Any

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Licensing Condition on *any*

(1) a. Every boy [who read any book] passed.
b. #Every boy who passed [read any book].

(2) a. Everyone [who read a book] passed.
b. ⇒ Everyone [who read a book twice] passed.

(3) a. Everyone who passed [read a book].
b. ⇏ Everyone who passed [read a book twice].

Licensing Condition
Any is licensed iff it occurs in a downward-monotone environment.[1]

(Ladusaw 1979)

[1] A constituent α constitutes a downward-monotone environment wrt a constituent β that dominates it iff replacing α with an α' st $[\![\alpha']\!] \Rightarrow [\![\alpha]\!]$ weakens the meaning of β, $[\![\beta]\!] \Rightarrow [\![\beta[\alpha/\alpha']]\!]$. See Homer 2010, Gajewski 2011 for discussion and motivation of this formulation.

Problems

Strength

Free Choice

Exactly

Desire

Explanation

Problem of Free Choice

(4) You are allowed to read any book.

(5) Dogs bark at anything.

(6) Take any fruit.

(7) #You must read any book.

Existential modals are not downward-monotone

(8) a. You are allowed to [read a book].
b. ⇏ You are allowed to [read a book twice].

(e.g., Horn 1972, Hintikka 1977, Ladusaw 1979, Dayal 1998, Aloni 2007b)

Problem of Exactly

(9) Out of my twelve students, exactly two students [read any book].

(10) #Out of my twelve students, exactly ten students [read any book].

Exactly quantifiers are not downward-monotone

(11) a. Exactly two students [read a book].
b. $\not\Rightarrow_{\not\Leftarrow}$ Exactly two students [read a book twice].

(cf. Linebarger 1987, Rothschild 2006)

Problem of Desire

(12) So many tasks piled up over the last few months! –
I hope that [I will read any book this summer].

(13) #I hope that [I will get through any of my slides].

(14) #I think that [I will read any book this summer].

Desire predicates are not downward-monotone

(15) a. I hope that [I will read a book].
b. $\not\Rightarrow$ I hope that [I will read a book twice].

(cf. Linebarger 1987, Giannakidou 1999)

Problems at a glance

Free Choice

- Non-downward-monotone environment
- Free choice inference
- Existential vs. universal modals

Exactly, Desire

- Non-downward-monotone environments
- Variability (contextual support)

Goals (for today)

- Provide an adequate **description** of the distribution of *any*.
  - We do this in two steps. After the first step, we will have captured Free Choice. After the second step, we will have captured also Exactly and Desire.
  - We build on the insights of Fauconnier (1975), Kadmon & Landman (1993).
- Provide an **explanation** of the distribution of *any*.
  - We show that the description follows if we adapt Lahiri's (1998) account of Hindi Negative Polarity Items to English *any* (cf. Krifka 1995).
  - The resulting account is uniform, compositional, and predictive.
- Study the **variation** in the behavior of polarity items, to which *any* belongs.

Modified Licensing Condition on *any*

Maximal Strength

Any NP is licensed iff it occurs in a constituent whose meaning is logically stronger than that of the alternatives to the constituent induced by *any NP*.

(cf. Fauconnier 1975, Kadmon & Landman 1993)

Alternatives

Any NP is an existential quantifier and its alternatives are existential quantifiers whose domains are subsets of the domain of *any*.

(16) $[\![\text{any book}]\!] = [\![\text{a book}]\!]$

(17) $\text{ALT}(\text{any book}) = \{\text{an NP} \mid \text{NP} \subset \text{book}\}$
$= \{\text{a long book, a book with no pictures, etc.}\}$

(cf. Krifka 1995, Chierchia 2013)

Upward-monotone environments

(18) #John read any book.

(19) $\text{ALT}(\text{John read any book}) = \{\text{John read an NP} \mid \text{NP} \subset \text{book}\}$
$= \{\text{John read a long book, John read a book without pictures, etc.}\}$

(20) For every NP⊂book: John read an NP ⇒ John read a book.

