Neutralizing Free Choice Items via Maximal Domain Restriction: Farsi *-i* Indefinites

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Table of Contents

Free Choice Indefinites

1. DPs with existential force in downward entailing (DE) contexts.

(1) Niemand hat irgendeine Frage beantwortet.
Nobody has irgend-one question answered
'Nobody answered a question.' (Aloni and Port, 2015, p. 121)

(2) Nobody answered any questions.

Free Choice Indefinites

2. Stronger than existentials under modals.

(3) Mary muss irgendeinen Arzt heiraten.
Mary has-to IRGENDEIN doctor marry
'Mary has to marry a doctor—any doctor.'
(Kratzer and Shimoyama, 2002, p. 13)

(4) Mary can marry any doctor.

In contrast with regular indefinites (*ein, a*), *irgendein* and *any* in (3) and (4) require all doctors to be permitted options
—a 'Free Choice Effect.'

Two Types of FCIs

Existential FCIs

German *irgendein*, Spanish *algún*, Italian *un NP qualsiasi, un qualche*, Romanian *vreun*, Sinhala *wh-də* and *wh-hari*, Chinese *wh*-words, Czech's *-si* indefinites ...

Universal FCIs

English *any*, Spanish *cualquiera*, Italian *qualsiasi, qualunque*, ...

EFCIs are OK under necessity modals.

(5) Mary muss irgendeinen Arzt heiraten.
Mary has-to IRGENDEIN doctor marry
'Mary has to marry a doctor—any doctor.'
(Kratzer and Shimoyama, 2002, p. 13)

UFCIs are degraded under necessity modals . . .

(6) ?? Mary must read any book.

UFCIs are degraded under necessity modals . . .

(6) ?? Mary must read any book.

. . . unless they are modified:

(7) Mary must read any book on the reading list.

(based on Chierchia 2013, 309)

'subtrigging'

(Legrand, 1975)

(Dayal, 1998, 2005, 2013)

Unembedded FCIs: UFCIs

1. Licensed only when modified (‘subtrigged’)

(8) Mary confidently answered any objections that her students raised. (based on Dayal 1998, 446)

Unembedded FCIs: UFCIs

1. Licensed only when modified ('subtrigged')

(8) Mary confidently answered any objections that her students raised. (based on Dayal 1998, 446)

2. $\forall$ force:

(8) $\rightsquigarrow$ Mary answered all objections that her students raised.

Unembedded FCIs: UFCIs

1. Licensed only when modified ('subtrigged')

(8) Mary confidently answered any objections that her students raised. (based on Dayal 1998, 446)

2. $\forall$ force:

(8) $\rightsquigarrow$ Mary answered all objections that her students raised.

3. Support counterfactual inferences:

(9) If Mary's students had objected to her handwriting, she would have answered that objection too.

Unembedded FCIs: EFCIs

1. Licensed even if they are not modified.

Unembedded FCIs: EFCIs

1. Licensed even if they are not modified.
2. $\exists$ force.

Unembedded FCIs: EFCIs

1. Licensed even if they are not modified.
2. $\exists$ force.
3. Convey modality.

(10) María sale con algún filósofo. epistemic
María is dating with ALGÚN philosopher
'María is dating some philosopher or other— I don't know which one.'

Spanish

Losing FCI Status: EFCIs

Previous work has identified cases where inflectional morphology forces EFCIs to lose their FCI status.

Alonso-Ovalle and Menéndez-Benito 2011

No Epistemic Effect

(11) # María habló con algún estudiante, en concreto con Pedro.
María talked to ALGÚN student, namely with Pedro
'María talked to some student or other, namely Pedro.'

(12) María habló con algunos estudiantes, en concreto con
María talked to ALGUNOS students, namely with
Pedro, Juan y Carlos.
Pedro, Juan and Carlos
'María talked to some students, namely Pedro, Juan, and Carlos.'

Alonso-Ovalle and Menéndez-Benito 2011

Deriving FCI Neutralization (Alonso-Ovalle and Menéndez-Benito, 2011)

FCIs introduce alternatives into the semantic derivation.

Exclusion of alternatives derives FCI status.

Plural *algunos* can only trigger alternatives that are equivalent to the assertion, thus not excludable

$\rightsquigarrow$ no FCI status.

Questions

Does this pattern generalize across languages?

Does this pattern generalize across types of FCIs?

If so, do we find a general explanation for the neutralization of FCI status?

