

Explaining the Exceptive-Additive Ambiguity in Mandarin*

Mingming Liu

Tsinghua University, Beijing, China
markliu@scarletmail.rutgers.edu

Abstract

As in many languages, the exceptive marker *chule* in Mandarin is ambiguous between ‘except’ and ‘in addition to’. The paper shows that the exceptive inference is an implicature while the additive one a presupposition. A unified analysis is sketched: *chule* encodes just subtraction; it removes something from a Roberts-style QUD [30]. Exceptive *chule* corresponds to removing an *individual* from the domain of the *wh* of the QUD, while additive *chule* removes a *proposition*. In the first case, reasoning about alternatives leads to the implicature [10, 16]. In the latter case, subtraction from a QUD is employed since the subtracted proposition is already known to be true, and not under discussion.

1 Introduction

In many languages one and the same item can be ambiguous between ‘except’ and ‘in addition to’, as has been reported in [25] for German *außer*, and recently in [38] for similar facts in Russian, Turkish, Hindi, Persian, Bulgarian, etc. Mandarin *chule* also exhibits this exceptive-additive ambiguity: when the matrix clause contains a universal quantifier as in (1)¹, ‘*chule Lisi*’ adds an exceptive inference that Lisi didn’t pass, while it conveys additivity — Lisi passed — if the matrix clause contains an additive particle such as *ye* ‘also’ as in (2). Importantly, the additive particle is obligatory; without *ye*, (2) is infelicitous.

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| (1) | <i>Chule Lisi, suoyou.ren dou guo.le</i>
CHULE Lisi all.person all pass.ASP
‘Except for Lisi, everyone passed (the exam).’ | Exceptive inference
↪ Lisi didn’t pass. |
| (2) | <i>Chule Lisi, Zhangsan #(ye) guo.le</i>
CHULE Lisi Zhangsan also pass.ASP
‘In addition to Lisi, Zhangsan also passed.’ | Additive inference
↪ Lisi passed. |

This paper argues that the exceptive inference is an implicature while the additive one a presupposition. A unified proposal is sketched: *chule* (and arguably its cross-linguistic kin) encodes only subtraction [10, 16, 8]; it removes something from a Roberts-style Question under Discussion (QUD) [30]. Exceptive *chule* corresponds to removing an *individual* from the domain of the *wh* of the QUD, while additive *chule* removes a *proposition*. In the first case, reasoning about alternatives (quantificational statements with other domains) leads to the relevant implicature [10, 16, 8]. In the latter case, subtraction from a QUD is employed since the subtracted proposition is already known to be true, and not under discussion. Finally, the subtrahend QUD is indicated by focus in the matrix and the obligatory presence of additive particles in (2) is an *obligatory additive effect* [21, 32, 1, 3, 2].

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¹In Mandarin, universally quantified NPs such as *suoyou.ren* ‘everyone’ in preverbal positions have to occur with the adverb *dou* ‘all/even’. See [22] for an explanation and [23] for a different perspective.

Intuitively, the proposal reflects two ways semantic subtraction could be useful in natural language: either to save the speaker from uttering a false quantificational statement, or to indicate the presuppositional status of a proposition within a larger QUD.

2 Exceptive Inference as Implicature

The mere fact that *chule* can express either exception or addition suggests that the exceptive inference might not be an inherent part of *chule*. In addition, while it has been debated whether the exceptive inference of English (connected) exceptives can be suspended/canceled (see for example distinct judgements for similar sentences in (3)), the exceptive inference of Mandarin *chule* can be easily suspended in ignorance contexts as in (4). There is even a grammaticalized way illustrated in (5) to do so, where *I don't know* immediately follows the *chule*-phrase. The strategy is fully general and systematically suspends *chule*'s exceptive inference.

- (3) a. Well, except for Dr. Samuels everybody has an alibi, inspector. Let's go see Dr. Samuels to find out if he's got one too. [17]
 b. Well, we can't find Karl, but we've verified that everyone except Karl has an alibi, so let's find out whether he does too. [29]
 c. #I don't know about Smith, but no corporate attorney but Smith wears cheap suits. [12]

- (4) *Wo bu zhidao Lisi guo.mei.guo;*
 I NOT know Lisi pass.NOT.pass;
dan chule Lisi, suoyou.ren dou guo.le
 but CHULE Lisi, all.people all pass.ASP
 'I don't know if Lisi has passed (the exam). But other than Lisi, everyone has passed.'

