

Meaning components in the constitution of Russian verbs: Presuppositions or implicatures?

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1 Introduction

• Previous claims:

- Perfective verbs denoting accomplishments trigger an existential presupposition that the initial phase (or the process part) of events denoted by them took place (*process presupposition*), and assert their final phase (or their culmination part). For different formulations of this claim see, e.g., Padučeva (1996, 2011); Romanova (2006) for Russian; Dočekal and Kučerová (2009) for Czech, among others.
- Prefixes *do-* and *pere-* are presupposition triggers that give rise to similar presuppositions as *finish* and *again* do, respectively (see Kagan, 2012):
 - * “*finish* and *do-* presuppose that a particular event begins, or takes place partially, and entail that it reaches a certain finishing point.” (Kagan, 2012, p. 63)
 - * As for the iterative prefix *pere-*, Kagan (2012, p. 119) claims that (1-c)¹ “presupposes that Ivan read the book in question before the event time, and entails that another reading event took place.”

- (1)
- a. Ivan pro.čital^{PF} ètu knigu.
Ivan_{NOM} PREF.READ.PAST.3SG this book
'Ivan read this book completely through.'
 - b. Ivan do.čital^{PF} ètu knigu.
Ivan_{NOM} COMP.READ.PAST.3SG this book
'Ivan finished reading this book.'
 - c. Ivan pere.čital^{PF} ètu knigu.
Ivan_{NOM} ITER.READ.PAST.3SG this book
'Ivan reread this book.'

- **Hypothesis:** The existential inferences in question that are associated with perfective verbs as well as the completive prefix *do-* and the iterative prefix *pere-* are not a matter of semantic presupposition, contrary to most analyses. Instead, they are best analyzed as scalar implicatures in negative contexts and in questions, and an entailment in affirmative declarative perfective sentences.
- **Goal:** Argue for the validity of the hypothesis by providing empirical tests allowing us to tease apart presuppositions, entailments and (scalar) implicatures associated with Slavic perfective verbs. The tests build on the recent research in the domain of projective content (Chemla, 2009; Romoli, 2011; Schlenker, 2008, and references therein).
- **Novel contribution:** The testing methodology developed here provides a useful perspective on the analysis of Slavic perfective verbs, and has never been pursued to the best of our knowledge.

¹The superscripts ‘IPF’ and ‘PF’ on a verb stand for the imperfective and perfective aspect. The following abbreviations are used in the glosses: NOM = nominative, GEN = genitive, DAT = dative, ACC = accusative, SG = singular, PL = plural, F = feminine, M = masculine, N = neuter, PRES = present tense, PAST = past tense, INCEP = inceptive, COMP = completive, ITER = iterative, IMP = imperfective suffix.

2 Presupposition?

2.1 Evidence for presuppositional analysis

- The alleged presuppositions triggered by perfective accomplishments, the completive prefix *do-* and the iterative prefix *pere-* are taken to be preserved under negation (as in (2)) and in questions (as in (3)):

- (2) a. Ivan ne pro.čital^{PF} ètu knigu.
 Ivan NEG PREF.read.PAST.3SG this book
 ‘Ivan did not read this book completely through.’
Inference: Ivan read a part of this book.
- b. Ivan ne do.čital^{PF} ètu knigu.
 Ivan NEG COMP.read.PAST.3SG this book
 ‘Ivan did not finish reading this book.’
Inference: Ivan read a part of this book.
- c. Ivan ne pere.čital^{PF} ètu knigu.
 Ivan NEG ITER.read.PAST.3SG this book
 ‘Ivan did not reread this book.’
Inference: Ivan read this book before.
- (3) a. Ivan pro.čital^{PF} ètu knigu?
 Ivan PREF.read.PAST.3SG this book
 ‘Has/Did Ivan read this book completely through?’
Inference: Ivan started reading this book (i.e., read a part of this book).
- b. Ivan do.čital^{PF} ètu knigu?
 Ivan COMP.read.PAST.3SG this book
 ‘Has/Did Ivan read this book completely through?’
Inference: Ivan started reading this book (i.e., read a part of this book).
- c. Ivan pere.čital^{PF} ètu knigu?
 Ivan ITER.read.PAST.3SG this book
 ‘Has/Did Ivan reread this book?’
Inference: Ivan read this book before.

