The Scope of Even: Evidence from dou
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Introduction Traditionally even is assumed to have two implicatures (1), derived by (2) along the likelihood scale (Karttunen and Peters, 1979 & Rooth, 1985). However, when (1) is embedded in a DE context, ambiguity appears between the ‘easy’ reading (3) and the ‘difficult’ reading in (1). This phenomenon has invoked the Scopal-Lexical debate and which is currently revived by the work of Wilkinson 1996, Guerzoni 2003, Giannakidou 2003 etc. One of the interesting arguments that has been made in arguing for these positions comes from evidence in other languages. For example, Giannakidou (2003) defends the ambiguity approach based on evidence from Greek that lexically distinguishes three even’s. In this paper, I bring evidence from Mandarin Chinese dou in support of the scope approach, while following Lahiri (1998) assuming that NPI licensing in Chinese can be stated as LF conditions.

Chinese Facts When the XP to the left of dou is focused, the even meaning shows up (4a-b). We call this dou even-dou. What is revealing about even-dou is that the counterpart of (3) in Chinese doesn’t show ambiguity. It has only the ‘difficult’ reading (5a). The ‘easy’ reading appears only when even-dou (and its associate) scopes outside the NPI trigger (5b). This indicates that the different implicatures associated with even-dou correspond to different surface scopes dou has wrt its trigger. Specifically, the narrow scope dou corresponds to the ‘difficult’ reading and the wide scope the ‘easy’ reading. And if the above scope-implicatures correlation holds, we may expect that the ‘minimizer’ type of NPIs that denote the minimal amount/quantity should be allowed only the wide scope construal, because they are supposed to be associated only with higher endpoints in a scale. This is borne out. For example, the ‘minimizer’ in the form of ‘[f one-CL-N] dou’ appears only outside a NPI trigger (6a) but not inside of it (6b). (We claim that ‘[f one-CL-N] dou’ is an NPI because it is licensed in clausemate negation but not in positive contexts (7a-b)).

Analysis Assuming dou is a focus particle like even (8) of the scope theory of K&P and Wilkinson (1996), then (5a-b) are directly accounted for by dou taking lower and higher scope respectively (9a-b). In (9b), if Bill doesn’t understand SS, which marks the higher endpoint in a scale, then it is more likely that Bill doesn’t understand other books salient in the context. (6) is accounted for following the semantics of Classifier by Krifka 1995 and Yang 2000 and assuming at the same time that alternatives to the indefinites ‘one-CL –N’ are other cardinal predicates: two-CL-N, three-CL-N, etc., because as shown in (10b), if a person can’t solve even one problem, then it is more likely that he can’t solve N problems.

NPI-even necessary? As shown above, if NPIs are licensed wide scope in Chinese, then the difference between the wide scope even and NPI-even is neutralized in the case of even-dou. Moreover, the example below involving a minimizer in the context of be glad is problematic for the NPI-even approach. (11) is uttered felicitously in a context where only several but not many showed up as was expected. But the NPI theory predicts wrong existential implicature (12i), because it says there are no other persons showing up. In contrast, the scope theory fits the situation above (13)

Conclusion The study of dou provides cross-linguistic support for the scope theory and indirect evidence for Lahiri’s analysis of NPIs. In addition, it expands our understanding of the semantics of dou that has typically been taken to be a D- operator (Lin, 1998, Chen 2004): the even-dou doesn’t affect the truth-condition of the sentence in which it occurs by the D-dou does.
(1) Bill understands even [SYNTACTIC STRUCTURES]_{f}
   a. Existentiality: There is something other than Syntactic Structures that Bill understands
   b. Scalarity: Syntactic Structure is the least likely thing for Bill to understand. ‘difficult’ reading

(2) a. Existentiality: \( \exists q \exists x [q \wedge \neg \text{understand'} (b, x) \wedge q \neq \wedge p] \), where \( \neg \wedge p \) is assertion
   b. Scalarity: \( \forall q \exists x [q = \wedge \text{understand'} (b, x) \wedge q \neq \wedge p \rightarrow q > \wedge p] \)

(3) It is hard to for me to believe that Bill understands even [SYNTACTIC STRUCTURES]_{f}
   a. There is something other than Syntactic Structures that Bill doesn’t understand
   b. Syntactic Structure is the most likely thing for Bill to understand ‘easy’ reading

(4) a. \( \exists q [\exists x [q = \wedge \text{understand'} (b, x) \wedge q \neq \wedge p] \wedge p \rightarrow q > \wedge p] \), where \( \wedge p \) is assertion
   b. Scalarity: \( \forall q [\exists x [q = \wedge \text{understand'} (b, x) \wedge q \neq \wedge p \rightarrow q > \wedge p] \) \]

(5) It is hard to for me to believe even Syntactic Structures
   a. There is something other than Syntactic Structures that Bill doesn’t understand
   b. Syntactic Structure is the most likely thing for Bill to understand

(6) a. \( \exists q [\exists x [q = \wedge \text{understand'} (b, x) \wedge q \neq \wedge p] \wedge p \rightarrow q > \wedge p] \), where \( \wedge p \) is assertion
   b. Scalarity: \( \forall q [\exists x [q = \wedge \text{understand'} (b, x) \wedge q \neq \wedge p \rightarrow q > \wedge p] \) \]

(7) a. Even John came. ‘He can even drive plane.’
   b. Even one person came. ‘Even one person came.

(8) \( [XP_{\text{focus}} \text{dou } \text{VP}] \), let P stand for VP and x for XP, then
   (i) Assertion (p): \( P(x) \)
   (ii) Presupposition: \( \forall q [C(q) \wedge q \neq \wedge p \rightarrow q > \wedge p] \)

(9) a. Lower scope dou: Syntactic structures is a difficult book
   (i) Assertion (p): \( \neg \text{understand'} (b, S-S) \)
   (ii) Presupposition: \( \forall q [\exists x [q = \wedge \neg \text{understand'} (b, x) \wedge q \neq \wedge p \rightarrow q > \wedge p] \)
   b. Higher scope dou: Syntactic structures is an easy book.
   (i) Assertion (p): \( \neg \text{understand'} (b, S-S) \) (simply take the NPI trigger as negation here)
   (ii) Presupposition: \( \forall q [\exists x [q = \wedge \neg \text{understand'} (b, x) \wedge q \neq \wedge p \rightarrow q > \wedge p] \)

(10) a. Classifier \( |\lambda n \lambda x \lambda i [\gamma (x) \wedge \text{CL'}(x)=1] \) where n is number
    b. (i) Assertion(p): \( \neg \text{can-solve'} [\text{he}, \lambda x (\wedge \text{PROBLEM(x)} \wedge \text{CL'}=1)] \)
    (ii) Presupposition: For every number N other than 1 & N>1
        \( \forall q [q = \wedge \neg \text{can-solve'} [\text{he}, \lambda x (\wedge \text{PROBLEM(x)} \wedge \text{CL'}=N)] \) & \( q \neq \wedge p \rightarrow q > \wedge p \)

(11) Even one person came > be glad
    a. Even one person came
    b. *Even one person came.

(12) (i) Existential implicature: \( \exists q [C(q) \wedge \neg (\wedge q) \wedge q \neq \wedge p] \)
    (ii) Scalar implicature: \( \forall q [C(q) \wedge q \neq \wedge p \rightarrow \wedge p > \wedge q] \)

(13) (i) There are other persons that I am glad they came
    (ii) One is the least likely number for me to be glad that came.