Incorporated Nominals, Weak Definites and their Anaphoric Uptake, with special reference to Persian

Manfred Krifka & Fereshteh Modarresi

Queen Mary University of London
Dept. of Linguistics
December 2, 2015
(slightly revised: December 11, 2015)
1 Pseudo-Incorporation and Anaphora

1.1 Incorporation and Pseudo-Incorporation

What is incorporation?

- Morphological integration of a nominal head N into a transitive verb, thereby filling an argument slot (cf. Mithun 1984, Baker 1996, …)

What is pseudo-incorporation?

- Syntactic integration of an NP with a transitive verb, thereby filling an argument slot, but syntactically closer than “regular” object

- Example (Niuean, Oceanic; Massam 2001, Seiter 1980)

(1) a. \textit{Takafaga tūmau nī [e ia] [e tau ika].} non-incorporated

\begin{verbatim}
  hunt always EMPH ERG he ABS PL fish
\end{verbatim}

‘He always hunts for fishes’, ‘He is always fishing.’

b. \textit{[Takafaga ika] tūmau nī [a ia].} incorporated

\begin{verbatim}
  hunt fish always EMPH ABS he.
\end{verbatim}

‘He is always fishing.’

(2) \textit{Ne [inu [kofe kono]] [a Mele].} incorporated, complex

\begin{verbatim}
  PST drink coffee bitter ABS Mary
\end{verbatim}

‘Mary drank bitter coffee.’
1.2 Pseudo-incorporation in Hungarian

Farkas & de Swart 2003:

(3) a. *Mari olvas egy hosszú verset.*
   Mari read a long poem
   ‘Mary is reading a long poem.’

   b. *Mari hosszú verset olvas.*
   Mari long poem read
   ‘Mary is reading a long poem / long poems.’

- pseudo-incorporated nominals are number neutral
- they lack articles
- they occur in pre-verbal position
1.3 Pseudo-incorporation in Persian:

Modarresi 2014, 2015:

(4) a. *Mæn roobah* did-æm. incorporated
   I fox saw-1SG
   ‘I saw a fox / foxes.’

   b. *Mæn yek roobah(-ra) did-æm.* indefinite
      I a fox-(ACC) saw-1SG
      ‘I saw a fox.’

   c. *Mæn roobah-rā did-æm.* non-incorporated
      I fox-ACC saw-1SG
      ‘I saw the fox.’

(5) *Mæn mobl-e atiqhe mi-frousham* incorporated, complex
    I sofa-EZ antique DUR-sell-1SG
    ‘I sell antique sofa(s)’

- pseudo-incorporated nouns are bare nouns lacking accusative case marking (-rā)
- pseudo-incorporated nouns are number-neutral
- indefinite nouns may lack accusative marking
- bare nouns with accusative marking are interpreted as definite (no definite article)
1.4 Pseudo-Incorporation and Anaphora

- Common claim: Pseudo-incorporated NPs cannot be taken up by anaphora.
- But: uptake by anaphora is possible in certain cases, cf.
  - van Geenhoven 1998 for West Greenlandic Eskimo (assumed generally possible),
  - Massam 2001 for Niuean,
  - Asudeh & Mikkelsen 2000 for Danish,
  - Dayal 2011 for Hindi,
  - Mithun 2010 for Kapampangan:
- Farkas & de Swart 2003 call this **discourse translucency**
  (contrasted with discourse transparency, discourse opacity):

(1) 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. ??$\emptyset_i$ Túl sulyosnak találta őt$_j$ és beutaltatta $\emptyset_j$ a korházba.
    pro$_i$ too severe.DAT find he$_j$.ACC and intern.CAUSE.PAST pro$_j$ the hospital.in
‘He$_i$ found him$_j$ too sick and sent him to hospital.’

b. ✓$\emptyset_i$ Túl sulyosnak találta $\emptyset_j$ és beutaltatta $\emptyset_j$ a korházba.
    pro$_i$ too severe.DAT find.PAST pro$_j$ and intern.CAUSE.PASTE pro$_j$ the hospital.in
‘He$_i$ found him$_j$ too sick and sent him to hospital.’
2 Discourse Referents and Thematic Arguments

Discussion of Farkas & de Swart 2013

2.1 Discourse Transparency

Theoretical reconstruction in Discourse Representation Theory (Kamp & Reyle 1994) here illustrated with Persian data, to ensure comparability.