Maximal Strength ✗

For every NP⊂book: John read a book ⇒ John read an NP

Downward-monotone environments

(21) John didn't read any book.

(22) $\text{ALT}(\text{John didn't read any book}) = \{\neg(\text{John read an NP}) \mid \text{NP} \subset \text{book}\}$
$= \{\neg(\text{John read a long book}), \neg(\text{John read a 400-page book}), \text{etc.}\}$

Maximal Strength ✓

For every NP⊂book: ¬(John read a book) ⇒ ¬(John read an NP)

Problem of Free Choice

Existential modals

(23) You are allowed to read any book.

Generics and imperatives

(24) Dogs bark at anything.

(25) Take any fruit.

Universal modals

(26) #You must read any book.

(e.g., Horn 1972, Hintikka 1977, Ladusaw 1979, Dayal 1998, Aloni 2007b)

Problem of Free Choice

Modals are upward-monotone operators

(27) a. You are allowed to read a book twice.
b. ⇒ You are allowed to read a book.

The distribution of *any* is unexpected in their scope

(28) a. You are allowed to read any book.
b. ◊(you read a book)

Maximal Strength ✗

For every NP⊂book: ◊(you read a book) ⇒ ◊(you read an NP)

Inferential patterns

(29) a. You are allowed to read any book.
b. ⇒ You are allowed to read any {recent/long/etc.} book.

(30) a. Dogs bark at anything.
b. ⇒ Dogs bark at any {furry/squirrely/etc.} thing.

(31) a. Take any fruit.
b. ↪ Take any {big/small/etc.} fruit.

Free choice inferences

Any and disjunction induce free choice inferences:

(32) You are allowed to read any book.

(33) You are allowed to read Purity or Freedom.

(34) a. ⇒ You are allowed to read Purity.
b. ⇒ You are allowed to read Freedom.

(35) Dogs bark at anything.

(36) Dogs bark at cats or squirrels.

(37) a. ⇒ Dogs bark at cats.
b. ⇒ Dogs bark at squirrels.

Derivation

Free choice meaning

(38) a. You are allowed to read any book.
b. [STR [◊ [you read any book]]]

(e.g., Klinedinst 2007, Fox 2007, Chemla 2008, Franke 2011, Chierchia 2013)

(39) ◊(you read Purity) ∧ ◊(you read Freedom)

(40) (every book$_x$: ◊(you read x))

Maximal Strength ✓
For all NP⊂book: (every book$_x$: ◊(you read x)) ⇒ (every NP$_x$: ◊(you read x))

Existential quantification in generics and imperatives

Gn as an existential operator

(41) It is false that dogs bark. (cf. von Fintel 1997, Löbner 2000)

(42) a. Where can I get gas? mention-some reading ✓
b. Where should I get gas? mention-some reading #
c. What do dogs bark at? mention-some reading ✓

Imp as an existential operator

(43) Go ahead, take a fruit, if you like.

(44) Mirno {lahko greš / #moraš iti / pojdi} domov. [Slovenian]
freely may go / must go / go-Imp home

(e.g., Grosz 2011, Kaufmann 2011)

Universal quantification in generics and imperatives

Universal quantificational force via STR

(45) a. Take a fruit!
b. [STR [Imp$_{Acc}$ [you take a fruit]]]

(46) a. Without STR: (some w in Acc: you take a fruit in w)
b. With STR: (every w in Acc: you take a fruit in w)

(See Kaufmann 2011, Oikonomou 2016 for imperatives; Singh et al. 2013, Bowler 2014, Bar-Lev & Margulis 2014, Bassi & Bar-Lev 2016, Wong 2017 for other types of existential quantifiers and disjunction.)

Subtrigging and genericity

Any may be felicitous when it is apparently unembedded

(47) a. Mary confidently answered any objections. (Dayal 1998)
b. John talked to any woman #(at the party).

