

Interpretation of Reflexives under Ellipsis in Russian

Svetlana Kuznetsova, HSE University

Strict/sloppy identity ambiguity

(1) *John likes his suit, and Bill does too.*

John_j likes his_j suit, and Bill_b does [_{VP} like his_j/his_b suit] too.

If a pronoun is reconstructed with its original index, then the reading is strict, and the change of an index indicates a sloppy reading.

(2) *John corrected himself, before Bill did.*

John corrected himself, before Bill [_{VP} corrected himself (=John/Bill)].

It was long believed that reflexives can only give rise to a sloppy reading (Williams 1977, Chomsky 1981, Reinhart 1983). However, in Sag (1976):

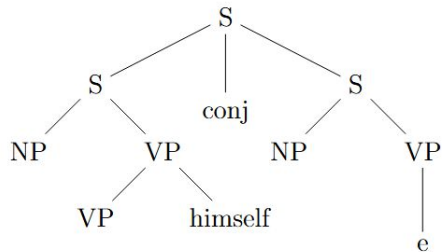
(3) *Betsy couldn't imagine herself dating Bernie, but Sandy could.*

= but Sandy could imagine Betsy dating Bernie. (strict reading)

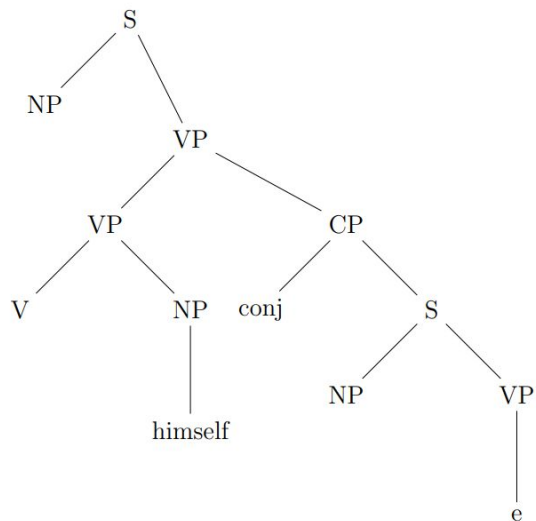
Existing theories: Hestvik (1995)

- Purely syntactic, explains the presence/absence of a strict reading by the structure of the sentence; coordination relationship → only sloppy reading, subordination → sloppy + strict reading;

Sloppy reading only:



Both sloppy reading and strict reading:



Existing theories: Hestvik (1995)

- 2 operations: copying the VP and raising of a reflexive out of the VP at the LF;
- The availability for both readings is explained by the order in which these operations are applied.

(4) *John* [_{VP} *corrected himself*] *before Bill e*

John [_{VP} *corrected himself*] *before Bill* [_{VP} *corrected himself*]

John [_{α} *himself*_{*i*} [_{VP} *corrected t_i*]] *before Bill* [_{α} *himself*_{*j*} [_{VP} *corrected t_j*]]

(sloppy reading)

(5) *John* [[_{VP} *corrected himself*] *before Bill e*]

John [_{α} *himself*_{*i*} [[_{VP} *corrected t_i*] *before Bill e*]]

John [_{α} *himself*_{*i*} [[_{VP} *corrected t_i*] *before Bill* [_{VP} *corrected t_i*]]]

(strict reading)

Existing theories: Kehler (2000, 2002)

- Based on the discourse Causality Effect factor.
- Types of discourse relationships: Resemblance, Causality Effect.
- Resemblance

– a one-to-one correspondence between the set of entities mentioned in sentences (parallelism), is sensitive to syntactic identity and the condition A of the Binding Theory:

(6) *John_i defended himself_i and Bill did too.*

- Causality-Effect

— requires only an implicational relationship between clauses, the correlation of the propositional meanings of two sentences

→ strict reading is more likely:

(7) *John_i defended himself_i, so Bill did too.*

Existing theories: Ong & Brasoveanu (2013)

- The choice of identity is influenced by the lexical component of the verb – implicit causality (IC) biases (Garvey and Caramazza 1974, McKoon et al. 1993, Rohde 2008) can influence the resolution of a reflexive pronoun either as a semantical object or subject of the verb:

(8) *John disappointed Bill because he (=John) stole the book.* (subject meaning: IC1 type)

John scolded Bill because he (=Bill) stole the book. (object meaning: IC2 type)

Ong & Brasoveanu (2013) state that factors listed in previous researches do not influence the choice of a reading for the reflexive as much, as the IC biases of a verb:

→ speakers are more likely to choose a strict reading for sentences with the IC2 verbs

Existing theories: Ong & Brasoveanu (2013)

Ong & Brasoveanu (2013) state that the subject-oriented IC1 verbs have de-transitivizer interpretation.

