The Semantics of Differential Object Marking in Persian

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Differential Object Marking (DOM)

- In DOM languages, case marking of the object is restricted to a subset of object NPs.
- This restriction is based on semantic-pragmatic binary distinctions:
  - definite vs. indefinite
  - specific vs. non-specific
  - animate vs. inanimate
  - topic vs. focus.
- Research questions:
  - What is the semantics of the object marker in Persian?
THREE CONSTRUCTIONS

I  INDEFINITE
II  DEFINITE
III  CASE-MARKED INDEFINITE
Persian indefinites are overtly marked with the indefinite determiner *ye*:

(1)  

\[
\begin{array}{l}
[\text{s} \ ye \ bache] [\text{o} \ ye \ golābi] [\text{v} \ xord-\text{Ø}] \\
\text{INDEF child} \quad \text{INDEF pear} \quad \text{eat-3.SG} \\
\end{array}
\]

“A child ate a pear.”
Indefinites in Persian

- Persian indefinites are overtly marked with the indefinite determiner *ye*:

(1) [\textit{s ye bache}] [\textit{o ye golābi}] [\textit{v xord-ø}]

INDEF child INDEF pear eat-3.SG

“A child ate a pear.”

- Notice that there is no object marker on the direct object.
Definites in Persian

There is no overt definite determiner in Persian.

(2) $[[s \text{ bache}] [o \text{ golābi}] [ro] [v \text{ xord-ø}]]$
\begin{align*}
\text{child} & \quad \text{pear} & \text{OM} & \text{eat-3.SG} \\
\text{“The child ate the pear.”}
\end{align*}

Notice that *bache* (child) appears as a bare nominal but it is interpreted as a definite.

Looks like the object marker $[rā]$ marks definiteness in the object position; end of story. But …
**Case-marked Indefinites**

- The object marker can appear with the indefinite determiner *ye* on objects:

\[(3) \quad [s \ bache] [o \ ye \ \text{golābi}] [ro] [v \ xord-ø] \]
\begin{align*}
\text{child} & \quad \text{INDEF} \quad \text{pear} \quad \text{OM} \quad \text{eat-3.SG} \\
\approx & \quad \text{“The child ate one of the pears”} \quad \text{(Partitive R)} \\
& \quad \text{“The child ate a certain pear.”} \quad \text{(Epistemic R)} \\
& \quad \text{“As for a pear, the child ate it.”} \quad \text{(Topical R)}
\end{align*}
Case-marked Indefinites

- The object marker can appear with the indefinite determiner ye on objects:

(3) \[ _s \text{ bache} \] \[ _o \text{ ye} \] \[ \text{ golābi} \] \[ \text{ ro} \] \[ \text{ xord-ø} \]

child INDEF pear OM eat-3.SG

\approx \text{“The child ate one of the pears”} \quad \text{(Partitive R)}
\text{“The child ate a certain pear.”} \quad \text{(Epistemic R)}
\text{“As for a pear, the child ate it.”} \quad \text{(Topical R)}

- It doesn’t seem like rā marks definiteness. What does it do then?
Persian DOM: Previous analyses

There are (at least) five main proposals for what $rā$ marks in Persian:

1. Definiteness
   (Mahootian, 1997)
2. Specificity
   (Karimi, 1990, 2003)
3. Topicality
   (Dabir-Moghaddam, 1992, 2005)
4. Definiteness and Topicality
   (Dalrymple and Nikolaeva, 2011)
5. Identifiability of Discourse Referents
   (Shokouhi and Kipka, 2003)
Persian DOM: a new proposal

- I propose that $\overline{rā}$ triggers an existential presupposition on the object NP.
I propose that \( [\text{rā}] \) triggers an existential presupposition on the object NP.

\[
\text{rā} \leadsto \lambda P[\lambda x[\partial[|P| \geq 1] \land P(x)]]
\]

This presuppositional NP can then be type-shifted with IOTA to derive a definite.

