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Number-Neutrality and Anaphoric Uptake of Pseudo-Incorporated Nominals in Persian (and Weak Definites in English)

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1 PINs and their Anaphoric Uptake

1.1 Pseudo-Incorporated Nominals (PINs)

Morphological (true) and syntactic (pseudo) incorporation:

- Morphological integration of a nominal head N into a transitive verb (cf. Mithun 1984, Baker 1996, …)
- Syntactic integration of an NP with a transitive verb, thereby filling an argument slot, but syntactically closer than "regular" object (cf. Massam 2001, ...)
- Example: Hungarian; Farkas & de Swart 2003

(1) a. *Mari olvas egy hosszú verset.* — indefinite, non-incorporated
Mari read a long poem.ACC
'Mary is reading a long poem.'

b. *Mari hosszú verset olvas.* — pseudo-incorporated: number neutral, no det, preverbal
Mari long poem.ACC read
'Mary is reading a long poem / long poems.'

- Example: Persian, Modarresi 2014, 2015

(2) a. *Leili yek sīb(-rā) khærīd.* — indefinite, non-incorporated
Leili an apple-(acc) bought.3SG
'Leili bought an apple.'

b. *Leili sīb khærīd.* — pseudo-incoprporated number neutral, no det, no case
Leili apple bought-3SG
'Leili bought an apple / appes.'

1.2 PINs and Anaphora

- Common claim: (Pseudo)-incorporated nominals cannot be taken up by anaphora.
- But: uptake by anaphora is possible in certain cases, cf.
  - van Geenhoven 1998, West Greenlandic
  - Asudeh & Mikkelsen 2000, Danish
  - Mithun 2010, Kapampangan
  - Massam 2001, Niuean,
  - Dayal 2011, Hindi,
  - Farkas & de Swart 2003, Hungarian
- Farkas & de Swart 2003: **discourse translucency**, for **null** anaphora

(3) *János*$_i$ *beteget*$_j$ *vizsgált a rendelőben.*
Janos$_i$ patient.ACC$_j$ examine.PAST the office.in
'Janos$_i$ patient$_j$-examined in the office.'

a. ??$\varnothing_i$ *Túl sulyosnak találta őt*$_j$ *és beutaltatta* $\varnothing_j$ *a korházba.*
pro$_i$ too severe.DAT find he$_j$.ACC and intern.CAUSE.PAST pro$_j$ the hospital.in

b. ✓$\varnothing_i$ *Túl sulyosnak találta* $\underline{\varnothing_j}$ *és beutaltatta* $\varnothing_j$ *a korházba.*
pro$_i$ too severe.DAT find.PAST $\underline{\text{pro}_j}$ and intern.CAUSE.PAST pro$_j$ the hospital.in
'He$_i$ found him$_j$ too sick and sent him to hospital.'

But possible also with **overt** pronouns (cf. Yanovich 2008):

(4) *A bátyám házat*$_1$ *vett a múlt héten. Egész vagyont adott érte*$_1$.
'The brother house-bought last week. He spent a fortune for it.'

2 Existing Proposals

2.1 Farkas & de Swart 2013: Thematic Arguments

Representation in terms of Discourse Representation Theory (Kamp & Reyle 1994) here illustrated with Persian data

(5) K_0 + [*Leili* [*yek sīb*] *khærid*]
= [x_1 x_2 | x_1 = LEILI, APPLE(x_2), BUY(x_1, x_2)], two DRs introduced: x_1, x_2

(6) K_0 + [*Leili* [*sib khærid*]]
= [x_1 | x_1 = LEILI, APPLE(x_2), BUY(x_1, x_2)] just one DR introduced: x_1
= K_1 x_2: **thematic argument**

Interpretation of thematic arguments:

(7) A function f verifies a condition of the form $P(x_1, \ldots, x_n)$ relative to a model $\langle A, [\![]\!] \rangle$
iff there is a sequence $\langle a_1, \ldots, a_n \rangle \in A_n$, such that $\langle a_1, \ldots, a_n \rangle \in [\![P]\!]$,
and if x_i is a **discourse referent**, $a_i = f(x_1)$
and if x_i is a **thematic argument**, a_i is **some** element in A.

