Lecture #10

24.979 Topics in Semantics

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Schedule

Presentation/squib:

- Puzzles, criticisms, new theories
- Deadline: 3 days before the grade deadline

What's coming up?

- Some predictions & some challenges (incl. intervention)

The Setup

(1) **The Condition** (cf. Kadmon & Landman 1993)
A DP headed by *any* is acceptable only if its resource domain is dominated by a constituent that is SER, but not SEP, with respect to it.

There were three ingredients ('rescue mechanisms') to our account:

- Exhaustification (free choice inferences)
- Existence presupposition
- (Obligatory) pruning of alternatives

A host of predictions on the basis of the properties of these:

- Definiteness effects; Presuppositions (Intonation, etc.)
- Universal (vs existential) modals; Scope (reconstruction)
- Mass nouns (*any* differential phrases)

Warm-up: Restrictor approach to conditionals

There is a puzzle for the 'restrictor' view of conditionals (Hsieh 2013):

(2) If you read any of these books, you must/might understand this topic.

(3) a. [□ [if you read any book] [you are happy]]
b. #[◊ [if you read any book] [you are happy]] *(predicted)*

Free choice to the rescue (+ no strong construal of *any* necessary):

(4) [exh$_R$ [◊ [if you read any book] [you are happy]]]

However, this cannot be the final word on the issue:

(5) If you *ever* read Ladusaw, you might understand NPIs.

(6) If this salad has *any iron* in it, it may be dangerous to eat.

Possible response: "C-reading" (cf. Frank 1996; cf. Hsieh 2013 for alternatives)

(7) [□ [if you ever read Ladusaw] [◊ [you understand NPIs]]]

Loose ends (wrt free choice)

Hindi-NPIs and even

Non-modal monotone environments

Non-modal Strawson monotone environments

Modal (monotone) environments

Two further facts about Hindi-NPIs

Loose ends (wrt free choice)

Generics, imperatives, subtrigging

Generics

(8) Any owl hunts mice.

(9) Dogs bark at anything.

Imperatives

(10) Go ahead, take any apple.

(11) To continue, press any key.

Subtrigging

(12) John talked to any student that came to his office hours.

(13) Mary responded confidently to any objection.

Our recipe/system (= rescuing by exhaustification/strong construal): All these constructions should have an underlying existential (modal) semantics. More specifically, one should be able to account for the following entailment patterns...

Suggestive entailment patterns

Generics

(14) a. Any owl hunts mice.
b. $\Rightarrow_s$ Any barn owl hunts mice.

(15) a. Dogs bark at anything.
b. $\Rightarrow_s$ Dogs bark at any squirrely things.

Subtrigging

(16) a. John talked to any student that came to his office hours.
b. $\Rightarrow_s$ John talked to any smart student that came to his office hours.

(17) a. Mary responded confidently to any objection.
b. $\Rightarrow_s$ Mary responded confidently to any serious objection.

Imperatives (kind of)

(18) a. Go ahead, take any apple.
b. '$\Rightarrow_s$' Go ahead, take any red apple.

Generics

Free choice inferences (cf. Nickel 2010)

(19) Elephants live in Asia or Africa ⇒ Elephants live in Asia/Africa.

(20) Dogs bark at cats or squirrels ⇒ Dogs bark at cats/squirrels.

Probing quantificational force: existential vs. universal quantification

(21) a. Does John eat artichokes? (cf. Menéndez-Benito 2012)
b. This car goes 200 kmh.

(22) a. Dogs don't bark. (cf., e.g., Bar-Lev 2018)
b. ≈ No dogs bark.
c. ≉ Not every dog barks.

(23) a. Where can I get gas? (mention some reading ✓) (cf. Fox 2018)
b. Where must/did I get gas? (mention some reading ✗)
c. What do dogs bark at? (mention some reading ✓)

Two strategies for getting apparent universal quantification:

i. Nickel: "There is a natural way of being X such that every instance of..."
ii. Bassi & Bar-Lev/Staniszewski: existential modal universal modal

Generic and other adverbial quantifiers

Potential support for the 'free choice' strategy (vs. 'restrictor' strategy)

(24) A dog always/rarely barks.

a. $\approx$ All/few dogs bark.

b. $\approx$ All dogs always/rarely bark .