- (5) *Chule Lisi wo bu zhidao, suoyou.ren dou guo.le* ↗Lisi didn't pass.
 CHULE Lisi I NEG know, all.people all pass.ASP
 'I do not know if Lisi has passed, but everyone else has passed.'

The above suspension facts suggest the exceptive inference of *chule* is an implicature. However, different from ordinary conversational implicatures, it cannot be directly canceled, as (6) illustrates.

- (6) *Chule Lisi, suoyou.ren dou guo.le;*
 CHULE Lisi, all.people all pass.ASP
shijishang, Lisi ye guo.le.
 actually, Lisi also pass.ASP
 'Except for Lisi, everyone passed; #actually, Lisi also passed.'

We suggest *chule*'s exceptive inference is an obligatory implicature [7, 24], similar to the plurality implicatures of plural NPs [34, 18]. The similarity is supported by the fact that the plurality inference (more than one), though not directly cancellable, can also be suspended in ignorance contexts, as illustrated in (7) [33].

- (7) a. [Context: You are inviting an old friend who you have not seen in years. you heard that he has a family now, but you have no idea how many children he has.]
 You are welcome to bring your children. [33]
 ↗ The speaker is certain that the addressee has more than one children.
 b. #I just fed some cats. In fact, I fed only one. [6]

Based on the above facts, I conclude that the exceptive inference of *chule* is an implicature.

3 Additive Inference as Presupposition

Different from the exceptive inference, *chule*'s additive inference cannot be suspended. (8) shows that suspending the relevant additive inference in an ignorance context leads to contradiction, and (9) illustrates adding *I don't know* after an additive *chule*-phrase produces infelicity. The contrasts (4)/(8) and (5)/(9) clearly show while the exceptive inference is an implicature, the additive inference is not.

- (8) *Wo bu zhidao Lisi guo.mei.guo;*
 I NOT know Lisi pass.NOT.pass;
 # *chule Lisi, Zhangsan ye guo.le*
 CHULE Lisi, Zhangsan also pass.ASP
 'I don't know if Lisi has passed (the exam). #In addition to Lisi, Zhangsan also passed.'

- (9) # *Chule Lisi wo bu zhidao, Zhangsan ye guo.le*
 CHULE Lisi I NEG know, Zhangsan also pass.ASP
 'I do not know whether Lisi has passed, #Zhangsan also passed.'

Furthermore, the additive inference projects. (10) shows that it projects over polar questions, possibility modals, negation and conditional antecedents: all of the sentences in (10) imply that Lisi passed.

- (10) a. *Shi.bu.shi [chule Lisi, Zhangsan ye guo.le]?*
 be.not.be CHULE Lisi Zhangsan also pass.ASP
 'Is it the case that in addition to Lisi, Zhangsan also passed?' \rightsquigarrow Lisi passed.
- b. *Keneng [chule Lisi, Zhangsan ye guo.le].*
 possibly CHULE Lisi Zhangsan also pass.ASP
 'It is possible that in addition to Lisi, Zhangsan also passed.' \rightsquigarrow Lisi passed.
- c. *Bingfei [chule Lisi, Zhangsan ye guo.le].*
 not CHULE Lisi Zhangsan also pass.ASP
 'It is not the case that in addition to Lisi, Zhangsan also passed.' \rightsquigarrow Lisi passed.
- d. *Ruguo [chule Lisi, Zhangsan ye guo.le],*
 if CHULE Lisi Zhangsan also pass.ASP \rightsquigarrow Lisi passed.
na women.ban jiu you liang.ge ren guo.le.
 then our.class then have two person pass.ASP
 'If in addition to Lisi, Zhangsan also passed, then two persons from our class passed.'