Introduction of DR for anaphoric uptake of thematic arguments:

(8) If a suitable discourse referent cannot be found in K for an anaphoric expression,
introduce a new DR x_j and **add a condition** of the form $x_j \simeq x_i$,
where x_i is a thematic argument that is part of a condition $P(x_1, \ldots, x_i, \ldots x_n)$
in the conditions of K or a DRS that is superordinate to K

(9) f verifies the condition $x_j \simeq x_i$, with a preceding condition $P(x_1, \ldots, x_i, \ldots, x_n)$,
iff f maps x_j onto an individual a_i that is the i-th element
of an n-tuple $\langle a_1, \ldots, a_i, \ldots, a_n \rangle$ that verifies the condition $P(x_1, \ldots, x_i, \ldots, x_n)$.

Example:

(10) K_1 + [*Majnoon khord*=∅]
= [x_1 | x_1 = LEILI, APPLE(x_2), BUY(x_1, x_2)
x_3 x_4 | x_3 = MAJNOON, $x_4 \simeq x_2$, EAT(x_3, x_4)]

true w.r.t. f and a model $\langle A, [\![\,]\!] \rangle$
iff – $f(x_1) = [\![\text{LEILI}]\!]$,
– there is an a_2 such that $a_2 \in A$ with $a_2 \in [\![\text{APPLE}]\!]$,
– there is a sequence $\langle a_1, a_2 \rangle \in A \times A$ with $f(x_1) = a_1$ and $\langle a_1, a_2 \rangle \in [\![\text{BUY}]\!]$
– $f(x_3) = [\![\text{MAJNOON}]\!]$,
– f maps x_4 to a_2,
– $\langle f(x_3), f(x_4) \rangle \in [\![\text{EAT}]\!]$

Problems:

- Non-compositional rule:
  a_2 is bound by existential quantifier “there is a...”, hence not accessible from outside.
- Yanovich 2008:
  the rule does not guarantee binding between the individual that is an apple
  and the individual that Majnoon ate,
  as a_2 is bound by two independent quantifiers “there is...”

2.2 Modarresi 2015: Number-neutral DRs

- Pseudo-incorporated NPs introduce number-neutral DRs
  (such DRs already stipulated in Kamp & Reyle 1994).
- Overt pronouns are marked for number, hence expect number-marked DRs
  Covert pronouns: not marked for number, hence do not expect number-marked DRs

(11) *Leili sīb khærid. Majnoon khord-∅ /-??esh/ -??eshoon.*
Leili apple bought.3SG Majnoon ate-pro/-it/-them
‘Leili bought apple(s). Majnoon ate it / them.’

[x_1 ξ_2 | x = LEILI, APPLE/S(ξ_2), BUY(x_1,ξ_2)
x_3 | x_3 = MAJNOON, ATE(x_3, ξ_2)] ξ_2: number-neutral DR

- If world knowledge suggests atomic or sum interpretation of number-neutral DR,
  singular or plural overt pronouns are possible.

(12) a. *Leili apartman khærid. Gheimat-esh bala bood.* atomic interpretation
Leili appartment bought.3SG. Price-its high was.3SG
‘Leili bought appartment(s). Its price was high.’
b. *Leili havij khærid. Majnoon khord-eshoon.* sum interpretation
Leili carrot bought.3SG. Majnoon ate-them.
‘Leili bought carrot(s). Majnoon ate them.’

Problems:

- Why are pseudo-incorporated NPs interpreted as number neutral?
- Anaphoric uptake always more complex than with non-incorporated antecedent.

3 A New E-Type Analysis of PINs

3.1 E-type pronouns

Pronouns with quantifier antecedents, no c-command (Evans 1980; Nouwen subm.)

(13) *Few congressmen admire Kennedy, and they are very junior.* Evans 1980
'There are (only) few congressmen that admire Kennedy,
and the congressmen that admire Kennedy are very junior.'

Maximality effect with the pronoun interpretation, lacking with indefinites (Heim 1990):

(14) a. *A wine glass broke last night. It was very expensive.*
(o.k. if several wine glasses broke last night, and only one was expensive.)

b. *At least three wine glasses broke last night. They were very expensive.*
(all the wine glasses that broke last night were very expensive).