Today's Talk

Does this pattern generalize across languages?	Yes
Does this pattern generalize across types of FCIs?	Yes
If so, do we find a general explanation for the neutralization of FCI status?	Yes

Today's Talk

Empirical contribution:

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We identify two types of FCIs in Farsi $\begin{cases} \text{'}\textit{yek -i}\text{ DPs'— EFCI} \\ \text{'}\textit{har -i}\text{ DPs'— UFCI} \end{cases}$

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Puzzle:

Today's Talk

Empirical contribution:

We identify two types of FCIs in Farsi $\begin{cases} \text{'}\textit{yek -i}\text{ DPs'— EFCI} \\ \text{'}\textit{har -i}\text{ DPs'— UFCI} \end{cases}$

Puzzle:

yek -i and *har -i* DPs + accusative marker *-ro* lose FCI status.

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Solution:

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Empirical contribution:

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Solution:

behavior follows from current alternative-based analyses of FCIs under minimal assumptions about *-ro*.

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Empirical contribution:

We identify two types of FCIs in Farsi $\begin{cases} \text{'}\textit{yek -i}\text{ DPs'— EFCI} \\ \text{'}\textit{har -i}\text{ DPs'— UFCI} \end{cases}$

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behavior follows from current alternative-based analyses of FCIs under minimal assumptions about *-ro*.

Explanation parallel to the loss of FCI status with *algunos*.

Table of Contents

The Puzzle

Yek -i DPs vs. *Har -i* DPs

FCIs in Farsi: *Yek* **NP** *-i* **vs.** *har* **NP** *-i*

We identified two varieties of FCIs in Farsi:

yek ('one') NP-*i* ('*yek -i* DPs')

har ('each') NP-*i* ('*har -i* DPs')

Yek -i DPs in DE Contexts: ∃ (Alonso-Ovalle and Moghiseh, forthcoming)

(13) shak dar-am Ava ye film-i dide bash-e.
doubt have-1.SG Ava one film-IND seen be-3.SG
'I doubt that Ava has watched any movie.' doubt > ∃

(14) Age Ava ye ketab-i bexun-e, ye jaize migire.
if Ava one book-IND read-3.SG one gift take-3.SG
'If Ava reads a book, she gets a gift.' if [. . . ∃ . . .], then . . .

Yek -i DPs

(Alonso-Ovalle and Moghiseh, forthcoming)

Like other EFCIs, *yek -i* DPs trigger a Free Choice Effect under $\left\{ \begin{array}{l} \Diamond \\ \Box \end{array} \right.$

(15) *Scenario:* There are only five books ($\{b_1 \ldots b_5\}$). Ava is not allowed to buy b_4 or b_5.

(16) ✓ Ava mitune ye ketab be-xar-e.
Ava can one book IMP-buy-3.SG
'Ava can buy a book.' ◊ > ∃ TRUE

(17) ✗ Ava mitune ye ketab-i be-xar-e.
Ava can one book-IND IMP-buy-3.SG
'Ava can buy any book.' FALSE

(17) conveys $\Diamond b_1 \wedge \ldots \wedge \Diamond b_5$ Free Choice Effect

(18) *Scenario:* There are only five books ($\{b_1 \ldots b_5\}$). Ava is required to buy a book, but he is not allowed to buy b_4 or b_5.

(19) ✓ Ava bayad ye ketab be-xar-e.
Ava must one book IMP-buy-3.SG
'Ava must buy a book.' □ > ∃ TRUE

(20) ✗ Ava bayad ye ketab-i be-xar-e.
Ava must one book-IND IMP-buy-3.SG
'Ava must buy a book–any book.' FALSE

(20) conveys $\Box(b_1 \vee \ldots \vee b_5) \wedge \Diamond b_1 \wedge \ldots \wedge \Diamond b_5$ Free Choice Effect

Har -i DPs + ◊

(21) *Scenario:* There are only five books ($\{b_1 \ldots b_5\}$). Ava is not allowed to buy b_4 or b_5.

(22) ✗ Ava mitune har ketab-i be-xun-e.
Ava can each book-IND IMP-read-3.S
'Ava can read any book.' FALSE

(22) conveys $\Diamond b_1 \wedge \ldots \wedge \Diamond b_5$ Free Choice Effect

Har -i DPs + □

(23) *Ava bayad har ketab-i be-xun-e.
Ava must each book-IND IMP-read-3.S

Har -i DPs + □

(23) *Ava bayad har ketab-i be-xun-e.
Ava must each book-IND IMP-read-3.S

(24) Ava bayad har ketab-i ke peyda mikone be-xun-e.
Ava must each book-IND that find does IMP-read-3.SG
'Ava must read any book that she finds.'

Har -i DPs in Positive Episodic Sentences

(25) *Ava har ketab-i xund.
Ava each book-IND read-3.SG

Har -i DPs in Positive Episodic Sentences

(25) *Ava har ketab-i xund.
Ava each book-IND read-3.SG

(26) Ava har ketab-i ke roo miz-esh boode bashe
Ava each book-IND that on table-POSS.3SG was SUBJ
xund-e.
read-PERF-3.S
'Ava read any book that was on her desk.'

