

# snippets

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# A problem for the *even* theory of *dou* in Mandarin Chinese

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Liu (2017) observes that, in Mandarin Chinese, the same sentence with *dou* gives rise to an *even* reading when the predicate is interpreted collectively (see (1)), and a distributive reading when the predicate is interpreted distributively (see (2)). Building on Liao 2011, he proposes to unify the two uses of *dou* by giving it an unambiguous *even*-like semantics that contributes a least likelihood presupposition (Karttunen and Peters 1979), as in (3).

- (1) Tamen dou mai le yi liang che.  
they DOU buy ASP one CL car  
'Even they bought a car together.'
- (2) Tamen dou mai le yi liang che.  
they DOU buy ASP one CL car  
'They each bought a car.'
- (3)  $\llbracket Dou \rrbracket = [\lambda p : \forall q \in Alt(p)(q \neq p \rightarrow p <_{likely} q) \cdot p]$

Liu assumes that the subject *tamen* 'they' is the focus associate of *dou* in both (1) and (2). In (1), the collective predicate applies to the group formed by the definite plural (Landman 2000); in (2), the distributive predicate applies to the sum. The alternatives in each case are formed by substituting the subject with its subparts. In the case of (1), this creates alternatives that do not entail one another. For example, if *a*, *b*, and *c* together bought a car, it does not follow that *a* and *b* together bought a car (see Figure 1). Going by the meanings of the alternatives, then, there is no reason for any of them to be less likely than the others, so having *dou* provides the additional, non-trivial inference that the prejacent is the least likely one. This is not the case for (2), however. Here, the predicate is interpreted distributively with the help of a *dist* operator (Schwarzschild 1996), and this makes the prejacent of *dou* the logically strongest among its alternatives; if *a*, *b*, and *c* each bought a car, it follows that *a* and *b* each bought a car (see Figure 2). Because the prejacent is stronger than all of its alternatives, it follows that it is the least likely of them (Crnič 2011). Therefore, the presupposition of *dou* is automatically satisfied in such cases. To Liu, this is why we don't sense the *even* flavor of *dou* in (2).

Liu's theory, however, encounters a problem when a collective predicate does generate a logical entailment between the prejacent and its alternatives. In (4), the prejacent of *dou* logically entails all of its alternatives in (5). For example, if *j*, *b*, and *t* together cannot reach the flag, it follows that *j* and *b* together cannot reach the flag.

- (4) *Context: Mr. Smith is organizing students to play a human stacking game. The purpose is to reach a flag 6 meters high from the ground. John, Bill, and Tim are the tallest students in the class. Without knowing the height of the flag, Mary asks Sue: 'Can John and Bill together reach it?' Sue says:*

Yuehan, Bier he Dimu jiaqilai dou gou bu zhao, gengbuyong shuo Yuehan he John Bill and Tim together DOU reach NEG touch, needless say John and Bier liang ge ren le.

Bill two CL person ASP

‘**Even** John, Bill and Tim together cannot reach the flag (RTF). Needless to say the two of John and Bill.’

$$(5) \text{ Alt}(\neg\Diamond(\uparrow j \oplus b \oplus t \text{ RTF})) = \{\neg\Diamond(\uparrow j \oplus b \text{ RTF}), \neg\Diamond(\uparrow b \oplus t \text{ RTF}), \neg\Diamond(\uparrow j \oplus t \text{ RTF}), \neg\Diamond(\uparrow j \text{ RTF}), \neg\Diamond(\uparrow b \text{ RTF}), \neg\Diamond(\uparrow t \text{ RTF})\}$$

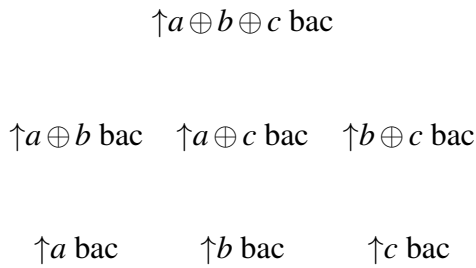
On Liu’s theory, (4) and (2) should behave alike, because in both cases the prejacent of *dou* is the strongest among its alternatives. The theory therefore predicts that the presupposition of *dou* be trivialized in (4), and that its *even* flavor go undetected. But in fact, the only possible reading of (4) is an *even* reading where we compare the height of the human stack formed by the group of John, Bill, and Tim with the height of the subparts. The problem applies to all collective predications that induce entailment in this way. (6), for example, presents the same challenge to Liu as (4).

(6) Yuehan, Mali he Bi’er yiqi dou keyi ji jin zhe ge hezi, geng bu yong shuo John Mary and Bill together DOU can squeeze into this CL box, more NEG need say Yuehan he Mali liang ge ren le.

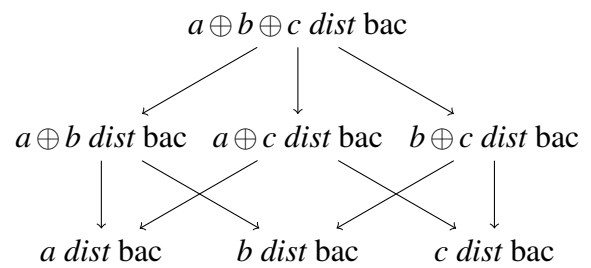
John and Mary two CL people SFP

‘**Even** J, M and B together can squeeze into the box, let alone the two of J and M.’

In conclusion, examples like (4) and (6) pose a problem to any theory that reduces *dou* to *even*, and that links the *even* flavor of *dou* to the absence of logical entailment between its prejacent and other alternatives.



**Figure 1:** Logical independence in sentence (1) — “bac”=*bought a car*



**Figure 2:** Logical entailment relations in sentence (2) — “bac”=*bought a car*

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