- Descriptive theory of pronouns (Neale 1990, Heim 1990, Elbourne 2005),
- but descriptive approaches are not required for E-type strategies (Nouwen subm.)

3.2 E-type pronouns in DRT

DRT (Kamp & Reyle 1993, Hardt 2003): abstraction and summation over DRSs

(15) *John beats most donkeys he owns. They complain*.

$[\ x_1 \mid x_1 = \text{JOHN}, [x_2 \mid \text{DONKEY}(x_2), \text{OWN}(x_1,x_2)]\ \langle \text{MOST } x_2 \rangle\ [\ \mid \text{BEAT}(x_1,x_2)]$

$\xi_3 \mid \xi_3 = \Sigma x_2\ [x_2 \mid \text{DONKEY}(x_2), \text{OWN}(x_1,x_2), \text{BEAT}(x_1,x_2)]]$

Abstraction and Summation rule:

- Given a triggering configuration with a duplex condition $K_1\langle Q\rangle K_2$ in a DRS K,
  - form the union $K' = K_1 \cup K_2$,
  - choose a DR x from K′, add new DR ξ to K′, add condition $\xi = \Sigma x\ K'$
- $\Sigma x\ K'$ relative to assignment g, model $M = \langle A, [\![\,]\!]\rangle$ is the sum of all $a \in A$ such that there is an extension g′ of g with g′(x) = a where K′ true w.r.t. g′ and M

Notice:

- DRs that are introduced in embedded DRSs become available as antecedents
- the choice of singular / plural pronoun depends on whether ξ is atomic or not
- Maximality effect arises by the interpretation of summation, Σ
- reference to DRSs K_1, K_2 is itself an anaphoric process (SDRT, Asher & Lascarides)

3.3 PINs as dependent definites under existential closure

Basic assumptions for incorporated nominals:

- Existential quantifiers with narrow scope in DRT
  -- Condition ∃K is true w.r.t. assignment g, model M
  iff there is an extension g′ of g such that K is true w.r.t. g′, M.
  -- Implicit in negation, disjunction, quantifier conditions: ¬∃K, ∃K∨∃K′, K→∃K′
- Existential Closure EC scoping over vP (Diesing 1991)
- EC ranges over event variable of the verb
- Nominals within vP are dependent definites relative to the event variable of the verb

Example:

(16) K_0 + [$_{IP}$ *Leili*$_1$ EC_2 [$_{vP}$ t_1 *sīb*$_3$ *kharīd*$_2$]] 'Leili apple bought'
= [x_1 | x_1=LEILI, ∃[e_2 x_3 | x_3 = APPLE-OF(e_2), BUY(x_1,x_3,e_2)]]
= K_1

where BUY(x_1,x_3,e_2): e_2 is an buying event, with x_1 the buyer, x_3 the object bought
APPLE-OF(e_2) is the unique apple of e_2

3.4 Anaphoric uptake of PINs by E-type strategy

(17) K_1 + [$_{IP}$ *Majnoon*$_4$ EC_5 [$_{vP}$ t_4 t_6 *khord-*∅]] 'Majnoon ate it/them'

[x_1 | x_1=LEILI, ∃[e_2 x_3 | x_3 = APPLE-OF(e_2), BUY(x_1,x_3,e_2)]

x_4 ξ_6 | x_4=MAJNOON,
ξ_6 = Σx_3[e_2 x_3 | x_3 = APPLE-OF(e_2), BUY(x_1,x_3,e_2)], Abstraction, Summation
∃[e_5 | EAT(x_4,ξ_6,e_5)]]

- Pronominal interpreted as E-type pronoun, requiring abstraction/summation
- Covert pronoun has no number feature, ideally relating to the number-neutral DR ξ_6
- If world knowledge suggests atomic/sum individual, singular/plural pronouns o.k.
- Anaphoric uptake more complex w.r.t. cases in which a DR is already introduced; hence if speaker intends to take up a DR, non-incorporated NPs are better.

4 Consequences and Further Observations

4.1 Number Neutrality

Number neutral interpretation of singular PINs predicted:

- (16) is compatible with there being multiple events of Leili buying an apple.

But then: Why are regular indefinites not interpreted as number neutral?