The above facts suggest that *chule*'s additive inference is presuppositional. The claim is strengthened by the fact that *chule*'s additive inference cannot be used to answer questions. This is illustrated by (11A₁): even though (11A₁) implies that Lisi passed, the information cannot be used to answer *did Lisi pass?*, revealing its not-at-issue status. Crucially, (11A₁) contrasts with (11A₂) (a conjunction with *also* in the second conjunct), which *can* be used to answer (11Q). This is expected, since in (11A₂) the presupposition triggered by *also* is filtered out by the first conjunct, and no longer a presupposition of the entire conjunction.

The contrast also suggests that the presuppositional status of the additive inference might not inherit directly from *ye* 'also', since that would indicate a parallel behavior between (11A₁) and (11A₂). The suggestion is confirmed by (11A₃) in which the additive-*chule* embeds a

clause². (11A₃) cannot be used to answer (11Q) either, indicating the inference that Lisi passed is again presuppositional. Since the presupposition is not available without *chule* in (11A₂), it must be triggered by *chule*.

(11) Q: Did Lisi pass?

A₁: # *Chule Lisi, Zhangsan ye guo.le*
 CHULE Lisi Zhangsan also pass.ASP
 ‘In addition to Lisi, Zhangsan also passed.’ \rightsquigarrow Lisi passed.

A₂: *Lisi guo.le, Zhangsan ye guo.le*
 Lisi pass.ASP, Zhangsan also pass.ASP
 ‘Lisi passed; Zhangsan also passed.’ \rightsquigarrow Lisi passed.

A₃: # *Chule Lisi guo.le, Zhangsan ye guo.le*
 CHULE Lisi pass.ASP, Zhangsan also pass.ASP
 ‘In addition to Lisi, Zhangsan also passed.’ \rightsquigarrow Lisi passed.

To summarize the empirical picture presented so far, the above facts show that while its exceptive inference is an implicature, *chule*’s additive inference is presuppositional. The rest of the paper offers an analysis where *chule* uniformly denotes subtraction from a QUD, and its two uses correspond to two ways (under different circumstances) subtraction from a QUD is employed by a speaker.

4 Exceptive-*chule* Subtracts Individuals

Adopting the QUD framework [30, 4], I assume that *chule*-sentences have *wh*-questions as their QUDs and exceptive-*chule* subtracts individuals from the domain of the *wh*-item. Recall that exceptive-*chule* co-occurs with a quantificational element (usually a universal³) in the matrix clause (1). The quantificational element inherits the domain argument, and has a subtracted set as its domain of quantification⁴. Next, *chule* requires the matrix quantifier to trigger alternatives, which then need exhaustification [7]. Finally, the extra exceptive inference is not inherent to *chule* but the result of exhaustification by an external operator EXH (12) (with the meaning of *only* as is standardly assumed in the literature) over the alternatives the matrix quantificational-sentence triggers [10, 16, 8]. The use of EXH puts the exceptive inference of *chule* into the same category as other types of implicatures, in particular obligatory implicatures [7, 24].

(12) $\llbracket \text{EXH } S \rrbracket = 1$ iff $\llbracket S \rrbracket = 1 \forall S' \in \text{ALT}(S) [\wedge \llbracket S' \rrbracket \not\subseteq \wedge \llbracket S \rrbracket \rightarrow \llbracket S' \rrbracket = 0]$
 (Alternatives not entailed by *S* are false.)

To illustrate, the matrix universal in (13b) after *chule Lisi* quantifies over a subtracted set $D \setminus \{\text{Lisi}\}$, inherited from the subtracted domain of the *wh* in the QUD. Its alternatives are specified in (13d), and exhaustified by EXH as in (13c). The exhaustification delivers the exceptive inference: since everyone who is not Lisi in *D* passed and it is not the case that everyone in *D* passed, it must be the case that Lisi didn’t pass.

² *Chule* can systematically embed clauses on both its exceptive and additive uses. I remain neutral on whether there is a direct syntactic connection (such as ellipsis) between a clausal-*chule* sentence and its phrasal-*chule* counterpart (such as (11A₃) and (1)), or *chule* is simply cross-categorical. See section 20 for some discussion.

³ See [11] and especially [16] on how the co-occurrence restriction is captured in the alternatives-and-exhaustification framework adopted in the current section.