1. Universal force.
2. Support counterfactual inferences.
3. Disallow discourse anaphora.

(27) Ava har ketab-i ke roo miz-esh boode bashe
Ava each book-IND that on table-POSS.3SG was SUBJ
xund-e.
read-PERF-3.S
'Ava read any book that was on her desk.'

Assume *The Stranger*, *Oblomov*, and *The Idiot* were on Ava's desk.

(27) $\rightsquigarrow$

(28) Ava read *The Stranger*, *Oblomov*, and *The Idiot*.

(29) Ava har ketab-i ke roo miz-esh boode bashe
Ava each book-IND that on table-POSS.3SG was SUBJ
xund-e.
read-PERF-3.S
'Ava read any book that was on her desk.'

$\rightsquigarrow$

(30) If *Ulysses* had been on her desk, Ava would have read it.

Subtrigged *har -i* DPs: No Discourse Anaphora

(31) Ava har ketab-i ke roo miz-esh boode bashe
Ava each book-IND that on table-POSS.3SG was SUBJ
xund-e . . .
read-PERF-3.S . . .
'Ava read any book that was on her desk.'

(32) #. . . Forood ham una ro xund-e.
. . . Forood too those ACC read-PERF-3.S
'. . . and Forood has read them too.'

	◇	□	unembedded	subtrigging
yek -i DPs	FCE	FCE	✓	no
har -i DPs	FCE	*	*	✓

The Puzzle

Losing FClness: Accusative *-ro*

The Puzzle

$$\left.\begin{array}{l} \textit{yek -i} \text{ DPs} \\ \textit{har -i} \text{ DPs} \end{array}\right\} + \begin{array}{c} \text{accusative marker } \textit{-ra} \\ (\textit{-ro} \text{ in the informal register}) \end{array} \Rightarrow \text{no FCI behavior.}$$

Har -i DPs + *-ro*

No (unrestricted) FCE:

(33) Ava mitune har ketab-i ro be-xun-e.
Ava can each book-IND ACC IMP-read-3.S
'There is a particular group of books each of which Ava can read.'

Not: 'Ava is allowed to read any book.'

Har -i DPs + *-ro*

Unmodified *har -i* DPs + *-ro* are OK with necessity modals:

(34) Ava bayad har ketab-i ro be-xun-e.
Ava must each book-IND ACC IMP-read-3.S
'There is a certain group of books each of which Ava must read.'

Not: 'Ava must read a book—any book.'

Unmodified unembedded *har -i* DPs + *-ro* are OK:

(35) Ava har ketab-i ro xund.
Ava each book-IND ACC read-3.S
'Ava read each book in a certain group of books.'

Har -i DPs + *-ro* (Unembedded / + □) $\neq$ Subtrigging

Acceptable *har -i* DPs + *-ro*

1. retain universal force (but contextually restricted),
2. don't license counterfactual inferences,
3. allow for discourse anaphora.

(36) Ava har ketab-i ro xund.
Ava each book-IND ACC read-3.S
'Ava read each book in a certain group of books.'

(37) Ava har ketab-i ro xund.
Ava each book-IND ACC read-3.S
'Ava read each book in a certain group of books.'

(38) *Scenario*: Ava wanted to read three books, namely *The Stranger*, *Oblomov*, and *The Idiot*, and she read them. She didn't want to read other books.

$\not\rightsquigarrow$

(39) If *Ulysses* had been in that group of books, Ava would have read it.

(40) Ava har ketab-i ro xund, Forood ham una ro
Ava each book-IND ACC read-3.S, Forood too those ACC
xund.
read-3.S
'Ava read each book in a certain group of books, and Forood has read them too.'

Summary

	◊	□	unembedded
har -i DPs	FCE	*	*
har -i DPs + *-ro*	no FCE	✓	✓

Yek -i DPs + *-ro*

Parallel behavior. No FCE.

(41) Ava mitune ye ketab-i ro be-xun-e.
Ava can one book-IND ACC IMP-read-3.S
'There is a specific book that Ava is allowed to read.'

The Puzzle

What does *-ro* do to block the FCI-behavior of *yek -i* and *har -i* DPs?

Table of Contents

Preview

1. Adopt a standard analysis for FCIs for *yek -i* and *har-i* DPs.
2. Show that *-ro* + existentials $\rightsquigarrow$ exceptional scope interpretations.
3. Endorse an analysis of exceptional scope based on maximal domain shrinking. (Schwarzschild, 2002)
4. Show that 1 + 3 derives the losing of FCI status.