(18) K_0 + [$_{IP}$ *Leili*$_1$ EC_2[$_{vP}$ t_1 [$_{NP}$ *yek sīb*]$_3$ *kharīd*]]
Leili an apple bought.3SG

[x_1 x_3 | x_1=LEILI, APPLE(x_3), #(x_3)=1, ∃[e_2 | BUY(x_1,x_3,e_2)]]

- *yek* 'a/one' introduces #(x_3)=1, excludes alternatives #(x_3) > 1 by scalar implicature.
- With PINs, there is no scalar alternative to EC

4.2 Maximality Effect with anaphoric uptake of PINs

Due to summation in (17) we expect maximality effect, cf. Yanovich 2008

(19) *Ali khaneh darad. # Khane-ye-digari ham dard ke ejareh mideh.*
Ali house has. house-EZ-other also has that rent gives.
'Ali has house(s). He also has another house that he rents.' (EZ: ezafe linker)

(20) *Ali yek khaneh darad. Khane-ye-digari ham dard ke ejareh mideh.*
Ali a house has. house-EZ-other also has that rent gives
'Ali has a house. He also has another house that he rents.'

4.3 Avoidance of collective predication

- If PINs were semantically number neutral, collective predicates should be possible.
- Present theory: PINs are singular → no collective predicates (cf. Dayal 2011, 2015)

(21) *diruz Sara ??barg-e-khoshk / barg-ha-ye-khoshk jam.kard*
yesterday Sara leaf-EZ-dry leaf-PL-EZ-dry collected
'Yesterday Sara collected dry leave / dry leaves.'

But: bare singulars possible in habitual sentences:

(22) *Ali tambr jam-mi-konad*
Ali stamp collect-DUR-do.3SG
'Ali collects stamps.', 'Ali is a stamp collector.'

Explanation as generic quantification:

(23) [x_1 | x_1=ALI,
[SUITABLE t] ⇒ ∃[e_2, x_3 | e_2 in t, x_3=STAMP-OF(e_2) ∧ ADD TO-COLLECTION(x_1,x_3,e_2)]]
'Ali habitually adds a stamp to his collection.'

4.4 Plural nominals

Current theory predicts:

- In non-collective predication, plurality with incorporated nominals has no effect, as incorporation results in a number-neutral interpretation

Findings (cf. Modarresi 2014):

- Plural-marked incorporated nominals lead to specialized interpretations

(24) *Maryam ketāb-ha khand-ad.*
Maryam book-PL read-3SG
'Maryam has read (many) different books at different occasions.'

Nominal plural possibly indicating a multitude of events:

(25) $[x_1 \mid x_1 = \text{MARYAM}, \exists[E_2, X_3 \mid X_3 = \text{BOOKS-OF}(E_2), \text{READ}(x_1, X_3, E_2)]$

Cumulative interpretations (cf. Krifka 1994):

- When x = BOOK-OF(e), x′ = BOOK-OF(e′), then x⊕x′ = BOOKS-OF(e⊕e′)
  When READ(y,x,e), READ(y,x′,e′), then READ(y, x⊕x′, e⊕e′)
- Reference to collective events E suggest: Their parts are spatio-temporally distinct.

5 Additional Issues related to Persian

5.1 Accusative-marked bare nominals

Assumption (Modarresi 2015):

- *ra* marking is a morphological reflex of an object scrambling out of vP
  (Movement of an object NP into a initial focus position does not require *ra*-marking)
- (Scrambling of subjects has similar effects, but this is marked only prosodically)

ra-marking of bare NP results in definite interpretation:

(26) [*Leili*$_1$ *sīb-rā*$_3$ EC$_2$ [$_{vP}$ t$_1$ t$_3$ *kharīd*]]
Leili apple-ACC bought-3SG
'Leili bought the apple.'