- (9) *If John disgraced himself, Bill did too.* (IC1 type) – sloppy reading preference
- (10) *If John criticized himself, Bill did too.* (IC2 type) – strict reading preference

If the overt reflexive *himself* in the antecedent is interpreted as a de-transitivizer – because IC1 verbs highlight their subject and the remainder of the sentence is ‘understood’ as a predication about the subject – the covert reflexive in the elided VP will likely receive the same de-transitivizer interpretation, which will yield the sloppy reading.

In contrast, the object-oriented IC2 verbs highlight the object and its causal efficacy. This would make the second, pronoun-like interpretation of the reflexive more salient in a conditional like (10). Then the covert reflexive in the elided VP will receive the pronominal interpretation. Since **pronoun-like elements prefer to retrieve the most salient entity**, the likelihood of retrieving *John* is higher.

Hypothesis

1. It is assumed that *sebya* would behave the same way as *oneself* in English in case of using the IC1 type verbs, because in Russian *sebya* performs the same function as reflexive postfix *-sya* – they both are often used to “reflexivize” verbs, yielding the sloppy reading. And, accordingly, it is expected to see a greater availability of the strict reading with the IC2 verbs.
2. Since Ong & Brasoveanu (2013) did not consider possessive reflexives in their study, it was decided to check whether their hypothesis works on the materials of Russian possessive reflexives. Since they cannot perform a “de-transitivizing” function, the IC should not affect the accessibility of the strict reading.
3. However, the availability of the strict reading should be influenced by the fact that the possessive reflexives are not co-argument with the subject, which means that semantically they should be more distinct, thus increasing the availability of strict reading.
4. Also, our hypothesis is that not only Implicit Causality can enhance the salience of an object, but also other factors.

Experiment design

The experiments were based on experiments from Ong and Brasoveanu (2013).

2 experimental studies: with reflexive pronoun *sebya* and with possessive reflexive *svoy*. The example of 1 experimental item:

type of coordinator		IC verb type		
		IC1	IC2	NONIC
conjunctive	and	Ljuba vdohnovila sebja na novye svershenija, i Vika tozhe.	Ljuba vinit sebja v proizoshedshem, i Vika tozhe.	Ljuba razreshila sebe poest' morozhenogo, i Vika tozhe.
conditional	if	Esli Ljuba vdohnovila sebja na novye svershenija, to Vika tozhe.	Esli Ljuba vinit sebja v proizoshedshem, to Vika tozhe.	Esli Ljuba razreshila sebe poest' morozhenogo, to Vika tozhe.
subordinative	so	Ljuba vdohnovila sebja na novye svershenija, poetomu Vika tozhe.	Ljuba vinit sebja v proizoshedshem, poetomu Vika tozhe.	Ljuba razreshila sebe poest' morozhenogo, poetomu Vika tozhe.

Experiment design

In each experiment, there were 4 experimental items with 9 examples in which the type of verb and the type of sentence coordinator varied (a total of 36 examples for each experiment).

An example stimulus is provided below:

context: U Ljuby i Viki byla podrugа Alena, no Ljuba s Alenoj porugalis', i Alena pereehala.

(Lyuba and Vika had a friend, Alyona, but Lyuba and Alyona had a fight, and Alyona moved out.)

stimulus: Ljuba vinit sebja v proizoshedshem, i Vika tozhe.

(Lyuba blames herself for what happened, and so does Vika.)

Vy ponimaete jeto predlozhenie kak: *(You understand this sentence as:)*

strict reading: ... Vika vinit Ljubu v proizoshedshem. *(Vika blames Lyuba for what happened.)*

☐ da *(yes)*

☐ net *(no)*

sloppy reading: ... Vika vinit sebja v proizoshedshem. *(Vika blames herself for what happened.)*

☐ da *(yes)*

☐ net *(no)*

Experiment design

To test the hypothesis about the influence of other factors on the salience of the object, we added strict reading bias to the context.

It was decided to give one group of respondents sentences with neutral context (control group), and the other with a bias for a strict reading (experimental group), e.g.:

context: 'Petya and Vanya are students and often participate in projects together. **Petya was very lazy this time.** Their programming project was rated "satisfactory".'

stimulus: *V etot raz Petya kritikuet sebya, i Vanya tozhe.*

'This time, Petya criticizes himself, and Vanya does too.'

Experiment design

There also were filler items, some of which double-checked the IC-type of a verb, using the test from Garvey and Caramazza (1974), e.g.:

Petja pomyl Vane kvartiru, potomu chto on prolil na pol gazirovku.
Kak Vam kazhetsja, kto prolil na pol gazirovku?
Petya cleaned Vanya's apartment because he spilled soda on the floor.
Who do you think spilled soda on the floor?

- ☐ *Petya*
- ☐ *Vanya*

The list of verbs, used in the study:

IC1: scare, humiliate, motivate, reassure, confuse;

IC2: hate, value, blame, praise, respect;

NON-IC: remind, notice, hit, see, acknowledge.