2.2 Pragmatic implicature

Grønn (2004, 2006): Aspectual competition under negation

- Main claim: “The negation test in itself is not a sufficient argument for associating perfective accomplishments with a presupposition [of the existence of their process part, YZ&HF]” (Grønn, 2004, p. 61). Instead, it is a matter of pragmatic implicature, i.e., a case of pragmatic strengthening by a maxim of quantity (Grice, 1975).
- Main assumptions:
 - (i) Markedness theory of Slavic aspect: Imperfective is semantically unmarked, i.e., unspecified with respect to the distinguishing semantic feature of Perfective; Perfective is the marked member of the aspectual opposition.

(ii) Speaker’s and hearer’s economy effort in communication: related to “the Gricean idea that the best form-meaning pairs are the ones which minimize both the speaker’s and hearer’s effort (whose interests are, in a sense, conflicting)” (Grønn, 2006, p. 71).

- Aspectual competition under negation (implemented in OT):

- The unmarked imperfective is the default choice of the speaker when the existence of a whole (culminated) event is negated:

(4) Ivan ne čital^{IPF} ètu knigu.
 Ivan NEG read.PAST.3SG this book
 ‘Ivan did not read this book.’

- The hearer infers from the speaker’s use of the marked perfective verb that there was some attempt or activity on the part of the Agent which did not culminate, because it would have been more economic for the speaker to use an unmarked imperfective, if it were possible/relevant:

(5) Ivan ne pro.čital^{PF} ètu knigu.
 Ivan NEG PREF.read.PAST.3SG this book
 ‘Ivan did not read this book completely through.’ = ex. (2-a)

2.3 Evidence against presuppositional approach

2.3.1 Projection out of the antecedents of conditionals

- Background: According to presupposition projection theories, semantic presuppositions project out of the antecedents of conditionals (6-b), but scalar implicatures do not (7-b).

(6) a. John didn’t win the marathon.
 → John participated in the marathon.
 b. If John won the marathon, he will celebrate tonight.
 → John participated in the marathon.
 c. If John didn’t win the marathon, he will not celebrate tonight.
 → John participated in the marathon.

(7) a. John didn’t read all the books.
 → John read some of the books.
 b. If John read all the books, he will pass the exam.
 ↗ John read some of the books.
 c. If John didn’t read all the books, he will fail the exam.
 ↗ John read some of the books.

(8) shows that the alleged ‘process presupposition’ (aka ‘activity presupposition’) that is claimed to be triggered by perfective accomplishments does not project out of the antecedents of the conditionals, hence it fails to exhibit one of the properties of semantic presupposition:

(8) Esli Vasja pro.čital^{PF} učebnik, on sdašt èkzamen.
 if Vasja PREF.read.PAST.SG.M textbook, he passes exam
 ‘If Vasja completely read the textbook, he will pass the exam.’
 ↗ Vasja read/began reading the textbook.

- However, when it comes to *do-* and *pere-*, native speakers have no clear intuitions whether the alleged inferences in (9) and (10), which are traditionally taken to be of presuppositional nature, hold:

(9) Esli Vasja včera do.čityval^{IPF} učebnik, on sdast èkzamen.
 if Vasja yesterday COMP.read.PAST.SG.M textbook, he pass exam
 ‘If Vasja finished/was finishing reading the textbook yesterday, he will pass the exam.’
 ?→ Vasja read at least a part of the textbook.

(10) Esli Vasja včera pere.čityval^{IPF} učebnik, on sdast èkzamen.
 if Vasja yesterday ITER.read.PAST.SG.M textbook, he pass exam
 ‘If Vasja reread/was rereading the textbook yesterday, he will pass the exam.’
 ?→ Vasja read at least a part of the textbook before.