(see also LeGrand 1975, Jayez & Tovena 2005, Aloni 2007a, i.a.)

With the universal construal, we get the following inferences:

(48) a. Mary confidently answered any objections.
b. ⇒ Mary confidently answered any {difficult, inane, etc.} objections.

Generic analysis of subtrigging

(49) a. Mary confidently answered any objections.
b. [STR [Gn_{dom} [Mary answered any objections]]

Intermediate summary

- Maximal Strength predicts that *any* is acceptable in existential modal sentences – but only if free choice inferences are triggered.
- We had to assume that generics and imperatives involve underlying existential quantification. This is independently supported.
- We pointed out that the universal interpretation of generic/imperative sentences can be derived by the same means deriving free choice inferences.
- We hinted at how the cases of subtrigging may be handled on this approach to free choice, namely, as involving underlying generic quantification.

Universal modals and free choice inference

Free choice is possible with universal modals

(50) John must read Purity or Freedom.

(51) a. ⇒ John may read Purity.
b. ⇒ John may read Freedom.

However, we get different inferences than with existential modals:

(52) a. John must read a book and he may read any book.
b. ⇏ John must read a long book and he may read any long book.

Derivation

Free choice meaning

(53) a. #You must read any book.
b. [STR [□ [John read <u>any book</u>]]]

(54) □(you read a book) ∧ ◊(you read Purity) ∧ ◊(you read Freedom)

(55) □(John read a book) ∧ (every $book_x$: ◊(you read x))

Maximal Strength ✗

For NP⊂book: □(John read a book) ∧ (every $book_x$: ◊(you read x))

⇒ □(John read an NP) ∧ (every NP_x: ◊(you read x))

Summary

Problem of Free Choice

- Once free choice inferences of *any NP* are factored in, by the means of STR, the distribution of *any NP* is correctly described by Maximal Strength:
  - *Any* is acceptable in existential modal, generic, or imperative environments
  - *Any* is not acceptable in universal modal environments

Where are we at?

- A shift from **Ladusaw's Licensing Condition** to **Maximal Strength** did not affect the predictions about *any* in (i) plain upward-monotone and (ii) downward-monotone environments. In addition, it correctly delievered the distribution of *any* in (iii) modal environments (Problem of Free Choice).

Problem of Exactly

(56) Out of my twelve students, exactly two students [read any book].

(57) #Out of my twelve students, exactly ten students [read any book].

Maximal Strength ✗

For every NP⊂book: exactly *n* st's read a book ⇒ exactly *n* st's read an NP

Modified Licensing Condition on *any* (final)

Maximal Strength

Any NP is licensed iff it occurs in a constituent whose meaning is logically stronger than that of the alternatives to the constituent induced by *any NP*.

We must relax the ordering relation on alternatives in such a way that

- the predictions about *any* in plain upward-monotone, in downward-monotone, and in modal environments are left unaffected,
- acceptable occurrences of *any* in non-monotone environments are admitted, and unacceptable occurrences are ruled out.

(Maximal Strength) Minimal Likelihood

Any NP is licensed iff it occurs in a constituent whose meaning is ~~log. stronger~~ less likely than that of the alternatives to the constituent induced by *any NP*.

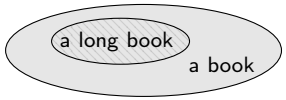
Modified Licensing Condition on *any* (final)

Minimal Likelihood
Any NP is licensed iff it occurs in a constituent whose meaning is less likely than that of the alternatives to the constituent induced by *any NP*.

Entailment and likelihood (roughly)

(58) John read a long book ⇒ John read a book

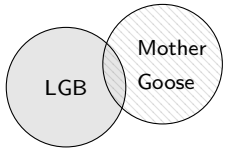
(59) John read a long book $<_c$ John read a book



Logical independence and likelihood

(60) John read LGB $\not\Rightarrow_{\not\Leftarrow}$ John read Mother Goose

(61) John read LGB $<_c$ John read Mother Goose



Monotone environments

Upward-monotone environments

(62) #John read any book.

