

Referential form, word order, and implicit causality in Turkish emotion verbs



Duygu Sarisoy^a, Ebru Evcen^b, Joshua Hartshorne^c

^aMiddle East Technical University; ^bUC San Diego; ^cMGH Institute of Health Professions

Introduction

Pronouns are formally ambiguous:
They don't have built-in meanings, and listeners use context to resolve them.

Who drank all the wine?
(1) Al frightened Bart because he drank all the wine.
(2) Al feared Bart because he drank all the wine.

Most say *he* = *Al* (stimulus) in (1), *he* = *Bart* (stimulus) in (2).
Same structure. Different verb. Different interpretation.

Experiencer-subject verbs (*frighten*): subject bias (stimulus)
Experiencer-object verbs (*fear*): object bias (stimulus)

This effect is **implicit causality** (Garvey & Caramazza, 1974)

Background

- Earlier theories** (Ariel, 1990; Gundel et al., 1993):
- Pronouns refer to the subject or topic
 - Overt forms signal a topic shift
- But... it's not that simple:**
- Subject bias is variable (Arnold, 1998)
 - Discourse structure matters:
 Elaboration → subject reference
 Explanation → object/event reference (Kehler, 2002)
 - Verb semantics also plays a role (Hartshorne & Snedeker, 2013)

Present Study

Research Question:
How do word order, referential form, and verb type affect pronoun resolution in Turkish?

- Motivation:**
- Most prior work uses English production data and doesn't isolate IC verbs or control discourse structure, limiting generalizability.
 - Turkish offers a strong test case: it has null/overt pronouns, flexible word order (subject ≠ topic/focus), and underexplored IC effects.

- Predictions:**
- Turan (1997): null pronoun → experiencer, overt pronoun → stimulus, predicts no word order effect
 - IC accounts: both pronouns → stimulus, possible subject bias for null pronouns, no prediction for word order effect

- Methods:**
- Forced-choice comprehension task (Hartshorne & Snedeker, 2013)
 - **Participants:** 136 native Turkish speakers
 - **Materials:** 16 emotion verbs; Explanation-only structure with *because* (*çünkü*)
 - **Task:** Choose who *dakmuk* (*nonsense adjectival predicate*) refers to.

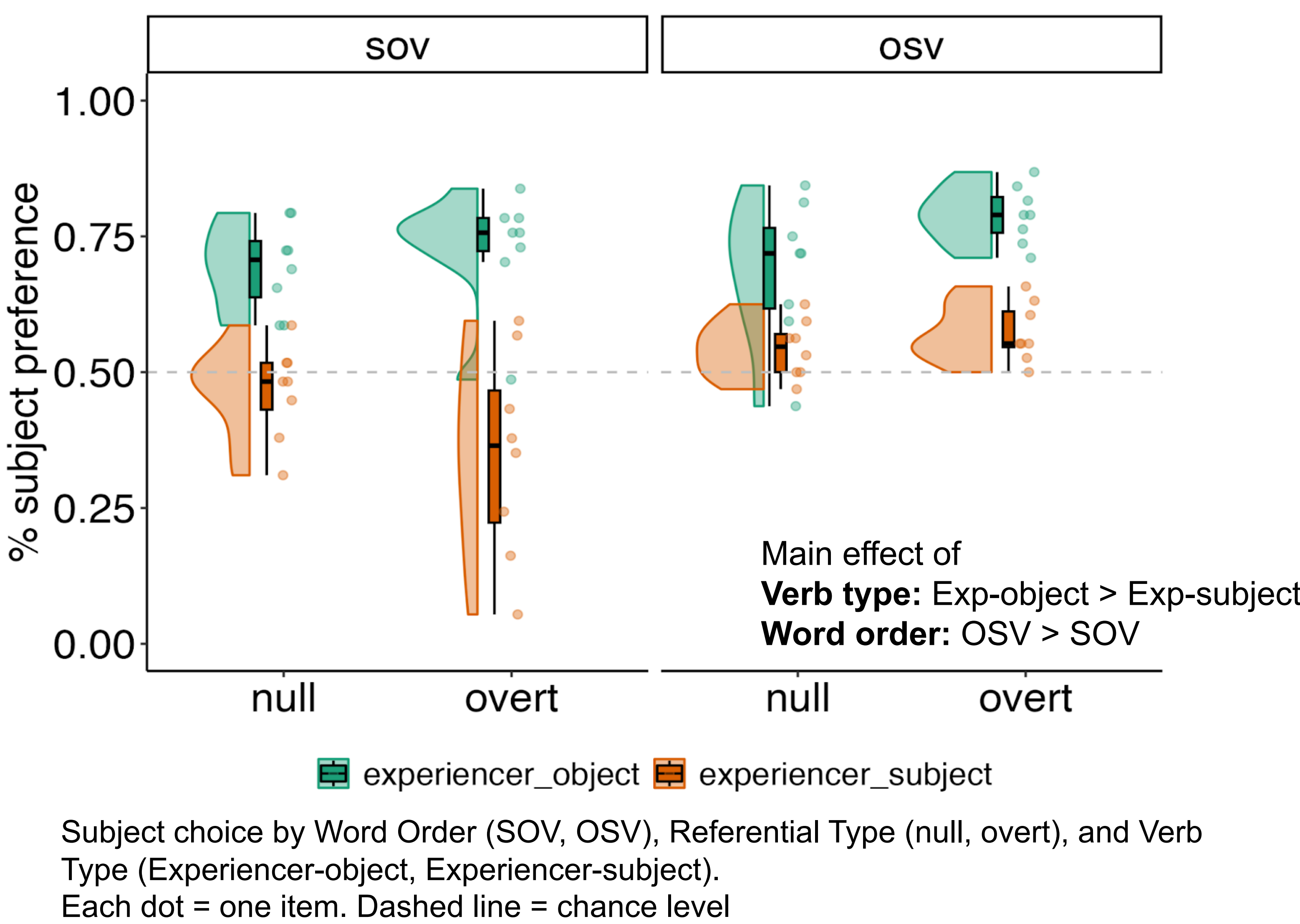
Test Items

(1) **SOV, Null/Overt pronoun, Exp-subject/-object verb**
Bahar Ceren'i arzulu-yor/büyülü-yor
Bahar.NOM Ceren-ACC desire/dazzle-PROG.3SG
çünkü (o) dakmuk
because (she) dakmuk
'Bahar desires/dazzles Ceren because she is dakmuk.'

(2) **OSV, Null/Overt pronoun, Exp-subject/-object verb**
Bahar'ı Ceren arzulu-yor/büyülü-yor
Bahar-ACC Ceren.NOM desire/dazzle-PROG-3SG
çünkü (o) dakmuk
because (she) dakmuk
'Ceren desires/dazzles Bahar because she is dakmuk.'

Who is dakmuk?
o Bahar o Ceren

Results



Discussion

- Summary:**
- Stronger subject bias for experiencer-object than experiencer-subject verbs
 - More subject preference in OSV word order than in SOV

- Present data in relation to existing accounts:**
- **Challenges:** Turan (1997) predicted no word order effect and a verb × referential form interaction; we found the opposite.
 - **Compatible with IC accounts:** both pronoun types are resolved to the stimulus, but subject bias also appeared for experiencer-subject verbs, which are typically equi-biased.

- Flagged for future:**
- Stronger subject bias in OSV not predicted by Turan (1997) or IC accounts
 - May reflect focus-over-topic bias (Özge & Evcen, 2020), possibly due to combined subjecthood + focushood