Presupposition triggering via idleness avoidance

Nathan Klinedinst & Yasutada Sudo

関西・東海意味論研究会

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Strong and weak quantifiers

Strong quantifiers like *every* and *most* have **existence presuppositions** that their restrictors are non-empty (Strawson 1952, De Jong & Verkuyl 1985, Diesing 1992, Heim & Kratzer 1998, Geurts 2007)

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I watched every movie about Richard Montague.
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This seems to be the case in every natural language

Weak quantifiers like *some* and *no* seem to have strong and weak readings

- **Strong** reading has an existence presupposition
- **Weak** reading doesn't have an existence presupposition

Intuition

It is sometimes suggested that strong quantifiers have existence presuppositions because **when their restrictor is empty, the content of the nuclear scope argument won't matter for the truth/falsity of the sentence** and that's somehow eschewed

- Given that $\textsf{every}(R)(S) = 1 \Leftrightarrow R \subseteq S$:

$$\textsf{every}(\emptyset)(S) = 1 \text{ for any } S$$

- Assuming $\textsf{most}(R)(S) = 1 \Leftrightarrow |R - S| < |R \cap S|$:

$$\textsf{most}(\emptyset)(S) = 0 \text{ for any } S$$

- (If $\textsf{most}(R)(S) = 1 \Leftrightarrow \frac{|R \cap S|}{|R|} > \frac{1}{2}$: $\textsf{most}(\emptyset)(S) = \#$ for any S)

Barwise & Cooper (1981) on 'sieves'

While the above intuition seems to be widely shared, only Barwise & Cooper (1981) offer an explicit proposal based on it (Lappin & Reinhart 1988, Abusch & Rooth 2004, Reinhart 2004 pursue other ideas)

> A generalized quantifier Q is a **sieve** iff for some sets $X, Y \subseteq \mathcal{D}, Q(X) \neq Q(Y)$

This is to say that for a sieve, the nuclear scope argument of the determiner matters for the truth/faislity of the entire sentence

Barwise & Cooper (1981) propose that every DP presupposes that it denotes a sieve

every$(\emptyset)$ and **most**$(\emptyset)$ are not sieves, so DPs that denote them incur presupposition failure

Remarks on B&C

Unlike the other logical properties Barwise & Cooper (1981) discuss (i.e., live-on/conservativity, strong/weak, witnesses, monotonicity), sieves have scarcely, if any, been discussed in the subsequent literature

A potential reason for this is that the sieveness presupposition predicts that every generalized quantifier should have existence presuppositions

- Given $\textsf{some}(R)(S) \Leftrightarrow R \cap S \neq \emptyset$, $\textsf{some}(\emptyset)(S) = 0$ for any S
- Given $\textsf{no}(R)(S) \Leftrightarrow R \cap S = \emptyset$, $\textsf{no}(\emptyset)(S) = 1$ for any S

This might not be a bad prediction, if we assume that weak quantifiers do have such readings (i.e. strong readings) but something needs to be said about weak readings

Remarks on B&C (cont.)

A more unsatisfying aspect of Barwise & Cooper's proposal is that it only concerns generalized quantifiers and their nuclear scopes

It would be desirable to regard the ban against non-sieves as a special case of the ban against **idle** expressions

Roughly:

- If DP is not a sieve, then the content of its nuclear scope argument won't matter = the nusclear scope is semantically idle
- Idle expressions are banned in natural language

This is essentially what we will pursue in the rest of the talk

(We'll assume that models have non-empty domains)

Generalized idleness avoidance

Generalized idlessness avoidance

> A constituent α of Γ is **idle** in Γ iff for some $\alpha' \neq \alpha$, $\Gamma[\alpha/\alpha']$ is grammatical, and for each such α', $[\![\Gamma]\!] = [\![\Gamma[\alpha/\alpha']]\!]$

> **Idleness Avoidance**: All constituents presuppose that they contain no idle constituent

- VP in "every NP VP" is idle if $[\![\mathbf{NP}]\!] = \emptyset$ (always true)
- VP in "most NP VP" is idle if $[\![\mathbf{NP}]\!] = \emptyset$ (always false or #)
- VP in "some NP VP" is idle if $[\![\mathbf{NP}]\!] = \emptyset$ (always false)

Overgeneration

But this predicts too many presuppositions, e.g.

