

mei-dou puzzle and homogeneity

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Why the additional *dou*?

Mandarin universal term *mei* $\approx$ English *every*.

Mei-dou co-occurrence puzzle

mei-NPs in pre-verbal positions must co-occur with *dou*; no such constraint exists in English.

(1) Every child (*all) went to the park.

(2) mei-ge haizi dou qu-le gongyuan
mei-cl child DOU go-ASP park
'Every child went to the park.'

This 'constraint' is very loose and with many exceptions[1].

(3) a. mei-ge haizi hua-le yi-fu-hua
every-CL child draw-ASP one-cl-picture
'Every child drew one picture.'
b. mei-ge haizi (dou) hua-le yi-fu-hua
every-CL child DOU draw-ASP one-CL-picture
'Every child drew one picture.'

Previous accounts have treated (3a) and (3b) as semantically equivalent except for Liu (2021)[2]

dou reflects QUDs

Liu (2021): The use of *dou* is licensed when the universal statement is relevant under the QUD.

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QUD 1

(4a) At a secondhand bookstore, the bookstore owner said: 'Our store is having a big sale,

mei-ben shu mai 10 yuan
mei-CL book 10 yuan
'Every book is 10 yuan.'

QUD: How much is every book?

QUD2

(4b) At a secondhand bookstore, John saw a brand-new book. John asked the owner: "This one looks brand-new. Is it also 10 dollars?" The owner:

mei-ben shu dou 10 yuan
mei-CL book DOU 10 yuan
'EVERY book is 10 yuan.'

QUD: Are the books all 10 yuan?

(Non)-homogeneous contexts

Under QUD1, every book presumably costs the same; Under QUD2 the opposite.

Dou as homogeneity remover

Motivations:

- dou* removes non-maximality.
- dou* gives rise to distributivity.

Notably, homogeneity disappears when *dou* is inserted.

(5) haizi-men chi-le yi-ge pinguo ma
kid-pl eat-ASP 1-cl apple SFP
'Did the kids eat 1 apple?'

With a negative answer: 'No, this is not the case.'
 $\rightsquigarrow$ **None of the kids ate 1 apple.**

(6) haizi-men dou chi-le yi-ge pinguo ma
kid-pl DOU eat-ASP 1-cl apple SFP
'Did the kids all eat 1 apple?'

With a negative answer: 'No, this is not the case.'
 $\rightsquigarrow$ **At least one kid didn't eat 1 apple.**

Surprisingly, *mei* doesn't remove homogeneity.

(7) mei-ben-shu 10 yuan ma
mei-cl-book 10 yuan SFP
'Every book 10 yuan?'

With a negative answer: 'No, this is not the case.'
 $\rightsquigarrow$ **None of the books cost 10 yuan.**

One possible formalization

Following Gajewski's (2005) presuppositional view on homogeneity:

① $\llbracket DIST \rrbracket = \lambda P_{et}. \lambda a_e. \forall x[x \preceq a \rightarrow P(x)] \vee \forall x[x \preceq a \rightarrow \neg P(x)]. \forall x[x \preceq a \rightarrow P(x)]$

② $\llbracket DOU \rrbracket = \lambda P_{et}. \lambda a_e. \forall x[x \preceq a \rightarrow P(x)]$

Implicated presupposition: Non-homogeneity

Under QUD2:

Every book presumably doesn't cost the same; DIST's presupposition is not satisfied.
 $\Rightarrow$ **DOU(P)(a)**

My idea

Assumptions

- $\llbracket 1 \text{ cl-book} \rrbracket^C = \{a, b, c\}$;
- mei* picks out a cover whose cells are sets of 1 book: $\llbracket \text{mei } 1 \text{ cl-book} \rrbracket^C = \llbracket \text{cov } 1 \text{ cl-book} \rrbracket^C = \{\{a\}, \{b\}, \{c\}\}$;
- Homogeneity is a fundamental property of predicates supplied by DIST[3]; *dou* and DIST are in competition for the one slot at LF;

(8) **DIST(P)(a)**
true iff $\forall a' \preceq a : P(a') = 1$
false iff $\forall a' \preceq a : P(a') = 0$
undef. otherwise

(9) **Dou(P)(a)**
true iff $\forall a' \preceq a : P(a') = 1$
false iff $\neg \forall a' \preceq a : P(a') = 1$
undef. never

A licensing condition on dou

dou is only licensed by non-homogeneous contexts.

This can also explain why:

- Dou* must be absent when *mei*-NP describes a standard unit of measurement.

(10) guang mei-miao (*dou) chuanbo san-shi-wan qianmi
light mei-second DOU travel 3000000 km
'Light travels 3000000km every second.'

- Dou* doesn't co-occur with *pingjun* 'averagely'.

(11) zhangsan mei-tian (*dou) pingjun sanbu yi xiaoshi
zhangsan mei-day DOU averagely walk 1 hour
'Zhangsan walks averagely 1 hour per day.'

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