

Minimal sufficiency readings

The standard analysis of sentences containing exclusives (Horn 1969; Rooth 1992; Beaver & Clark 2008; Coppock & Beaver 2014) says that they presuppose the prejacent and assert the negation of alternatives, as in (1). That is not what is happening in (2)-(3), which instead exhibit a **minimal sufficiency reading** (Grosz 2012).

- (1) I have **just one question**.
 (2) **Just looking at Jim Carrey** makes me laugh.
 (3) **Just three seconds** are sufficient to make a conclusion about fresh acquaintances.

How can the contribution of *just* in (2)-(3) be related to its contribution in (1)?

Inferences

Three characteristic inferences distinguish **minimal sufficiency readings**:

- i) **The prejacent is at-issue** (unlike in sentences with exclusive readings).
- (4) It's not true that **just looking at Jim Carrey** makes me laugh.
 → Looking at Carrey doesn't make me laugh
- (5) It's not true that **just three seconds** are sufficient to make a conclusion about fresh acquaintances.
 → Three seconds aren't sufficient
- ii) There is also a **scalar presupposition**: the focus associate is the lowest-ranked element to satisfy the scope predicate.
- (6) a. Does **just looking at Jim Carrey** make you laugh?
 b. It's possible that **just looking at Jim Carrey** makes you laugh.
 c. If **just looking at Jim Carrey** makes you laugh, he must be really funny.
 → thinking about Carrey doesn't make you laugh
- (7) a. Are **just three seconds** sufficient to make a conclusion about fresh acquaintances?
 b. It's possible that **just three seconds** are sufficient to make a conclusion about fresh acquaintances.
 c. If **just three seconds** are sufficient to make a conclusion about fresh acquaintances, that says something interesting about human psychology.
 → Two seconds aren't sufficient
- iii) Some sentences with sufficiency readings also exhibit an **additive inference**: the predicate also holds of higher scalar values.

- (8) **Just looking at Jim Carrey** makes me laugh.
 → Watching Carrey perform makes me laugh
- (9) **Just three seconds** are sufficient to make a conclusion about fresh acquaintances.
 → Four seconds are sufficient

Prior literature

Previous accounts of this phenomenon do not get the distributional facts right. Grosz (2012) proposes **LEXICAL AMBIGUITY**.

- *Just* is ambiguous between a standard exclusive entry and an entry that adds a low scalar presupposition and contributes nothing to at-issue content.

Coppock & Beaver (2014) propose **EXISTENTIAL TYPE-SHIFTING**.

- *Just* takes local scope, while the exclusive content is obviated by a matrix existential quantifier.

Panizza & Sudo (2020) propose **EXISTENTIAL TYPE-SHIFTING + COVERT EVEN**.

- *Just* sits in the scope of an existential quantifier, while a covert operator with the same semantics as *even* enforces the scalar presupposition and the additive inference.
- The existential type-shifting operation is Winter's (2001) *C*, which is by hypothesis triggered only when non-distributive predicates compose with their arguments. **Prediction**: minimal sufficiency readings are ruled out with distributive predicates, and available otherwise. ✗ see (12).