The existential presupposition is compatible with indefinites and gives rise to additional implications depending on the context.
I propose that \([\text{rā}]\) triggers an existential presupposition on the object NP.

- \(\text{rā} \mapsto \lambda P[\lambda x[\partial[|P| \geq 1] \land P(x)]]\)

This presuppositional NP can then be type-shifted with \textsc{iota} to derive a definite.
Persian DOM: a new proposal

- I propose that \( [rā] \) triggers an existential presupposition on the object NP.
  - \( rā \leadsto \lambda P[\lambda x[\partial[|P| \geq 1] \land P(x)]] \)
- This presuppositional NP can then be type-shifted with IOTA to derive a definite.
- The existential presupposition is compatible with indefinites and gives rise to additional implications depending on the context.
Definites

- Definite descriptions such as “the king of France” in English are associated with two presuppositions:
  1. Existence: there is an entity which satisfies the description.
  2. Uniqueness: if there is an entity that satisfies the description it is not more than one.
Definites

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- Coppock and Beaver (2012) argue that in English, these two presuppositions are triggered via two different mechanisms:
  1. English *the* triggers a uniqueness presupposition.
  2. The existential presupposition is provided via type-shifting with IOTA.
DEFINITES

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  1. English *the* triggers a uniqueness presupposition.
  2. The existential presupposition is provided via type-shifting with IOTA.

- I suggest that in Persian, existence is lexically triggered but uniqueness is provided by IOTA.
FIVE GUIDING QUESTIONS

i. What are the EXISTENCE and UNIQUENESS implications of indefinites, definites, and case-marked indefinites?

ii. Which implications are the result of strong constraints on the context?

iii. Which implications are projective?

iv. Are they filtered? (a la Karttunen (1973))

v. How do they behave when they occur in the complement clause of a belief predicate?
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IMPLICATIONS OF OBJECT INDEFINITES

(4) \( ye\)-NP\(_E\):

man \( ye\) \([_{NP} \text{golābi}]\) xord-am
I INDEF pear eat-1.SG

“I ate a pear.”

▶ There was a pear (EXISTENCE).
Implications of Object Definites

(5) $\text{NP-[rā]}_{(E+U)}$:

$\text{man [}_{NP}\text{ golābi]} [\text{ro}] \text{ xord-am}$

$I \quad \text{pear} \quad \text{OM eat-1.SG}$

"I ate the pear."

- There was a pear (EXISTENCE).
- There was only one pear (UNIQUENESS).
Implications of Case-Marked Indefinites

(6) \textit{ye-NP-rā}(E):

\begin{center}
\begin{tabular}{l}
man \textit{ye} \hspace{1cm} [\textit{NP} golābi] \textit{ro} xord-am \\
I \hspace{1cm} INDEF \hspace{1cm} pear \hspace{1cm} OM \hspace{1cm} eat-1.SG \\
\end{tabular}
\end{center}

\begin{center}
\begin{tabular}{l}
\approx \text{"I ate a (certain) pear."} \\
\hspace{1cm} \text{"I ate one of the pears"} \\
\hspace{1cm} \text{etc.}
\end{tabular}
\end{center}

▶ There was a pear (\textsc{Existence}).
FIVE GUIDING QUESTIONS

i. What are the existence and uniqueness implications of indefinites, definites, and case-marked indefinites?

ii. Which implications are the result of strong constraints on the context?

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## Setting up the context

- I went grocery shopping with my dad in the morning. We bought exactly one pear.
- Before going out, I told my brother that if I buy any, I will only buy one pear.
- When we came home I told my sister that I bought pear. She doesn’t know how many though.
- My mom was working on a paper in her room all this time and doesn’t know anything about my shopping adventure.