(63) For every NP⊂book: John read an NP ⇒ John read a book

Minimal Likelihood ✗
For every NP⊂book: John read a book $<_c$ John read an NP

Downward-monotone environments

(64) John didn't read any book.

(65) For every NP⊂book: ¬(John read a book) ⇒ ¬(John read an NP)

Minimal Likelihood ✓
For every NP⊂book: ¬(John read a book) $<_c$ ¬(John read an NP)

Non-monotone environments

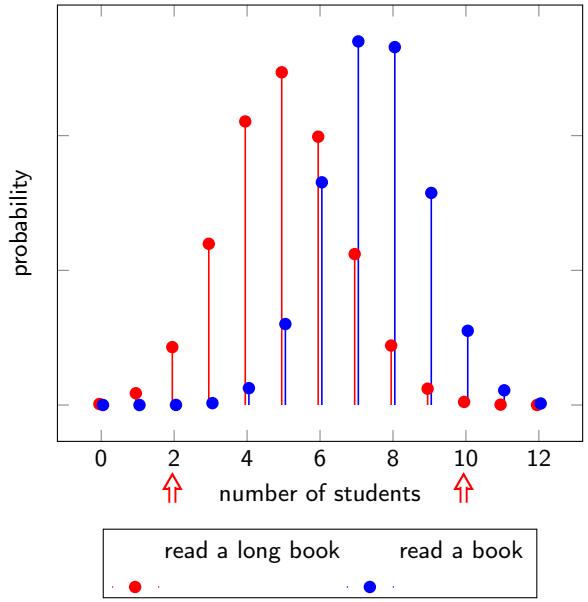
(66) Out of my 12 students, exactly 2 students read any book.

Minimal Likelihood ?
For every NP⊂book: exactly 2 st's read a book $<_c$ exactly 2 st's read an NP

(67) #Out of my 12 students, exactly 10 students read any book.

Minimal Likelihood ?
For every NP⊂book: exactly 10 st's read a book $<_c$ exactly 10 st's read an NP

Cursory representation of shared expectations



Non-monotone environments

(68) Out of my 12 students, exactly 2 students read any book.

Minimal Likelihood ✓
For every NP⊂book: exactly 2 st's read a book $<_c$ exactly 2 st's read an NP

(69) #Out of my 12 students, exactly 10 students read any book.

Minimal Likelihood ✗
For every NP⊂book: exactly 10 st's read a book $<_c$ exactly 10 st's read an NP

Summary

- We modified the licensing condition by replacing entailment with likelihood:
  - Upward-monotone environments: *any* is unacceptable
  - Downward-monotone environments: *any* is acceptable
  - Non-monotone environments: *any* may be acceptable
- If *any* occurs in the scope of a non-monotone quantifier, Minimal Likelihood is satisfied only in certain contexts (where fitting assumptions are shared).
- The analysis may provide some insight into the gradation of acceptability judgments (and individual variability) reported with respect to sentences containing polarity items (Chemla et al. 2011) – namely, these effects may be due to differences in individuals' assumptions about the context.

Problem of Desire

(70) So many tasks piled up over the last few months! –
I hope that [I will read any book this summer].

(71) #I hope that [I will get through any of my slides].

(72) #I think that [I will read any book this summer].

Desire predicates are not downward-monotone

(73) a. I hope that [I will read a book].
b. $\not\Rightarrow$ I hope that [I will read a book twice].

(cf. Linebarger 1987, Giannakidou 1999)

Desire attitudes are non-monotone

(74) a. I want to teach Tuesdays and Thursdays next semester.
b. $\not\Rightarrow$ I want to teach next semester.

(75) a. Sue hopes that Jane took the 101 early in the morning.
b. $\not\Rightarrow$ Sue hopes that Jane took the 101.