Figure 1: Downward scalar predicates

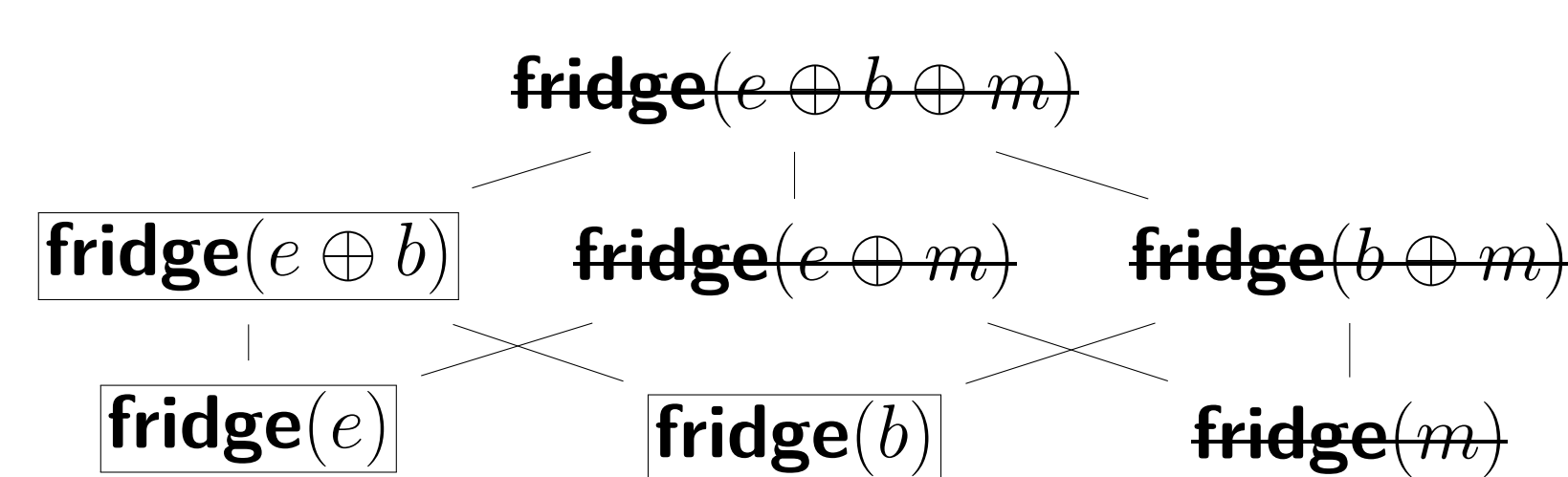
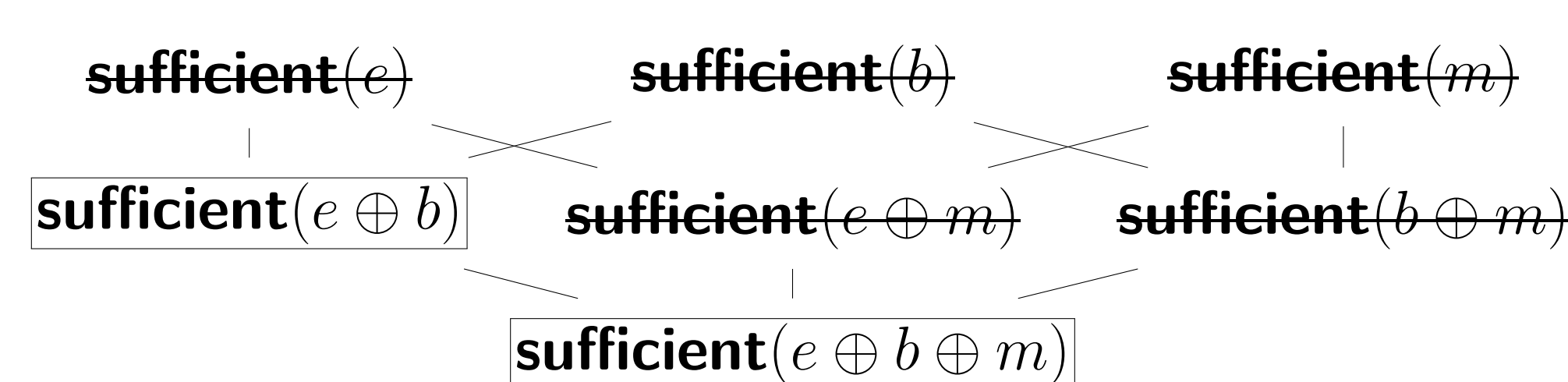


Figure 2: Upward scalar predicates



Distribution

↑ = sufficiency reading; ↓ = exclusive reading

- (10) **Cumulative predicates**
- a. **Just 100 fossil fuel companies** are responsible for 71 percent of the world's carbon emissions. ↑
 b. **Just thinking about lice** is enough to make your skin crawl. ↑
 c. I have said over and over: **just being governor** was more of a privilege than I ever expected to receive, and probably more of a privilege than I ever felt I deserved. ↑
 d. For the intellectual in this way of thinking, **just being what we are** counts as a political act. ↑
 e. Neutrogena Norwegian Formula Hand Cream delivers effective relief for dry, chapped hands. It is so concentrated that **only a small amount** instantly leaves even dry, cracked hands noticeably softer and smoother after **just one application**. ↑
 f. **Just a little** goes a long way. ↑
- (11) **Distributive predicates**
- a. **Just my sister** smiled. ↓
 b. **Just five eggs** are in the fridge. ↓
 c. I read **just three papers**. ↓
- (12) **Set predicates**
- a. **Just the graduate students** gathered in my office. ↓
 b. **Just the faculty** had a meeting. ↓
 c. **Just two paintings** were identical. ↓

Generalization: *just* gets an exclusive reading with **distributive** and **collective** predicates and a sufficiency reading with **cumulative** predicates.

- Distributive/collective predicates are **downward scalar**. Cumulative predicates are **upward scalar**.