Proposal

Yek -i and *Har -i* DPs as FCIs

An Alternative Based Theory of FCIs (Chierchia, 2013)

FCIs are $\exists$-quantifiers that end up introducing into the semantic derivation two types of propositional alternatives:

- scalar alternatives (ALT_{σ}), and
- (pre-exhaustified) domain alternatives ($\text{ALT}_{\text{EXH-D}}$)

O_{ALT} strengthens $\exists$-assertion by excluding alternatives not entailed by the assertion.

Har -i vs. *yek -i* DPs

Har requires a domain with pluralities.

It conveys that at least one plurality in its domain is such that all its members have the VP property.

(42) $[\![\text{har}]\!] = \lambda f_{\langle e,t\rangle} : \text{PLURAL}(f) \neq \emptyset.\ \lambda g_{\langle e,t\rangle}.\exists x \left[\begin{array}{c} f(x) \wedge \text{PLURAL}(x) \\ \wedge\ \forall y_{\text{at}} \leq x[g(y)] \end{array} \right]$

Har -i vs. *yek -i* DPs

Yek requires a domain with atoms.

It conveys that at least one atom in its domain has the VP property.

(43) $[\![\text{yek}]\!] = \lambda f_{\langle e,t\rangle} : \text{ATOM}(f) \neq \emptyset.\ \lambda g_{\langle e,t\rangle}.\exists x[f(x) \wedge \text{ATOM}(x) \wedge g(x)]$

(44) LF: [$_{IP}$ [har book -i] 1 Ava read t_1]

$$[\![\text{book}]\!]^w = \{b_1, b_2, b_3, b_1 \oplus b_2, b_1 \oplus b_3, b_2 \oplus b_3, b_1 \oplus b_2 \oplus b_3\}$$

$$[\![\ [_{IP} \ldots]\ ]\!] = (b_1 \wedge b_2) \vee (b_2 \wedge b_3) \vee (b_1 \wedge b_3) \vee (b_1 \wedge b_2 \wedge b_3)$$

$$\Leftrightarrow (b_1 \wedge b_2) \vee (b_2 \wedge b_3) \vee (b_1 \wedge b_3)$$

-i marks the introduction of alternatives

(Deal and Farudi, 2007; Alonso-Ovalle and Moghiseh, forthcoming)

Domain and Scalar Alternatives for *Har -i* DPs

Domain alternatives are determined by restricting the domain.

(45) $$\left\{ \lambda g.\exists x \left[\begin{array}{c} D'(x) \wedge [\![\text{NP}]\!](x) \wedge \textsc{plural}(x) \wedge \\ \forall y_{\text{at}} \leq x[g(y)] \end{array} \right] \middle| D' \subseteq D \right\}$$

Scalar alternatives are determined by replacing $\exists$ with $\forall$.

(46) $$\left\{ \lambda g.\forall x \left[\begin{array}{c} D(x) \wedge [\![\text{NP}]\!](x) \wedge \textsc{plural}(x) \rightarrow \\ \forall y_{\text{at}} \leq x[g(y)] \end{array} \right] \right\}$$

Domain and Scalar Alternatives for *Yek -i* DPs

Domain alternatives are determined by restricting the domain.

(47) $$\left\{ \lambda g.\exists x \left[\begin{array}{c} D'(x) \wedge [\![\text{NP}]\!](x) \wedge \text{ATOM}(x) \\ \wedge\ g(x) \end{array} \right] \middle| D' \subseteq D \right\}$$

Scalar alternatives are determined by replacing $\exists$ with $\forall$.

(48) $$\left\{ \lambda g.\forall x \left[\begin{array}{c} D(x) \wedge [\![\text{NP}]\!](x) \wedge \text{ATOM}(x) \\ \rightarrow g(x) \end{array} \right] \right\}$$

(49) LF: $[_{\text{IP}}$ [har book -i]$_{[+\sigma,+D]}$1 Ava read $t_1]$

$D = [\![\text{book}]\!]^w = \{b_1, b_2, b_3, b_1 \oplus b_2, b_1 \oplus b_3, b_2 \oplus b_3, b_1 \oplus b_2 \oplus b_3\}$

$[\![\ [_{\text{IP}} \ldots] \ ]\!] =$ $(b_1 \wedge b_2) \vee (b_2 \wedge b_3) \vee (b_1 \wedge b_3)$

