Turkish optional case marking as an indicator of discourse salience?

Duygu Özge,* Umut Özge,* Klaus von Heusinger**

*Harvard University, **University of Cologne

DGfS AG2
Information Structural Evidence in the Race for Salience
13–15 March 2013
Overview

- Background: Discourse prominence of subjects and objects & specially-marked indefinites in Turkish.
- Research questions
- Experiments
- Discussion
Discourse Prominence of Subjects

- More **salient** items as surface subjects (Johnson-Laird, 1968; Ertel, 1977); subject in **sentence-initial** position (Osgood & Bock, 1977).

- Perspective (Shift) Hypothesis: Active and potent element as a starting point/perspective (MacWhinney, 1977).

- Conceptual Accessibility: subject referent is easier to retrieve from memory (Bock & Warren, 1985).

- Subject arguments are more likely to be re-mentioned and pronominalized in the subsequent discourse (Arnold, 1998; Kaiser, 2009; 2011).
Discourse Prominence of Subjects

- Perspective (Shift) Hypothesis: Active and potent element as a starting point/perspective (MacWhinney, 1977).
- Conceptual Accessibility: subject referent is easier to retrieve from memory (Bock & Warren, 1985).
- Subject arguments are more likely to be re-mentioned and pronominalized in the subsequent discourse (Arnold, 1998; Kaiser, 2009; 2011).
Discourse Prominence of Subjects

- Perspective (Shift) Hypothesis: Active and potent element as a starting point/perspective (MacWhinney, 1977).
- Conceptual Accessibility: subject referent is easier to retrieve from memory (Bock & Warren, 1985).
- Subject arguments are more likely to be re-mentioned and pronominalized in the subsequent discourse (Arnold, 1998; Kaiser, 2009; 2011).
Discourse Prominence of Subjects

- Perspective (Shift) Hypothesis: Active and potent element as a starting point/perspective (MacWhinney, 1977).
- Conceptual Accessibility: subject referent is easier to retrieve from memory (Bock & Warren, 1985).
- Subject arguments are more likely to be re-mentioned and pronominalized in the subsequent discourse (Arnold, 1998; Kaiser, 2009; 2011).
However several factors seem to weaken this well-documented subject bias.

- Verbs of transfer in English led to an unexpected object-bias in speakers’ discourse continuations (Stevenson et al., 1994; Arnold, 2001).
- Pronouns in Finnish (Kaiser & Trueswell, 2008) and Estonian (Kaiser & Vihman, 2010) were more likely to be interpreted as the subject while demonstratives were interpreted as the object.
However several factors seem to weaken this well-documented subject bias. Verbs of transfer in English led to an unexpected object-bias in speakers’ discourse continuations (Stevenson et al., 1994; Arnold, 2001). Pronouns in Finnish (Kaiser & Trueswell, 2008) and Estonian (Kaiser & Vihman, 2010) were more likely to be interpreted as the subject while demonstratives were interpreted as the object.
However several factors seem to weaken this well-documented subject bias.

Verbs of transfer in English led to an unexpected object-bias in speakers’ discourse continuations (Stevenson et al., 1994; Arnold, 2001).

Pronouns in Finnish (Kaiser & Trueswell, 2008) and Estonian (Kaiser & Vihman, 2010) were more likely to be interpreted as the subject while demonstratives were interpreted as the object.
Romanian *pe*-marking on direct objects diminishes the salience of the subject referent.

It increases the likelihood of the re-mention of the object argument in the subsequent discourse (Chiriacescu & von Heusinger 2011).

Similar findings for German indefinite *dies* (Deichsel & von Heusinger 2011), English indefinite *this* (Chiriacescu 2011).
Aim

- Turkish also has optional object marking (Accusative versus Zero-marking).
- Previous research hints that accusative case increases the topicality of the object NP in the upcoming discourse (Nilsson 1985; Taylan & Zimmer, 1994).
- Are subjects more prominent in the upcoming discourse?
- Does optional accusative marking in Turkish have any forward-looking discourse effects similar to Romanian pe-marking?
Overt accusative marking makes the object NP specific ("a particular student") while the zero marker renders it non-specific ("any student") (Dede, 1986).