Participants

- 52 respondents completed the 1st survey, 41 – the 2 survey
- for the 1 experiment a total of 3132 observations were collected, 2696 – for the 2 experiment
- all participants are native speakers of Russian

Methods

- binary logistic regression was chosen as the model to compute statistics data, since we are interested in the probability of the influence of various effects on the binary distribution of the strict or sloppy readings:

(11) $\text{answer} \sim \text{conj} + \text{ic} + \text{context}$

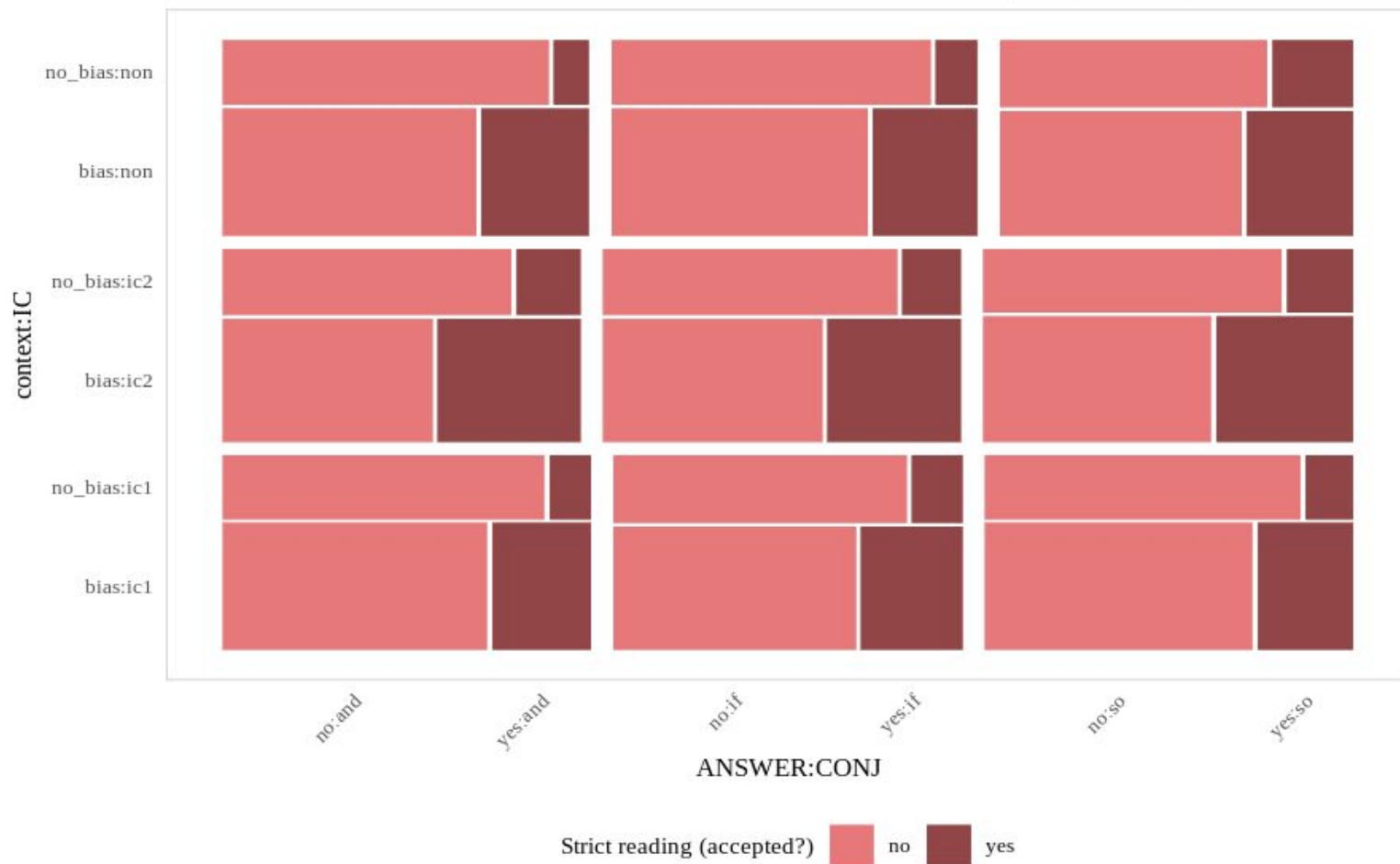
- the Causality Effect from Kehler (2000, 2002) was attested, but did not have any statistical significance, so it is not presented in the model and in the results
- random effect variable (1 | speaker_id) was also attested, and also was not significant

Results: Experiment 1

The results of Experiment 1 almost completely replicate those of Ong and Brasoveanu (2013).