<table>
<thead>
<tr>
<th>Existence-positive</th>
<th>Uniqueness-positive</th>
<th>Uniqueness-neutral</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existence-neutral</td>
<td>Dad</td>
<td>Sister</td>
</tr>
<tr>
<td></td>
<td>Brother</td>
<td>Mom</td>
</tr>
</tbody>
</table>
### Contextual Felicity: Indefinites

After eating my pear, I can felicitously say (7) to all my family members:\(^1\):

(7) man ye golābi xord-am

I INDEF pear eat-1.SG

“I ate a pear.”

<table>
<thead>
<tr>
<th>Declarative</th>
<th>ye-NP(_E)</th>
<th>NP-([rā]_{(E+U)})</th>
<th>ye-NP-([rā]_E)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(E^+U^+)</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
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<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(E^nU^+)</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
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<td>✓</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(^1\) Judgements based on consultation with 6 other native speakers
## Contextual Felicity: Definites

- However, I can felicitously say (8) only to my father $(E^+U^+)$:

\[(8) \quad \text{man golābi } [\underline{\text{ro}}] \text{ xord-am} \]
\[
\text{I pear OM eat-1.SG}
\]

“I ate the pear.”

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</table>
Contextual Felicity: Case-marked indefinites

(9) man ye golābi ro xord-am
I INDEF pear OM eat-1.SG
≈ “I ate a (certain) pear.”
  “I ate one of the pears.”
  etc.

<table>
<thead>
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<th>ye-NP((E))</th>
<th>NP-(\underline{\text{rā}})(E+U)</th>
<th>ye-NP-(\underline{\text{rā}})(E)</th>
</tr>
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SUMMARY

<table>
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<tr>
<th>Declarative</th>
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- $ye$-NP-$[rā]$ requires EXISTENCE in the context.
- NP-$[rā]$ requires both EXISTENCE and UNIQUENESS.
- What these two constructions have in common:
  - In form: $[rā]$
  - In meaning: EXISTENCE of the object NP established in the context.
i. What are the EXISTENCE and UNIQUENESS implications of these three constructions?

ii. Which implications put strong constraints on the context and the common ground?

iii. Which implications are projective?

iv. Are they filtered? (a la Karttunen (1973))

v. How do they behave when they occur in the complement clause of a belief predicate?
In order to see which implications are projective, I use the family-of-sentences diagnostic. (Chierchia and McConnell-Ginet, 1990)

The family of sentences variants of an atomic sentence S, which is defined as a set of sentences consisting of:

1. S.
2. a negative variant of S.
3. an interrogative variant of S.
4. an epistemic modal variant of S.
5. and a conditional with S as its antecedent.

An implication of sentence S is projective if it is implied by all its variants in the family-of-sentences set. (Tonhauser et al., 2013)
The Family of Sentences Test

- Interrogatives: Suppose that when I go to the fridge to eat my pear later, I find out that it’s not there. I go to my family members to interrogate them!

(10) a. to ye golābi xord-i?
     you INDEF pear eat-2.SG
     “Did you eat a pear?”

b. to golābi [ro] xord-i?
    you pear OM eat-2.SG
    “Did you eat the pear?”

c. to ye golābi [ro] xord-i?
    you INDEF pear OM eat-2.SG
    ≈ “Did you eat a (certain) pear?”
    “Did you eat one of the pears?”
    etc.
The Family of Sentences Test

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- **Modals and Conditionals:** We get the same pattern when these constructions are embedded under the possibility modal *shāyad* and in the antecedent of conditionals with *age*. 
### The Family of Sentences Test

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- **Modals and Conditionals:** We get the same pattern when these constructions are embedded under the possibility modal $shāyad$ and in the antecedent of conditionals with *age*.
- **Negation:** Same story but more complicated (and interesting) due to the scope relations of negation and the indefinite NPs. We can discuss this in the question period.
CONCLUSIONS

There are two types of existence implications:
1. At-issue (ye) 2. Projective (rā)

