UNLESS as a restrictor of non-universal quantifiers

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Problem

What are the constraints (semantic, pragmatic, co-occurrence) on *unless* as a restrictor of quantifiers?

Previous accounts

- von Fintel (92, 94) claims *unless* is a biconditional exceptive, enforcing a uniqueness condition:

(1) $Q[C]\ M$ **unless** $R :=$
$Q[C - R]M \wedge \forall S \subseteq C : Q[C - S]M \rightarrow R \subseteq S$
Every student will pass unless they skip class.
$\rightsquigarrow$ The class-skippers are the unique set of students falsifying universal passing

- blocks *unless* with non-universals (e.g. MOST)
- Leslie (08) disagrees:

(2) $Q[C]\ M$ **unless** $R :=$
$Q[C - R]M \wedge Q[C\&M]\neg R$
Most students will pass unless they skip class.
$\rightsquigarrow$ Most class-attending students pass and most passing students are not class-skippers

Empirical data

(3) "Most Americans won't go to church unless they have a need." [One News Now 2015]

(4) "California is so dry, some diners won't get water unless they ask." [NPR 2014]

(5) "Few people can be happy unless they hate some other person, nation, or creed." [Bertrand Russell 1955]

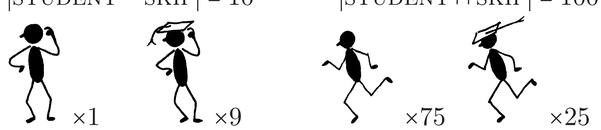
(6) "Smoking kills half of smokers unless they quit." [Gates Foundation 2014]

Intuitions

Most students will pass unless they skip class.

Scenario A: |STUDENT| = 110

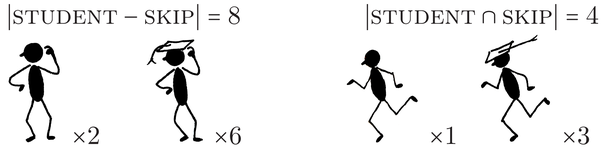
|STUDENT − SKIP| = 10 |STUDENT ∩ SKIP| = 100



Leslie: FALSE, *Intuitively:* TRUE

Scenario B: |STUDENT| = 12

|STUDENT − SKIP| = 8 |STUDENT ∩ SKIP| = 4



Leslie: TRUE, *Intuitively:* FALSE

Prior results (Nadathur/Lassiter 2014)

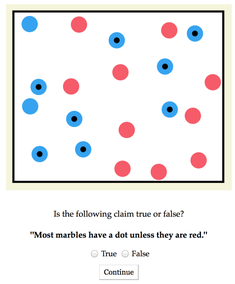
- *unless* assertorically equivalent to *if not*:

(7) $Q[C]M$ if not/unless $R := Q[C - R]M$
Every student will pass unless they skip class
$\Leftrightarrow$ Every non-skipping student will pass.

- sensitive to *across-the-board* condition, analyzed as a presupposition:

(8) $\neg Q[C\&R]M$
It's not the case that all class-skippers pass

Design (Amazon MTurk)

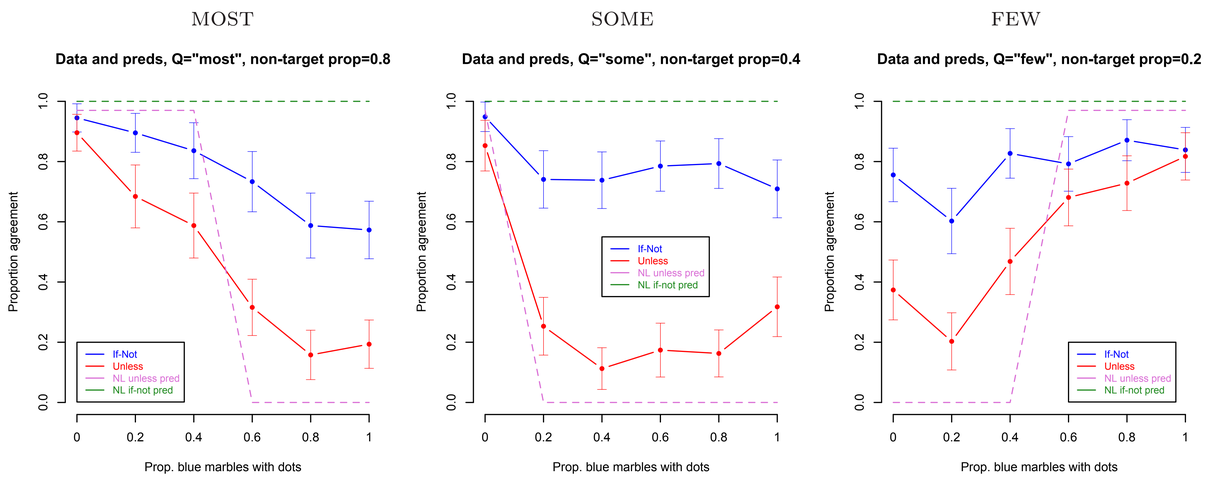


- forced choice T/F
- quantified *if not/unless*
- variable: percent of target marbles with dots
- 373 participants, native English-speaking
- 48 items per participant: 24 test, 24 fillers/controls