Format of discourse representations (DRS), with discourse referents (DRs) and discourse conditions, to be interpreted in a model.

(6) $K_0 + \text{Pedro owns a donkey.}$
    
    $= [x_1, x_2 \mid x_1 = \text{PEDRO}, \text{DONKEY}(x_2), \text{OWN}(x_1, x_2)]$

(7) $K_0 + \text{Every farmer owns a donkey.}$
    
    $= [\quad | [x_1 \mid \text{FARMER}(x_1)] \Rightarrow [x_2 \mid \text{DONKEY}(x_2), \text{OWN}(x_1, x_2)]]$

Standard interpretation of DRS, here given only for (6):

(8) $[x_1, x_2 \mid x_1 = \text{PEDRO}, \text{DONKEY}(x_2), \text{OWN}(x_1, x_2)]$
    
    is true w.r.t. a model $M = \langle A, \llbracket \rangle \rangle$
    
    iff there is a DR assignment $f: \{x_1, x_2\} \rightarrow A$
    
    such that all conditions are true in the model w.r.t. the assignment $f$,
    
    i.e. $f(x_1) = \llbracket \text{PEDRO} \rrbracket$,
    $f(x_2) \in \llbracket \text{DONKEY} \rrbracket$,
    $\langle f(x_1), f(x_2) \rangle \in \llbracket \text{OWN} \rrbracket$
2.2 Discourse translucency

Assumptions of Farkas & de Swart 2003:
- Pseudo-incorporated NPs are not accessible to overt pronouns
- But anaphoric uptake is possible for covert pronominals (pro).

Representation of pseudo-incorporated object contrasted with regular object:

(9) \[ K_0 + [Leili \; [\text{yek sib}] \; khærid] \]
\[ = [x_1 \; x_2 \mid x_1 = \text{LEILI}, \; \text{APPLE}(x_2), \; \text{BUY}(x_1, x_2)], \quad \text{two DR introduced: } x_1, \; x_2 \]

(10) \[ K_0 + [Leili \; [\text{sib khærid}]] \]
\[ = [x_1 \mid x_1 = \text{LEILI}, \; \text{APPLE}(x_2), \; \text{BUY}(x_1, x_2)] \]
\[ = K_1 \]

just one DR introduced: \( x_1 \)
\( x_2 \): “thematic argument”

Interpretation of thematic arguments:

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

- As thematic arguments do not introduce DRs, no anaphoric uptake possible.
- We need a special rule for translucency cases.
2.3 Semantics of Translucency

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.

If $f$ 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:

(14) $K_1 + [\text{Majnoon khord} = \emptyset]$

$= [x_1 \mid x_1 = \text{LEILI}, \text{APPLE}(x_2), \text{BUY}(x_1, x_2),$

$\quad x_3 \ x_4 \mid x_3 = \text{MAJNOON}, \ x_3 \simeq x_2, \text{EAT}(x_3, x_4)]$

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 $a_2$,  
 – $\langle f(x_3), f(x_4) \rangle \in [\text{EAT}]$
2.4 Problems

◆ Non-compositional rule:
a₂ is bound by existential quantifier “there is a...”, hence not accessible from outside.

iff \( f(x_1) = \llbracket \text{LEILI} \rrbracket \),
there is an \( a_2 \in A \) with \( a_2 \in \llbracket \text{APPLE} \rrbracket \),
there is a sequence \( \langle a_1, a_2 \rangle \in A \times A \) with \( f(x_1) = a_1 \) and \( \langle a_1, a_2 \rangle \in \llbracket \text{BUY} \rrbracket \)
f(x₃) = \llbracket \text{MAJNOON} \rrbracket ,
f maps \( x_4 \) to \( a_2 \),
\( \langle f(x₃), f(x₄) \rangle \in \llbracket \text{APPLE} \rrbracket \)

◆ 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...”

