How do Turkish speakers interpret pronouns in Transfer-of-Possession contexts?

How we identify the antecedent of an ambiguous pronoun has been a topic of interest in discourse anaphora studies. Crudely speaking, the most prominent entity is selected as the antecedent, but what determines the ranking of an entity as prominent is still an open question. Features such as givenness,[1, 2, 3] parallel roles,[4] or recency,[3] syntactic role,[5] thematic role, [6,7] verb type, [7] coherence relations, [3,8, 9] and referential form[3,10] have been nominated as the determinants of prominence in anaphora resolution. Other studies suggest that multiple factors interact during pronoun resolution.[10,11,12, 13] Also, a widely accepted generalization is that more reduced referential forms encode more prominent entities.[14]

For Turkish, the intuition is that null pronouns are likely to refer to the subject and overt pronouns refer to the object.[15] However, recent experimental studies showed some verb types (e.g., stimulus-experiencer; e.g., *frighten*) in Turkish may not reflect this expectation due to their strong thematic biases. [16; c.f., 10,17] Similarly, for English, Transfer-of-Possession (ToP) verbs have been reported to show a goal-bias.[6] Yet, recent studies underlined the influence of coherence relations: the goal-bias is observed only in occasion (*and*) and result (*so*) relations but not in explanation relations.[9] For Japanese[17] and Korean,[18] on the other hand, null pronouns were source-biased regardless of the coherence relations. Apparently, language-specific factors are also at play. However, all of these studies come from sentence-completion studies where the coherence relations may be marked implicitly. What happens in comprehension when the coherence relations are overtly marked?

We test how an ambiguous pronoun is interpreted in Turkish sentences with ToP verbs, and how different coherence markers (*and, so, because*) (manipulated within-subjects) and referential forms (*null/overt*) (manipulated between-subjects) influence interpretation. We conducted a rating study modeled after a previous study.[19] One-hundred-twelve participants read conjoined clauses with an ambiguous anaphor and a nonsense-verb, and they determine the antecedent of this nonsense action (see,1&2).

If purely thematic factors dominate[6], we expect a goal-bias. If grammatical position determine the antecedent of a null pronoun as in Japanese[17] or Korean,[18] we expect more source-bias in null-pronoun condition regardless of the coherence marker. If coherence relations interact with the referential form as in English,[9] we expect a goal-bias in occasion and result conditions.

We found a significant effect of coherence-marker and referential form, and a significant interaction between the two (see, Table & Figure). We observed a gradient source(subject)-bias changing with the coherence marker only in null-pronoun condition (source-bias: and>so>because). In this condition, there was a goal(object)-bias in occasion and result conditions and a source-bias in explanation condition. In the overt-pronoun condition, there was a goal-bias regardless of the coherence marker. Thus, even if reflecting different thematic biases, Turkish null-pronouns pattern with English pronouns (and not with Japanese/Korean null-pronouns) in reflecting a complex interplay between grammatical and pragmatic factors, but the overt-pronouns are under the heavy influence of grammatical factors. They are predominantly linked to the object.[15]

Sample Test Items

(1) Bahar   Ceren-e rapor-u yolla-dı ve/bu yüzden/çünkü punta-dı.
   Bahar-Nom Ceren-Dat report-Acc send-Past.3sg and/so/because   punta-Past.3sg
   'Bahar sent Ceren the report and/so/because (she) *daxed*.'

(2) Bahar   Ceren-e rapor-u yolla-dı ve/bu yüzden/çünkü o punta-dı.
   Bahar-Nom Ceren-Dat report-Acc send-Past.3sg and/so/because   she punta-Past.3sg
   'Bahar sent Ceren the report and/so/because she *daxed*.'

Table: Results of repeated measures ANOVA conducted over percentage of Source (Subject) selection with coherence-marker as within-subjects variable and referential-form as between-subject variable

Source	df	F	P
Coherence-marker	2	69.84	<.0001
Referential-form	2	106.78	<.0001
Coherence-marker*Referential-form	4	15.43	<.0001

Figure: Percentage of Source (Subject) selection by coherence marker and referential form

% of Subject selection in ToP verbs by Connector Type
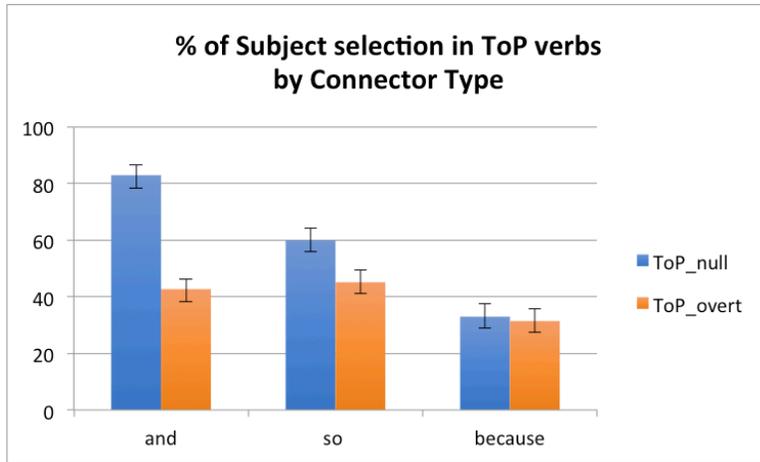
References: [1] Givon, 1983; [2]Gundel, et al. 1993; [3]Arnold, 1998; [4]Sheldon, 1974; [5]Crawley et al, 1990; [6] Stevenson et al., 1994; [7] Garvey&Caramazza, 1974; [8] Kehler, 2008; [9] Rohde, Kehler, & Elman, 2006;2008; [10] Fedele& Kaiser, 2015; [11]Kaiser&Trueswell, 2008; [12] Gordon, et al., 1993; [13] Badecker& Straub, 2002; [14] Grosz, Joshi, Einstein, 1995; [15] Turan, 1998; [16] Özge, Harsthorne&Snedeker, 2016; [17] Ueno&Kehler, 2016; [18] Kim, et al., 2013; [19] Hartshorne&Snedeker, 2013.