

## Antecedent search for Turkish reflexive *kendi*: Evidence from eye tracking

Hasan Sezer (Cornell University)

hs687@cornell.edu

**Intro.** The study addresses online reflexive resolution in Turkish using eye tracking during reading methodology. Cross-linguistic work have reported mixed results on whether the parser implements an intelligent antecedent search strategy for reflexives by ruling out binding incompatible antecedent candidates. The current study aims to add on the debates by bringing evidence from Turkish anaphor *kendi* ‘self’. This anaphor is often reported as a local reflexive hence needs a c-commanding licenser. Also, the referents must be animate. Considering these constraints, experimental trials consisted of object relative clauses where only animate subject in main clause is legitimate antecedent:

- (1) **Accessible match/Inaccessible mismatch**
  - a. Medyanın gösterdiği çocuk geçen hafta kendinden odada korkmuş, ifadelere göre.  
“Last week, the kid that media reported was afraid of kendi in the room, according to statements.”  
**Accessible match/Inaccessible match**
  - b. Öğretmenin çağırdığı çocuk geçen hafta kendinden odada korkmuş, ifadelere göre.  
“Last week, the kid that the teacher talked to was afraid of kendi in the room....”  
**Accessible mismatch/ Inaccessible match**
  - c. Psikoloğun yazdığı reçete geçen hafta kendinden odada korkmuş, ifadelere göre.  
“Last week, the prescription that the psychologist wrote was afraid of kendi in the room....”  
**Accessible mismatch/Inaccessible mismatch**
  - d. Medyanın gösterdiği tablo geçen hafta kendinden odada korkmuş, ifadelere göre.  
“Last week, the portrait that media reported was afraid of kendi in the room.....”

**Design & Analysis & Results.** A norming study for the main verbs was conducted to obtain only verbs that are equally felicitous for reflexivity (N=35, Mean Age=22, SD=5.56). 16 verbs were selected (i.e., response rate of 80% and over). 40 native students were recruited at Middle East Technical University in Ankara, Turkey and data from 36 subjects were entered into analysis. SR EyeLink 1000 was used for data collection. A linear mixed effects analysis was performed in R (R Core Team, 2012) and lme4 (Bates, Maechler & Bolker, 2012) platform. *Accessible antecedent* and *inaccessible antecedent* were the fixed effects while items and participants were the random slopes. Each predictor has *match* and *mismatch* levels yielding a 2x2 factorial design. P-values were obtained by likelihood ratio tests of the full model with the effect in question against the null model. A pairwise comparison analysis was performed for significant predictors. Eye movement measures consisted of *first pass measures* (e.g., first-fixation, first-pass, regression path) and *second pass-times*, reflecting early and later stage of processing, respectively.

Table1 shows model results. Only first pass times in early stage of processing reveal the effect of accessible antecedent (i.e., longer fixation times when binding compatible antecedent was inanimate than when it was animate). This suggests the filtering mechanism of BT. This effect emerges after the reflexive regions, which is expected under verb-finality of Turkish. Similar pattern for *accessible antecedent* was found in second-pass times. Further, in later processing stage, there was a significant interaction effect on the reflexive. A contrast analysis for this region showed that longer fixations were made in accessible match and inaccessible match conditions than in accessible match and inaccessible mismatch conditions. This suggests that processing is influenced by BT incompatible antecedent in later stages.

**References(selected).** Badecker, W., & Straub, K. (2002). The processing role of structural constraints on interpretation of pronouns and anaphors. • Sturt, P. (2003). The time-course of the application of binding constraints in reference resolution. • Phillips, C., Wagers, M., & Lau, E. F. (2010). Grammatical illusions and selective fallibility in real-time language comprehension.

Table1.

Measure	Region	Effect	p-value (Chi-Squared)
<i>First Fixation</i>	Reflexive	Accessible match	0.55
		Inaccessible match	0.24
		Interaction	0.45
	Reflexive spill-over	Accessible match	0.19
		Inaccessible match	0.77
		Interaction	0.29
	Main verb	Accessible match	0.67
		Inaccessible match	0.42
		Interaction	0.86
	Main verb spill-over	Accessible match	0.64
		Inaccessible match	0.74
		Interaction	0.45
<i>First-pass</i>	Reflexive	Accessible match	0.90
		Inaccessible match	0.72
		Interaction	0.83
	Reflexive spill-over	Accessible match	<b>0.04*</b>
		Inaccessible match	0.51
		Interaction	0.77
	Main verb	Accessible match	<b>0.05*</b>
		Inaccessible match	0.18
		Interaction	0.06
	Main verb spill-over	Accessible match	0.26
		Inaccessible match	0.69
		Interaction	0.79
<i>Regression-path</i>	Reflexive	Accessible match	0.13
		Inaccessible match	0.52
		Interaction	0.13
	Reflexive spill-over	Accessible match	0.59
		Inaccessible match	0.59
		Interaction	0.39
	Main verb	Accessible match	0.17
		Inaccessible match	0.58
		Interaction	0.59
	Main verb spill-over	Accessible match	NA
		Inaccessible match	NA
		Interaction	NA
<i>Second-pass</i>	Reflexive	Accessible match	<b>0.0001*</b>
		Inaccessible match	0.081
		Interaction	<b>0.0071*</b>
	Reflexive spill-over	Accessible match	<b>0.0001*</b>
		Inaccessible match	0.17
		Interaction	0.22
	Main verb	Accessible match	<b>0.0001*</b>
		Inaccessible match	0.95
		Interaction	0.79
	Main verb spill-over	Accessible match	<b>0.00057*</b>
		Inaccessible match	0.28
		Interaction	0.33