◆ Yanovich 2008 also points out an empirical problem with Farkas & de Swart’s claim about Hungarian:
Anaphoric uptake of pseudo-incorporated objects with overt pronoun is possible (data: Anna Szabolcsi):

(15) *A bátyám házat₁ vett a múlt héten. Egész vagyont adott érte₁.*

‘The brother house-bought last week. He spent a fortune for it.’
3 Number-unspecified DRs
Cf. Modarresi 2015

3.1 Number-neutral DRs
◆ Pseudo-incorporated NPs do introduce DRs
◆ But these DRs are number-neutral (a stipulation)
◆ Overt pronouns are marked for number, hence expect number-marked DRs
◆ Covert pronouns: not marked for number, hence do not expect number-marked DRs
◆ If world knowledge suggests atomic or sum interpretation of number-neutral DR, singular or plural overt pronouns are possible.

Number-neutral DRs in Kamp & Reyle 1994:

(16) *All lawyers hired secretaries and payed them well.*

‘All lawyers hired one or more secretaries and payed him/her/them well.’

Example for number neutral DRs (rendered by ξ):


Leili apple bought.3SG Majoroon ate-pro/-it/-them
‘Leili bought apple(s). Majnoon ate it / them.’

\[
\begin{align*}
[x_1, \xi_2 | x = LEILI, APPLE/S(\xi_2), BUY(x_1, \xi_2)] \\
[x_3 | x_3 = MAJNOON, ATE(x_3, \xi_2)]
\end{align*}
\]

\(\xi_2\): number-neutral DR
3.2 Contextual factors for sing/plur overt pronouns

Example for contexts that favors atomic / sum interpretation:

(18) *Leili apartman khærid. Gheimat-esh bala bood.* atomic interpretation
    Leili bought apartment.3SG. Price-its high was.3SG
    ‘Leili bought apartment(s). Its price was high.’

(19) *Leili havij khærid. Majnoon khord-eshoon.* sum interpretation
    Leili bought carrot.3SG. Majnoon ate-them.
    ‘Leili bought carrot(s). Majnoon ate them.’

Role of context like in specificational anaphora (anaphora adds information):

(20) *There was a donkey at the gate. The poor old animal cried terribly.*
(21) *There was a person at the door. She was quite young.*
Problems:

- Why are pseudo-incorporated NPs interpreted as number neutral, in spite of being morphologically singular?
- Uptake not always easily possible, even with covert pronoun.

(22) Man roobah didam. Shekar kardam-∅.
    I fox saw.1SG hunt did.1SG.
    ‘I saw fox(es). I hunted it/them.’

(23) Man yek roobah didam. Shekar kardam-∅ / -esh.
    I one fox saw.1SG hunt did.1SG-pro / -it.
    ‘I saw a fox. I hunted it.’
4 Incorporated Nominals and E-type Pronouns

4.1 E-type pronouns

Pronouns that pick up DRs with quantifier antecedents, without being c-commanded by them (Evans 1980):

(24) **Few congressmen** admire Kennedy, and **they** are very junior.
‘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):

(25) 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).

   c. **Few wine glasses** broke last night, but **they** were very expensive.
   (all the wine glasses that broke last night were very expensive.)

- E-type pronouns have been seen as evidence for a descriptive theory of pronouns (Neale 1990, Heim 1990, Elbourne 2005),
- but descriptive approaches are not required (cf. Nouwen subm.)
4.2 E-type pronouns in DRT

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

(26) John beats most donkeys he owns. They complain.

\[ \begin{align*}
\text{x}_1 & \rightarrow \text{JOHN}, \\
\text{x}_2 & \rightarrow \text{DONKEY} \left( \text{x}_2 \right), \text{OWN} \left( \text{x}_1, \text{x}_2 \right) \langle \text{MOST} \text{x}_2 \rangle [ \mid \text{BEAT} \left( \text{x}_1, \text{x}_2 \right) ] \\
\xi_3 & \rightarrow \Sigma \text{x}_2 \left[ \text{x}_2 \rightarrow \text{DONKEY} \left( \text{x}_2 \right), \text{OWN} \left( \text{x}_1, \text{x}_2 \right), \text{BEAT} \left( \text{x}_1, \text{x}_2 \right) \right]
\end{align*} \]