The uniqueness implication is projective.
Towards a Compositional Account

(11) a. man golābi [ro] xord-am
    I  pear   OM  eat-1.SG
    $\text{EAT}(\lambda x[\text{PEAR}(x)])(\text{SP})$

b. man ye   golābi [ro] xord-am
    I  INDEF pear   OM  eat-1.SG
    $\partial[|\text{PEAR}| \geq 1] \land \exists x[\text{PEAR}(x) \land \text{EAT}(x)(\text{SP})]$
Adding the existence presupposition

$$\text{PEAR}_{et} \lambda P[\lambda x[\partial[|P| \geq 1] \land P(x)]]$$

et
golābi

⟨et,et⟩

ro
Adding the existence presupposition

\[ \lambda x[\partial[|\text{PEAR}| \geq 1] \land \text{PEAR}(x)] \]

\[ \langle \text{et}, \text{et} \rangle \]

PEAR

\[ \lambda P[\lambda x[\partial[|P| \geq 1] \land P(x)]] \]

\[ \text{et} \]

golābi

\[ \text{ro} \]
DERIVING A DEFINITE

\[ \iota x [\text{PEAR}(x)] \]
\[ e \]
\[ \text{IOTA} \]
\[ \lambda x [\partial[|\text{PEAR}| \geq 1] \land \text{PEAR}(x)] \]
\[ et \]

PEAR
\[ \lambda P [\lambda x [\partial[|P| \geq 1] \land P(x)]] \]
\[ \langle et, et \rangle \]

golābi
\[ ro \]

▷ Apply IOTA if there is no indefinite determiner.
**DERIVING A DEFINITE**

\[
\lambda x[\partial[|\text{PEAR}| \geq 1] \land \text{PEAR}(x)]
\]

- Apply IOTA if there is no indefinite determiner.
DERIVING A DEFINITE

\[ \lambda x \lambda y [EAT(x)(y)] \]

\[ \langle e, et \rangle \]

\[ \lambda x [\partial [\|PEAR\| \geq 1] \land PEAR(x)] \]

\[ \langle et, et \rangle \]

\[ \lambda x [PEAR(x)] \]

\[ \langle et, et \rangle \]

\[ gōlābi \]

\[ ro \]

\[ \lambda x [PEAR(x)] \]

\[ \lambda P [\lambda x [\partial [\|P\| \geq 1] \land P(x)]] \]

\[ \langle et, et \rangle \]

\[ \langle e, et \rangle \]

\[ \lambda x [PEAR(x)] \]

\[ \langle et, et \rangle \]

\[ \langle e, et \rangle \]

\[ \lambda x \lambda y [EAT(x)(y)] \]

\[ \langle e, et \rangle \]
DERIVING A DEFINITE

\[ \lambda y \left[ \text{EAT}(\iota x [\text{PEAR}(x)])(y) \right] \]

et

\[ \iota x [\text{PEAR}(x)] \]

et

\[ \lambda x \lambda y [\text{EAT}(x)(y)] \]

\langle e, et \rangle

\[ \lambda x \lambda y [\text{EAT}(x)(y)] \]

\langle e, et \rangle

\[ \lambda x [\partial [\text{PEAR} | \geq 1] \wedge \text{PEAR}(x)] \]

et

\[ \lambda x [\partial [\text{PEAR} | \geq 1] \wedge \text{PEAR}(x)] \]

et

\[ \lambda x [\text{PEAR}(x)] \]

et

\[ \lambda P [\lambda x [\partial [P | \geq 1] \wedge P(x)]] \]

\langle et, et \rangle

y[n \text{golābi}] ro
1. Deriving a definite

\[ \lambda y \{ \text{EAT} \left( \lambda x \{ \text{PEAR} (x) \} \right) (y) \} \]

\[ \langle \text{et}, \text{et} \rangle \]