(1) Ali bir öğrenci arı-yor.
J. a student seek-Prog.3sg
‘Ali is looking for a student.’ non-specific

(2) Ali bir öğrenci-**yi** arı-yor.
J. a student-**Acc** seek-Prog.3sg
‘Ali is looking for a student.’ specific
Enç (1991) has extended the concept of specificity to D(iscourse)-linking.

(3) Odam-a birkaç çocuk girdi.
my-room-dat several child entered
‘Several children entered my room.’

(4) a. İki kız tanıyordu.
two girl knew-1sg
‘I knew two girls.’ non-D-linked

b. İki kız-ı tanıyordu.
two girl-Acc knew-1sg
‘I knew two girls (out of these kids).’ D-linked
Various contexts do not produce the Backward D-Linking effects (von Heusinger & Kornfilt, 2005; U. Özge, 2011):

(5) Ali izleyiciler-e bir manken tanı-t-tı.
    Ali audience-Dat a model know-Caus-Past.3sg
    ‘Ali introduced a model to the audience.’

(6) Ali izleyiciler-e bir manken(-i) tanı-t-tı.
    Ali audience-Dat a model(-Acc) know-Caus-Past.3sg
    ‘Ali introduced a model to the audience.’

Only 14% of the accusative-marked indefinites in a 7M-word news-corpus has backward D-Linking (U. Özge & von Heusinger, in prep).

So it is a possibility that accusative case increases object salience in the expense of subject salience.
Various contexts do not produce the Backward D-Linking effects (von Heusinger & Kornfilt, 2005; U. Özge, 2011):

(5) Ali izleyiciler-e bir manken tanı-t-tı.
    Ali audience-Dat a model know-Caus-Past.3sg
    ‘Ali introduced a model to the audience.’

(6) Ali izleyiciler-e bir manken(-i) tanı-t-tı.
    Ali audience-Dat a model(-Acc) know-Caus-Past.3sg
    ‘Ali introduced a model to the audience.’

Only 14% of the accusative-marked indefinites in a 7M-word news-corpus has backward D-Linking (U. Özge & von Heusinger, in prep).

So it is a possibility that accusative case increases object salience in the expense of subject salience.
Various contexts do not produce the Backward D-Linking effects (von Heusinger & Kornfilt, 2005; U. Özge, 2011):

(5) Ali izleyiciler-e bir manken tanı-t-tı.
Ali audience-Dat a model know-Caus-Past.3sg
‘Ali introduced a model to the audience.’

(6) Ali izleyiciler-e bir manken(-i) tanı-t-tı.
Ali audience-Dat a model(-Acc) know-Caus-Past.3sg
‘Ali introduced a model to the audience.’

Only 14% of the accusative-marked indefinites in a 7M-word news-corpus has backward D-Linking (U. Özge & von Heusinger, in prep).

So it is a possibility that accusative case increases object salience in the expense of subject salience.
Experiments

- web-based production study;
- eye-tracking study;
Research Question: What is the effect of optional object marking on the likelihood of the subject versus object NP to be re-mentioned in the upcoming discourse?

Participants: 33 Turkish speakers.

Materials: 30 made-up news-scripts (12 critical items & 18 fillers).

Procedure: Story-completion task.
Participants were asked to read invented news stories and continue each story with a sentence of their own.

News stories consisted of two parts:
- A discourse initiating sentence that sets the scene.
- A di-transitive Agent-Theme-Goal sentence that introduces two indefinite NPs with Subject and Object roles.

Experimental condition: the case on the Object (**Acc versus Zero**).
Sample discourse initiator:

(7) Nişantaşı moda günleri-nin açılış-ı dün gece Safran Palas Nişantaşı fashion days-Gen openning-Poss last night Safran Palace Oteli-nde yap-ılı-dı.
hotel-Loc do-Pass-Past

Nişantaşı fashion days, which serves a ground for the introduction of new brands, took a start last night at Safran Palace Hotel.