$\text{ALT}_\sigma([_{\text{IP}} \ldots]) =$ $\{b_1 \wedge b_2 \wedge b_3\}$

$$[\![\, [_{\mathsf{IP}} \ldots] \,]\!] = \qquad (b_1 \wedge b_2) \vee (b_2 \wedge b_3) \vee (b_1 \wedge b_3)$$

$$\mathsf{ALT}_{\mathsf{D}}([_{\mathsf{IP}} \ldots]) = \left\{ \begin{array}{c} (b_1 \wedge b_2) \vee (b_2 \wedge b_3) \vee (b_1 \wedge b_3), \\ (b_1 \wedge b_2) \vee (b_2 \wedge b_3), \\ (b_2 \wedge b_3) \vee (b_1 \wedge b_3), \\ (b_1 \wedge b_2) \vee (b_1 \wedge b_3). \\ b_1 \wedge b_2, \\ b_2 \wedge b_3, \\ b_1 \wedge b_2, \\ b_1 \wedge b_2 \wedge b_3 \end{array} \right\}$$

$$[\![\ [_{\text{IP}} \ldots]\ ]\!] = \qquad (b_1 \wedge b_2) \vee (b_2 \wedge b_3) \vee (b_1 \wedge b_3)$$

$$\text{ALT}_{\text{EXH-D}}([_{\text{IP}} \ldots])(-\text{ALT}_{\sigma}([_{\text{IP}} \ldots]) =$$

$$\left\{ \begin{array}{c} (b_1 \wedge b_2 \wedge \neg b_3) \vee (b_2 \wedge b_3 \wedge \neg b_1) \vee (b_1 \wedge b_3 \wedge \neg b_2), \\ (b_1 \wedge b_2 \wedge \neg b_3) \vee (b_2 \wedge b_3 \wedge \neg b_1), \\ (b_2 \wedge b_3 \wedge \neg b_1) \vee (b_1 \wedge b_3 \wedge \neg b_2), \\ (b_1 \wedge b_2 \wedge \neg b_3) \vee (b_1 \wedge b_3 \wedge \neg b_2). \\ b_1 \wedge b_2 \wedge \neg b_3, \\ b_2 \wedge b_3 \wedge \neg b_1, \\ b_1 \wedge b_2 \wedge \neg b_3 \end{array} \right\}$$

Canonical FCI Behavior

This setup is designed to capture canonical FCI behavior.

O_{ALT} excludes any alternative not entailed by the assertion.

(50) LF: O_{ALT} [$_{\text{IP}}$ [har book -i]$_{[+\sigma,+D]}$1 Ava read t_1]

$[\![[_{\text{IP}} \ldots]]\!] =$ $(b_1 \wedge b_2) \vee (b_2 \wedge b_3) \vee (b_1 \wedge b_3)$

$[\![O_{\text{ALT}}[_{\text{IP}} \ldots]]\!] =$ $\ldots \wedge \neg(b_1 \wedge b_2 \wedge b_3) \wedge \ldots$

$$\text{ALT}_{\text{EXH-D}}([\text{IP}\ldots])(-\text{ALT}_{\sigma}([\text{IP}\ldots]) =$$

$$\left\{\begin{array}{c}(b_1 \wedge b_2 \wedge \neg b_3) \vee (b_2 \wedge b_3 \wedge \neg b_1) \vee (b_1 \wedge b_3 \wedge \neg b_2),\\ (b_1 \wedge b_2 \wedge \neg b_3) \vee (b_2 \wedge b_3 \wedge \neg b_1),\\ (b_2 \wedge b_3 \wedge \neg b_1) \vee (b_1 \wedge b_3 \wedge \neg b_2),\\ (b_1 \wedge b_2 \wedge \neg b_3) \vee (b_1 \wedge b_3 \wedge \neg b_2).\\ b_1 \wedge b_2 \wedge \neg b_3,\\ b_2 \wedge b_3 \wedge \neg b_1,\\ b_1 \wedge b_2 \wedge \neg b_3\end{array}\right\}$$

Negating weakest alternative: anti-exhaustification

$$[(b_1 \wedge b_2) \rightarrow b_3] \wedge [(b_2 \wedge b_3) \rightarrow b_1] \wedge [(b_1 \wedge b_3) \rightarrow b_2]$$

(50) LF: O_{ALT} [$_{\text{IP}}$ [har book -i]$_{[+\sigma,+D]}$1 Ava read t_1]

$$[\![O_{\text{ALT}} \ldots]\!] = (b_1 \wedge b_2) \vee (b_2 \wedge b_3) \vee (b_1 \wedge b_3)$$

$$\wedge$$

$$\neg(b_1 \wedge b_2 \wedge b_3)$$

$$\wedge$$

$$[(b_1 \wedge b_2) \rightarrow b_3] \wedge [(b_1 \wedge b_3)] \rightarrow b_2] \wedge [(b_2 \wedge b_3) \rightarrow b_1]$$

$$\Leftrightarrow$$

$$\bot$$

(51) LF: O_{ALT} [$_{\text{IP}}$ [yek book -i]$_{[+\sigma,+D]}$1 Ava read t_1]

$[\![O_{\text{ALT}} \ \ldots]\!] =$

$(b_1 \vee b_2)$

$\wedge$

$\neg(b_1 \wedge b_2)$

$\wedge$

$(b_1 \rightarrow b_2) \wedge (b_2 \rightarrow b_1)$

$\Leftrightarrow$

$\bot$

Avoiding $\perp$

$\perp$ avoided when modals intervene between exhaustifier and FCI.