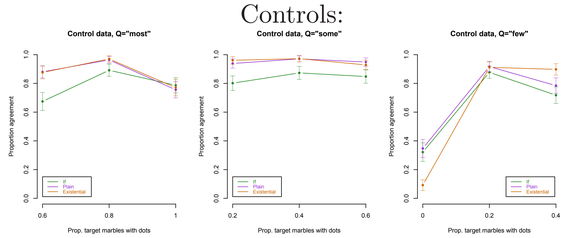
Predictions for *Most/some/few marbles have a dot unless they are blue.*

- *Nadathur/Lassiter:* TRUE (high agr.) iff Q red marbles have dots
  UNACCEPTABLE (low agr.) if Q blue marbles have dots as well
- *Leslie:* TRUE iff Q red marbles have dots, and Q dotted marbles are red.

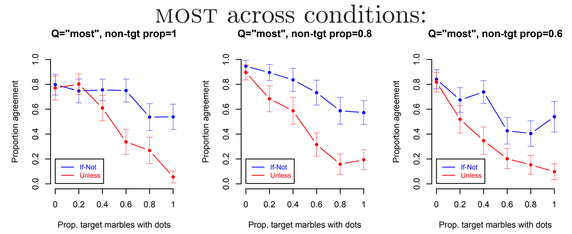
Experimental data



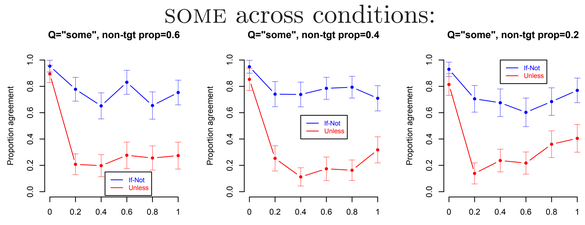
Controls:



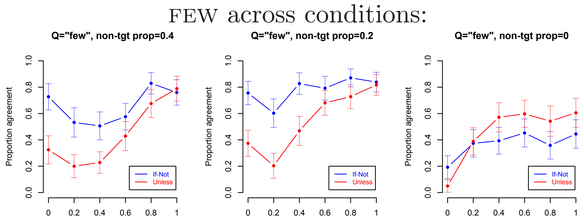
MOST across conditions:



SOME across conditions:



FEW across conditions:



Interpretation

- consistent with predictions about assertive content (7)
- support pragmatic view
- acceptance rates for predicted presupposition failure conditions (cf. 8) unexpectedly high
- once variable quantifier interpretation is accounted for, results suggest that non-asserted content is interpreted more flexibly than in (8)

Conclusions

- consistent with assertive content in N/L'14 if (8) is a reflex of *conditional strengthening*:

(9) S's utterance: "q COND p" generates the inference that S is unwilling/unable to commit to unconditional q.

- (9) is a Need-a-Reason implicature (Lauer 2013) for *if/if not*, presuppositional (S's responsibility) for *unless*
- (9) is accommodated by a contextual "salient difference" (between R and $C - R$ w.r.t M)

Future directions

- How can the notion of "salient difference" be investigated and manipulated?
- Why is it strongly realized as (8) with universal quantifiers, less strong with non-universals?
- What degree of freedom does it introduce? Can this be reduced to causal dependence?
- What is the relevant notion of "presupposition" as the speaker's responsibility (as opposed to implicature)?

Selected references

1. von Fintel, K. 1992. Exceptive conditionals: the meaning of *unless*. NELS 22.
2. von Fintel, K. 1994. Restrictions on quantifier domains. PhD, UMass Amherst.
3. Lauer, S. 2013. Towards a dynamic pragmatics. PhD, Stanford.
4. Leslie, S.-J. 2008. If, unless, and quantification. In *Compositionality, context, and semantic value,* Stainton & Viger (eds.)
5. Nadathur, P. 2014. Unless, exceptionality, & conditional strengthening. *ESSLLI 2014 StuS.*
6. Nadathur, P. & D. Lassiter. 2014. Unless: an experimental approach. *SuB* 19.