Sample referent introducer:

(8) Etkinliğ-in ilk defilesi-nde başarılı bir modacı izleyenler-e bir activity-Gen first show-Loc successful a designer audiance-Dat a manken(-i) tanıt-tı.
model(-Acc) introduce-Past

In the first show of the night, a successful designer introduced a model to the audience...
A sample screen depicting the instructions and our sample news story in Accusative condition.
(9) The excitement of the introduced model was easily recognized.

(10) Although she has been working with the famous designer for a long time this model was not known well.
Predictions

- **Subject-bias**: subjects should be more frequently re-mentioned.
- In languages like Turkish (Turan, 1998) or Spanish (Arnold, 1998; 2003), subjects are more likely to be dropped rather than pronominalized.
- **Intuition**: whenever participants use a pronoun or a more specific reference form, they should be more likely to refer to the previously mentioned object rather than the subject.
- **Accusative case** should increase the object-prominence.
Predictions

- **Subject-bias**: subjects should be more frequently re-mentioned.
- In languages like Turkish (Turan, 1998) or Spanish (Arnold, 1998; 2003), subjects are more likely to be dropped rather than pronominalized.
- **Intuition**: whenever participants use a pronoun or a more specific reference form, they should be more likely to refer to the previously mentioned object rather than the subject.
- **Accusative case** should increase the object-prominence.
Predictions

- **Subject-bias**: subjects should be more frequently re-mentioned.
- In languages like Turkish (Turan, 1998) or Spanish (Arnold, 1998; 2003), subjects are more likely to be dropped rather than pronominalized.
- **Intuition**: whenever participants use a pronoun or a more specific reference form, they should be more likely to refer to the previously mentioned object rather than the subject.
- **Accusative case should increase the object-prominence.**
Predictions

- **Subject-bias**: subjects should be more frequently re-mentioned.
- In languages like Turkish (Turan, 1998) or Spanish (Arnold, 1998; 2003), subjects are more likely to be dropped rather than pronominalized.
- **Intuition**: whenever participants use a pronoun or a more specific reference form, they should be more likely to refer to the previously mentioned object rather than the subject.
- **Accusative case** should increase the object-prominence.
Overall, the object was more likely to be re-mentioned (60%) compared to the subject (9%) or both referents (28%).

Accusative case increased the prominence of the object only in some items ($p > .05$).

Overall this effect was not significant.
Results

- Overall, the object was more likely to be re-mentioned (60%) compared to the subject (9%) or both referents (28%).
- Accusative case increased the prominence of the object only in some items ($p > .05$).
- Overall this effect was not significant.
Subjects appeared as part of continuations **subordinated** to the critical sentence (81%) than as part of a new sentence (18%).

Subjects were more likely to be **dropped** (64%) than being **overt** (36%).

Object appeared as a **full NP** (88.9%) more often than as a pronominal (9.09%) or object-drop (1.2%).
Subjects appeared as part of continuations subordinated to the critical sentence (81%) than as part of a new sentence (18%).

Subjects were more likely to be dropped (64%) than being overt (36%).

Object appeared as a full NP (88.9%) more often than as a pronominal (9.09%) or object-drop (1.2%).
Subjects appeared as part of continuations subordinated to the critical sentence (81%) than as part of a new sentence (18%).

Subjects were more likely to be dropped (64%) than being overt (36%).

Object appeared as a full NP (88.9%) more often than as a pronominal (9.09%) or object-drop (1.2%).
Object-bias might be due to lack of connectors following the referent introducer, leading participants to continue the utterance with a new sentence; hence with an object.

Our referent introducer lacked any connectors:

(11) Etkinliğin ilk defilesinde başarılı bir modacı izleyenlere bir manken(i) tanıttı...

*In the first show of the night, a successful designer introduced a model to the audience*...

This fits the subordination pattern of the subject re-mentions (i.e. subjects were more likely to appear as part of continuations subordinated to the referent introducing sentence).
Object-bias might be due to lack of connectors following the referent introducer, leading participants to continue the utterance with a new sentence; hence with an object.

Our referent introducer lacked any connectors:

(11) Etkinliğin ilk defilesinde başarılı bir modacı izleyenlere bir manken(i) tanıttı...