(25) Any dog always/rarely barks. (cf. Dayal 1998)

a. $\not\approx$ All/few dogs bark.

b. $\approx$ All dogs always/rarely bark.

What blocks the (a)-reading? There are several conceivable candidates...

(26) a. [exh$_R$ [GEN$_C$ any$^{str}_D$ dog bark]]

b. [exh$_R$ [$\Diamond$ any$^{str}_D$ dog bark]]

c. #[always$_C$ any D$^{str}_D$ dog barks$_F$]

(27) a. <>Pulling an all-nighter always rescues any student.

b. <$\approx$>Every student is s.t. pulling an all-nighter rescues them.

Imperatives

Discourse particles as probes into quantificational force (Grosz, Kaufmann)

(28) a. You may RUHIG/#JA go home.
b. You must #RUHIG/JA go home

(29) Take RUHIG/JA an apple.

If generics (Nickel, Menéndez-Benito) and imperatives (Kaufmann) may have existential semantics, *any* can be treated exactly as in existential modal sentences:

(30) a. [exh$_R$ [$\Diamond_{IMP}$ [any$^{str}_D$ cookie [λx you take x]]]]
b. [exh$_R$ [GEN$_C$ [any$^{str}_D$ cookie [λx you take x]]]]

Furthermore, the expectation is that, all else being equal, imperatives with *any* might not allow for a universal quantificational construal, at least on the most straightforward lexical ambiguity approach. (Optional homework: What is predicted by the application of Bassi & Bar-Lev/Staniszewski strategy?)

(31) Naive prediction:
Take RUHIG/#JA any apple.

Subtrigging

Accordingly, we may want to conclude that (temporally restricted) generic(-like) operator is at play with subtrigging examples like (32-a) (cf. von Fintel 1996, Menéndez-Benito 2005):

(32) a. Barack liked any picture that Michelle gave him.
b. [exh$_R$ [GEN$_{C \cap Restr}$ [any pic$_x$ that M gave him x]$_x$ B liked x]]

Is the import of the relative clause underestimated? Matching relatives possible:

(33) a. Barack liked any picture of himself that Michelle gave him. ✓
b. Barack liked any picture of herself that Michelle gave him.

Many questions: partitives, plurals

(34) a. John read any of those books that he found.
b. <>Dogs bark at any of those objects.

(35) a. John read any books that he found.
b. #Dogs bark at any squirrels.

Even more questions: Other items in other languages? (cf. Chierchia 2013)

Why?

(36) **The Condition** (cf. Kadmon & Landman 1993)
A DP headed by *any* is acceptable only if its resource domain is dominated by a constituent that is SER, but not SEP, with respect to it.

Obvious theoretical question: What explains the Condition?

Hindi-NPIs and even

Basic facts on Hindi NPIs

Entailment-preserving environments

(37) *koii bhii aayaa
'anyone came'

Entailment-reversing environments

(38) koii bhii nahiiN aayaa 'anyone not came'

Modal environments

(39) koii bhii aadmii is mez-ko uThaa saktaa hai
'any man this table lift can'

(40) *kisii-ko bhii ghar jaana caahiye
'anyone home go must'

Two components of koii bhii (Lahiri 1998)

(41) koii bhii = indef + even

Constraint on focus association

(42) Fact: *Even* must associate with an F-marked expression, and it may only associate with F-marked expressions that it c-commands when internally merged.

(43) a. John$_F$ seems to even read War and Peace. (Yoshitaka 2018)
b. #John$_F$ wants to even read War and Peace.