- the IC verb type ($\chi^2=-11.253$, $df=2$, $p\text{-value}=0.004$) and the presence of a context bias ($\chi^2=-54.578$, $df=2$, $p\text{-value}<0.001$) turned out to be significant for the strict reading
- the coordinator type ($\chi^2=-17.428$, $df=2$, $p\text{-value}<0.001$) and the context bias ($\chi^2=-113.4$, $df=2$, $p\text{-value}<0.001$) were significant for the sloppy reading
- Within each parameter, the presence of IC2 verb type ($\beta_{IC2}=0.456$, $SE=0.143$, $p\text{-value}=0.002$) increased the percentage of strict readings, and the absence of context bias ($\beta_{NO_BIAS}=-0.963$, $SE=0.137$, $p\text{-value}<0.001$) had the most influence on the availability of a strict reading
 - therefore supporting the claims that the IC2 verb type and the presence of context bias influence the choice of the strict reading.

Parameter Interaction: context × CONJ × IC (1 experiment)



Results: Experiment 1

- A higher probability of using strict reading in sentences with context bias towards strict reading;
- and also in sentences containing IC2 verbs.
- The reverse pattern is observed for sloppy reading.

Results: Experiment 1

Traditionally, reflexive pronouns have 2 possible interpretations:

- ‘de-transitivizer’ interpretation
- pronominal interpretation

Russian IC1 verbs especially get “de-transitivized” with reflexives, because in Russian *sebya* sometimes performs the same function as reflexive postfix *-sya* – they both are often used as operators on verbs: reflexivization turns a 2-place predicate into a 1-place predicate by identifying two of its arguments as identical, thus “de-transitivizing” the verb, and yielding the sloppy reading.

Results: Experiment 1

- If the verb has a strong connotation that the center or a causee of an action is a subject, then the speaker's attention will be focused on the subject's entity, provoking the sloppy reading (IC1 verbs).
- In the case of verbs of IC2 type, this conversion causing sloppy reading gets blocked, since *sebya* receives focus as the object of the verb, and its identity function gets focused too, boosting the salience of the reflexive. The likelihood of the pronominal resolution of the reflexive gets higher, thus yielding the strict reading.

Results: Experiment 1

(12) *Vitya shokiru-et sebya, i Vanya tozhe [e].*

Vitya shock-PRS.3SG self.ACC and Vanya too

Vitya will shock himself, and Vanya will [e] too.

(13) *Vitya pohval-it sebya, i Vanya tozhe [e].*

Vitya praise-PRS.3SG self.ACC and Vanya too

Vitya will praise himself, and Vanya will [e] too.

This way, in (12) the possibility of the strict reading ‘*Vanya will shock Vitya*’, is significantly lower than the possibility of strict reading ‘*Vanya will praise Vitya*’ in (13).

IC1 type verb in the antecedent clause → the sentence will be resolved through sloppy reading

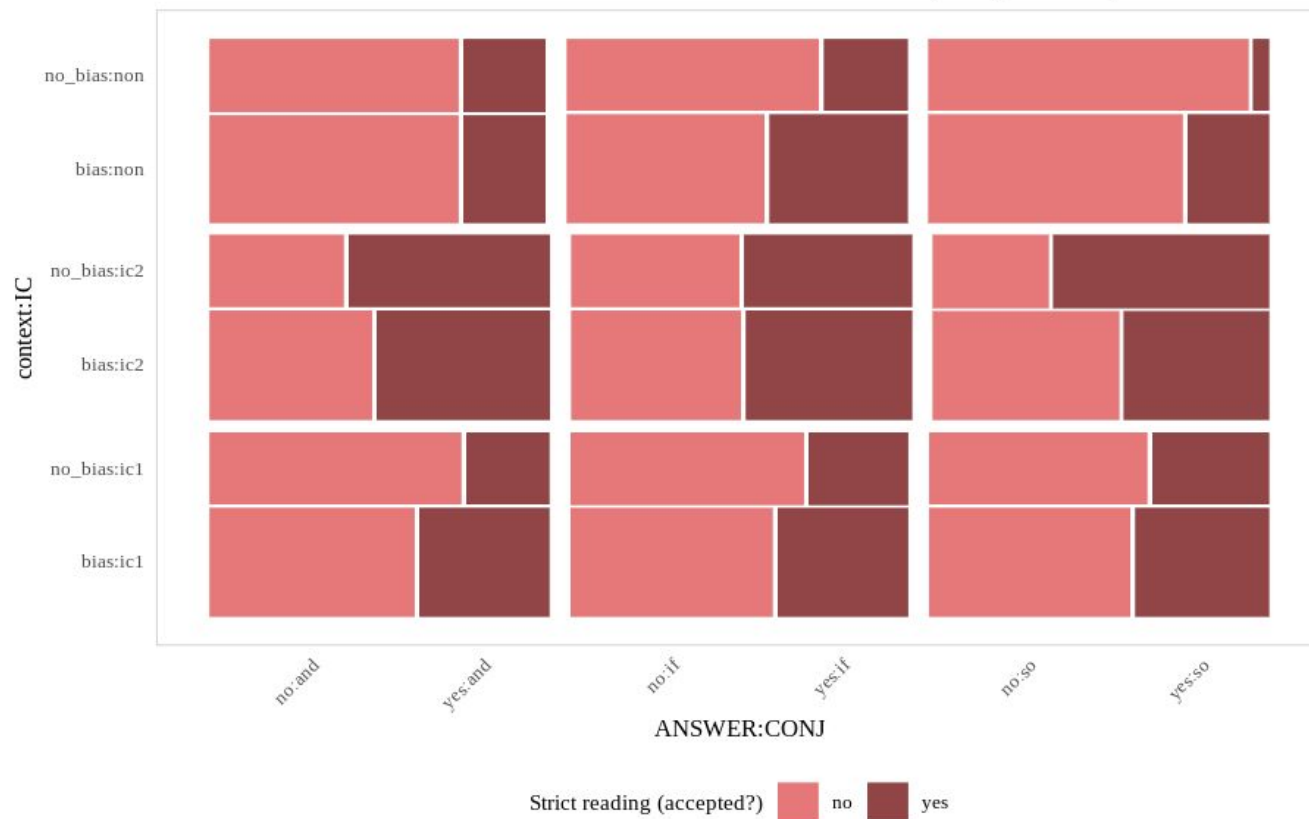
IC2 type verb → the object of the verb becomes more semantically expressed and more prominent, which means the likelihood of retrieving the strict reading gets higher too.