- NP in "every NP VP" is idle if $[\![\mathbf{VP}]\!] = \mathcal{D}$ (always true)
- NP in "most NP VP" is idle if $[\![\mathbf{VP}]\!] = \emptyset$ (always false)

So it is predicted that *every* should presuppose that the nuclear scope does not denote the set of everything, and *most* should presuppose that the nuclear scope is non-empty

There is no evidence for these presuppositions

> a. Everything is self-identical.
>
> b. Most of us have seen a movie about Richard Montague.

Asymmetry

It seems that quantificational determiners do not trigger presuppositions about their nuclear scopes

To capture this asymmetry between the restrictor and nuclear scope, we'll consider:

- Compositional order (overgenerates)
- Linear order (has issues)
- Local contexts

Compositional order

Compositional order

Each lexical item that denotes a (curried) function has exactly one argument

> **Idle Argument Avoidance**: All constituents presuppose that their argument is not idle

- "every" doesn't make its NP argument idle
- "every NP" makes the nusclear scope argument idle, if $[\![\mathbf{NP}]\!] = \emptyset$
- "every NP XP" has no argument

Constraining lexical entries

Since compositional order is determined by lexical entries, this version of Idleness Avoidance can be seen as a constraint on possible lexical entries

- A determiner that ignores the NP denotation is logically possible but does not exist, e.g. $\exists(R)(S) \Leftrightarrow S \neq \emptyset$
- It also prohibits Sauerland's (2004) connectives L and R: $(\phi L \psi) \Leftrightarrow \phi$, $(\phi R \psi) \Leftrightarrow \psi$
    - Assuming the structure [S1 [L/R S2]], the argument of "L" is idle
    - Similarly, the argument of "R S2" is idle, no matter what S2 is

These lexical items do not seem to exist in natural languages

Overgeneration

However, this version of Idleness Avoidance is too strong

Problem 1: Predicates

It generates presuppositions for predicates that they are not true of all individuals and not false of all individuals; there are no such idleness presuppositions

> a. Everything [is self-identical].
>
> b. He [saw a movie about Richard Montague].

Overgeneration (cont.)

Problem 2: Connectives

Connectives are predicted to have idleness presuppositions

Assuming the structure [S1 [and/or S2]],

- "and" should presuppose that S2 is true, lest S1 be idle
- "or" should presuppose that S2 is false, lest S1 be idle

There are no such presuppositions

Two accounts

We'll present two accounts and how they would deal with weak readings of *some*, *no*, etc.

1. Order-sensitive idleness

- We'll consider two orders, surface and LF, but both have issues

2. Local idleness

- Idleness presuppositions are evaluated against local context

Order-sensitive idleness

Surface order

> Constituent α is **L-idle** wrt β iff for some α' and γ (γ possibly null), $\alpha' \neq \alpha$ and $\beta\alpha'\gamma$ is grammatical, and for each such α' and γ, $[\![\beta\alpha\gamma]\!] = [\![\beta\alpha'\gamma]\!]$

For subject quantifiers, the restrictor precedes the nusclear scope

> $[_{\text{DP}}$ Every $[_{\text{NP}}$ billionaire semanticist$]]$ $[_{\text{VP}}$ met Chomsky$]$

- With $\alpha =$ VP and $\beta =$ DP, α is R-idle wrt β, if NP is empty
- With $\alpha =$ NP and $\beta =$ D, VP is not fixed, so α is never R-idle wrp β

Surface Idleness

> **Surface Idleness Avoidance**: A speech act with expression α presupposes that α contains no constituent that is L-idle wrt its preceding material in α

$[_{DP}$ Every $[_{NP}$ billionaire semanticist$]]$ $[_{VP}$ met Chomsky$]$

- No presupposition for NP wrt "every"
- No presupposition for DP wrt ε
- Existence presupposition for VP wrt "every billionaire semanticist"

Problem

In natural languages, S may precede R

> a. Every [$_R$ billionaire semanticist] [$_S$ met Chomsky]
>
> b. [$_S$ Chomsky met] every [$_R$ billionaire semanticist]

Surface linear order doesn't seem to matter for the existence presupposition

E.g., (b) doesn't have an existence presupposition for S and doesn't lack an existence presupposition for R

Solution: We'll work with the LF representation instead

LF order

Assumptions:

- All DPs undergo Quantifier Raising (QR)
- All movemnets, including QR, are upward and leftward