- **Note:** In order to find out which inferences are triggered by the completive *do-* and iterative *pere-*, we need test them in imperfective verbs (secondary imperfective verbs). Specifically, if the completive *do-* constitutes a part of a complex perfective verb, its contribution overlaps with the meaning of perfective aspect.

2.3.2 Defeasibility

- Semantic presuppositions are generally non-cancellable. However, the alleged ‘process presupposition’ of perfective accomplishments is easily defeasible. Consider the discourse in (11) which is felicitous, even though the first sentence (same as (2) given at the outset) is followed by a sentence that denies the ‘process presupposition’ taken to be associated with it: namely, ‘Ivan started reading the book’.

(11) Ivan ne pro.čital^{PF} ètu knigu. On daže ne otkryl èë.
 Ivan NEG PREF.read.PAST.3SG this book he even NEG open.PST.SG.M it.ACC.F
 ‘Ivan didn’t read this book. He did not even open it.’

- Again, testing the prefixes *do-* and *pere-* (in imperfective verbs) does not lead to any clear conclusion: discourses in (12) and (13) are odd, but not as bad as in the case of classic presupposition failure, as in (14).

(12) Ivan ne do.čityval^{IPF} ètu knigu. ?On daže ne otkryval èë.
 Ivan NEG COMP.read.PAST.3SG this book he even NEG open.PAST.SG.M it.ACC.F
 ‘Ivan wasn’t finishing / didn’t finish reading this book. He did not even open it.’

(13) Ivan ne pere.čityval^{IPF} ètu knigu. ?On daže ne otkryval èë.
 Ivan NEG COMP.read.PAST.3SG this book he even NEG open.PAST.SG.M it.ACC.F
 ‘Ivan wasn’t rereading / didn’t reread this book. He did not even open it.’

(14) Ivan ne znaet, čto Vasja čital^{IPF} ètu knigu. #Vasja daže ne čital^{IPF} èë.
 Ivan NEG KNOW.PRES.3SG that Vasja read.PAST.3SG this book Vasja even NEG read it
 ‘Ivan doesn’t know that Vasja read this book. #Vasja even didn’t read it.’

2.3.3 Evidence against pragmatic presupposition: “Hey, wait a minute!” test

- Background: Presuppositions as requirements on the common ground (see e.g., Heim, 1983; Karttunen, 1973; Stalnaker, 1973; Shanon, 1976).
- “[u]pon uttering S, a speaker P pragmatically presupposes Q if it is suitable for the hearer to utter ‘One moment, I did not know that Q’ in response to S” (Shanon, 1976, p. 248).
- The sentence in (15-a) with the perfective accomplishment *pročítala* ‘she read completely (through)’, pronounced with a neutral intonation, cannot be followed by (15-b) denying its alleged ‘process presupposition’, which suggests that it cannot be a matter of pragmatic presupposition. Notice that (15-a) can be followed by (15-c).

(15) a. Katya pro.čítala^{PF} skazki Puškina.
 Katya PREF.read.PAST.SG.F fairy tales Pushkin.GEN
 ‘Katya read the fairy tales by Pushkin completely through.’

b. #Pogodi-ka! Ja ne znal, čto ona ix čítala!
 wait! I NEG knew that she them read
 ‘Wait a minute! I didn’t know that she was reading them!’

c. Pogodi-ka! Ja ne znal, čto ona umeet čítat’!
 wait I NEG knew that she can read
 ‘Wait a minute! I didn’t know that she can read!’

(16) a. Katya do.čityvaet^{IPF} skazki Puškina.
 Katya COMP.read.PRES.SG.F fairy tales Pushkin.GEN
 ‘Katya is finishing reading the fairy tales by Pushkin.’

b. #Pogodi-ka! Ja ne znal, čto ona ix čítala!
 wait! I NEG knew that she them read
 ‘Wait a minute! I didn’t know that she was reading them!’