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 the universe of \( K' \), add new DR \( \xi \) to universe of \( K' \),
    add condition \( \xi = \Sigma x \ K' \)

- \( \Sigma x \ K' \) is interpreted relative to an assignment \( f \) and a model \( M = \langle A, [] \rangle \) as the sum of all \( a \in A \) such that there is an extension \( f' \) of \( f \) with \( f'(x) = a \), and \( K' \) is true w.r.t. \( f' \) and \( M \)

Notice:

- DRs that are introduced in embedded DRSs become available as antecedents
- the choice of singular / plural pronoun depends on whether \( \xi \) is atomic or not
- Maximality effect arises by the interpretation of summation, \( \Sigma \)
- reference to DRSs \( K_1, K_2 \) is itself an anaphoric process (cf. Asher & Lascarides)
4.3 E-type anaphors to incorporated nominals

Taking up a suggestion of Yanovich 2008 for “thematic argument abstraction”, but assuming that incorporation is treated like quantification for anaphoric purposes.

- Pseudo-incorporated nominals are introduced in embedded DRS
- Anaphoric uptake is possible, but only via abstraction + summation

Predictions:
- Anaphoric uptake is more complex for incorporated antecedents than for non-incorporated antecedents
- Incorporated NPs are number neutral (number neutrality derived, not stipulated)
- Uptake can be achieved by covert number-neutral anaphora
- Uptake possible with singular or plural pronouns, depending on context.

Proposal, in more detail:
- Existential closure (EC) (Diesing 1991) with scope over vP
- EC quantifies over the event variable of the verbal predicate
- Nominals within EC can introduce DRs within the scope of EC
4.4 Illustration of E-type analysis

(27) $K_0 + [i_P \text{Leili}_1 EC_2 [v_P t_1 sīb_3 kharīd_2 ]]$

‘Leili apple bought’

$[x_1 \mid x_1 = \text{LEILI}, \exists[e_2 x_3 \mid x_3 = \text{APPLE-OF}(e_2), \text{BUY}(x_1, x_3, e_2)]], = K_1$

Syntactic structure:

- Pseudo-incorporated noun $sīb$ remains within vP
- Existential closure over vP, indexed with event argument
- Subject Leili has moved out of vP, leaving trace

Discourse representation:

- Existential closure creates embedded DRS, with quantifier $\exists$
- Quantifies over an event argument of the predicate, $e_2$
- Bare singular noun $sīb$ is interpreted as dependent definite, here on the event argument, $\text{APPLE-OF}(e_2)$: ‘the apple of the event $e_2$’
- Being dependent on $e_2$, the discourse referent $x_3$ must be interpreted in scope of $\exists$

Semantic interpretation:

- Condition $\exists K$ is true w.r.t. assignment $f$, model $M$
  iff there is an extension $f'$ of $f$ such that $K$ is true w.r.t. $f'$, $M$
- Implicit in negation, disjunction, quantifier conditions: $\neg \exists K, \exists K \lor \exists K', K \Rightarrow \exists K'$

Incorporated Nominals and E-type Pronouns: Illustration of E-type analysis
4.5 Anaphoric uptake of incorporated nominals

Abstraction and summation over existentially quantified DRS

(28) \[K_1 + \left[_{\text{IP }} Majnoon_4 \text{ EC}_5 \left[_{\text{vP }} t_4 \ t_6 \ khord-\emptyset \right]\right]\]

\[
\begin{align*}
  & x_1 : x_1 = \text{LEILI}, \ \exists [e_2 \ x_3 \mid x_3 = \text{APPLE-OF}(e_2), \ \text{BUY}(x_1, x_3, e_2)] \\
  & x_4 : x_4 = \text{MAJNOON}, \\
  & \xi_6 = \Sigma x_3 : [e_2 \ x_3 \mid x_3 = \text{APPLE-OF}(e_2), \ \text{BUY}(x_1, x_3, e_2)], \ \text{Abstraction, Summation} \\
  & \exists [e_5 \mid \text{EAT}(x_4, \xi_6, e_5)]
\end{align*}
\]