(52) LF: O_{ALT} ◊ [$_{IP}$ [yek book -i]$_{[+\sigma,+D]}$ 1 Ava read t_1]

$[\![O_{ALT}\Diamond[_{IP}\ldots]]\!] =$ $\Diamond(b_1 \vee b_2)$

$\wedge$

$\neg\Diamond(b_1 \wedge b_2)$

$\wedge$

$\Diamond b_1 \leftrightarrow \Diamond b_2$

☞No ⊥. FCE derived

$\Rightarrow \Diamond b_1 \wedge \Diamond b_2$

Modal intervention avoids ⊥ whether the modal is □ or ◊.

Since □ does not rescue UFCIs, modal intervention should not be possible with UFCIs.

Chierchia (2013): UFCIs scope over modals.

Q1: What rescues UFCIs with ◊ (but not with □)?

Q2: What rescues UFCIs in unembedded contexts when modified ('subtrigging')?

(53) LF: O_{ALT} [IP [har book -i]$_{[+\sigma,+D]}$ 1 $\Diamond$ [$_{IP}$ Ava read t_1]]

$$[\![O_{\text{ALT}} [_{\text{IP}} \ldots]]\!] = \quad (\Diamond b_1 \wedge \Diamond b_2) \vee (\Diamond b_2 \wedge \Diamond b_3) \vee (\Diamond b_1 \wedge \Diamond b_3)$$

$$\wedge$$

$$\neg(\Diamond b_1 \wedge \Diamond b_2 \wedge \Diamond b_3)$$

$$\wedge$$

$$[(\Diamond b_1 \wedge \Diamond b_2) \rightarrow \Diamond b_3] \wedge [(\Diamond b_2 \wedge \Diamond b_3) \rightarrow \Diamond b_1] \wedge [(\Diamond b_1 \wedge \Diamond b_3) \rightarrow \Diamond b_2]$$

$$\Leftrightarrow \bot$$

No ⊥ if modal base for the scalar implicature ⊂ domain implicature

(54) LF: O_{ALT} [$_{\text{IP}}$ [har book -i]$_{[+\sigma,+D]}$ 1 ◊ [$_{IP}$ Ava read t_1]]

$[\![O_{\text{ALT}} [_{\text{IP}} \ldots]]\!] =$

$\Diamond b_1 \wedge \Diamond b_2 \wedge \Diamond b_3$ (assertion + domain implicature)

$\wedge$

$\neg(\Diamond_{\{w_1\}} b_1 \wedge \Diamond_{\{w_1\}} b_2 \wedge \Diamond_{\{w_1\}} b_3)$ (scalar implicature)

w_1	b_1
w_2	b_2
w_3	b_3

Modal Containtment Cannot Help (Chierchia, 2013)

(55) LF: O_{ALT} [$_{\text{IP}}$ [har book -i]$_{[+\sigma,+D]}$ 1 □ [$_{IP}$ Ava read t_1]]

$[\![O_{\text{ALT}} [_{\text{IP}} \ldots]]\!] =$

$\Box b_1 \wedge \Box b_2 \wedge \Box b_3$ (assertion + domain implicature)

$\wedge$

$\neg(\Box_{\{w_1\}} b_1 \wedge \Box_{\{w_1\}} b_2 \wedge \Box_{\{w_1\}} b_3)$ (scalar implicature)

w_1	$b_1 \wedge b_2 \wedge b_3$
w_2	$b_1 \wedge b_2 \wedge b_3$
w_3	$b_1 \wedge b_2 \wedge b_3$

Subtrigging: Covert Modal + Modal Containment (Chierchia, 2013)

Like in Romance: we get subjunctive mood in the relative clause.

(56) Ava har ketab-i ke roo miz-esh boode bashe
Ava each book-IND that on table-POSS.3SG was SUBJ
xund-e.
read-PERF-3.S
'Ava read any book that was on her desk.'