(17) a. Katya sejčas pere.čityvaet^{IPF} skazki Puškina.
 Katya NOW ITER.read.PRES.SG.F fairy tales Pushkin.GEN
 ‘Katya is now rereading the fairy tales by Pushkin.’

b. ?Pogodi-ka! Ja ne znal, čto ona ix čítala!
 wait! I NEG knew that she them read
 ‘Wait a minute! I didn’t know that she was reading them!’

(18) a. Katya sejčas pere.delyvaet^{IPF} domašneje zadanije.
 Katya NOW ITER.do.PRES.SG.F homework.ACC
 ‘Katya is now redoing the homework.’

b. #Pogodi-ka! Ja ne znal, čto ona ego delala!
 wait! I NEG knew that she him did
 ‘Wait a minute! I didn’t know that she did it!’

2.4 Summary

- The putative ‘process (aka activity) presupposition’ that is claimed to be triggered by perfective accomplishments is not a matter of semantic or pragmatic presupposition. As was proposed by Grønn (2004, 2006), it is better explained in terms of an implicature.
- As for the inferences triggered by the prefixes *do-* (completive) and *pere-* (iterative), established tests do not provide reliable results, so another testing strategy is needed.
- **Question:** What is a nature of the inferences associated with verbs that contain the completive prefix *do-* and the iterative prefix *pere-*?

3 Proposal: Scalar implicature

3.1 Intuitions about scalar properties of perfective accomplishments

- Building on Grønn’s pragmatic account of Slavic aspectual competition, we propose that perfective accomplishments and their corresponding imperfective counterparts can be thought of as being arranged in a linear order by their degree of informativeness or semantic strength. Intuitively, the relevant scalar implicature can be derived in the following way:
- In affirmative declarative sentences, a perfective verb presents a stronger alternative than an imperfective one, because it is more informative.
- If a sentence headed by a perfective accomplishment holds true, then a sentence with a corresponding imperfective verb must also, given that the process part of the lexical structure of that perfective verb corresponds to the process part of its imperfective correlate.

perfective verb (accomplishment)	$>_{INF}$	imperfective
pro.čitat’ ^{PF} ‘to read completely through’	$>_{INF}$	čitat’ ^{IPF} ‘to read’
rešit’ ^{PF} ‘to solve’	$>_{INF}$	rešat’ ^{IPF} ‘to solve’

- Under negation, the scale is reversed, so the stronger alternative is the negated sentence headed by a basic imperfective verb denying the existence of a whole event.

negated perfective	$<_{INF}$	imperfective
ne pro.čitat’ ^{PF} ‘to not read completely through’	$<_{INF}$	ne čitat’ ^{IPF} ‘to not read’
ne rešit’ ^{PF} ‘to not solve/be solving’	$<_{INF}$	ne rešat’ ^{IPF} ‘to not solve’

3.2 Intuitions about scalar properties of the completive prefix *do-* and the iterative prefix *pere-*

- If a sentence with an imperfective verb containing the prefix *do-* holds true, it is informationally stronger, and entails the corresponding sentence with a basic (root) imperfective verb.

secondary imperfective with <i>do-</i> ²	$>_{INF}$	non-prefixed imperfective
do.čityvat’ ^{IPF} ‘to finish/be finishing reading’	$>_{INF}$	čitat’ ^{IPF} ‘to read’
do.delyvat’ ^{IPF} ‘to finish/be finishing doing’	$>_{INF}$	delat’ ^{IPF} ‘to do’

- A sentence with an imperfective verb containing the iterative prefix *pere-* entails that there is at least one previous event of the same kind (as the verb is imperfective, this can be also a partial event), so it entails the corresponding sentence with a basic (root) imperfective verb, and is thus informationally stronger.

