Paul, Waltraud & John Whitman. 2008. *Shi...de* focus clefts in Mandarin Chinese. *The Linguistic Review* 25(3–4). 413–451. <https://doi.org/10.1515/TLIR.2008.012>.
- Potts, Christopher. 2005. *The logic of conventional implicatures*. Oxford: Oxford University Press. <https://doi.org/10.1093/acprof:oso/9780199273829.001.0001>.
- Rooth, Mats. 1992. A theory of focus interpretation. *Natural Language Semantics* 1(1). 75–116. <https://doi.org/10.1007/BF02342617>.
- Sadock, Jerrold & Arnold Zwicky. 1985. Speech act distinctions in syntax. In Timothy Shopen (ed.), *Language typology and syntactic description*, vol. 1, 155–196. Cambridge: Cambridge University Press.
- Shyu, Shu-ing. 1995. *The syntax of topic and focus in Mandarin Chinese*. University of Southern California dissertation.
- Simons, Mandy, Judith Tonhauser, David Beaver & Craige Roberts. 2010. What projects and why. In Nan Li & David Lutz (eds.), *Proceedings of Semantics and Linguistic Theory (SALT)*, vol. 20, 309–327. <https://doi.org/10.3765/salt.v20i0.2584>.
- Simpson, Andrew. 2014. Sentence-final particles. In Huang James, Li Audrey & Simpson Andrew (eds.), *The handbook of Chinese linguistics*, 156–179. Wiley Online Library. <https://doi.org/10.1002/9781118584552.ch7>.
- Simpson, Andrew & Xiu-Zhi Zoe Wu. 1999. The syntax and interpretation of sentence-final *de*. In Chaofen Sun (ed.), *Proceedings of the 10th North American Conference on Chinese Linguistics (NACCL-10)*, vol. 1, 257–274.
- Simpson, Andrew & Zoe Wu. 2002. From D to T–Determiner incorporation and the creation of tense. *Journal of East Asian Linguistics* 11(2). 169–209. <https://doi.org/10.1023/A:1014934915836>.
- Soh, Hooi Ling. 2009. Speaker presupposition and Mandarin Chinese sentence-final-*le*: A unified analysis of the “change of state” and the “contrary to expectation” reading. *Natural Language & Linguistic Theory* 27(3). 623–657. <https://doi.org/10.1007/s11049-009-9074-4>.
- Soh, Hooi Ling. 2018. Mandarin Chinese sentence final *de* as a marker of private evidence. In Patrick Farrell (ed.), *Proceedings of the Linguistic Society of America*, vol. 3, 1–14. <https://doi.org/10.3765/plsa.v3i1.4307>.
- Tang, Sze-Wing. 2000. Identity avoidance and constraint interaction: The case of cantonese. *Linguistics* 10(1). <https://doi.org/10.1515/ling.38.1.33>.
- Velleman, Leah, David Beaver, Emilie Destruel, Dylan Bumford, Edgar Onea & Liz Coppock. 2012. *It*-clefts are IT (inquiry terminating) constructions. In Anca Chereche (ed.), *Proceedings of Semantics and Linguistic Theory (SALT)*, vol. 22, 441–460. <https://doi.org/10.3765/salt.v22i0.2640>.
- Wan, Quan. 2016. *De: Its property and function*. Beijing: The Commercial Press.

- Wu, Jiun-Shiung & Yi-Chun Kuo. 2010. Future and modality: A preliminary study of *jiang*, *hui*, *yao* and *yao...le* in Mandarin Chinese. In Eby Clemens & Chi-Ming Liu (eds.), *Proceedings of the 22st North American Conference on Chinese Linguistics (NACCL-22)*, vol. 2, 54–71. Cambridge, MA: Harvard University.
- van der Wurff, Wim. 2007. Imperative clauses in generative grammar: An introduction. In Wim van der Wurff (ed.), *Imperative clauses in generative grammar: Studies in honour of Frits Beukema*, 1–94. John Benjamins. <https://doi.org/10.1075/la.103.02wur>.
- Yip, Moira. 1998. *Identity avoidance in phonology and morphology*. Stanford.
- Zhou, Yuping & Nianwen Xue. 2015. The Chinese Discourse TreeBank: A Chinese corpus annotated with discourse relations. *Language Resources and Evaluation* 49. 397–431. <https://doi.org/10.1007/s10579-014-9290-3>.
- Zhu, De-Xi. 1982. *Yufa jiangyi [Notes on grammar]*. Beijing: The Commercial Press.
- Zimmermann, Malte. 2011. Discourse particles. In Claudia Maienborn, Klaus von Heusinger & Paul Portner (eds.), *Semantics: An international handbook of natural language meaning*, 2011–2038. Berlin: Mouton de Gruyter.
- Zimmermann, Malte & Edgar Onea. 2011. Focus marking and focus interpretation. *Lingua* 121(11). 1651–1670. <https://doi.org/10.1016/j.lingua.2011.06.002>.