SP \[ e \]

man

\[ \lambda x \{ \text{PEAR} (x) \} \]

\[ \langle \text{e,et} \rangle \]

\[ \lambda x \lambda y \{ \text{EAT} (x) (y) \} \]

\[ \langle \text{e,et} \rangle \]

xordam

\[ \lambda x \{ \partial [ \lfloor \text{PEAR} \rfloor \geq 1 \} \wedge \text{PEAR} (x) \} \]

\[ \langle \text{et}, \text{et} \rangle \]

golābi

ro

\[ \lambda x \{ \text{PEAR} (x) \} \]

\[ \lambda P \{ \lambda x [ \partial [ P \lfloor \geq 1 \} \wedge P (x) ] \} \]
DERIVING A DEFINITE

\[ \text{EAT}(\lambda x[\text{PEAR}(x)])(\text{SP}) \]

\[
\begin{align*}
\text{SP} & \\
\quad e & \\
\text{man} & \\
\lambda y[\text{EAT}(\lambda x[\text{PEAR}(x)])(y)] & \\
\quad et & \\
\lambda x[\text{PEAR}(x)] & \\
\quad e & \\
\lambda x[\partial[|\text{PEAR}| \geq 1] \land \text{PEAR}(x)] & \\
\quad et & \\
\lambda x[\text{PEAR}(x)] & \\
\quad et & \\
\lambda P[\lambda x[\partial[|P| \geq 1] \land P(x)]] & \\
\quad \langle et,et \rangle & \\
\text{golābi} & \\
\quad & \\
\text{ro} & \\
\end{align*}
\]
Adding the existence presupposition

\[ \lambda x[\partial[|\text{PEAR}| \geq 1] \land \text{PEAR}(x)] \]

\[\langle \text{et}, \text{et} \rangle\]

PEAR

\[\lambda P[\lambda x[\partial[|P| \geq 1] \land P(x)]]\]

golābi

ro
DERIVING A CASE-MARKED INDEFINITE

\[ \lambda P \lambda Q [\exists x [P(x) \land Q(x)]] \]
\[ \lambda x [\partial [\{\text{PEAR} \geq 1\} \land \text{PEAR}(x)] \]

\[ \langle \text{et}, \langle \text{et}, t \rangle \rangle \]

\[ \text{ye} \]

\[ \lambda P[\lambda x [\partial [\{P \geq 1\} \land P(x)]] \]
\[ \langle \text{et}, \text{et} \rangle \]

\[ \text{golābi} \]

\[ \text{ro} \]
DERIVING A CASE-MARKED INDEFINITE

\[
\lambda Q[\exists x[\partial[|\text{pear}| \geq 1] \land \text{pear}(x) \land Q(x)]]
\]
\[
\langle \text{et}, t \rangle
\]

\[
\lambda P\lambda Q[\exists x[P(x) \land Q(x)]]
\]
\[
\lambda x[\partial[|\text{pear}| \geq 1] \land \text{pear}(x)]
\]
\[
\langle \text{et}, \langle \text{et}, t \rangle \rangle
\]

ye

\[
\text{pear}
\]
\[
\lambda P[\lambda x[\partial[|P| \geq 1] \land P(x)]]
\]
\[
\langle \text{et}, \text{et} \rangle
\]

\text{golābi}

ro
DERIVING A CASE-MARKED INDEFINITE

\[ \lambda Q[\exists x[\partial[|\text{PEAR}| \geq 1] \land \text{PEAR}(x) \land Q(x)]] \]
\[ \langle e,t \rangle \]

\[ \lambda x\lambda y[\text{EAT}(x)(y)] \]
\[ \langle e,et \rangle \]

\[ \lambda P\lambda Q[\exists x[P(x) \land Q(x)]] \]
\[ \langle et,\langle et,t \rangle \rangle \]

\[ \lambda x[\partial[|\text{PEAR}| \geq 1] \land \text{PEAR}(x)] \]
\[ et \]

\[ \text{ye} \]

\[ \text{PEAR} \]
\[ et \]

\[ \lambda P[\lambda x[\partial[|P| \geq 1] \land P(x)]] \]
\[ \langle et,et \rangle \]

\[ \text{golābi} \]

\[ \text{ro} \]

