

IMPLICIT CAUSALITY BIAS IN TURKISH

A Production Study

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Background

What is implicit causality?

Definition: (Hartshorne, 2013)

A phenomenon that reflects intuitions about who caused the event

- (1) a. Jim frightened Tim because he...
- b. Jim liked Tim because he...

a change in the verb type results in different interpretations of the pronoun. (Garvey and Caramazza, 1974)

individuals tend to resolve the pronoun to Jim in (1a) and to Tim in (1b).

The Verbs

- They take two arguments: experiencer and stimulus
- Experiencer is the entity that undergoes the emotional state and is by definition animate
- The stimuli can either be animate or inanimate

Pronoun is resolved *towards the stimulus*

- (2) a. Mary admired Lisa because she... (SE)
 b. Mary frightened Lisa because she... (OE)

Other types of Biases

Table 1: Observed Biases and Preferred Referent

Verb Type	Preferred Referent
Stimulus-Experiencer	Stimulus
Agent-Evocator	Evocator
Source-Goal	Goal

Bott and Solstad (2014), Goikoetxea et al. (2008), Ferstl et al. (2011)
and Rosa and Arnold (2017) among others

Production

Remention Bias

the preferred referent varies systematically with the verb in the main clause

Fukumura and Van Gompel (2010), and Rohde and Kehler (2014)
→ no effect of Implicit Causality on anaphoric form. The production of anaphoric form is dissociated from the likelihood of mention.

Kehler et al. (2008) → grammatical bias influences the choice of referential expressions

Rosa and Arnold (2017) → Transfer of Possession verbs influence the choice of anaphoric form.

Form of Referential Expressions

Morphologically richer forms → in introducing entities

Reduced forms → in maintaining referents

When a referent is new to the discourse it is **less activated** or **less accessible** in the mental state of speakers and listeners

Standard Referential Form Hierarchy:

■ Null > Pronoun > Demonstrative > Full NP...

(Adapted from Kaiser and Trueswell, 2008)

Forms occurring to the left are argued to prefer more salient antecedents

Turkish

- Head-final language, the standard word order is SOV.
- **Pro-drop**: has overt and covert pronominals. Has subject pro-drop and object pro-drop

(3) (Ben) (o-nu) sevi-yor-um.
(I) (he/she/it-ACC) love-PRES-1SG
'I love him/her/it.'

- No gender distinction in Turkish pronouns, and the third person singular pronoun *o* is equivalent to he/she/it and homophonous with the distal demonstrative pronoun (Göksel and Kerslake, 2005)

Turkish

The covert pronoun cannot establish a reference independent of the context, and it merely co-refers to an antecedent that is mentioned in prior context.

- (4) Ahmet market-e git-ti. (o) bir saat sonra ev-e
Ahmet market-DAT go-PAST. (he) one hour later house-DAT
dön-dü.
return-PAST.
'Ahmet went to the market. One hour later (he) came back.'

Overt pronouns can establish a reference independent of the context.

The Experiment

The Experiment

A Sentence Completion Task to investigate IC bias in Turkish

- 1 Which referent is more likely to be mentioned next?
- 2 Is there a correlation between the referent and verb-type?
- 3 Which form of expression is used to convey this reference?
- 4 Is there a correlation between the form of expression and verb-type?

Design

- 23 participants (2 excluded from the analysis)
- 20 experimental sentences and 20 filler items
- One of the individuals was introduced with a proper name (e.g. Ahmet), the other with a noun for an occupation e.g. *oyuncu* 'actor/player'
- *çünkü* 'because', after each sentence to elicit sentence continuations
- Minimal pairs: passive suffixes *-Il* and *-n* or causative morphemes *-Dir* *-It*

Verbs Used

üzmek-üzülmek (sadden–be sad), *şaşırtmak-şaşırmak* (surprise–be surprised), *kızdırmak-kızmak* (anger–be angry), *sevindirmek-sevinmek* (delight–be delighted), *kandırmak-kanmak* (deceive–be deceived), *korkutmak-korkmak* (scare–be scared), *tiksindirmek-tiksinmek* (disgust–be disgusted), *utandırmak-utanmak* (ashame–be ashamed), *etkilemek-etkilenmek* (influence–be influenced), *büyülemek-büyülenmek* (charm–be charmed)

Experimental Items

- Object-Experiencer verbs required nominative subject and accusative object
- Subject-Experiencer verbs either required dative object (n=5) or ablative object (n=5)

Table 2: Overview of Experimental Items

Type	Case	Example		
OE	ACC	Adam Melih-i	kandı-r-dı	çünkü...
		Man Melih-ACC	deceive-CAUS-PST	because...
SE	DAT	Melih adam-a	kan-dı	çünkü...
		Melih man-DAT	deceive-PST	because...
OE	ACC	Ressam Ece-yi	kork-ut-tu	çünkü...
		Painter Ece-ACC	frighten-CAUS-PST	because...
SE	ABL	Ece ressam-dan	kork-tu	çünkü...
		Ece painter-ABL	scare-PST	because...