Structure of *koii bhii* phrases and formal alternatives to different associates:

(44) [[indef D] even$_C$] NP]

a. Potential focus #1: indef — ALT: every
b. Potential focus #2: D — ALT: other Ds
c. Potential focus #3: [indef D] — ALT: indef Ds, every Ds

Hypothesis: Choose your associate (/F-mark) freely. *(Potential for variation!)*

Even

(45) a. John read even War and Peace
b. [even$_C$ War and Peace$_F$] [λx [John read x]]
c. Simpler: [even$_C$ [John read War and Peace$_F$]]
(one may get distinguishable predictions elsewhere)

(46) $[\![\text{even}_C\ \text{S}]\!]^c(\text{w})$ is defined only if
a. $\exists \text{S'} \in \text{F(S)} \cap [\![\text{C}]\!]$: $[\![\text{S}]\!] \neq [\![\text{S'}]\!] \wedge [\![\text{S'}]\!](\text{w}) = 1$, and
b. $\forall \text{S'} \in \text{F(S)} \cap [\![\text{C}]\!]$: $[\![\text{S}]\!] \neq [\![\text{S'}]\!] \rightarrow \text{P}_c([\![\text{S}]\!]) < \text{P}_c([\![\text{S}]\!])$.
If defined, $[\![\text{even}_C\ \text{S}]\!]^c(\text{w}) = 1$ iff $[\![\text{S}]\!](\text{w}) = 1$.

(e.g., Karttunen & Peters 1979, Francis 2018, i.a.)

(47) [even$_C$ [John read War and Peace$_F$]]
a. A: John read War and Peace
b. P1: $\exists$x(x$\neq$WP $\wedge$ John read x)
c. P2: $\forall$x(x$\neq$WP $\rightarrow$ P$_c$(J read WP) $<$ P$_c$(J read x))

Non-modal monotone environments

EP environments

Basic principle of probability (and many alternatives):

(48) If p (contextually) entails q (in c), $P_c(p) \leq P_c(q)$.

Structure on the assumption that *koii* is focused:

(49) a. #John read KOII BHII book
b. [even$_C$ [[indef$_F$ D] book]$_x$ [John read x]]

(50) F([[indef$_F$ D] book]$_x$ [John read x]]) =
{[[indef D] book]$_x$ [John read x]], [[every D] book]$_x$ [John read x]]}

(51) a. P1: John read every book
b. P2: P_c(J read some book) $<$ P_c(J read every book)
(both problematic if 'every' entails 'some')

ER environments

Wide-scope of *even* (e.g., Karttunen & Peters 1979 on movement of *even*)

(52) a. John didn't read KOII BHII book

b. [even$_C$ [neg [[indef$_F$ D ~~even$_C$~~] book]$_x$ [John read x]]]

(53) F([neg [[indef$_F$ D] book]$_x$ [John read x]]) =
{[neg [[indef D] book]$_x$ [J read x]], [neg [[every D] book]$_x$ [J read x]]}

(54) a. P1: $\neg$(John read every book)

b. P2: $P_c(\neg(\text{J read some book})) < P_c(\neg(\text{J read every book}))$

Alternatives and constraint on pruning

(55) a. John didn't read any book.
b. #John read any book.

Other association patterns possible:

(56) a. $<>$[even$_C$ [neg [[indef D$_F$] book]$_x$ [John read x]]]
b. $<\#>$[even$_C$ [[indef D$_F$] book]$_x$ [John read x]]

(57) a. $<>$[even$_C$ [neg [[indef D]$_F$ book]$_x$ [John read x]]]
b. $<\#>$[even$_C$ [[indef D]$_F$ book]$_x$ [John read x]]

An issue arises with these choices, however. Consider the following characterizations of the potential sets of alternatives (which would lead us to predict unacceptability for (a)- and potential acceptability for (b) examples above):

(58) a. [even$_C$ [neg [[indef D$_F$] book]$_x$ [John read x]]]
b. $\{$[neg [[indef D'] book]$_x$ [John read x]] | $[\![$D$]\!] \subset [\![$D'$]\!]\} \cap [\![$C$]\!] \neq \emptyset$

(59) a. [even$_C$ [[indef D$_F$] book]$_x$ [John read x]]
b. $[\![$C$]\!] = \{$[[indef D'] book]$_x$ [John read x] | $[\![$D'$]\!] \not\subseteq [\![$D$]\!]\}$

Alternatives and constraint on pruning

Some possible constraints on pruning (cf. Chierchia and Krifka)

