Investigating syntactic effects in NPI illusions in Turkish

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Negative Polarity Items (NPIs) such as *ever* are licensed within the scope of a negative element. However, there is a fleeting perception of acceptability in sentences in which there is a structurally inappropriate licensor as in *The bills [that no senator voted for] will **ever** become law* [1,2]. This *NPI illusion* has been mostly investigated in languages in which the NPI dependency is *retrospective*, i.e., the licensor comes before the NPI [English:1,2; German:3]. But in head-final languages like Turkish the NPI dependency is *prospective,* i.e., the licensor follows the NPI. Limited work on head-final languages [Turkish:4, Japanese:5, Korean:6] employed materials with an intrusive licensor in a complement clause and showed illusionary effects in offline judgment tasks. Semantic accounts [1] predict illusion only with relative clauses due to indirect licensing by their negative inferences. Cue-based memory accounts cannot explain prospective NPI (illusionary) licensing as it does not require/include retrieval of the licensor from memory. Here we investigate if the illusion observed in an earlier study on Turkish [4] would be replicated and if it would differ depending on the syntactic position of the intrusive licensor. A judgment task showed evidence for illusion with both complement and adjunct clauses, and a self-paced reading (SPR) task provided some online evidence for illusionary licensing.

An offline **speeded acceptability** judgment ($N_{subject}$ = 50) and a **SPR** task ($N_{subject}$ = 55) investigated whether the NPI illusion appears when the syntactically inappropriate licensor is embedded in an adjunct and/or a complement clause. Both experiments (N_{item} = 24, N_{filler} = 48) used a 2x3 within-subject design crossing CLAUSE TYPE (complement or adjunct) and NEGATION (negated matrix or embedded verb, or no negation) as in (1). In all the conditions the NPI *kimse* was the matrix subject. The embedded subject was a generic (in half of the items) or a proper noun. Data from both tasks were fit into logistic/linear regression models with the *lmer* package [8]. Judgment data (Fig1) showed that overall, licensed sentences with negated matrix verb were judged as more acceptable than the intrusion sentences with negated embedded verb (p's < .001), which were judged as more acceptable than unlicensed sentences with no negation (p's < .001). There were no effects of CLAUSE TYPE (p's > .05). SPR data (Fig2) showed (i) marginal slowdowns in the matrix verb and its spill-over region in unlicensed in relative to licensed and intrusion sentences (p's < .8), (ii) a slowdown in the embedded verb in intrusive in relative to unlicensed and licensed sentences (p's < .01), and (iii) a slowdown in the embedded verb in adjunct in relative to complement clause sentences (p's < .01).

The results of the judgment task showed evidence for an NPI illusion in Turkish with both complement [4-6] and adjunct clauses. The present study, to our knowledge, is the first to report an NPI illusion with adjunct clauses. The SPR task revealed no RT differences in the matrix verb between licensed and intrusion sentences, but there was a marginal slowdown in unlicensed sentences, which may be taken as (partial) online evidence for illusionary licensing. The slowdown in the embedded verb in intrusion sentences may be due to the parser's early attempt to license the NPI, supporting expectation-based accounts [9]. The overall slowdown in adjunct clauses may be attributed to a delayed, i.e., less incremental, syntactic structure building in adjuncts compared to complements [10-11]. This delayed structure building in adjuncts did not lead to any differences in (illusionary) NPI licensing in either offline or online results. Overall, our findings raise challenges for the existing accounts of NPI illusions. The illusion in complement or adjunct clauses cannot unexplained by semantic accounts [1] as they predict illusions only in relative clause environments. The illusion in Turkish cannot be explained by cue-based memory accounts [7] as prospective NPI licensing requires predicting the licensor in the upcoming material. We concur with [5] and argue that illusion in prospective NPI dependencies may be due to high working memory demands that are necessary to hold the NPI active until the downstream dependency is formed.

STIMULI. The NPI *kimse* is in bold face. Negation is in italic. SPR study included phrases like *zaten* "already" and *bence* "in my opinion" as a spillover after the embedded and matrix verbs.

