When NPI illusions fail: the case of strict NPIs and neg-words in Romanian

Rodica IVAN & Brian DILLON, UMass Amherst, {rivan,brian}@linguist.umass.edu, WCCFL 36

Question

Are Romanian strict NPIs and neg-words subject to illusory licensing?

Illusory licensing of NPIs

Negative polarity items (NPIs) like English *ever, any* are licensed in the scope of downward-entailing operators, such as negation [2,7,8]:

(1) a. **No** student *ever* made a mistake on their exams.
   b. Hermione **doesn't** think she *ever* made a mistake on her exams.
   c. Hermione **doubts** she *ever* made a mistake on her exams.
   d. *Hermione thinks she *ever* made a mistake on her exams.

In incremental processing, **structurally inaccessible negation** can interfere. This causes an *illusion of grammaticality* for NPIs in English (2b) [3,5], as well as in German and Turkish [4,6].

(2) a. **No man** [that the woman liked] **_ever_** arrived on time. GRAM
   b. *The man [that **no woman** liked] **_ever_** arrived on time. ILLUSORY
   c. *The man [that the woman liked] **_ever_** arrived on time. UNGRAM

Compared to (2c), there is faster reading of the NPI in (2b) [3,4], reduced P600 effects [5,6], and higher rates of acceptance in speeded acceptability tasks [3,5,6].

Why? Two accounts

CUE-BASED RETRIEVAL	PRAGMATIC RESCUE
Inaccessible licensor (no woman) incorrectly retrieved due to a noisy memory retrieval process triggered by the dependent NPI [3,4]	Illusory licensing reflects the overapplication of semantic / pragmatic licensing mechanisms [2, 5,9]

Weak NPIs, Strong NPIs, and neg-words

Different NPIs are subject to different licensing conditions. Compare (3) to (1):

(3) a. **No** student made a mistake on their exams **_in years_**.
   b. *Hermione **doesn't** think she made a mistake on her exams **_in years_**.
   c. *Hermione **doubts** she made a mistake on her exams **_in years_**.
   d. *Hermione thinks she made a mistake on her exams **_in years_**.

→ **Weak NPIs** like *ever* may be pragmatically licensed, but **strong NPIs** like *in years* must be **syntactically** **licensed** by local, c-commanding negation [2, 7, 8].
→ Like strong NPIs, **neg-words** are elements in negative concord languages (like Romanian) which are necessarily syntactically licensed by local syntactic negation [7,8].

Summary: Polarity sensitive items

	WEAK NPIs	STRONG NPIs	NEG-WORDS
Local syntactic negation	✓	✓	✓
Non-local syntactic negation	✓	X	X
Downward-entailing predicates	✓	X	X

The present study: *are neg-words and strong NPIs subject to illusory licensing?*
→ Previous studies focused on weak NPIs (*any, ever*); weak NPIs are subject to illusory licensing.
   But: Are strong NPIs (*in years*) susceptible to illusory licensing effects?
→ Testing strong NPIs and neg-words may help adjudicate between retrieval and pragmatics-oriented accounts.

Predictions!

CUE-BASED RETRIEVAL	PRAGMATIC RESCUE
Strong NPIs and neg-words should be as susceptible as weak NPIs to illusory licensing, because all three may be licensed by syntactic negation.	Strong NPIs and neg-words should not be susceptible to illusory licensing, because they must have strictly local syntactic licensing; pragmatic licensing mechanisms may not apply.

Romanian strong NPIs and neg-words

We tested whether strong NPIs and neg-words are sensitive to illusory licensing effects by looking at Romanian, a language that has both. We conducted a self-paced reading study with a 2 x 3 design, crossing **grammaticality** {GRAM, ILLUSORY, UNGRAM} with **polarity item** {**Strong NPI:** încă (yet), **Neg-word:** niciodată (never)}:

GRAM: *Rața pe care nicio gâscă nu a alergat-o {**încă/niciodată**} deși era sperioasă s-a întors la lacul nostru.*
'The duck that **no goose** chased **yet**/**never** although it was skittish returned to our pond.'