(76) a. I think that I teach Tuesdays and Thursdays next semester.
b. $\Rightarrow$ I think that I teach next semester.

(e.g., Asher 1987, Heim 1992, von Fintel 1999, Villalta 2008)

Another argument for non-monotonicity

Positive polarity items

(77) John has already talked to someone.

(78) #John hasn't already talked to someone.

Rescuing of positive polarity items

(79) a. ?Exactly one person hasn't already talked to someone.
b. I doubt that John hasn't already talked to someone.

(esp. Szabolcsi 2004)

(80) a. I hope that John hasn't already talked to someone. (Baker 1970)
b. #I think that John hasn't already talked to someone.

Derivation

(81) I hope that I will read any book.

(82) a. Presupposition: $\Diamond_{\text{Ep(sp)}}(\neg$I read a book)
b. Assertion: $\Box_{\text{Des(sp)}}$(I read a book) (von Fintel 1999)

Maximal Strength ?

For every NP$\subset$book: $\Diamond_{\text{Ep(sp)}}(\neg$I read a book$) \wedge \Box_{\text{Des(sp)}}$(I read a book) $<_c$ $\Diamond_{\text{Ep(sp)}}(\neg$I read an NP$) \wedge \Box_{\text{Des(sp)}}$(I read an NP)

Belief attitudes

(83) #I think that I will read any book.

(84) Assertion: $\Box_{\text{Bel(sp)}}$(I read a book)

(85) For every NP$\subset$book: $\Box_{\text{Bel(sp)}}$(I read an NP) $\Rightarrow \Box_{\text{Bel(sp)}}$(I read a book)

(86) For every NP$\subset$book: $\Box_{\text{Bel(sp)}}$(I read an NP) $\leq_c \Box_{\text{Bel(sp)}}$(I read a book)

Minimal Likelihood ✗

For every NP$\subset$book : $\Box_{\text{Bel(sp)}}$(I read a book) $<_c \Box_{\text{Bel(sp)}}$(I read an NP)

Negated desire attitudes

(87) I didn't hope that I will read any book.

(88) a. Presupposition: $\Diamond_{\text{Ep(sp)}}(\neg$I read a book)
b. Assertion: $\neg\Box_{\text{Des(sp)}}$(I read a book)

Minimal Likelihood ✓

For NP$\subset$book: $\neg\Box_{\text{Des(sp)}}$(I read a book) $<_c$ $\neg\Box_{\text{Des(sp)}}$(I read an NP)

Summary

- If *any* occurs in the scope of Desire predicates, Minimal Likelihood can be satisfied if appropriate assumptions obtain in the context.
- We proposed that the non-monotonicity with desire predicates springs from accommodating their presuppositions. The difference between desire and belief predicates in licensing *any* stems from their different presuppositions.
- We suggested that the distribution of *any* in negated desire statements provides support for assigning desire predicates monotone assertive meanings.

Description

Minimal Likelihood

Any NP is licensed iff *any NP* occurs in a constituent whose meaning is less likely than that of the alternatives to the constituent induced by *any NP*.

Alternatives

Any NP is an existential quantifier and its alternatives are existential quantifiers whose domains are subsets of the domain of *any*.

- Upward-monotone environments: *any* is unacceptable
- Downward-monotone environments: *any* is acceptable
- Non-monotone environments: *any* may be acceptable

Hindi Negative Polarity Items

(89) #ek bhii aadmii aayaa
one even man arrived
'#Anyone arrived.'

(90) ek bhii aadmii nahiiN aayaa
one even man not came
'No one arrived.'

(91) tum kabhii bhii ghar jaa sakte ho
you sometime even home go may
'You may go home at anytime.'

(Lahiri 1998)

Hindi Negative Polarity Items

Mobile *even* component

(92) $[\![\text{even}]\!](x)(P)$ is defined only if $\forall y \neq x$: $P(x) \neq P(y) \rightarrow P(x) <_c P(y)$.