secondary imperfective with iterative <i>pere-</i>	$>_{INF}$	non-prefixed imperfective
pere.čityvat' ^{IPF} 'to reread/be rereading'	$>_{INF}$	čitat' ^{IPF} 'to read'
pere.delyvat' ^{IPF} 'to redo/be redoing'	$>_{INF}$	delat' ^{IPF} 'to do'

- Under negation, the scale is reversed, so the stronger alternative is the negated sentence headed by a basic (root) imperfective verb denying the existence of a whole event.

negated secondary imperfective with iterative <i>pere-</i> or completive <i>do-</i>	$<_{INF}$	non-prefixed imperfective
ne do.čityvat' ^{IPF} 'to not finish/be finishing reading'	$<_{INF}$	ne čitat' ^{IPF} 'to not read'
ne pere.čityvat' ^{IPF} 'to not reread/be rereading'	$<_{INF}$	ne čitat' ^{IPF} 'to not read'
ne do.delyvat' ^{IPF} 'to not finish/be finishing doing'	$<_{INF}$	ne delat' ^{IPF} 'to not do'
ne pere.delyvat' ^{IPF} 'to not redo/be redoing'	$<_{INF}$	ne delat' ^{IPF} 'to not do'

- **Deriving the observed inferences:** Under negation, if the speaker uses the weaker alternative (negated secondary imperfective verb that contains the prefix *do-* or the iterative prefix *pere-*), by the maxim of quantity (Grice, 1975), the hearer infers that the stronger alternative, the sentence with a corresponding negated basic (root) imperfective verb (with no prefixes attached) does not hold, which amounts to the inference that at least the 'process' subpart (but not the 'culmination' subpart) of denoted events took place.

3.3 Testing the scalar properties of the completive prefix *do-* and the iterative prefix *pere-*: Projection theories

- Chemla (2009) designed an experiment aimed at distinguishing the projection properties of presuppositions from those of scalar implicatures, building on the presupposition projection theories (e.g., Heim, 1983; Schlenker, 2008, and references therein).
- For our purposes, among the most relevant insights of Chemla (2009) are those that concern different types of inferences of sentences that are embedded under the universal quantifiers *every* and *no*.
- Chemla's (2009) result (based on projection theories and empirical study): Presuppositions project universally rather than existentially when triggered from the scope of the universal quantifiers *every* and *no*. Inferences that project universally from the scope of *every* and existentially from the scope of *no* are akin to scalar implicatures:
 - If a sentence S with the presupposition $P(x)$ is embedded under universal quantifiers *every* or *no*, the presupposition of the resulting sentence is universal: $\forall x : P(x)$.
 - Resulting property: the presupposition is the same in sentences with universal assertion (*every*) and universal negation (*no*).
 - This property does not hold for scalar implicatures: if a sentence S entails that $I(x)$, then
 - (i) S embedded under *every* entails that $\forall x : I(x)$ (universal inference)
 - (ii) S embedded under *no* implicates that $\exists x : I(x)$ (existential inference)
- The first part is trivial property of entailments. The second part needs explanation:
 - Background assumption (Chemla, 2009): Indirect scalar implicatures that involve a strong scalar item (e.g., *all*) in a downward entailing context (here negation):

- (19) a. John didn't read all the books. = (12) in Chemla 2009
 b. Alternative: John didn't read any of the books.
 c. Scalar implicature: John read some of the books.

- The scalar implicature (19-c) of (19-a) is derived as follows (following suggestions in Grice, 1975; Ducrot, 1969; Horn, 1972, among others):
 - Sentences with *all* (19-a) and *any* (19-b) belong to a set of linguistic alternatives of the same grammatical category which can be arranged in a linear order by degree of informativeness.
 - Sentence in (19-b) is a logically stronger alternative to (19-a). If the speaker does not use (19-b), the most natural explanation is to conclude that the alternative (19-b) is false.
 - The negation of (19-b), 'It is not the case that John didn't read any of the books', is equivalent to the indirect scalar implicature (19-c) of (19-b) (the two negations cancel each other out).
- Similar reasoning works for deriving an implicature (20-c) from (20-a).