ILLUSORY: *Nicio rață pe care gaștele au alergat-o {**încă/niciodată**} deși era sperioasă nu s-a întors la lacul nostru.*
'**No duck** that the geese chased **yet**/**never** although it was skittish returned to our pond.'

UNGRAM: *Rața pe care gaștele au alergat-o {**încă/niciodată**} deși era sperioasă s-a întors la lacul nostru.*
'The duck that the geese chased **yet**/**never** although it was skittish returned to our pond.'

We tested 82 Romanian speakers recruited over the internet using Ibex Farm; we created 36 item sets in these six conditions and combined them with 60 grammatical fillers. Sentences were presented using word-by-word non-cumulative self-paced reading. Half of the 96 sentences were accompanied by Y/N comprehension questions. Critical regions underlined in example.

Results

Mean RTs in STRICT NPI conditions

Mean RTs in NEG-WORD conditions
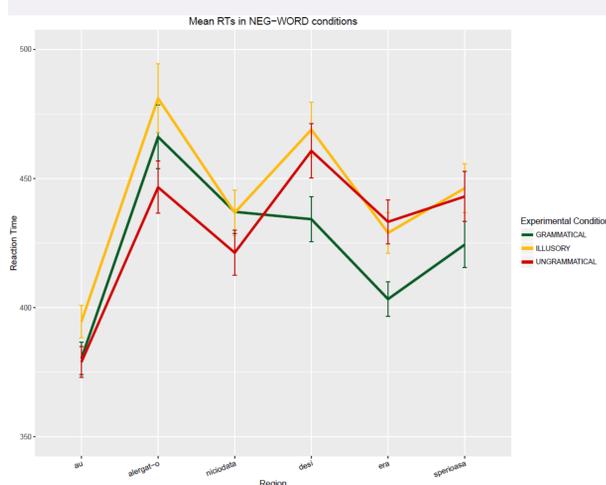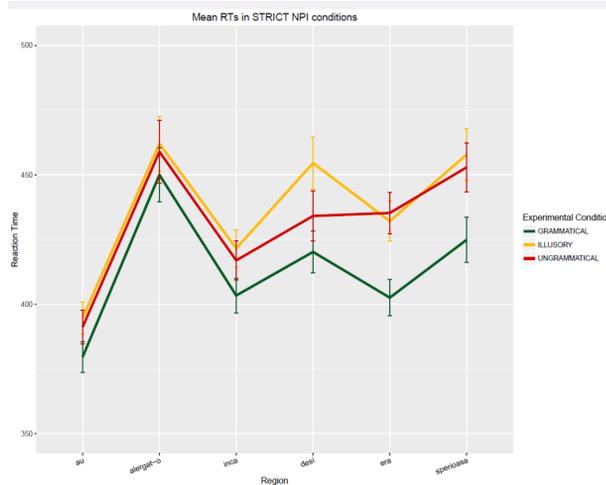
Analysis

We fit linear mixed-effects models to log-transformed RT data, using a maximal random effects structure. The **grammaticality** factor was Helmert-coded, and the **polarity item** factor was coded with simple difference coding. Summary of model coefficients and standard error:

REGION	GRAM	INTRUSION	POL.ITEM	GRAM X POL.ITEM	INTRUSION X POL.ITEM
CRITICAL *încă* "yet"	0.00+/- 0.01	**0.03+/- 0.01**	**-0.03+/- 0.01**	**-0.06+/- 0.02**	-0.01+/- 0.03
CRIT+1 *deși* "although"	**-0.05+/- 0.01**	**0.03+/- 0.01**	**-0.04+/- 0.01**	0.01+/- 0.02	0.03+/- 0.03
CRIT+2 *era* "was"	**-0.06+/- 0.01**	0.00+/- 0.01	0.00+/- 0.01	0.02+/- 0.02	0.00+/- 0.03
CRIT+3 *sperioasă* "skittish"	**-0.06+/- 0.01**	0.00+/- 0.01	0.02+/- 0.01	0.02+/- 0.02	0.00+/- 0.03

Results

→ significant **grammaticality** related slowdown at the three regions following the critical NPI / neg-word.
→ significant **intrusion-related** slowdown at critical NPI/neg-word and critical+1 region.
→ significant **grammaticality** by **polarity item** interaction at critical NPI/neg-word: immediate slowdown seen for strong NPIs but not neg-words.
→ significant **polarity item** effect at critical NPI/neg-word: faster reading times for **_încă_** than for **_niciodată_**.