(60) *[even$_C$ S] if ALT(S)\⟦C⟧ $\not\subseteq$ Excl$_F$(S). *(where Excl$_F$(S) is the set of excludable alternatives given S and the focus alternatives to S; that is, you are only allowed to prune excludable alternatives, cf. Katzir 2014)*

(61) *[even$_C$ [... indef D$_F$ ...] if ⟦C⟧ $\neq$ {[... indef D' ...] | ⟦D'⟧$\subseteq$⟦D⟧}

Avoiding overgeneration:

(62) a. [even$_C$ [[indef D$_F$] book]$_x$ [John read x]]
b. #C = {[[indef D'] book]$_x$ [John read x] | ⟦D'⟧$\cap$⟦D⟧ = $\emptyset$}
c. {[[indef D'] book]$_x$ [John read x] | ⟦D'⟧$\subseteq$⟦D⟧} $\subseteq$ ⟦C⟧ ✓

Avoiding undergeneration:

(63) a. [even$_C$ [neg [[indef D$_F$] book]$_x$ [John read x]]]
b. {[neg [[indef D'] book]$_x$ [John read x]] | ⟦D⟧$\subset$⟦D'⟧}
$\subseteq$ Excl$_F$([neg [[indef D$_F$] book]$_x$ [John read x]]])
c. {[neg [[indef D'] book]$_x$ [John read x]] | ⟦D⟧$\subset$⟦D'⟧}$\cap$⟦C⟧=$\emptyset$ ✓

Non-modal Strawson monotone environments

Strawson environments: comparing partial propositions

What scalar presupposition is computed when the associate is in a non-monotone-Strawson-monotone environments? Different assumptions are possible...

(64) Assumption 1: Presupp's of all the alternatives must be satisfied. (✗)

(65) a. The students who read KOII BHII book arrived on time.
b. #For every book: There are students who read it.

(66) Assumption 2: Presupp's of all the alternatives are Bochvar'ed. (✗)

(67) a. I am sorry that John read KOII BHII book.
b. ?P_c(John read a book $\wedge$ ...) $<$ P_c(John read War and Peace $\wedge$ ...)

(68) Assumption 3: Conditionalization on minimal revisions of context c such that the respective comparanda are defined with respect to them. (See von Fintel 2001, et al, on the technicalities of revision.) (✓)

(69) Assumption 4: Comparison only between defined alternatives. (✓)

(See Cremers et al. 2016 for related discussion on probability and partiality.)

Strawson environments

Strawson EP environments

(70) *The student who read any books arrived.

(71) #P_c(max(student who read some books) arrived)
$< P_c$(max(student who read some long books) arrived),
where c $\subseteq$ there is a unique student who read some long books

Desirable consequence

(72) **Fact:** The 'not SEP' clause of the Condition falls out from the scalar presupposition of *even* – due to the contextual equivalence of the alternatives in contexts in which the alternatives are defined.

Strawson ER environments

(73) The students who read any books arrived.

(74) P_c(max(students who read some books) arrived)
$< P_c$(max(students who read some long books) arrived),
where c $\subseteq$ there are students who read some long books

Intermediate summary

- Standard definition of *even*:

  (i) scalar presupposition and (ii) additive presupposition.

- Unconstrained association, but constrained pruning (sometimes necessary)

- Scalar presuppositions conditionalized on

  (i) "the minimally revised context" or

  (ii) "the context" (plus relativization to defined alternatives).

- Consequences (so far)

  (i) Strawson EP environments: contradictory presuppositions, and

  (ii) Strawson ER environments: almost tautologous presuppositions

  (Assumption: presuppositions that are unsatisfiable no matter the lexical material yield ungrammaticality, see Gajewski 2002, i.a.)