- (13) **Just the eggs and the butter** are in the fridge.
 → The eggs, the butter, and the milk are not in the fridge see Figure 1

- (14) **Just the eggs and the butter** are sufficient to bake a cake.
 → The eggs, the butter and the milk are sufficient to bake a cake see Figure 2

Buccola & Spector (2016) discuss a similar pattern with modified numerals.

Projection reversal

Proposal: the scalar presupposition IS the exclusive content.

- Presupposing that the eggs and the butter are necessary is equivalent to presupposing that alternatives are not sufficient.

Projection reversal: the at-issue status of *just*'s semantic components varies.

- **Downward scalar** contexts: prejacent projects and exclusive content is asserted.
- **Upward scalar** contexts: exclusive content projects and prejacent is asserted.

Using Coppock & Beaver's MIN and MAX operators (15)-(16), our proposal can be stated as in (17):

- (15) MIN = $\lambda p \lambda w. \exists q \in alt : q(w) \wedge q \geq p$ (17) a. $\llbracket just_{ex} \rrbracket = \lambda p \lambda w. \frac{MAX(p)(w)}{MIN(p)(w)}$
 (16) MAX = $\lambda p \lambda w. \forall q \in alt : q(w) \rightarrow p \geq q$ b. $\llbracket just_{ms} \rrbracket = \lambda p \lambda w. \frac{MIN(p)(w)}{MAX(p)(w)}$

Deriving projection reversal

To capture the phenomenon of projection reversal, we propose that all four conjuncts are always there, but only some conjuncts are contingent in any given environment.

- (18) FIELD(\geq) := $\{x | \exists y [x \geq y \vee y \geq x]\}$ (Krifka 1999; Coppock & Beaver 2014)
- (19) a. **above** := $\lambda P \lambda x \lambda R \lambda S. \{q \in FIELD(S) | \exists Q [Q \in FIELD(R) \wedge Q \geq_R P \wedge Q(x) = q]\}$
 b. **below** := $\lambda P \lambda x \lambda R \lambda S. \{q \in FIELD(S) | \exists Q [Q \in FIELD(R) \wedge P \geq_R Q \wedge Q(x) = q]\}$
- (20) $\llbracket just \rrbracket = \lambda P \lambda x \lambda R \lambda S \lambda w. \frac{\forall q \in above [q(w) \rightarrow P(x) \geq_S q] \wedge \neg \exists q \in above [q >_S P(x)] \rightarrow \exists q [q(w) \wedge q \geq_S P(x)]}{\forall q \in below [q(w) \rightarrow P(x) \geq_S q] \wedge \neg \exists q \in below [q >_S P(x)] \rightarrow \exists q [q(w) \wedge q \geq_S P(x)]}$

In **downward scalar** contexts, the **boxed** content is contingent and the dimmed content is trivial:

- (21) $\frac{\forall q \in above [q(w) \rightarrow P(x) \geq_S q] \wedge \neg \exists q \in above [q >_S P(x)] \rightarrow \exists q [q(w) \wedge q \geq_S P(x)]}{\forall q \in below [q(w) \rightarrow P(x) \geq_S q] \wedge \neg \exists q \in below [q >_S P(x)] \rightarrow \exists q [q(w) \wedge q \geq_S P(x)]}$

In **upward scalar** contexts we find the reverse situation:

- (22) $\frac{\forall q \in above [q(w) \rightarrow P(x) \geq_S q] \wedge \neg \exists q \in above [q >_S P(x)] \rightarrow \exists q [q(w) \wedge q \geq_S P(x)]}{\forall q \in below [q(w) \rightarrow P(x) \geq_S q] \wedge \neg \exists q \in below [q >_S P(x)] \rightarrow \exists q [q(w) \wedge q \geq_S P(x)]}$

Open questions

- What features of a predicate's meaning determine whether it creates an upward or a downward scalar environment?
- What features of a predicate's meaning determine whether it patterns as distributive, collective, or cumulative? Do the predicates in (10) form a natural class?
- What theory of focus can make both sentential and subsentential alternatives simultaneously accessible?

References

- Beaver & Clark (2008). Sense and sensitivity. | Buccola & Spector (2016). Modified numerals and maximality. | Coppock & Beaver (2014). Principles of the exclusive muddle. | Grosz (2012). On the grammar of optative constructions. | Horn (1969). A presuppositional analysis of only and even. | Krifka (1999). At least some determiners aren't determiners. | Panizza & Sudo (2020). Minimal sufficiency with covert even. | Rooth (1992). A theory of focus interpretation. | Winter (2001). Flexibility principles in boolean semantics.