Results: Experiment 2

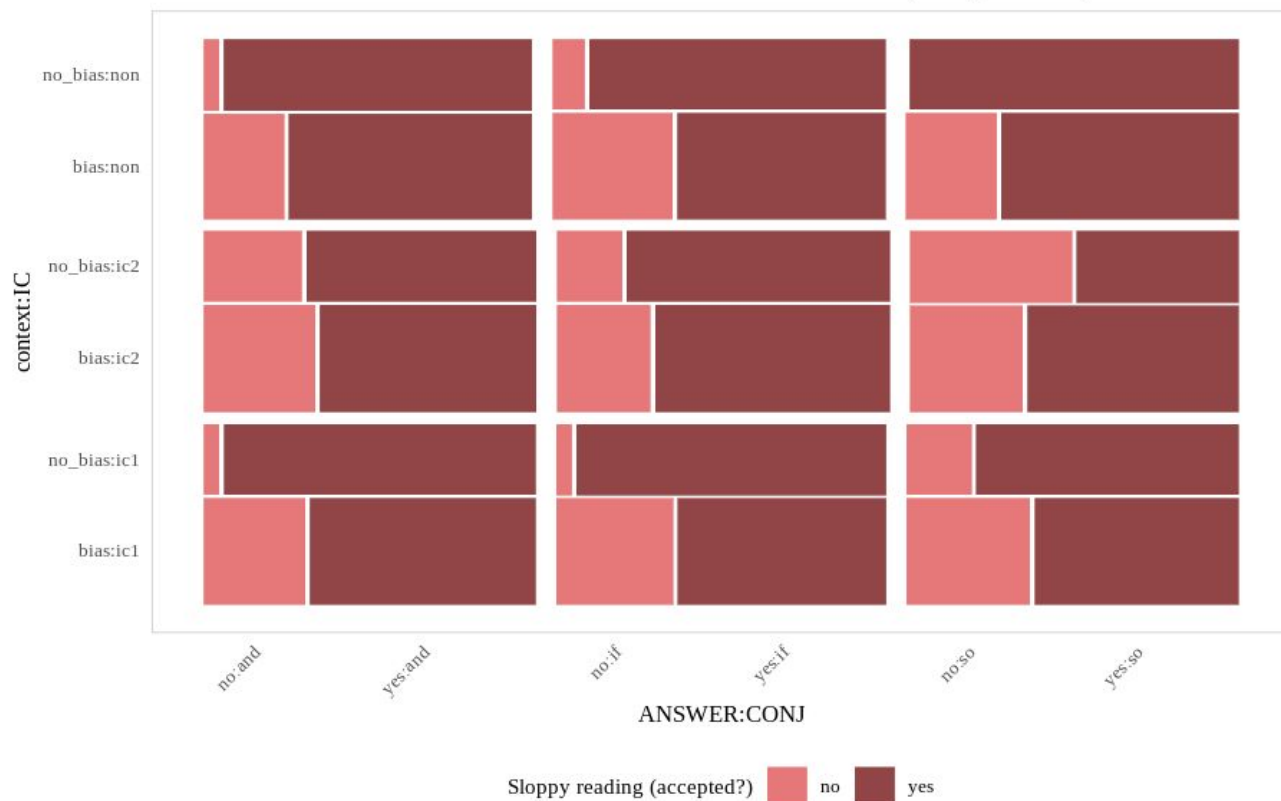
The results of Experiment 2 were rather sloppy, but still aligned with the hypothesis.