⁴ What if the quantifier does not pick the subtracted set as its domain? Then exhaustification will be vacuous and this presumably violates the non-vacuity constraint that prohibits EXH from applying when it cannot negate any alternative [11, 16].

- (13) a. Who $^{D \setminus \{Lisi\}}$ passed? QUD subtracted by *chule*
 b. *Chule Lisi, suoyou.ren* $^{D \setminus \{Lisi\}}$ *dou guo.le*
 CHULE Lisi all.person all pass.ASP
 ‘Except for Lisi, everyone passed.’ \rightsquigarrow Lisi didn’t pass.
 c. LF of the matrix: EXH(everyone $_{D \setminus \{Lisi\}}$ passed)
 d. ALT of the matrix: {everyone $_{D \setminus \{Lisi\}}$ passed, everyone $_D$ passed}
 e. Result of exh: ($\llbracket \text{person} \rrbracket \cap D$) \setminus {Lisi} \subseteq $\llbracket \text{passed} \rrbracket \wedge$ ($\llbracket \text{person} \rrbracket \cap D$) $\not\subseteq$ $\llbracket \text{passed} \rrbracket$

The result is weak exception. Consider changing ‘*chule Lisi*’ into ‘*chule Lisi and Zhangsan*’; exhaustification over the alternatives {every $_{D \setminus \{Lisi, Zs\}}$ passed, every $_D$ passed} delivers ($\llbracket \text{person} \rrbracket \cap D$) \setminus {Lisi, Zs} \subseteq $\llbracket \text{passed} \rrbracket \wedge$ ($\llbracket \text{person} \rrbracket \cap D$) $\not\subseteq$ $\llbracket \text{passed} \rrbracket$, which is too weak to capture the intuition that both Lisi and Zhangsan failed: suppose everyone who is not Lisi passed while Lisi didn’t; then ($\llbracket \text{person} \rrbracket \cap D$) \setminus {Lisi, Zs} \subseteq $\llbracket \text{passed} \rrbracket \wedge$ ($\llbracket \text{person} \rrbracket \cap D$) $\not\subseteq$ $\llbracket \text{passed} \rrbracket$ is true while the Mandarin sentence *Chule Lisi and Zhangsan, everyone passed* is intuitively false.

Weak Exception can be strengthened into Uniqueness of Exception by bringing in more alternatives [11, 16], such as the ones in {every $_{D \setminus \{Lisi, Zs\}}$ passed, every $_{D \setminus \{Lisi, John\}}$ passed, every $_D$ passed, ...} where different individuals are subtracted from D . It is easy to verify that exhaustification (negating the alternatives not weaker than the prejacent of EXH — ($\llbracket \text{person} \rrbracket \cap D$) \setminus {Lisi, Zs} \subseteq $\llbracket \text{passed} \rrbracket$) correctly strengthens the exceptive inference into *both Lisi and Zhangsan failed* (just consider the other two strictly stronger alternatives ($\llbracket \text{person} \rrbracket \cap D$) \setminus {Lisi} \subseteq $\llbracket \text{passed} \rrbracket$ and ($\llbracket \text{person} \rrbracket \cap D$) \setminus {Zs} \subseteq $\llbracket \text{passed} \rrbracket$). I speculate that the possibility of having different alternative sets (more alternatives \rightsquigarrow stronger exceptive inference) might explain variability of judgements in mixed scenarios with plural exceptive complements [27]⁵.

The proposal for exceptive-*chule* sketched above differs from most other theories of exceptives [17, 37, 26, 10, 16, 38, 28] in that *chule* does not directly subtract entities from the domain of the matrix quantifier. The departure is motivated by possible co-occurrences of *chule* with *qita* ‘other’ in the matrix⁶.