We will be dealing with LFs like the following (we'll ignore TP for simplicity)

- [$_S$ [$_{DP}$ every [$_{NP}$ semanticist]]^i [$_{VP}$ t$_i$ is poor]]
- [$_S$ [$_{DP}$ Chomsky]^i [$_{DP}$ every [$_{NP}$ semanticist]]^j [$_{VP}$ t$_i$ despises t$_j$]]

We always have the order "Det R S" at LF, even when S precedes R on the surface

LF idleness

> **LF Idleness Avoidance**: A speech act with an expression with LF α presupposes that α contains no constituent that is L-idle wrt its preceding material in α

Predicates won't have idleness presuppositions about their arguments

- [$_{VP}$ t_i V_{intr}] will be L-idle with respect to "[$_{DP}$ every NP]^i" if NP is empty
  - Similarly "t_i" and "V_{intr}" will be L-idle if NP is empty
- [$_{VP}$ t_i [despises t_j]] will be L-idle with respect to "[$_{DP}$ Chomsky]^i [$_{DP}$ every [$_{NP}$ semanticist]]^j" if NP is empty
  - Similarly, "t_i" and "despises t_j" will be L-idle if NP is empty
  - t_j is trivially not L-idle (will be ungrammatical if replaced)

Problem

We still have issues with connectives

- [[$_S$ John^i t$_i$ smokes] [and [$_S$ Bill^j t$_j$ drinks]]]

"Bill drinks" will be L-idle wrt "John smokes and", if "John smokes" is false

Likewise:

- [[$_S$ John^i t$_i$ smokes] [or [$_S$ Bill^j t$_j$ drinks]]]

"Bill drinks" will be L-idle wrt "John smokes or" if "John smokes" is true

Strawson-idleness

- If "S_1 and/or S_2" presupposed that S_1 was true/false, it'd be Strawson-identical to "S_3 and/or S_2" for any S_3

> α in constituent Γ is **Strawson-idle** iff for some α', $\alpha' \neq \alpha$ and $\Gamma[\alpha/\alpha']$ is grammatical, and for each such α', $[\![\Gamma]\!]$ and $[\![\Gamma[\alpha/\alpha']]\!]$ are Strawson-identical

> **LF Idleness Avoidance (ver 2)**: A use of an expression with LF α presupposes that each constituent in α is not L-idle wrt its preceding material in α, **unless that idleness presupposition would render a constituent in α Strawson-idle**

Problem of existential quantification

This is not a full solution. Consider:

> Someone^i [[$_{VP}$ t$_i$ smokes] [and [$_{VP}$ t$_i$ drinks]]]

"t$_i$ drinks" will be L-idle wrt "someone t$_i$ smokes and", if no one smokes

But having the presupposition "someone smokes" won't render the first conjunct Strawson-idle, because "Someone smokes and drinks" (presupposing someone smokes) and "Someone VP and drinks" (presupposing someone VP) won't be Strawson-identical for every VP

Conceptual issue

Besides, it's perhaps strange to assume that LF constituents are linearly ordered

Local idleness

Local contexts

We follow the Heim-Schlenker theory of local contexts (Heim 1982, Schlenker 2009)

For "$C + \text{Det}^x\ R\ S$":

- the local context for R is $\{\langle w, g'\rangle |\ \langle w, g\rangle \in C, g \approx_x g', g'(x) \in \mathcal{D}\}$
- the local context for S is $\{\langle w, g'\rangle |\ \langle w, g\rangle \in C, g \approx_x g', g'(x) \in \mathcal{D}\} + R$

To simplify, we represent the local context in terms of w and a set X of individuals

For "$\text{Det}^x\ R\ S$",

- R is evaluated against a possible world w and $\mathcal{D}$
- S is evaluated against a possible world w and the set of all R-individuals

Local idleness

> **Local idleness avoidance**: Each constituent of an LF representation presupposes that it is not idle wrt its **local context**

> A constituent of α in Γ is **idle** wrt its local context $\langle w, A \rangle$ iff for some α', $\Gamma[\alpha/\alpha']$ is grammatical and for each such α', $[\![\alpha]\!]^{w,A} = [\![\alpha']\!]^{w,A}$

Example

For "[[$_{\text{DP}}$ every [$_{\text{NP}}$ semanticist]]^{x} [$_{\text{VP}}$ t$_{x}$ smiled]]"