Predictions

Following the proposed hierarchy for salience → many occurrences of **null forms** as the referents are given and maintained.

Hartshorne et al. (2012) → in Japanese, a language that explicitly marks the causal relation, strong effects of IC bias could potentially be observed.

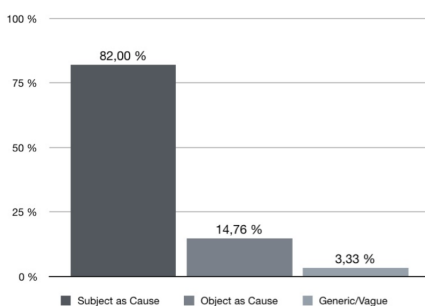
Turkish marks causality explicitly

Thus re-mention bias towards the stimulus could also be expected.

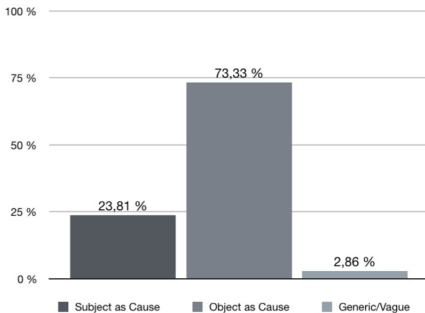
Results & Discussion

Results

Strong bias to continue by mentioning the stimulus.



(a) OE continuation.



(b) SE continuation.

Example Continuations

- (5) Öğretmen Ahmet-i üz-dü çünkü...
teacher.(NOM) Ahmet-ACC upset-PST because...
'The teacher upset Ahmet because...'
- a. (∅) düşük not ver-di.
(∅) low grade give-PST
'She/he gave a low grade'
- b. (∅) o-na/Ahmet-e düşük not ver-di.
(∅) he-DAT/Ahmet-DAT low grade give-PST
'She/he gave a low grade to him/Ahmet'

Results

- (6) Öğretmen Ahmet-i üz-dü çünkü...
 teacher.(NOM) Ahmet-ACC upset-PST because...
 'The teacher upset Ahmet because...'

şapka-sı-nı al-mıştı.
 hat-3SG.POSS-ACC take-PF
 '(He/she) took his/her hat.'

Table 3: Null Subject or Object Usage in terms of Verb Type

Verb type	Null Obj	Null Subj	Both Null
Object-Experiencer	7	131	24
Subject-Experiencer	90	41	9

Results

Table 4: Form of referential Expression in Sentence Continuations of Object-Experiencer Verbs

	Full DP/NP	Pronoun	Reflexive
Reference to Object	29	23	2
Reference to Subject	20	2	2

Table 5: Form of referential Expression in Sentence Continuations of Subject-Experiencer Verbs

	Full DP/NP	Pronoun	Reflexive
Reference to Object	60	5	1
Reference to Subject	6	8	1

Summary

- A strong implicit causality bias in the direction towards stimulus in Turkish
Predicted by Hartshorne et al. (2012) → overt morphological marking of causal relations in Turkish
- Pro-drop as a common strategy
- Reduced forms are frequently used in establishing a reference to given entities.

Summary

- 1 Which referent is more likely to be mentioned next?
- 2 Is there a correlation between the referent and verb-type?
- 3 Which form of expression is used to convey this reference?
- 4 Is there a correlation between the form of expression and verb-type?







Summary

- 1 Which referent is more likely to be mentioned next?
Stimulus
- 2 Is there a correlation between the referent and verb-type?
OE sentences → Subject/Stimulus continuations
SE sentences → Object/Stimulus continuations
- 3 Which form of expression is used to convey this reference?
Null forms are preferred
- 4 Is there a correlation between the form of expression and verb-type?
Preference for reduced forms found for each type of verb.
However the effect is smaller for SE than for OE verbs
→ could be an indication of grammatical preference
Rohde and Kehler (2014) → preference to use pronouns to refer to the previous subject and names to refer to non-subjects

Thank you for listening!

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