- Recall: we have interpreted bare NPs as definites w.r.t. an event: APPLE-OF(e)
- Outside of vP, e cannot be dependent on the event e_2 introduced by EC, ence it must depend on a salient event given in the previous discourse or situation
- Generates definite reading: the apple given in previous discourse or in the situation
- Predicts: No number neutrality, singular interpretation
- Observe: We have a uniform interpretation of bare NPs as definites (for Persian)

Examples for *rā*-marked bare nominal:

(27) a. *tooye sabad miveh bood. Leili sīb-rā bardasht.*
in basket fruit was.3SG Leili apple-ACC took.3SG
'There were fruits in the basket. Leili took the apple'

b. $[x_1\ \xi_2 \mid x_3\ x_4 \mid \text{BASKET}(x_1), \text{FRUITS}(\xi_2), \text{IN}(x_1,\xi_2), x_3=\text{LEILI}, x_4=\text{APPLE-OF}(\xi_2), \exists[e_5 \mid \text{TAKE}(x_3,x_4,e_5)]]$
'the apple of the fruits'

(28) a. *tooye sabad yek sīb(-i) va yek golabi(-i) bood. Leili sīb-rā bardasht.*
in basket an apple and a pear was.3SG Leili apple-ACC took.3SG
'There was apple and a pear in the basket. Leili took the apple.'

b. $[x_1\ \xi_2\ x_3\ x_4\ X_5 \mid x_6\ x_7 \mid \text{BASKET}(x_1), \text{APPLE}(x_2), \text{PEAR}(x_3), X_4=x_2\oplus x_3, \text{IN}(x_1,X_4), x_6=\text{LEILI}, x_7=\text{APPLE-OF}(X_4), \exists[e_8 \mid \text{TAKE}(x_6,x_7,e_8)]]$
'the apple of the sum individual of an apple and a pear'

(29) a. *Yek sib(-i) too sabad bood. Leili sib-rā bardasht.*
an apple (apple-i) in basket was.3SG Leili apple-ra took.3SG
'There was an apple in the basket. Leili took the apple.'

b. $[x_1\ x_2\ x_3\ x_4 \mid \text{BASKET}(x_1), \text{APPLE}(x_2), \text{IN}(x_1,\xi_2), x_3=\text{LEILI}, x_4=\text{APPLE-OF}(x_2), \exists[e_5 \mid \text{TAKE}(x_3,x_4,e_5)]]$
'the apple of the apple'

5.2 A closer look at *yek*-marked indefinites

(30) K_0 + [$_{IP}$ *Leili*$_1$ EC_2[$_{vP}$ t_1 [$_{NP}$ *yek sīb*] *kharīd*]]
Leili an apple bought.3SG

Two possible readings, (31) and (32):

(31) $[x_1 \mid x_1 = \text{LEILI}, \exists[e_2\ x_3 \mid \text{APPLE}(x_3), \#(x_3)=1, \text{BUY}(x_1,x_3,e_2)]]$

- No relation of x_3 to e_2
- Compatible with more than one apple being bought by Leili
- Anaphoric uptake by abstraction and sum formation would refer to all the apples that were bought by Leili, just as with bare nominals
- The number information of *yek* 'a / one' would be irrelevant in this case, hence this reading is **blocked** by the form with bare nominal.

(32) $[x_1\ x_3 \mid x_1 = \text{LEILI}, \text{APPLE}(x_3), \#(x_3)=1, \exists[e_2 \mid \text{BUY}(x_1,x_2,e_3)]]$

- Indefinite NP not dependent on e_3, allows for wide scope w.r.t. EC
- This is known to be possible with indefinites in general, cf. "specific" reading of:

(33) *If you see a black dog, then be careful, it will bite you!*
$[x_1 \mid \text{BLACK-DOG}(x_1)], [e_2 \mid \text{SEE}(\text{YOU}, x_1, e_2)] \Rightarrow [e_3 \mid e_1<e_3, \text{BITE}(x_1,\text{YOU},e_3)]$

- Notice: x_3 is singular discourse referent, can only be targeted by singular pronouns.

5.3 Accusative marking of singular indefinite nominals

rā-marking of *yek*-marked nouns also indicates scrambling out of vP

(34) [*Leili*$_1$ [*yek sīb-rā*]$_3$ EC$_2$ [$_{vP}$ t$_1$ t$_3$ *kharīd*]]
Leili an apple-ACC bought-3SG
'Leili bought an apple.'

- possible, but disfavored in the current case
- reason: wide-scope indefinite reading can be achieved without *rā*, cf. Error: Reference source not found.
- but scrambling out of vP essential to guarantee wide scope w.r.t. other quantifiers

(35) *yek ketab-rā* *har daneshjoo-i* *bayad be-khoon-ad*
a book-RA each student-i must SUBJ-read-3SG
'Each student must read a certain book.'