(1) a. ComplementClause-NEG$_m$ (licensed):
Kimse-Ø sekreter-ler-in/Ali-nin ofis-i ara-dığ-ın-a kız-*ma*-dı-Ø.
Nobody-NOM secretary-PL-GEN/Ali-GEN office-ACC call-FN-POSS-DAT be.mad-NEG-PST-3SG

b. ComplementClause -NEG$_e$ (intrusion):
Kimse-Ø sekreter-ler-in/Ali-nin ofis-i ara-*ma*-dığ-ın-a kız-dı-Ø.
Nobody-NOM secretary-PL-GEN/Ali-GEN office-ACC call-NEG-FN-POSS-DAT be.mad-PST-3SG

c. ComplementClause -Neg$_Ø$ (unlicensed):
Kimse-Ø sekreter-ler-in/Ali-nin ofis-i ara-dığ-ın-a kız-dı-Ø.
Nobody-NOM secretary-PL-GEN/Ali-GEN office-ACC call-FN-POSS-DAT be.mad-PST-3SG

d. AdjunctClause-NEG$_m$ (licensed):
Kimse-Ø sekreter-ler-Ø/Ali-Ø ofis-i ara-dığ-ın-da kız-*ma*-dı-Ø.
Nobody-NOM secretary-PL-NOM/Ali-NOM office-ACC call-FN-POSS-LOC be.mad-NEG-PST-3SG

e. AdjunctClause -NEG$_e$ (intrusion):
Kimse-Ø sekreter-ler-Ø/Ali-Ø ofis-i ara-*ma*-dığ-ın-da kız-dı-Ø.
Nobody-NOM secretary-PL-NOM/Ali-NOM office-ACC call-NEG-FN-POSS-LOC be.mad-PST-3SG

f. AdjunctClause -NegØ (unlicensed):
Kimse-Ø sekreter-ler-Ø/Ali-Ø ofis-i ara-dığ-ın-da kız-dı-Ø.
Nobody-NOM secretary-PL-NOM/Ali-NOM office-ACC call-FN-POSS-LOC be.mad-PST-3SG
"Nobody was mad that/when the secretaries/Ali called/didn't call the office."

Fig1. Results of the offline judgment task

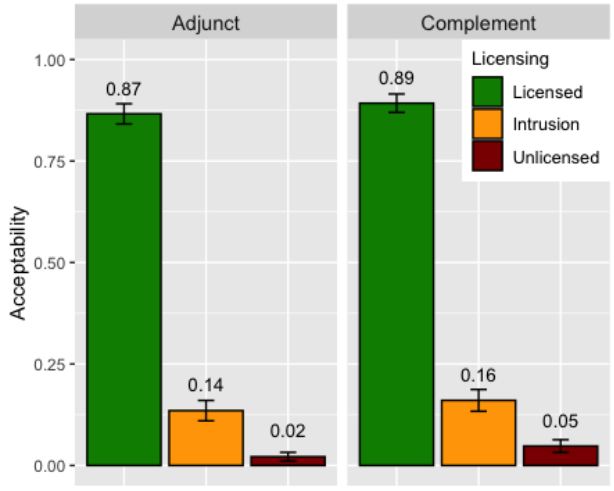
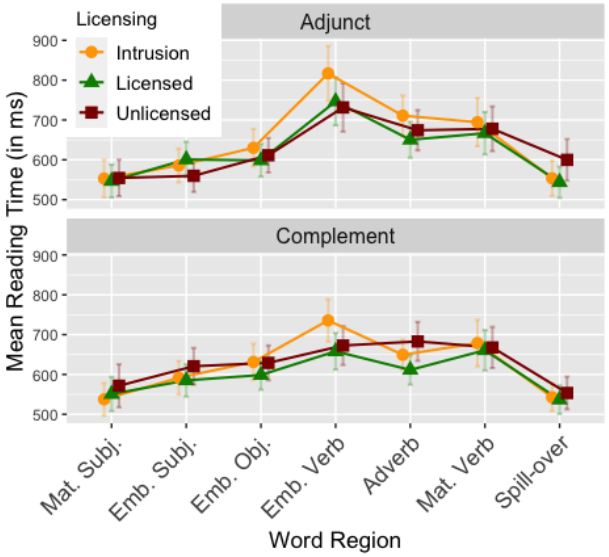


Fig2. Preliminary data from the SPR task



References. [1] Xiang et al., 2009. [2] Parker & Phillips, 2016. [3] Drenhaus et al., 2005. [4] Yanilmaz & Drury, 2017. [5] Su & Aparicio, 2022. [6] Lee & Yun, 2022. [7] Vasishth et al., 2009. [8] Bates et al., 2015. [9] Levy, 2008. [10] Frazier & Clifton, 1996. [11] Beck & Tiemann, 2019.