Modal (monotone) environments

Existential modals

Assume first association of *even* with the domain:

(75) a. John is allowed to read KOII BHII book.
b. $[\text{even}_C\ [\text{exh}_R\ [\Diamond\ [\text{any}^{str}_{D_F}\ \text{book}\ [\lambda x\ \text{John read x}]]]]$

(76) P1: $\exists p \in \{\wedge_{x:book \cap D'} \Diamond(\text{J read x})\ (\wedge\ \ldots) \mid D' \in \text{ALT}(D)\} \cap C$: p(w)

(77) P2: $\forall p \in \{\wedge_{x:book \cap D'} \Diamond(\text{J read x})\ (\wedge\ \ldots) \mid D' \in \text{ALT}(D)\} \cap C$:
$p \neq \wedge_{x:book \cap D} \Diamond(\text{J read x})\ (\wedge\ \ldots) \rightarrow$
$P_c(\wedge_{x:book \cap D} \Diamond(\text{J read x})\ (\wedge\ \ldots)) < P_c(p)$

Pruning of excludable alternatives is licit:

(78) $C \subseteq \{[\text{exh}_R\ [\Diamond\ [\text{any}^{str}_{D'}\ \text{book}\ [\lambda x\ \text{John read x}]]]] \mid [\![D']\!] \subset [\![D]\!]\}$

On this assumption about C, P2 is (almost) a tautology since the prejacent Strawson entails all the alternatives. Thus, *any* is predicted to be acceptable.

Universal modals

(79) a. *John is required to read KOII BHII book.

b. [even$_C$ [exh$_R$ [□ [[indef D$_F$ book]$_x$ John read x]]]]

Recall that we entertained two sets of alternatives that yield free choice:

(80) Universal modal alternatives only (illegitimate, strictly speaking)

□(J read a book in D) ∧ ∀D': D'⊂D∩book
→ ¬□(J read a book in D')

(81) Universal and existential modal alternatives

□(J read a book in D) ∧ ∀D': D'⊂D∩book ∧ D'∩book≠ ∅
→ ◊(J read a book in D')

Whether we derive the correct predictions depends to some extent on the constraint on pruning (recall 'excludable=prunable' or 'all and only subdomain'). We stick to the 'subdomain only' variant in the following for simplicity.

Universal modals: $\neg\Box$ derivation of free choice

Assumption: All (and only) the subdomain alternatives are relevant.

(82) a. *John is required to read KOII BHII book.

b. [even$_C$ [exh$_R$ [$\Box$ [[indef D$_F$ book]$_x$ John read x]]]]

Additive presupposition and assertion clash:

(83) Assertion: $\Box$(J read a book in D) $\wedge$
$\forall$D': D' $\subset$ D$\cap$book $\rightarrow$ $\neg\Box$(J read a book in D')

(84) P1: $\exists$D'(D' $\subset$ D$\cap$book $\wedge$ $\Box$(J read a book in D') $\wedge$
$\forall$D'': D'' $\subset$ D'$\cap$book $\rightarrow$ $\neg\Box$(J read a book in D''))

Summary and relation to any

(85) a. koii bhii NP = any NP = [[[indef D] even] NP]
b. *Even* may take scope at any clausal level
c. Scalar presupposition subject to some constraints
d. Conditionalization on the (minimally revised) "actual context"

Some consequences

- Strawson EP environments: ✗
- Strawson ER environments: ✓
- Existential modal environments: ✓
- Universal modal environments: ✗ (to be revisited)

Nonetheless, the theory imposes a weaker constraint than the Condition – it does not rule out occurrences of *any* in non-monotone environments...

Two further facts about Hindi-NPIs

Higher attachment of bhii

A higher attachment of *bhii* results in a broader distribution:

(86) koii laRkaa bhii aayaa
indef boy bhii arrived
'Even some boy arrived'

This follows from an additional association possibility for *even*:

(87) a. #[[[indef D] even] NP_F]
b. [[[indef D] NP_F] even]

Correlatives with bhii and wh-ever free relatives

Dayal (1995, 1996) discusses correlatives with *bhii* (in modal sentences):

(88) jo bhii kitaab vo paRh rahaa hai, vo kitaab tum-ko bhii paRhna cahiyee
which even book he is-reading, that book you even should read

(89) Whichever book he is reading you should (#it) read too.

This pattern is related to the felicitous occurrences of *any* in singular definite descriptions in generic sentences (discussed in an earlier class), which we return to in the next lecture (and show how the theory developed above predicts acceptability and context-dependence) ...

(90) The mayor with any sense chooses the school superintendent.

24.979 Topics in Semantics: Negative Polarity Items
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