\[ \text{xordam} \]
DERIVING A CASE-MARKED INDEFINITE

\[ QP_i \]
\[ \lambda t \]
\[ t_i \]
\[ \lambda x \lambda y [EAT(x)(y)] \]
\[ \langle e, et \rangle \]
\[ xordam \]
DERIVING A CASE-MARKED INDEFINITE
DERIVING A CASE-MARKED INDEFINITE

\[ QP_i \]

\[ \lambda t \ \text{EAT}(t)(\text{SP}) \]

\[ \lambda y[\text{EAT}(t)(y)] \]

\[ \lambda x \lambda y[\text{EAT}(x)(y)] \]

\[ \langle e, et \rangle \]

\[ \text{xordam} \]
DERIVING A CASE-MARKED INDEFINITE

\[
QP_i \lambda t [EAT(t)(SP)]
\]

\[
\lambda t \quad \text{EAT}(t)(SP)
\]

\[
\lambda y [\text{EAT}(t)(y)]
\]

\[
\lambda x \lambda y [\text{EAT}(x)(y)]
\]

\[
\langle e, et \rangle
\]

\[
\text{xordam}
\]
**DERIVING A CASE-MARKED INDEFINITE**

\[ \exists x[\partial[|\text{PEAR}| \geq 1] \land \text{PEAR}(x) \land \text{EAT}(x)(\text{SP})(x)] \]

\[ \lambda Q[\exists x[\partial[|\text{PEAR}| \geq 1] \land \text{PEAR}(x) \land Q(x)]] \]

\[ \lambda P \lambda Q[\exists x[P(x) \land Q(x)]] \]

\[ \lambda P[\lambda x[\partial[|P| \geq 1] \land P(x)]] \]

\[ \text{PEAR} \]

\[ \text{golābi} \]

\[ \text{SP} \]

\[ \text{man} \]

\[ \lambda x\lambda y[\text{EAT}(x)(y)] \]

\[ \text{EAT}(t)(\text{SP}) \]

\[ \text{EAT}(t)(\text{SP}) \]

\[ \text{xordam} \]
FIVE GUIDING QUESTIONS

i. What are the EXISTENCE and UNIQUENESS implications of indefinites, definites, and case-marked indefinites?

ii. Which implications are the result of strong constraints on the context?

iii. Which implications are projective?

iv. Are they filtered? (a la Karttunen (1973))

v. How do they behave when they occur in the complement clause of a belief predicate?
FILTERING

- The existence implication of case marked constructions in conditional consequents does not project if the antecedent entails it:

(12) Context: My brother can say:

age ye golābi hast-∅, golābi [ro] be-de man
if INDEF pear exist-3.SG, pear OM IMP-give 1.SG

“If there is a pear, give me the pear!”

- (12) does not imply that there is a pear.
FIVE GUIDING QUESTIONS

i. What are the EXISTENCE and UNIQUENESS implications of indefinites, definites, and case-marked indefinites?

ii. Which implications are the result of strong constraints on the context?

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Scope with belief predicates

- The existence and uniqueness implications of case-marked objects seem to take obligatory scope under the belief predicate:
Scope with belief predicates

- The existence and uniqueness implications of case-marked objects seem to take obligatory scope under the belief predicate:

- In the context where my mom did not know anything about my pear shopping, I cannot say to my dad:

  (13) a. # māmān fek mi-kon-e ke man golābi ro
      mom think PRES-do-3.SG that 1.SG pear OM
      na-xord-am
      NEG-eat-1.SG

      “Mom thinks that I didn’t eat the pear.”
I argued that the object marker \( \rlap{r\bar{a}} \) triggers an existential presupposition on the object NP.

\[ r\bar{a} \sim \lambda P[\lambda x[\partial[|P| \geq 1] \land P(x)]] \]

The definite construction is derived through type-shifting the marked NP with IOITA.

The existential presupposition triggered by the object marker is compatible with indefinites and gives rise to additional implications depending on the context.
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**REFERENCES**