- The covert pronoun can be interpreted as an E-type pronoun, requiring abstraction and summation
- The covert pronoun does not require a specific number feature, ideally relating to the number-neutral DR \(\xi_6\)
- If world knowledge suggests an atomic or sum individual, overt singular or plural pronouns are licensed (cf. Modarresi 2015)
- Anaphoric uptake is more complex compared to cases in which a DR is already introduced; hence if speaker intends to take up a DR, non-incorporated NPs are better.
5 Predictions of the analysis

5.1 Number neutrality

The representation of singular incorporated count nouns refers to atomic individuals:

\[ K_0 + [_{IP \text{ Leili}_1} \text{ EC}_2 [_{vP t_1 \text{ sīb}_3 \text{ kharīd}_2}]] \]

\[ [x_1 | x_1 = \text{LEILI}, \exists[e_2 x_3 | x_3 = \text{APPLE-OF}(e_2), \text{BUY}(x_1, x_3, e_2)]] \]

where \text{APPLE-OF}(e_2): the unique apple of \text{e}_2.

Nevertheless, the representation results in number-neutrality:

- Existential closure does not imply uniqueness, there may be more than one buying events \text{e}_2 for which there is a unique apple that \text{Leili} buys.
- Existential closure does not come with alternatives, hence there is no pragmatic exhaustification to a single buying event either, in contrast to numerals like \text{one apple}, strengthened to ‘exactly one apple’
- Anaphoric uptake uses abstraction and sum formation, which involves all of the ways in which the \text{vP-DRS} can be interpreted:

\[ \xi_6 = \sum x_3 [e_2 x_3 | x_3 = \text{APPLE-OF}(e_2), \text{BUY}(x_1, x_3, e_2)] \]

- Hence, reference to all apples for which there is a buying event \text{e} by \text{Leili}.
- World knowledge will determine whether one or more than one events are involved, e.g. difference between carrot-buying and melon-buying.
5.2 Maximality effects

Current theory predicts:

- Maximality effect, as with other E-type pronouns, due to summation $\Sigma$
- Not predicted by Farkas & de Swart 2003, Modarresi 2015

Maximality can in fact be observed (cf. Yanovich 2008):

(31) Ali **khaneh** darad.  # Khane-ye-digari ham dard ke ejareh mideh.
    ‘Ali has house(s). He also has another house that he rents.’

    ‘Ali has a house. He also has another house that he rents.’
5.3 Collective predicates

Current theory predicts:

- No collective predicates for incorporated singular count nominals, as they refer to one entity, e.g. *sīb: APPLE-OF(e), ‘the apple of e’
- Not predicted by theories that take incorporated nominals inherently number-neutral
- Dayal 2011, 2015 for collective predicates and incorporation: Sometimes possible

With non-habitual readings: plural nominals preferred, often definite reading with *rā*:

(33) a. ??diruz Sara barg-e-khoshk jam-kard *‘collect the dry leave of e’*
b. diruz Sara barg-ḥa-ye-khosh jam-kard o.k. ‘collect the dry leaves of e’
c. diruz barg-ḥa-ye-khoshk-*rā* jam-kard o.k. ‘collect the (given) dry leaves’
d. *diruz barg-e-khoshk-*rā* jam-kard *‘collect the (given) dry leave’*

‘Yesterday Sara collected dry leaves’

But: Collectives with bare singulars sometimes possible:

(34) *Ali tambr jam-mi-konad*

Ali stamp collect-DUR-do.3SG
‘Ali collects stamps.’, ‘Ali is a stamp collector.’

