WHAT IS HOMOGENEITY, AND WHY CARE?

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Jahrestagung der DGfS
Konstanz, February 2015
Homogeneity…

… and Its Applications
**HOMOGENEITY**


(1) **Context:** Mr. Benfleet published half of the books.

   A: Mr. Benfleet published the books.
   B: Well, half of them…

This disappears when all is added (Löbner 2000):

(2) **Context:** Mr. Benfleet published half of the books.

   A: Mr. Benfleet published all of the books.
   B: No, he didn’t.

Usually seen as a presupposition of distributive predicates.
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NOVEL CLAIMS

- This is not some idiosyncracy of distributive plural predication, but a fundamental and pervasive feature of natural language predication in general.
- The phenomenon is different from presupposition and implicature; it has some similarities with vagueness, but differences remain.
- It can be elegantly described in a trivalent logic with an algebraic semantics.
- It surfaces in many other constructions and offers a new, unified, and predictive perspective on their properties: bare plurals, embedded questions, conditionals, cleft-sentences, generics, possibly neg-raising.
- It correlates with exception-tolerance across constructions.
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What happens when a homogeneous predication is embedded under a quantifier?

(3) Every publisher published the books proposed to him.

Križ & Chemla 2015: Experimental investigation that uncovers a regular pattern of undefinedness. Example:

(4) Every publisher published the books.

- true if every publisher published all books.
- false if at least one publisher published none.
- undef. otherwise.
HOMOGENEITY IN COMPLEX SENTENCES

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HOMOGENEITY AND TRIVALENT LOGIC

- All predicates are subject to the following constraint:

(5) Generalised Homogeneity
If \( P \) is true of \( a \) and false of \( b \), then \( a \) and \( b \) don’t overlap (i.e. have no parts in common).

- A notion of parthood and the homogeneity constraint can be generalised across all denotational domains: Predicates (with arbitrary many arguments) and quantifiers also have parts, and quantifiers as properties of predicates have to obey the homogeneity constraint.

- The resulting system captures the homogeneity of predication, its interaction with quantifiers (Križ & Chemla 2015), and its removal by all — all based on a single generalised principle.
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NON-MAXIMALITY

• Plural predication is also famous for tolerating some exceptions (*non-maximality*; Brisson 1998, Lasersohn 1999, Malamud 2012). This, too, disappears when *all* is added:

(6) Context: *All the professors smiled except the perpetually dour Prof. Smith, who is known to never smile anyway."

a. The professors smiled.

b. #All the professors smiled.

• Explicable if there is a pragmatic principle that allows us to use a literally undefined sentence under certain conditions, but never a literally false sentence (Križ 2015a).

• Homogeneity and exception tolerance correlate across constructions.
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CLEFTS

Exhaustivity in clefts can be analysed as a reflex of homogeneity (Büring & Križ 2013, Križ 2016):

(7) Context: Nina invited both the boys and the girls.
    #It was the boys that Nina invited.

The undefinedness of (7) in such a situation follows from two assumptions:

1. Clefts are identity statements.
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Conditionals show a similar effect to plural predcations, known as the *conditional excluded middle* (Stalnaker 1981, von Fintel 1999):

(8) If Nina comes, Adam will be happy.

*undef.* if given Nina’s coming, Adam may or may not be happy.

This follows immediately if conditionals involve pluralities of possible worlds/situations (Schlenker 2004, Klinedinst 2007). Conditionals allow us to ignore remote, irrelevant possibilities when evaluating them. This behaves like non-maximality and disappears with homogeneity-removing adverbs like *certainly*. 
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10/17
BARE PLURALS

(9)  a. Mary saw zebras. \(\sim\) Mary saw \(>\) 1 one zebra.
    b. Mary didn’t see zebras. \(\sim\) Mary saw no zebra.

- With minimal extra assumptions, the trivalent view predicts that (9a) and (9b) are both undefined when Mary saw exactly one zebra.
- This makes detailed predictions about the behaviour of bare plurals in various embedded contexts.
- Non-maximality can account for context-dependence.
- The predictions differ very subtly from the best existing theories. Experimental tests have not (yet) been performed.
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EMBEDDED QUESTIONS

Embedded questions also show homogeneity-like behaviour in that a universal changes into an existential under negation:

(10)  a. Agatha knows who came to the party.
     ⟷ Agatha is fully informed about the guests.

     b. Agatha doesn’t know who came to the party.
     ⟷ Agatha has no idea about the guests.

This (and some other facts about embedded questions) can be explained as a consequence of the homogeneity of plural predication under the trivalent view (Križ 2015b).
Generics show “flipping” effects...

(11)  

a. Dogs are intelligent.
    \[\implies \text{All normal dogs are intelligent.}\]

b. Dogs aren’t intelligent.
    \[\implies \text{No normal dog is intelligent.}\]

...and are famous for allowing exceptions. (Though maybe not all kinds of exceptions are alike here.)

Adding all makes the flipping effect disappear and reduces exception tolerance:

(12)  All dogs are intelligent.
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A parallel between homogeneity and neg-raising was suggested by Gajewski (2005): A neg-raising verb like believe involves a plural predication over possible situations.

(13) Agatha believes that \( p \).
    ‘In the possible situations that are compatible with Agatha’s beliefs, \( p \) is the case.’

Surprisingly, it turns out that this parallel, though conceptually extremely elegant, is empirically shakier than all the other cases mentioned... The verdict is unclear!
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THANK YOU!
REFERENCES


REFERENCES II