Discussion

Significant **grammaticality** effect:
   → comprehenders are immediately sensitive to whether strict NPIs and neg-words were licensed; effect was seen *earlier* for strong NPIs than for neg-words.
   → only local syntactic negation can license strong NPIs / neg-words in comprehension.

Significant **intrusion** effect (no illusion effect whatsoever):
   → at critical region and spillover (critical+1) we saw a ***slowdown*** for intrusion, opposite the reading-time *speed-up* seen for illusory licensing in other studies.
   → reparsing? : intrusion slowdown may reflect comprehenders' temporary structural uncertainty triggered by ungrammatical NPI – settled during spillover region
   → only local syntactic negation appears to license strong NPIs / neg-words in comprehension; the **licensing illusion does not obtain**.
   → the lack of illusory licensing effects for strict NPIs and neg-words in Romanian favors semantic-pragmatic approaches to illusory NPI licensing.

Outstanding Question: Sentential Negation

In strict negative concord languages like Romanian, all semantic negation is also expressed via local syntactic sentential negation. It is unclear how this may have impacted the present results: the lack of NPI illusions in Romanian may also be related to the presence of the highly local sentential negation that (necessarily) co-occurs with negative quantifiers.

Moving Forward

Ongoing study: Do *weak NPIs* show intrusion effects in Romanian? Follow-up self-paced reading study testing impact of illusory licensing configurations on **weak** vs. **strong NPIs** in Romanian:

Nicio rață [*pe care gaștele* au alergat-o] *nu* s-a întors la lac … GRAMMATICAL
no duck ACC rel. geese.the have chased-cl. not cl-has returned at lake
'No duck that the geese chased came back to the lake...'

Rața [*pe care nicio gâscă nu* a alergat-o] s-a întors la lac … ILLUSORY
duck.the ACC rel. no goose not has chased-cl. cl-has returned at lake
'The duck that no goose chased came back to the lake...'

Rața [*pe care gaștele* au alergat-ol s-a întors la lac … UNGRAMMATICAL
duck.the ACC rel. geese.the have chased-cl. yet/never returned at lake
'The duck that the geese chased came back to the lake….'

… { **_vreodată/ încă_** } în ciuda faptului că era curajoasă
ever/ yet in spite fact.the that was brave
… ever/yet despite the fact that it was brave.'

Illusory effect → further support for the pragmatic account of NPI illusions. The timing of processing syntactic dependencies differs from that of semantic dependencies.
No illusory effect → strict negative-concord languages might not give rise to NPI illusions, possibly due to highly local sentential negation, which may provide comprehenders with an exceptionally clear cue to whether negative polarity items and neg-words are licensed.

Selected References

[1] de-Dios-Flores, I., Muller H., & Phillips. C. (2017). *Negative polarity illusions: licensors that don't cause illusions, and blockers that do.* [2] Giannakidou, A. (2000). *Natural Language & Linguistic Theory.* [3] Parker, D. & Phillips, C. (2016). *Cognition.* [4] Vasishth, S, Bruessow, S., Lewis, R. & Drenhaus, H. (2008). *Cognitive Science.* [5] Xiang, M., Dillon, B., & Phillips, C. (2009). *Brain and Language.* [6] Yanilmaz, A & Drury, J. (2018). *Language, Cognition and Neuroscience.* [7] Zeijlstra, H. (2008). *Negative concord is syntactic agreement.* Ms., U. of Ams.. [8] Zeijlstra, H. (2016). *Sinn & Bedeutung 21 : The case of …* [9] Xiang, M., Grove, J. & Giannakidou, A. (2013). *Frontiers in Psychology.*