Subtrigging: Covert Modal + Modal Containment (Chierchia, 2013)

(57) O_{ALT} [har student that $\Box$ showed up-i]$_{[+\sigma,+D]}$ 1 [$_{IP}$ A. talked to t_1]

$$\forall x \in \overbrace{\{y | \text{ST}_w(y) \wedge \Box_{w'} \text{SHOWED}_{w'}(y)\}}^{D_1} [\text{TALKED}(j, x)] \qquad \text{assertion + domain imp}$$

$$\wedge$$

$$\neg \forall x \in \underbrace{\{y | \text{ST}_w(y) \wedge \Box_{w'} \text{SHOWED}_{w'}(y)\}}_{D_2} [\text{TALKED}(j, x)]] \qquad \text{scalar implicature}$$

MC allows for $D_2 \supset D_1$, avoiding $\perp$.

Recap

By design, UFCIs derive $\perp$

$\perp$ avoided $\begin{cases} \text{with possibility modals (Modal Containtment)} \\ \text{subtrigging (modal modifier + Modal Containtment)} \end{cases}$

News from Farsi

The effect of accusative marker *-ro* illustrates a third way in which $\perp$ can be avoided.

Proposal

The Effect of *-ro*

(58) age Ava ye ketab-i ro bexun-e, jaize migire.
if Ava one book-IND ACC read-3.S gift take-3.S
'Ava will get a prize if she reads a certain book.'

(59) Ava in shayea ro ke Forood ye atiqe-i ro qachaq
Ava this rumor ACC that Forood one antique-IND ACC smuggle
karde takzib kard.
did denial did
'Ava denied the rumor that F. has smuggled a certain antique.'

Indefinites + -ro

-ro denotes a contextually fixed domain selection function that maps a set S to one of its singleton subsets.

(60) $[\![\text{-ro}_{i_{\langle et,et\rangle}}]\!]^g = \lambda f_{\langle e,t\rangle} : \textsc{singleton}(\mathbf{i}).\mathbf{i}(f)$

$$\textsc{singleton}(\mathbf{i}) \Leftrightarrow \forall h[\mathbf{i}(h) \in h \wedge |\mathbf{i}(h)| = 1]$$

(← López (2012): *-ro* and other differential object markers introduce a free variable ranging over choice functions)

Losing FCIness

If *-ro* restricts the domain of the existentials to a singleton set, we expect the implicature clash to disappear, because the domain and scalar implicatures

1. collapse (are equivalent)

Losing FCIness

If *-ro* restricts the domain of the existentials to a singleton set, we expect the implicature clash to disappear, because the domain and scalar implicatures

1. collapse (are equivalent)
2. are equivalent to any potential assertion, hence not excluded, since O_{ALT} only excludes alternatives stronger than the assertion.

Illustration

(61) LF: har (ro$_n$ (book -i)) 1 [Ava read t$_1$]

$$\text{PL}([\![\text{book}]\!]^w) = \{b_1 \oplus b_2, b_1 \oplus b_3, b_2 \oplus b_3, b_1 \oplus b_2 \oplus b_3\}$$

Possible assertions:

$$\exists x \in \{b_1 \oplus b_2\} \qquad \forall y_{\text{at}} \leq x[\text{READ}(A, y)]$$

$$\exists x \in \{b_1 \oplus b_3\} \qquad \forall y_{\text{at}} \leq x[\text{READ}(A, y)]$$

$$\exists x \in \{b_2 \oplus b_3\} \qquad \forall y_{\text{at}} \leq x[\text{READ}(A, y)]$$

$$\exists x \in \{b_1 \oplus b_2 \oplus b_3\} \forall y_{\text{at}} \leq x[\text{READ}(A, y)]$$

Illustration

assertion = domain alternatives = exhaustified domain alternatives

assertion	(exhaustified) domain alternative
$\exists x \in \{b_1 \oplus b_2\} \forall y_{\text{at}} \leq x[\textsc{read}(A, y)]$	$\{\exists x \in \{b_1 \oplus b_2\} \forall y_{\text{at}} \leq x[\textsc{read}(A, y)]\}$
$\exists x \in \{b_1 \oplus b_3\} \forall y_{\text{at}} \leq x[\textsc{read}(A, y)]$	$\{\exists x \in \{b_1 \oplus b_3\} \forall y_{\text{at}} \leq x[\textsc{read}(A, y)]\}$
$\exists x \in \{b_2 \oplus b_3\} \forall y_{\text{at}} \leq x[\textsc{read}(A, y)]$	$\{\exists x \in \{b_2 \oplus b_3\} \forall y_{\text{at}} \leq x[\textsc{read}(A, y)]\}$
$\exists x \in \{b_1 \oplus b_2 \oplus b_3\} \forall y_{\text{at}} \leq x[\textsc{read}(A, y)]$	$\{\exists x \in \{b_1 \oplus b_2 \oplus b_3\} \forall y_{\text{at}} \leq x[\textsc{read}(A, y)]\}$

Illustration

scalar alternative = domain alternative

$$\exists x \in \{b_1 \oplus b_2\} \forall y_{\text{at}} \leq x[\mathrm{R}(A, x)] \Leftrightarrow \forall x \in \{b_1 \oplus b_2\}[\mathrm{R}(A, x)]$$

Illustration

(63) LF: O_{ALT} har (ro$_n$ (book -i)) 1 [Ava read t$_1$]

(63) conveys that Ava read each book in a certain group of books.