- The context bias showed significance for the availability of a sloppy reading ($\chi^2=-47.638$, $df=2$, $p\text{-value}<0.001$), while IC verb type proved to be significant for the availability for both strict ($\chi^2=-70.905$, $df=2$, $p\text{-value}<0.001$) and sloppy readings ($\chi^2=-20.629$, $df=2$, $p\text{-value}<0.001$).
- The results showed a higher probability of strict readings in sentences containing IC2 verbs ($\beta_{IC2}=0.686$, $SE=0.138$, $p\text{-value}<0.001$) and a higher probability of sloppy readings without context bias ($\beta_{NO_BIAS}=0.932$, $SE=0.140$, $p\text{-value}<0.001$), each of these factors increased the number of corresponding readings.

Parameter Interaction: context × CONJ × IC (2 experiment)



Parameter Interaction: context \times CONJ \times IC (2 experiment)



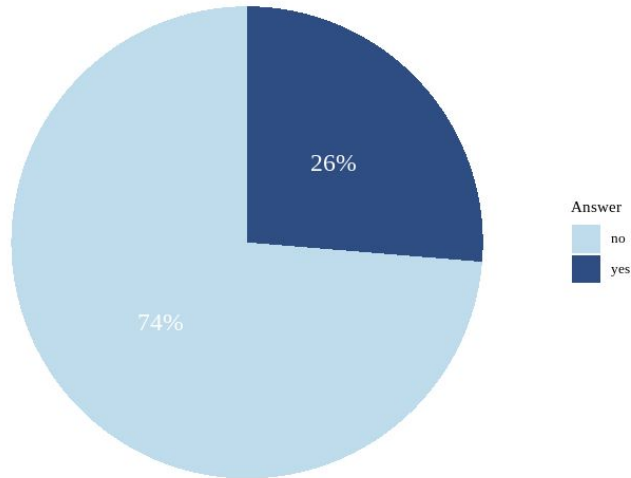
Results: Experiment 2

- A higher probability of using strict reading in sentences containing IC2 verbs;
- A higher probability of using sloppy reading without context bias;

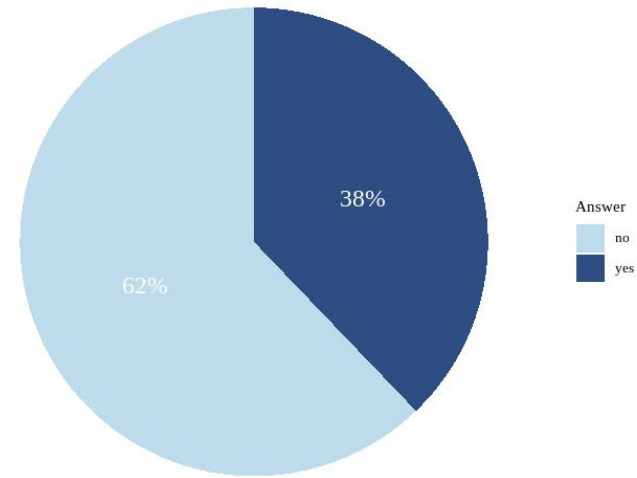
Results: Experiment 1 & 2

→ In general, there was a higher percentage of strict readings, than with the pronominal reflexives.

Answer distribution - strict (1 experiment)



Answer distribution - strict (2 experiment)