- (20) a. No student read all the books. = (18) in Chemla (2009)
 b. *Alternative*: No student read any book.
 c. *Scalar implicature*: At least one student read some of the books. (existential inference)

4 Empirical evidence: questionnaire

- Results reported in Chemla (2009) can be used to construct a new test for distinguishing between presuppositions and scalar implicatures: embedding sentences that contain inferences of unknown nature under negative universal quantifiers.
 - If the inference is universal, the embedded sentence contains a presupposition trigger;
 - if the inference is existential, the embedded sentence involves a scalar implicature.

- Consider (21):

- (21) Nikto iz nas ne do.čityval^{IPF} učebnik.
 nobody of us _{NEG COMP.} read textbook
 'None of us finished/was finishing reading the textbook.'

- Alternative:

- (22) Nikto iz nas ne čital^{IPF} učebnik.
 nobody of us _{NEG} read textbook
 'None of us read any part of the textbook.'

- Possible inferences:

- (23) a. Kto-to iz nas čital^{IPF} učebnik.
 somebody from us read textbook
 'Some of us read at least a part of the textbook.' *scalar implicature*
- b. Vse iz nas čitali^{IPF} učebnik.
 all from us read textbook
 'All of us read at least a part of the textbook.' *presupposition*

Procedure:

- Similarly to the experimental design by Chemla (2009), we provided participants with two sentences and asked them to judge if the first one suggests (*predpolagaet* in Russian instructions) the second one. We also asked to assume that the first sentence was uttered by a reliable, honest and well-informed speaker (*nadežnyj, iskrennij i informirovannyj sobesednik* in Russian) in order to establish a natural context in which the maxims of Grice can be applied.
- Difference from Chemla (2009): not only two variants “yes” and “no” were allowed, but also weaker versions: “probably yes” and “probably no”.
- This resulted in a 4 point scale, with the effect of preventing the subjects from selecting the middle variant in the hard cases.
- Rating procedure: answers were assigned numeric values and mean values were calculated.
 - ‘yes’ = 4;
 - ‘probably yes’ = 3;
 - ‘probably no’ = 2;
 - ‘no’ = 1.
- 140 participants, 4 lists, minimum 26 participants per list, 40 trials in each list: 20 fillers and 20 test sentence pairs.
- Material:
 - Control items: sentences with presupposition triggers that are embedded under universal quantifiers: 10 with *know*, 16 with different types of possessive pronouns;
 - Control items: 26 pairs of sentences where the second member of the pair is either true or false (also including “pragmatically true/false” ones), resulting ratings 3.6 and 1.1;
 - Tested items: 38 pairs of sentences with verbs prefixed with *pere-*, 20 pairs of sentences with verbs prefixed with *do-*.

Test material:

- (i) Sentences containing verbs prefixed with *do-* and *pere-* that are embedded under negative universal quantifiers (analogous to examples like (12) and (18) from Chemla (2009)).

(24) Nikto iz nas ne do.edal^{IPF} “kašu moločnuju”.
 none of us NEG COMP.eat.PST.SG.M porridge milk
 ‘None of us was finishing the milk porridge.’

Tested inferences:

- a. Vse probovali kašu.
 ‘All tried the porridge.’
 b. Kto-to proboval kašu.
 ‘Some of us tried the porridge.’

(25) Nikto ne pere.delal^{PF} rabotu.
 Nobody NEG ITER.do.PST.SG.M work
 ‘No one have redone the work.’

Tested inferences:

- a. Vse sdelali rabotu rane.
'All did the work before.'
- b. Kto-to sdelal rabotu rane.
'Some did the work before.'

(ii) Control sentences with presupposition triggers (like 'know' and possessive pronouns) embedded under negative universal quantifiers.