- The local context for the restrictor NP is $\langle w, \mathcal{D} \rangle$, and it's simply not idle, because $[\![$ semanticist$]\!]^{w,\mathcal{D}} \neq [\![\text{NP}]\!]^{w,\mathcal{D}}$ for some NP
- The local context for the DP is $\langle w, \mathcal{D} \rangle$
- The local context for the VP is w and the set of all semanticists. If there is no semanticist, the VP will be idle, because for each VP', $[\![\text{VP'}]\!]^{w,\emptyset} = \emptyset$

Likewise, predicates only presuppose that each argument is non-trivially quantified over (i.e., their bindiers are non-trivial quantifiers)

Connectives

For "[[$_S$ John^i t$_i$ smokes] [and [$_S$ Bill^j t$_j$ drinks]]]",

- Suppose the global context is ignorant about whether John smokes and whether Bill drinks (because otherwise the conjunction would be infelicitous anyway)
- The local context for "John smokes" is $\langle w, \mathcal{D} \rangle$. It's simply non-idle
- The local context for "and Bill drinks" is $\langle w, \mathcal{D} \rangle$. It's simply non-idle
- The local context for "Bill drinks" is $\langle w, \mathcal{D} \rangle$ where John smokes in w; it would be idle if there's no such world, but by assumption there is such a world

Similarly for disjunction, except that the local context for the second disjunct is the negation of the first disjunct

Weak quantifiers

Weak quantifiers are not associated with existence presuppositions

We account for this with a Diesing-style structure

- "Some semanticists smiled" ⇝ $\exists^i$ [$_{\text{VP}}$ [$_{\text{NP}}$ some$_i$ semanticists] [$_{\text{V}'}$ t$_i$ smiled]]
- "No semanticists smiled" ⇝ $\neg\exists^i$ [$_{\text{VP}}$ [$_{\text{NP}}$ some$_i$ semanticists] [$_{\text{V}'}$ t$_i$ smiled]]

The VP is a conjunctive argument of the uniquary quantifier $\exists$

Assuming that $\mathcal{D} \neq \emptyset$,

- VP, NP, V$'$ are all not idle

Conclusion

Concluding remarks

We have discussed different ways of extending Barwise & Cooper's notion of sieves to a general ban on idle expressions

After considering several order-sensitive formulations, we arrived at:

> **Local idleness avoidance**: Each constituent of an LF representation presupposes that it is not idle wrt its **local context**

This can be seen as a universal mechanism for **presupposition triggering**

Arguably, there are multiple mechanisms for presupposition triggering

Existence presupposition of *every*

Schlenker's examples

Schlenker (2012: p. 422) presents some examples where *every* doesn't seem to trigger existence presuppositions

> CONTEXT: A professor who is renowned for the difficulty of his tests announces to his students:
>
> `I'll give a bottle of champagne to every student who gets a perfect score on the next test.`

This example is amenable to the analysis with (generic) modal quantification where the existence presupposition is accommodated with respect to the modal base (cf. Heim & Kratzer 1998, Geurts 2007)

Schlenker's examples

> CONTEXT: I have been on the admissions committee for the last 20 years. Talking about this period, I say:
>
> `Each year, every applicant who already had a published paper got in.`

If the existence presupposition projected universally, it should entail that in each of the 20 years, there was at least one applicant who already had a published paper

Such a universal presupposition doesn't seem to be perceived

Based on this, Schlenker (2012) claims that *every* has a reading without an existence presupposition

More examples

In similar examples, the existence presupposition very robustly projects universally:

> CONTEXT: I have been on the admissions committee for the last **3** years. Talking about this period, I say:
>
> `Each year, every applicant who already had a published paper got in.`

> CONTEXT: I have been on the admissions committee for the last **2** years. Talking about this period, I say:
>
> `In both years, every applicant who already had a published paper got in.`

Remarks

Note also that the anti-duality and anti-singularity anti-presuppositions project existentially (i.e., in at least one of the years, there were more than 2 elements in the restrictor)

The existence presupposition behaves more likes a presupposition than like an anti-presupposition in this respect

It remains open what's happening in Schlenker's example

An idea: The universal presupposiiton is actually a plural presupposition with homogeneity/non-maximality ('In these years, there was at least one applicant...') (as I proposed in a separate work)