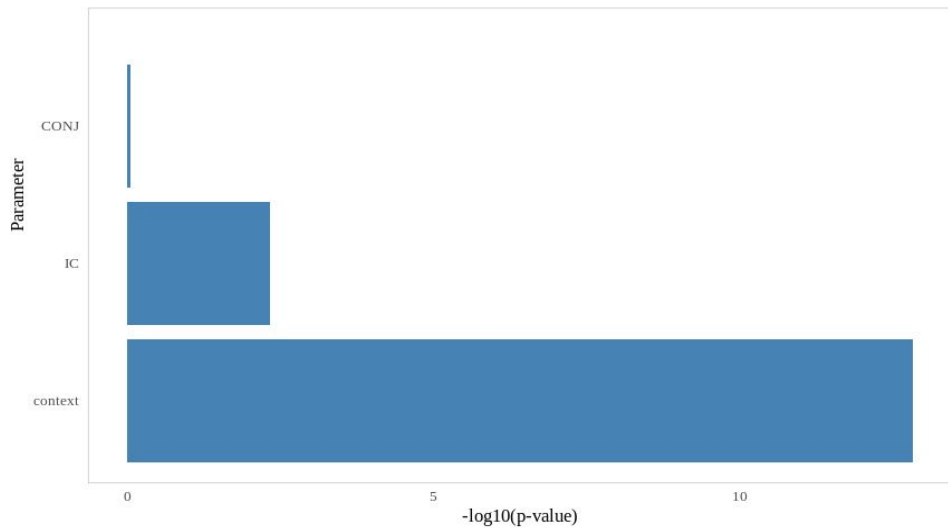


Results: Experiment 2

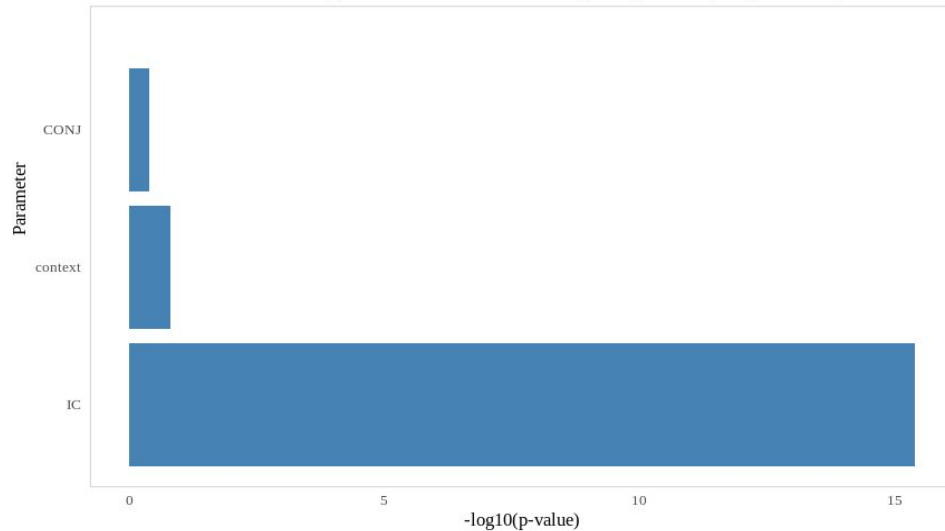
- This is a somewhat unexpected result, as in Russian possessive reflexives do not coincide in form with pronominal reflexives, and rather act as an index role for the nouns they define. That is, these reflexives do not carry any ‘de-transitivizing’ function for the verb, and implicit causality still works as expected.
- Which suggests that the “de-transitivization” of the verb is not what is important, but rather the semantic bias towards either subject or object, and **the resulting argument salience**.

Results: Parameter importance

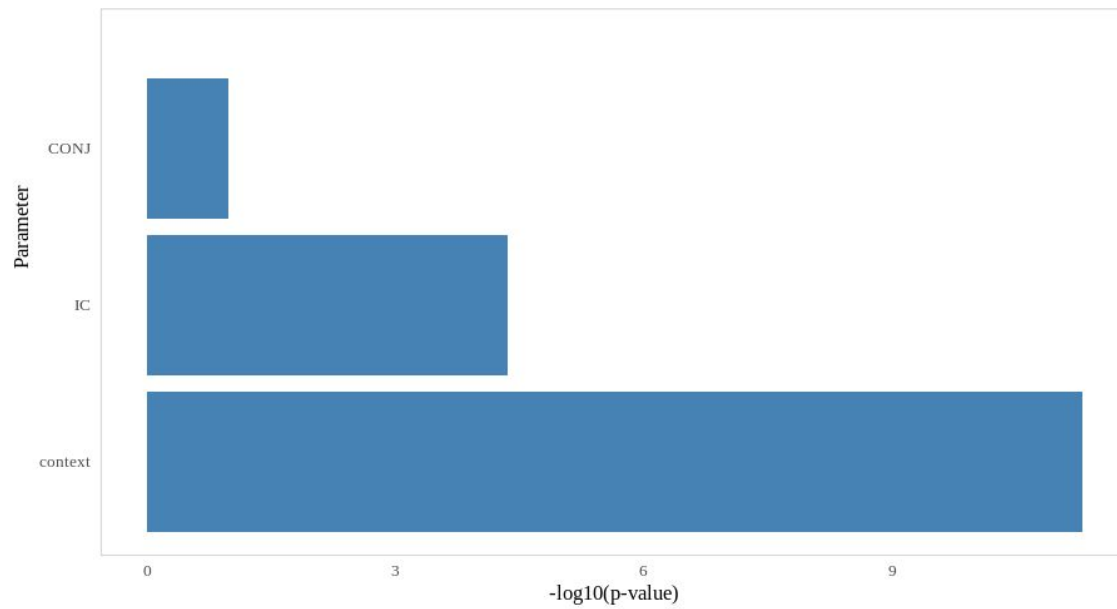
Parameter importance for strict reading acceptance (1 experiment)



Parameter importance for strict reading acceptance (2 experiment)



Parameter importance for sloppy reading acceptance (2 experiment)



Additional factors that influence salience: focus

- (14) *Vanya uchi-l* *svoyu* *sestr-u* *katat'-sya* *na*
V. teach-PST.3SG his.SG.ACC sister-SG.ACC ski-RFL by
lyzh-ah, *i* *Petya tozhe.*
ski-PL.INS and P. too

Vanya taught his sister to ski, and Petya did too.

✓ strict reading: 22% consultants

Surprisingly, when pseudogapping is present, sloppy reading gets blocked in the omitted VP (Johnson 2001), however, in Russian the sloppy reading is still obtainable, but just for the minority of the respondents:

- (15) *Vanya uchi-l* *svoyu* *sestr-u* *katat'-sya* *na*
V. teach-PST.3SG his.SG.ACC sister-SG.ACC ski-RFL by
lyzh-ah, *a* *Petya –* *na* *kon'k-ah.*
ski-PL.INS and P. by skate-PL.INS

‘Vanya taught his sister to ski, and Petya – how to skate.’