(93) a. Even John arrived.
b. [even John] [λx [x arrived]]

(94) Presupposition: $\forall x \neq$ John: (John arrived) $<_c$ (x arrived)

Weak indefinite component

(95) a. ek = one
b. ALT(ek) = {two, three, four, etc.}

(96) a. [ek bhii aadmii]
b. [[[even one] many] man]

(e.g., Hackl 2000, Solt 2015, Rett 2016 on *many*)

Hindi Negative Polarity Items

Upward-monotone environments

(97) a. #ek bhii aadmii bhii ayaa
one even man arrived
b. [even one] [λd [[d-many man] arrived]]

(98) Presupposition: #$\forall$n>1: (one man arrived) $<_c$ (n men arrived)

Downward-monotone environments

(99) a. ek bhii aadmii nahiiN aayaa
one even man not arrived
b. [even one] [λd [neg [[d-many man] arrived]]]

(100) Presupposition: $\forall$n>1: $\neg$(one man arrived) $<_c$ $\neg$(n men arrived)

Explanation

The domain of *any* is an associate of (covert) *even*

(101) $[\![\text{even}]\!](D)(P)$ is defined only if $\forall D' \subset D$: $P(D) \neq P(D') \rightarrow P(D) <_c P(D')$.

(102) a. [any book]
b. [[any [even D]] book]

Downward-monotone environments

(103) a. John didn't read any book.
b. [even D] [λD' [neg [John read [[any D'] book]]]]

(104) Presupposition:
$\forall D' \subset D$: $\neg$(John read a book in D) $\neq$ $\neg$(John read a book in D')
$\rightarrow$ $\neg$(John read a book in D) $<_c$ $\neg$(John read a book in D')

(cf. Krifka 1995, Lahiri 1998)

Explanation

Existential modal environments

(105) John is allowed to read any book.

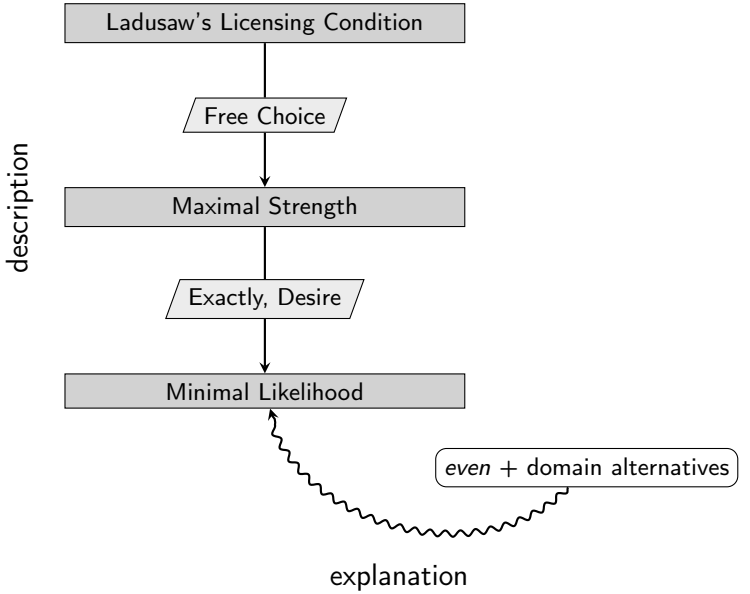
(106) [even D] [λD' [STR [◊ [John read [[any D'] book]]]]]

(107) ∀D'⊂D: (every bk-in-D_x:◊(you read x)) ≠ (every bk-in-D'$_x$:◊(you read x))
→ (every bk-in-D_x: ◊(you read x)) <$_c$ (every bk-in-D'$_x$: ◊(you read x))

Ellipsis provides further support for this configuration (Crnič 2017)

(108) a. John is allowed to read any book. Mary is too.
b. John is allowed to read any book. #Mary has to/already did.

(109) John didn't read any book. But he was allowed to – except for *Lolita*!



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