(26) Nikto is studentov ne znal, čto prepodavatel postavit im začët
None of students NEG KNOW.PST.SG.M that lecturer put.PRES.3SG them credit
"avtomatom".

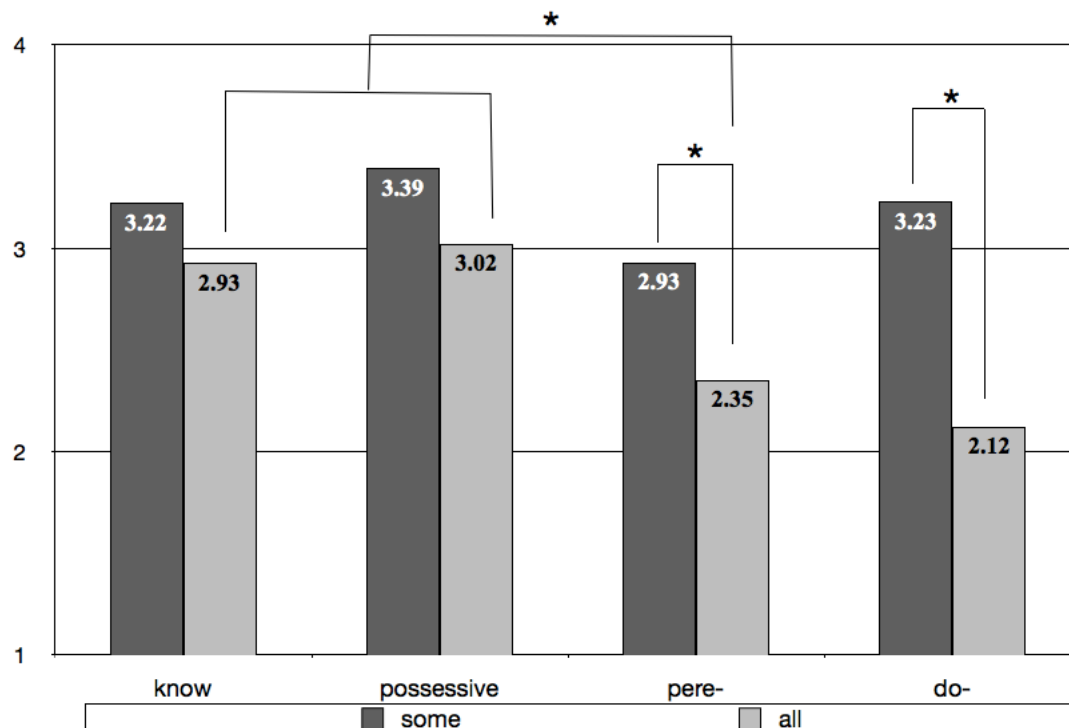
automatically

'None of the students knew that the lecturer was going to give them the credit automatically.'

Tested inferences:

- a. Vsem studentam postavjat začët "avtomatom".
'All of the students will receive the credit automatically.'
- b. Nekotorym studentam postavjat začët "avtomatom".
'Some of the students will receive the credit automatically.'

Results



- *Main question:* What is a nature of the inferences associated with verbs that contain the completive prefix *do-* or the iterative prefix *pere-*?
- *Answer:* The inferences do not exhibit the properties of presupposition. The results show the difference in the acceptance rates of existential and universal inferences when the target sentence involves a universal negative quantifier.

5 Conclusion

- As was shown by the application of tests for presuppositions (semantic and pragmatic), inferences triggered by perfective aspect of verbs denoting accomplishments do not behave like classic semantic or pragmatic presuppositions.
- As for the inferences triggered by prefixes *do-* and *pere-*, standard tests could not be used as evidence for or against presuppositional analysis, so a new testing method was applied: a questionnaire based on results of experimental work by Chemla (2009).
- The projection properties of Russian verbs containing prefixes *do-* and *pere-* in downward entailing contexts (under the universal quantifier *no*) indicate that the projected inference behaves more like a scalar implicature, rather than a presupposition.

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