✓ strict reading: 70% consultants

Additional factors that influence salience: focus

Different interpretations yield different focus localisations. If the focus is on the remnant of the pseudo-gapping, the following intonation yields:

(16) *Vanya uchil svoyu sestru katat'sya NA LYZHAAH, a Petya — NA KON'KAH.*

‘Vanya taught his sister TO SKI, and Petya — TO SKATE.’

Then the subject that binds the pronoun doesn’t participate in focus-matching, and there is no way to derive the sloppy reading (Kehler 2015). If the focus on the subject is retained and it is highlighted by intonation, then sloppy reading remains preferable and the subject who locally binds the omitted reflexive can again participate in the set of entities available for reading selection:

(17) *Vanya uchil svoyu sestru katat'sya NA LYZHAAH, a PETYA — NA KON'KAH.*

‘Vanya taught his sister TO SKI, and PETYA — TO SKATE.’

Additional factors that influence salience: pragmatics influence

- It is suggested that pragmatics operate in a modular manner, independently of syntax, and affect the bias of reading.
- Pragmatics too, can boost the salience of one of the arguments of the verb – hence affect the choice of identity.
- Most previous studies have taken into account the pragmatics within the sentence, and have not explored the extra-sentential context.

Additional factors that influence salience: pragmatics influence

In ellipsis site there can be any of the entities that are in alternative focus with the antecedent in the antecedent clause: the antecedent itself or the entity co-indexed to its binder (subject).

- The focus of the speaker's attention may add some bias to one of these entities.

Akmajian (1973:218) says that a focus can highlight some syntactic constituent not only as an intonation center, but also highlight it in a semantic sense.

- An entity in comparison with other entities from the set gets highlighted, since pronoun-like elements “prefer to retrieve the most salient entity” (Ong and Brasoveanu 2013).

And the most salient entity in this case, of course, will be the one specifically mentioned in the context.

- If something is specifically mentioned, then it must be pragmatically important, so the speaker's attention will focus on such entity and consider it a common ground (Clark and Bangerter 2004).

Discussion

- Despite the fact that the theory of Ong and Brasoveanu (2013) turned out to be true for Russian - Implicit Causality does indeed affect the presence of strict or sloppy reading, their argumentation is refuted by the results of the test with possessive reflexives. It may be worth doing more research on the possessive reflexives.

Other hypotheses were correct:

- There is a bigger accessibility to the strict reading with possessive reflexives;
- Not only Implicit Causality can enhance the salience of an object: contrastive focus and pragmatics can do so too. And the most important factor that affects the choice of the reading is which of the recoverable objects (from the antecedent clause or the subject binding the omitted reflexive) is more salient.

Conclusion

To summarize, the accessibility of any reading depends on the factors that increase the salience of one or another object at the ellipsis site. The increase in the likelihood of strict reading is influenced by:

- the presence of IC2 verbs;
- pragmatics bias towards the strict reading.

Acknowledgments

Many thanks to

Alexander Podobryaev, Timofey Dedov, Kseniya Dunaeva

and to all respondents who completed the survey.

References

- Akmajian, A. (1973). *The role of focus in the interpretation of anaphoric expressions*.
- Clark, H. H., & Bangerter, A. (2004). Changing ideas about reference. In *Experimental pragmatics* (pp. 25-49). London: Palgrave Macmillan UK.
- Dahl, Ö. (1973). On so-called 'sloppy identity'. *Synthese*, 26(1), 81–112. <https://doi.org/10.1007/bf00869757>
- Fox, D. (2000). *Economy and semantic interpretation* (Vol. 35). MIT press.
- Foley, C., Núñez del Prado, Z., Barbier, I., & Lust, B. (2003). Knowledge of variable binding in VP–Ellipsis: Language acquisition research and theory converge. *Syntax*, 6(1), 52-83.
- Garvey, C., & Caramazza, A. (1974). Implicit causality in verbs. *Linguistic inquiry*, 5(3), 459-464.
- Johnson, K. (2001). What VP ellipsis can do, and what it can't, but not why. *The handbook of contemporary syntactic theory*, 439-479.
- Hestvik, A. (1995). Reflexives and ellipsis. *Natural Language Semantics*, 3(2), 211-237.

References

Kehler, A. (2000). Coherence and the resolution of ellipsis. *Linguistics and Philosophy*, 23, 533-575.

Kehler, A. (2002). Coherence, reference, and the theory of grammar.

Ong, M., Brasoveanu, A. (2013). *Strict and sloppy reflexives in VP-ellipsis*.

Sag, I. (1976). *Deletion and Logical Form*. Doctoral dissertation, MIT.

Williams, E. (1977). Discourse and Logical Form, *Linguistic Inquiry* 8, 101-139.