- Possible reading: Ali habitually adds the stamp of an event to its collection’

(35) [x₁ | x₁=ALI,
[SUITABLE t] ⇒ ∃[e₂, x₃ | e₂ in t, x₃=STAMP-OF(e₂) ∧ ADD TO-COLLECTION(x₁,x₃,e₂)]]
5.4 Plural nominals

Current theory predicts:

- In non-collective predication, plurality with incorporated nominals has no effect, as incorporation results in a number-neutral interpretation
- Presumably, plural nominals are avoided or result in a special interpretation

Findings (cf. Modarresi 2014):

- Plural-marked incorporated nominals are avoided
- If they occur, they lead to specialized interpretations

(36) *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:

(37) \[x_1 | x_1 = MARYAM, \exists [E_2, X_3 | X_3 = \text{BOOKS-OF}(E_2), \text{READ}(x_1, X_3, E_2)]\]

Cumulative interpretations (cf. Krifka 1994):

- When \(x = \text{BOOK-OF}(e), x' = \text{BOOK-OF}(e')\), then \(x \oplus x' = \text{BOOKS-OF}(e \oplus e')\)
- When \(\text{READ}(y, x, e), \text{READ}(y, x', e')\), then \(\text{READ}(y, x \oplus x', e \oplus e')\)
- Reference to collective events \(E\) suggest: Their parts are spatio-temporally distinct.

Predictions of the analysis: Plural nominals
6 Additional Issues related to Persian

6.1 Accusative-marked bare nominals

Assumption (Modarresi 2015):

- *ra* marking is a morphological reflex of an object scrambling out of vP, with interpretative consequences
- (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:

(38) \[
\text{Leili} \quad \text{sīb-rā} \quad \text{EC} \quad \text{vP t₁ t₃ kharīd]}
\]
\[
\text{Leili apple-ACC bought-3SG}
\]

‘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 e₂ introduced by EC
- Hence 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 ra-marked bare nominal:

(39) a. *tooye sabad miveh bood.*  *Leili sīb-rā*   *bardasht.*  
   in basket fruit was.3SG Leili apple-ACC took.3SG  
   ‘There was fruit in the basket. Leili took the apple’

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

(40) 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. \[x_1 \xi_2 \ x_3 \ x_4 \ x_5 \mid \text{BASKET}(x_1), \text{APPLE}(x_2), \text{PEAR}(x_3),
   x_4=x_2 \oplus x_3, \text{IN}(x_1,x_4),
   x_6 \ x_7 \mid x_6=\text{LEILI}, \ x_7=\text{APPLE-OF}(x_4),
   \exists[e_8 \mid \text{TAKE}(x_6,x_7,e_8)]\]
   ‘the apple of the sum individual of an apple and a pear’

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

Additional Issues related to Persian: Accusative-marked bare nominals 23 / 36
6.2 Comparison with yek-marked indefinites

(42) $K_0 + [\text{IP } \text{Leili}_1 \text{ EC}_2 [\text{vP } t_1 [\text{NP yek sīb} \text{ kharīd}]]$

Leili an apple bought.3SG

Two possible readings, (43) and (44):

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

◆ 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.

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

◆ Indefinite NP is interpreted outside of the existential closure
◆ This is known to be possible with indefinites in general, cf. “specific” reading of:

(45) *If you see a black dog, then be careful, it will bite you!*

$[x_1 | \text{BLACK-DOG}(x_1), [e_2 | \text{SEE}(\text{YOU}, x_1, e_2)] \Rightarrow [e_3 | e_1 < e_3, \text{BITE}(x_1, \text{YOU}, e_3)]$

◆ Notice: $x_3$ is singular discourse referent, can be targeted by singular pronouns.

Additional Issues related to Persian: Comparison with yek-marked indefinites
6.3 Accusative marking of singular indefinite nominals

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

(46) \[ \text{Leili}_1 \, [\text{yek sīb-rā}]_3 \, \text{EC}_2 \, [\text{vP} \, t_1 \, t_3 \, \text{kharīd}] \]

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. (44)

◆ but scrambling out of vP essential to guarantee wide scope w.r.t. other quantifiers

(47) *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.’
6.4 i-marked nouns

Another way of expressing indefiniteness in Persian: i-marking

(48) a. \([_{IP} Mān₁ EC \ [vP \ t₁ \ roobah-i \ did-æm]]\]
   I fox-INDEF saw-1SG
   ‘I saw a fox (not: foxes)’

   c. \([_{IP} Mān₁ roobah-i-rā₂ 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)
◦ Modeling by choice functions