5.4 *i*-marked nouns

Another way of expressing indefiniteness in Persian: *i*-marking

(36) a. [$_{IP}$ *Mæn*$_1$ EC [$_{vP}$ t$_1$ *roobah-i* *did-æm*]]
I fox-INDEF saw-1SG
'I saw a fox (not: foxes)'

c. [$_{IP}$ *Mæn*$_1$ *roobah-i-rā*$_2$ EC [$_{vP}$ *did-æm*]]
I fox-INDEF-ACC saw-1SG
'I saw a certain fox.'

- *i*-marking: restrictive selection out of a kind or plurality (Windfuhr 1987)
- Choice functions (Reinhart 1997, v. Heusinger 1997, Kratzer 1998, Yanovich 2005)

(37) [$_{IP}$ *Leili*$_1$ EC$_2$ [$_{vP}$ t$_1$ *sīb-i kharīd*]]
[x_1 (F) x_3 | x_1=LEILI, ∃[e_2 | x_3 = F(APPLE), EAT(x_1,x_3,e_2)]]

- F(APPLE) ∈ ⟦APPLE⟧
- as with other referring expressions, discourse referent x_3 introduced in higher box, hence easily accessible for anaphoric uptake
- no dependency on on event of existential closure e_2, hence no number neutrality

Situation is more complex, as combination *yek* + *i* is possible as well: *yek sīb-i*

5.5 Iterative readings and modal subordination

The durative marker *mī* can express progressivity or imperfective readings:

(38) *har-rooz sobh* *Maryam* *sib* *mi-kharad.*
everyday morning Maryam apple DUR.-buy.3SG
'Every morning Maryam buys apples.'

$[x_1 \mid x_1 = \text{MARYAM},$
$[t_2 \mid \text{MORNING}(t_2)] \Rightarrow \exists[e_3\ x_4 \mid x_2 = \text{APPLE-OF}(e_3),\ \text{AT}(t_2,e_3)\ \text{BUY}(x_1,x_4,e_3)]]$
$= K_1$

Uptake of discourse referents by modal subordination (Roberts 1989):

- Combination of antecedent boxes forms antecedent of next clause.
- Abstraction and summation of DR of incorporated nominal.

(39) K_1 + *Ab-e-shoon ro mi-girad.*
water-of-them ra DUR.take.3SG.
'She makes juice of them.'

[….
$[t_2\ x_5 \mid \text{MORNING}(t_2),\ x_5 = \Sigma x_4\ [e_3\ x_4 \mid x_2 = \text{APPLE-OF}(e_3),\ \text{AT}(t_2,e_3)\ \text{BUY}(x_1,x_4,e_3)]]$
$\Rightarrow \exists[e_6, x_7 \mid \text{JUICE}(x_7),\ \text{MAKE-OF}(x_7, x_5, e_6)]]$

6 Weak Definites

6.1 Weak definites analyzed as PINs

Weak definites (Poesio 1994, Carlson e.a. 2006, Schwarz 2013):

(40) *Every accident victim was taken to the hospital*. (possibly different hospitals)

Proposal: WDs are situation-dependent definites under existential closure, just as PINs

(41) *Mary took John to the hospital.*
$[x_1\ x_2 \mid x_1 = \text{MARY},\ x_2 = \text{JOHN},\ \exists[e_3\ x_4 \mid x_4 = \text{HOSPITAL-OF}(e_3),\ \text{TAKE-TO}(x_1,x_2,x_4,e_3)]]$

6.2 Predictions

- Number-neutral interpretations: See (40)
- Maximality effect of anaphoric uptake.