- (14) a. *chule Lisi*⁵, *qita*₅ *suoyou.ren dou guo.le*
 CHULE Lisi⁵, other₅ all.person all pass.ASP
 ‘Lisi⁵ didn’t pass; all the other₅ people passed.’
 b. $\llbracket \text{qita}_i \rrbracket^g = \lambda P_{et} . \lambda x_e . \neg \text{OVERLAP}(g(i), x) \wedge P(x)$

(14a) is equivalent to (1) in meaning. With *qita* ‘other’ being a NP modifier removing individuals as in (14b) [19, 36] and anaphorically linked to Lisi in (14a), the restrictor of *all* in the matrix is $\llbracket \text{person} \rrbracket \setminus \{Lisi\}$ and it is vacuous to subtract Lisi again from the set. This supports the proposal where the domain of the quantifier is *indirectly* modified via the domain of the *wh* of the QUD. This use of QUD furthermore connects the exceptive use of *chule* to its additive use, to which the next section turns.

⁵[27] reports that speakers tend (with variation among speakers) to judge the sentence ‘*no marble has a dot except/but the blue ones*’ true in a scenario with both red and blue marbles, where no red marble has a dot while only some blue marbles are dotless.

⁶English exceptives are reported to be compatible with *else* [15]: *Nobody (else) except/but Sarah is napping*. It is unclear how to compositionally analyze the combination of the two. See [35] for relevant discussion on *else* in questions.

5 Additive-*chule* Subtracts Propositions

I propose that additive-*chule* subtracts propositions, and this happens when a proposition within the QUD already belongs to the common ground (known to be true to the interlocutors), no longer under discussion and can be safely removed from the table [9]. In other words, the complement of *chule* ‘*Lisi*’ in (15) (repeated from (2)) actually stands for a proposition, just as the short answer ‘*John*’ stands for the proposition *John passed* when used as an answer to the question ‘*who passed?*’.

- (15) *Chule Lisi, Zhangsan_F ye guo.le*
 CHULE Lisi Zhangsan also pass.ASP
 ‘In addition to *Lisi*, Zhangsan also passed.’ \rightsquigarrow *Lisi* passed.

Next, to decide the polarity of the proposition that ‘*Lisi*’ stands for (*Lisi passed* instead of *Lisi didn’t pass*), we need to determine the shape of the Hamblin-Rooth QUD (*who passed?* vs. *who didn’t pass?*)⁷, which I suggest, assuming the matrix and the *chule*-phrase respond to the same QUD, is indicated by the focus structure of the matrix clause. Since the matrix clause is ‘*Zhangsan_F also passed*’ instead of ‘*Zhangsan_F also didn’t pass*’ in (15), the QUD must be *who passed?* as in (16), and thus the complement of *chule* in (15) ‘*Lisi*’ stands for the proposition *Lisi passed*.

- (16) [[*who passed?*]] = {that *Lisi* passed, that *Zhangsan* passed, that *John* passed, ... }

Finally, *chule* subtracts the proposition *Lisi passed* from the QUD, and indicates the proposition is already known to be true and can be safely removed from the table. We guarantee this by proposing the constraint in (17).

- (17) Constraint on Subtraction of Proposition from QUD
 Subtraction of a proposition from a QUD happens only if the proposition is already known to be true by the interlocutors.

In this way, the analysis derives the correct additive inference of (15) and its presuppositional status ((15) can only be used in a context where the proposition *Lisi passed* is known to be true by the discourse participants).

The proposal predicts that *chule*’s additive inferences are sensitive to the focus structure of the matrix clause (see also [38]). This is indeed true, as is illustrated by (18): the two sentences carry different additive presuppositions, for their QUDs are different, which are further indicated by the focus markings in the matrix clauses. In (18a), ‘*Lisi*’ stands for the proposition *Mary introduced Lisi to John* since the QUD is *who did Mary introduce to John?*; In (18b), ‘*Lisi*’ stands for the proposition *Mary introduced Zhangsan to Lisi* since the QUD is *who did Mary introduce Zhangsan to?*

- (18) a. *Chule Lisi, Mali ye jieshao.le ZHANGSAN_F gei Yuehan.*
 CHULE Lisi Mary also introduce.ASP Zhangsan to John
 ‘In addition to *Lisi*, Mary also introduced Zhangsan_F to John.’
 \rightsquigarrow Mary introduced *Lisi* to John.