(49) \([_{IP} Leili₁ EC₂ \ [vP \ t₁ \ sīb-i kharīd \]]\]
   \(\left[ x₁ (F) x₃ \mid x₁=LEILI, \exists[e₂ \mid x₃ = F(APPLE), EAT(x₁,x₃,e₂)]\right]\)

◦ F is a choice function, selects F(APPLE), an object a where a\(\in\)APPLE
◦ as with other referring expressions, discourse referent x₃ introduced in higher box,
  hence easily accessible for anaphoric uptake
◦ no dependency on on event of existential closure e₂, hence no number neutrality

Situation is more complex, as combination yek + i is possible as well: yek sīb-i
6.5 Iterative readings and modal subordination

The durative marker mi can express progressivity or imperfective readings:

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

\[
\begin{align*}
[x_1 \mid x_1 &= \text{MARYAM}, \\
[t_2 \mid \text{MORNING}(t_2)] \Rightarrow & \exists [e_3 \ x_4 \mid x_2 = \text{APPLE-OF}(e_3), \ \text{AT}(t_2, e_3) \ \text{BUY}(x_1, x_4, e_3)]
\end{align*}
\]

\[= K_1\]

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.

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

\[
\begin{align*}
[\ldots, \\
[t_2 \ x_5 \mid \text{MORNING}(t_2), \ x_5 = \Sigma x_4 \ [e_3 \ x_4 \mid x_2 = \text{APPLE-OF}(e_3), \ \text{AT}(t_2, e_3) \ \text{BUY}(x_1, x_4, e_3)]]
\Rightarrow & \exists [e_6, \ x_7 \mid \text{JUICE}(x_7), \ \text{MAKE-OF}(x_7, x_5, e_6)]
\end{align*}
\]
7 Weak Definites

7.1 What are weak definites?
Carlson e.a. 2006, relating weak definites to incorporation and bare singulars; cf. also Bosch 2010; Schwarz 2012 for a kind-referring analysis

Number neutrality:
(52) The accident victims were taken to the hospital.

Narrow scope effect of weak definites:
(53) Every accident victim was taken to the hospital.
(54) Jedes Unfallopfer wurde ins Hospital gebracht. (ins: in + das)
    every accident.victim was to.the hospital brought
(55) Hans ist im Kino und Maria auch.
    ‘Hans is in the cinema, and Mary too (potentially different cinemas)’
7.2 Representation as event-dependent definites

Weak definites are interpreted like Persian pseudo-incorporated bare nominals

(56) Mary took John to the hospital.

\[ [x_1 x_2 \mid x_1 = \text{MARY}, x_2 = \text{JOHN}, \exists [e_3 x_4 \mid x_4 = \text{HOSPITAL-OF}(e_3), \text{TAKE-TO}(x_1, x_2, x_4, e_3)] ] \]

- Weak definites as functional definites, cf. Asic and Corblin 2012, but w.r.t. event
- Prediction: Anaphora to weak definites are possible only via abstraction / summation
- Prediction: Maximality effect

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

\[ [ \mid [x_1 \mid \text{VICTIM}(x_1)] \Rightarrow \exists [e_2 x_3 \mid x_3 = \text{HOSPITAL-OF}(e_2), \text{TAKEN-TO}(x_1, x_3, e_4)], \]

\[ X_4 \mid X_4 = \Sigma x_3 [x_1 e_2 x_3 \mid \text{VICTIM}(x_1), \text{HOSPITAL-OF}(e_2), \text{TAKEN-TO}(x_1, x_3, e_4)], \]

\[ \exists [e_5 \mid \text{DECLARE-EMERGENCY}(X_4, e_5)] \]

‘the hospitals to which the victims were taken declared a state of emergency’
7.3 Institutionalized Meanings

Difference between Persian pseudo-incorporated singulars and English / German weak definites:

- Weak definites imply an “institutionalized” meaning

(58) a. The hurricane victims were taken to the hospital. (weak or regular definite)
    b. The hurricane victims were taken to the arena. (only regular definite)

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

(59) [e₂ x₃ | HOSPITAL-OF(e₂), VICTIMS(X₁), TAKEN-TO(X₁,x₃,e₂)]

- presupposes that for e₂ there is a unique hospital
- hence events like e₂ are categorized as belonging to a well-known class of events,
- the notion be taken to the hospital refers to a conceptualized class of events,
- similar to words or idiomatic expressions, but still with a syntactically transparent combination of lexical items
7.4 Difference Weak Definites vs. Pseudo-Incorporated Nominals

Weak definites in English and German

◆ restricted to institutionalized readings
◆ possible reason: otherwise, no clear syntactic distinction

(60) a. The victims were taken to the hospital.
   b. The visiting delegation of the Red Cross was taken to the hospital.

(61) a. Die Opfer wurden ins Krankenhaus gebracht.
   ‘The victims were taken to the hospital.’
   b. Die Nahrungsmittel wurden ins Krankenhaus gebracht.
   ‘The food items were taken to the hospital.’ (the hospital of the situation)
   c. Die Nahrungsmittel wurden in das Krankenhaus gebracht.
   ‘The food items were taken to the hospital.’ (hospital mentioned, or of situation)

Pseudo-incorporated nominals in Persian:

◆ not restricted to institutionalized readings
◆ possible reason: clear marking definite / givenness by accusative rā (for objects)
But this cannot be the whole story:

- Bare nominals in English (and other languages, cf. Grønn e.a. 2010)

(62) The victims were taken to hospital.

- Complex predicates in Persian with a conventionalized / idiomatical meaning, cf. Family 2014:

(63) Sara ba frooshandeh chaneh mi-zan-ad.

Sara withseller chin DUR-hit-3SG

‘Sara is negotiating with the seller’
8 Predictions for Anaphoric Processing

We have examined three theories to account for discourse translucency:

- Farkas & de Swart 2003: Thematic arguments, DRs can be created by special rule for covert pronominas.
- Modarresi 2015: Number-neutral DRs, can be picked up by covert pronouns, also, supported by world knowledge with overt singular / plural pronouns.
- Proposed here (working out suggestions by Yanovich 2008): Event-dependent functional definites, can be picked up by abstraction / summation, world knowledge relevant for using singular / plural pronouns.

Other work:

- Asudeh & Mikkelsen 2000: Implicit entities, as in *John got married. She is nice.*
- Schwarz 2012, for weak definites: reference to event kinds.

How to decide? – Different, testable predictions for anaphoric uptake, for example:

- Do covert pronouns always have an advantage over overt pronouns?
- Is uptake of incorporated NPs with covert pronouns always as easy as uptake of non-incorporated NPs with covert/overt pronouns?
- Is there a maximality effect with anaphoric uptake of pseudo-incorporated NPs?
9 References

Borik, Olga & Berit Gehrke. 2015. An introduction of the syntax and semantics of pseudo-incorporation.
In: (eds), The syntax and semantics of pseudo-incorporation. Leiden: Brill, 1-46.
neuiranischen Sprachen. Tbingen: Narr.
Henk van Riemsdijk, (eds), Studies on scrambling. Berlin: Walter de Gruyter, 61-100.
Carlson, Greg N. 2006. The meaningful bounds of incorporation. In: Vegeleer, Svetlana & Liliane
Tasmowski, (eds), Non-definiteness and plurality. Amsterdam: John Benjamins, 35-60.
Chiriacescu, Sofiana & Klaus von Heusinger. 2010. Discourse prominence and pe-marking in Romanian.
International Review of Pragmatics 2: 298-332.
Dayal, Veneeta. 2015. Incorporation: Morpho-syntactic vs. semantic considerations. In: Borik, Olga &
Berit Gehrke, (eds), The syntax and semantics of pseudo-incorporation. Leiden: Brill, 189-221.


Grønn, Atle, Bert Le Bruyn & Henriette de Swart. 2010. Bare PPs across languages.


References: References