(42) *Every victim was taken to the hospital. They declared a state of emergency.*

$[\quad \mid [x_1 \mid \text{VICTIM}(x_1)\ ] \Rightarrow \exists[e_2\ x_3 \mid x_3 = \text{HOSPITAL-OF}(e_2),\ \text{TAKEN-TO}(x_1,x_3,e_4)],$
$X_4 \mid X_4 = \Sigma x_3[x_1\ e_2\ x_3 \mid \text{VICTIM}(x_1),\ \text{HOPSPITAL-OF}(e_2),\ \text{TAKEN-TO}(x_1,x_3,e_4)],$
$\exists[e_5 \mid \text{DECLARE-EMERGENCY}(X_4,e_5)]$

'the hospitals to which the victims were taken declared a state of emergency'

- No collective predicates with weak definites:

(43) *The accident victims gathered at the hospital*. (the same hospital)

6.3 Institutionalized Meanings

WDs have institutionalized meaning (Asudeh & Mikkelsen 2001, ..., Klein e.a. 2013)

(44) a. *The hurricane victims were taken to the hospital.* (weak or regular definite)
b. *The hurricane victims were taken to the church.* (only regular definite)

Narrow-scope, event-dependent definites lead easily to institutionalized reading:

(45) [e_2 x_3 | HOSPITAL-OF(e_2), VICTIMS(X_1), TAKEN-TO(X_1,x_3,e_2)]

- **presupposes** that for e_2 there is a unique hospital
- hence events like e_2 are categorized as belonging to hospital-events
- similar to idiomatic expressions, but with transparent combination of lexical items

Why is institutionalization of readins less prominent for Persian PINs?

- Persian allows a clear differentiation for EC-internal/external interpretation due to *rā*
- English: internal reading (a) needs support by idiomatization, in contrast to (b).

(46) a. [*John* EC [*went to the hospital*]] b. [*John* EC [*went*] [*to the hospital*]

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2 Existing Proposals

2.1 Farkas & de Swart 2013: Thematic Arguments

Representation in terms of Discourse Representation Theory (Kamp & Reyle 1994) here illustrated with Persian data

(47) K_0 + [*Leili* [*yek sīb*] *khærid*]
= [x_1 x_2 | x_1 = LEILI, APPLE(x_2), BUY(x_1, x_2)], two DRs introduced: x_1, x_2

(48) K_0 + [*Leili* [*sib khærid*]]
= [x_1 | x_1 = LEILI, APPLE(x_2), BUY(x_1, x_2)] just one DR introduced: x_1
= K_1 x_2: **thematic argument**

Interpretation of thematic arguments by existential quantification.

Anaphoric uptake:

(49) K_1 + [*Majnoon khord*=∅]
= [x_1 | x_1 = LEILI, APPLE(x_2), BUY(x_1, x_2)
x_3 x_4 | x_3 = MAJNOON, x_4 ≃ x_2, EAT(x_3, x_4)]

Problems:

- Non-compositional rule:
  a_2 is bound by existential quantifier “there is a...”, hence not accessible from outside.
- The rule does not guarantee binding between the individual that is an apple and the individual that Majnoon ate, as a_2 is bound by two independent quantifiers “there is...” (Yanovich 2008)

2.2 Modarresi 2015: Number-neutral DRs

- Pseudo-incorporated NPs introduce number-neutral DRs
  (such DRs already stipulated in Kamp & Reyle 1994).
- Overt pronouns are marked for number, hence expect number-marked DRs
  Covert pronouns: not marked for number, hence do not expect number-marked DRs

(50) *Leili sīb khærid. Majnoon khord-∅ /-??esh/ -??eshoon.*
Leili apple bought.3SG Majnoon ate-pro/-it/-them
'Leili bought apple(s). Majnoon ate it / them.'

[x_1 ξ_2 | x = LEILI, APPLE/S(ξ_2), BUY(x_1,ξ_2)
x_3 | x_3 = MAJNOON, ATE(x_3, ξ_2)] ξ_2: number-neutral DR

- If world knowledge suggests atomic or sum interpretation of number-neutral DR, singular or plural overt pronouns are possible.

(51) a. *Leili apartman khærid. Gheimat-esh bala bood.* atomic interpretation
Leili appartment bought.3SG. Price-its high was.3SG
'Leili bought appartment(s). Its price was high.'
b. *Leili havij khærid. Majnoon khord-eshoon.* sum interpretation
Leili carrot bought.3SG. Majnoon ate-them.
'Leili bought carrot(s). Majnoon ate them.'

Problems:

- Why are pseudo-incorporated NPs interpreted as number neutral?
- Anaphoric uptake always more complex than with non-incorporated antecedent.