Possible assertions:

$$\exists x \in \{b_1 \oplus b_2\} \qquad \forall y_{\text{at}} \leq x[\text{READ}(A, y)]$$

$$\exists x \in \{b_1 \oplus b_3\} \qquad \forall y_{\text{at}} \leq x[\text{READ}(A, y)]$$

$$\exists x \in \{b_2 \oplus b_3\} \qquad \forall y_{\text{at}} \leq x[\text{READ}(A, y)]$$

$$\exists x \in \{b_1 \oplus b_2 \oplus b_3\} \forall y_{\text{at}} \leq x[\text{READ}(A, y)]$$

Illustration

(63) LF: O_{ALT} har (ro$_n$ (book -i)) 1 [Ava read t$_1$]

‘Ava read each book in a certain group of books.‘

Restricted universal force derived.

Lack of counterfactual inferences derived.

Possible discourse anaphora derived.

Illustration

Parallel reasoning predicts the *yek* version to convey that Ava read a particular book.

Table of Contents

Conclusion

Under an alternative-based approach, FCIs derive a pathological meaning.

Several paths to restore the predicted pathology:

1. Modal intervention
2. Modal Containment

Farsi FCIs + *-ro*: a certain morphological configuration conspires to neutralize FCI status by delivering alternatives equivalent to the assertion (which O_{ALT} ignores)

Similar to the situation discussed in Alonso-Ovalle and Menéndez-Benito (2011) for Spanish *algún*.

Thanks!

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Har -i DPs in DE contexts

No NPI (neg > ∃) reading

(like Italian qualunque/qualsiasi in many DE contexts, unlike any)

(Chierchia, 2013)

(62) Ava har ketab-i na-xund.
Ava each book-IND NEG-read-3.SG
* 'Ava didn't read any book.'
(✓ ' Ava didn't read just any book.')

Har -i DPs in DE contexts: Proper Strengthening

Chierchia (2013):

blocking NPI readings of FCIs by requiring a version of the exhaustifier operator(s) (O^{PS}) that requires 'proper strengthening' (O^{PS} should be stronger than ϕ)

Har -i DPs in DE contexts: Proper Strengthening Violated

(63) O_{ALT} [$_{\text{IP}}$ NEG har book-i 1 Ava read t_1]

$[\![[_{\text{IP}} \ldots]]\!] = \quad \neg[(b_1 \wedge b_2) \vee (b_2 \wedge b_3) \vee (b_1 \wedge b_3)]$

Scalar alternative entailed by the assertion.

$\text{ALT}_\sigma([_{\text{IP}} \ldots]) = \quad \neg[(b_1 \wedge b_2) \wedge (b_2 \wedge b_3) \wedge (b_1 \wedge b_3)]$

Exhaustified domain alternatives are (entailed or) incompatible with the assertion. Assuming that the incompatible ones are false does not strengthen the assertion.

$$\text{ALT}_{\text{EXH-D}}([_{\text{IP}} \ldots]) = \left\{ \begin{array}{c} \neg(b_1 \wedge b_2) \wedge \neg(b_2 \wedge b_3) \wedge \neg(b_1 \wedge b_3) \\ \neg(b_1 \wedge b_2) \wedge \neg(b_2 \wedge b_3) \wedge (b_1 \wedge b_3) \\ \neg(b_1 \wedge b_2) \wedge (b_2 \wedge b_3) \wedge \neg(b_1 \wedge b_3) \\ (b_1 \wedge b_2) \wedge \neg b_3, \\ (b_2 \wedge b_3) \wedge \neg b_1, \\ (b_1 \wedge b_3) \wedge \neg b_2 \end{array} \right\}$$

Har -i DPs in DE contexts

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Har -i DPs in DE contexts: Proper Strengthening

Like Chierchia (2013) does for other FCIs, we need to assume that *har -i* requires a certain type of exhaustifier.

We need the exhaustifier that *har -i* depends on to require the alternatives that they operate over not to be weaker than or incompatible with the assertion.

The explanation for the lack of NPI readings is shifted from the output of *O* ('proper strengthening') to its possible alternative inputs.