⁷The two questions denote different alternative sets in the Hamblin-Karttunen-Rooth framework [14, 20, 31], and this is a feature the current proposal makes use of to make sure that (15) has the correct additive presupposition. Note that this is impossible in a Groenendijk and Stokhof framework [13], where questions are treated as partitions over logical space, and the two questions (*who passed?* and *who didn’t pass?*) have the same denotation.

- b. *Chule Lisi, Mali ye jieshao.le Zhangsan gei YUEHAN_F.*
 CHULE Lisi Mary also introduce.ASP Zhangsan to John
 ‘In addition to Lisi, Mary also introduced Zhangsan to John_F.’
 \leadsto Mary introduced Zhangsan to Lisi.

Finally, additive particles such as *ye* ‘also’ are needed because of the independently attested *obligatory additive effect* which requires the presence of an additive particle whenever its presupposition is satisfied [21, 32, 5, 1, 3, 2], as illustrated in (19). Note that we do not need to decide between different explanations of the effect (*Maximize Presupposition* [5, 1] vs. *Obligatory Implicatures* [21, 32, 3]); both are compatible with the proposal of additive-*chule* sketched above.

(19) Dana went to a party. Lee went to a party(, #too).

For concreteness, I adopt the Maximize Presupposition approach: *too* is truth-conditionally vacuous but carries an additive presupposition that an alternative to its prejacent is also true; the presupposition is satisfied in its local context (the second clause in (19)), thus Maximize Presupposition favors *Lee went to a party too* over *Lee went to a party*, and *too* is obligatory. The same reasoning applies to (15): since the additive presupposition of *ye* ‘also’ is satisfied in its local context by the presupposition triggered by *chule*, it is obligatory by Maximize Presupposition.

Overall, the story captures the presuppositional status of the additive inference, and predicts that #*chule Lisi, Zhangsan passed* is bad, because (i) it cannot mean *Lisi didn’t pass, while Zhangsan passed* since the *chule*-phrase and the matrix correspond to different QUDs (*who didn’t pass?* for the former while *who passed?* for the latter), and (ii) it cannot express *Lisi passed, and Zhangsan passed* due to the absence of *also* and the resulting violation of Maximize Presupposition.

6 Phrasal vs. clausal *chule*

Chule can also take clauses as its complements (see also footnote 2), which our proposal is able to capture as well. In particular, the exceptive-*chule* in (20a) can still subtract individuals, if we assume *Lisi* is CT-marked as in [4] and subtraction from the domain of the *wh* in this case targets the referent of the contrastive topic. (20b) is bad, since subtracting *Lisi* from the domain of the matrix universal and subsequent exhaustification deliver *Lisi didn’t pass*, which contradicts the complement clause of *chule*. (20c) is good, for the complement of *chule* and the matrix respond to the same QUD *who passes?*, and the additive presupposition of *ye* is satisfied. (20d) on the other hand is bad, since (i) the complement of *chule* and the matrix don’t target the same QUD, and (ii) the presupposition of *ye* ‘also’ is not satisfied (just as ‘*John didn’t come. #Bill also came*’ is not acceptable).

- (20) a. *Chule Lisi_{CT} mei guo, suoyou.ren dou guo.le*
 CHULE Lisi not pass, all.person all pass.ASP
 ‘Except Lisi didn’t pass, everyone passed.’ $\approx(1)$
- b. # *Chule Lisi_{CT} guo.le, suoyou.ren_{D \setminus \{Lisi\}} dou guo.le*
 CHULE Lisi pass.LE, all.person all pass.ASP
 ‘#Except Lisi passed, everyone passed.’
- c. *Chule Lisi guo.le, Zhangsan ye guo.le*
 CHULE Lisi pass.CL, Zhangsan also pass.ASP
 ‘In addition to Lisi’s passing, Zhangsan also passed.’ $\approx(2)$

- d. # *Chule* *Lisi mei guo*, *Zhangsan ye guo.le*
 CHULE Lisi not pass, Zhangsan also pass.ASP
 ‘#In addition to Lisi’s not having passed, Zhangsan also passed.’

Remaining issues There are many unresolved issues, including a characterization and discussion of the *containment inference* of *chule* (in English, *every student except John came* \sim *John is a student*), and a proper formalization of the idea sketched in the paper. These are left for future work.

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