*In the first show of the night, a successful designer introduced a model to the audience*...

This fits the subordination pattern of the subject re-mentions (i.e. subjects were more likely to appear as part of continuations subordinated to the referent introducing sentence).
Second experiment to test real-time processing of the same phenomenon.

Participants were presented with a visual scene with two referents (e.g. a model and a designer), accompanied by an audio recording of a news story (next slide)

Their eye movements are recorded.
The first two sentences were the same as in Production Study:

- Discourse initiator: *Nişantaşı fashion days, which serves a ground for the introduction of new brands, took a start last night at Safran Palace Hotel.*
- Referent introducer: *In the first show of the night, a successful designer introduced a model to the audience.*
We added a third sentence included an anaphoric reference either to the Subject or Object referents introduced in the story (manipulated experimental condition).


The model/designer, who answered the questions of reporters after the event that received high media attention, made important statements.
Eye Tracking (cont.)

Tracking in 3 time windows: TW1, TW2, TW3

- Third sentence was cut into 3 Time windows (TW):
  
  Medyanın yoğun ilgi gösterdiği etkinliğin ardından gazetecilerin sorularını yanıtlayan manken/modacı önemli açıklamalarda buludu.

  the model/designer who answered the questions of reporters after the event that received high media attention made important statements

- Critical TW: relative clause region which comes before the anaphor (Turkish RCs precede their heads).
Eye Tracking (cont.)

Tracking in 3 time windows: TW1, TW2, TW3

- Third sentence was cut into 3 Time windows (TW):
  Medyanın yoğun ilgi gösterdiği etkinliğin ardından gazetecilerin sorularını yanıtlayan model/modacı önemli açıklamalarda buludu.

  the model/designer who answered the questions of reporters after the event that received high media attention made important statements

- Critical TW: relative clause region which comes before the anaphor (Turkish RCs precede their heads).
Eye Tracking (cont.)

Tracking in 3 time windows: \textbf{TW1, TW2, TW3}

- Third sentence was cut into 3 Time windows (TW):
  
  \textit{Medyanın yoğun ilgi gösterdiği etkinliğin ardından gazetecilerin sorularını yanıtlayan manken/modacı önemli açıklamalarda buludu.}

  \textit{the model/designer who answered the questions of reporters after the event that received high media attention made important statements}

- Critical TW: relative clause region which comes before the anaphor (Turkish RCs precede their heads).
Eye Tracking (cont.)

Tracking in 3 time windows: TW1, TW2, TW3

- Third sentence was cut into 3 Time windows (TW):
  Medyanın yoğun ilgi gösterdiği etkinliğin ardından gazetecilerin sorularını yanıtlayan manken/modacı önemli açıklamalarda buldu.

  *the model/designer who answered the questions of reporters after the event that received high media attention made important statements*

- Critical TW: relative clause region which comes before the anaphor (Turkish RCs precede their heads).
Eye Tracking (cont.)
Tracking in 3 time windows: TW1, TW2, TW3

- Third sentence was cut into 3 Time windows (TW):
  Medyanın yoğun ilgi gösterdiği etkinliğin ardından gazetecilerin sorularını yanıtlayan manken/modacı önemli açıklamalarda buludu.

  the model/designer who answered the questions of reporters after the event that received high media attention made important statements

- Critical TW: relative clause region which comes before the anaphor (Turkish RCs precede their heads).
Results

- Proportion of **object** looks was significantly **higher** than subject looks in the ambiguous RC-Region \( [F(1, 36) = 4.27, p < .05] \).
- Object prominence might be due to the relative clause: Although it ambiguously refers to either of the referents (subject/object), being a more elaborate referential form, the relative clause might have been interpreted as referring to the object.
- No significant effect of accusative case despite a tendency for some items \( (p > .05) \).
- Production and processing patterns are similar.
- Same items with discourse connectors might change the pattern.
Results

- Proportion of object looks was significantly higher than subject looks in the ambiguous RC-Region \[ F(1, 36) = 4.27, p < .05 \].

- Object prominence might be due to the relative clause: Although it ambiguously refers to either of the referents (subject/object), being a more elaborate referential form, the relative clause might have been interpreted as referring to the object.

- No significant effect of accusative case despite a tendency for some items \((p > .05)\).

- Production and processing patterns are similar.

- Same items with discourse connectors might change the pattern.
Results

- Proportion of object looks was significantly higher than subject looks in the ambiguous RC-Region \[F(1, 36) = 4.27, p < .05\].

- Object prominence might be due to the relative clause: Although it ambiguously refers to either of the referents (subject/object), being a more elaborate referential form, the relative clause might have been interpreted as referring to the object.

- No significant effect of accusative case despite a tendency for some items \((p > .05)\).

- Production and processing patterns are similar.

- Same items with discourse connectors might change the pattern.
Results

- Proportion of object looks was significantly higher than subject looks in the ambiguous RC-Region \( F(1, 36) = 4.27, p < .05 \).
- Object prominence might be due to the relative clause: Although it ambiguously refers to either of the referents (subject/object), being a more elaborate referential form, the relative clause might have been interpreted as referring to the object.
- No significant effect of accusative case despite a tendency for some items \( p > .05 \).
- Production and processing patterns are similar.
- Same items with discourse connectors might change the pattern.
The object-bias in production and processing contrasts with the previously reported subject-bias.

Referential forms in production: more prominent referents (e.g., subject) were dropped whereas less prominent ones needed explicit expressions.

The pro-drop in Turkish seem to have masked the subject’s prominence while constraining the choice of referential expressions as predicted.

Turkish accusative may not be as powerful a cue as Romanian -pe marking (for similar findings in Spanish, see von Heusinger & Kaiser, 2011).

Discourse effect of optional object marking may not be absolute but it seems to depend on other factors.
The object-bias in production and processing contrasts with the previously reported subject-bias.

Referential forms in production: more prominent referents (e.g., subject) were dropped whereas less prominent ones needed explicit expressions.

The pro-drop in Turkish seem to have masked the subject’s prominence while constraining the choice of referential expressions as predicted.

Turkish accusative may not be as powerful a cue as Romanian -pe marking (for similar findings in Spanish, see von Heusinger & Kaiser, 2011).

Discourse effect of optional object marking may not be absolute but it seems to depend on other factors.
Future work will investigate the effect of the connectors *and*, *but*, and *because* using the same materials to test whether the subject’s special status is a crosslinguistic/cognitive universal and how they influence the referential forms.

Ongoing corpus work investigates possible frequency effects behind the observed pattern (U. Özge and von Heusinger in prep).
Thank you!
Acknowledgments

- **Funding:** German Science Foundation: SFB 732 “Incremental Specification in Context”, University of Stuttgart.
- **Feedback:** Artemis Alexiadou, Dag Haug, Elsi Kaiser, Hans Kamp, Arndt Riester, Carla Umbach, Heike Zinsmeister.
- **Facility support:** Aylin Küntay, Eye-tracking Lab, Koç University.


Accusative Favoring Items

<table>
<thead>
<tr>
<th>Accusative-Favoring Items</th>
<th>Zero-Favoring Items</th>
<th>Neutral Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>A guerilla returned a hostage to the government</td>
<td>A minister appointed a doctor to the commission</td>
<td>A dietician hosted a diabetic in the show</td>
</tr>
<tr>
<td>An executive officer took an archeologist to the mining site</td>
<td>A manager transferred a star to the team</td>
<td>A program-host took an actress on air</td>
</tr>
<tr>
<td>An attorney invited an assistant secretary to the hearing</td>
<td>A designer introduced a model to the audience</td>
<td>A member included a psychiatrist in the committee</td>
</tr>
<tr>
<td>An editor brought a reporter to the post of chief editor</td>
<td>An academician suggested a soldier as the council president</td>
<td>A musician received a politician in his studio</td>
</tr>
</tbody>
</table>

Four rating studies checked whether Agency/Implicit Causality, Reversibility, Newsworthiness/Surprisal, Frequency of use might be influencing this pattern.

The answer is ‘No’.