The influence of verbal prefixes on the perception of verbal aspect and Aktionsart

Proposal

- We investigate whether Russian native speaker perceive the different functions of verbal prefixes.

- We work with the Russian prefixes po- and za-.

- Both prefixes can be used to make verb stems perfective and / or change the lexical meaning of a verbal stem.

Experimental studies

Word selection task

Question:

Can native speaker distinguish the functions of verbal prefixes?

– Manipulation of the perception of prefixes by first showing a prefix stimulus and after that a verb stem.
– Without nonsense verbs – new verbs from chat-communities

Composition task

Question:

How are prefixes and verb presented in the mental lexicon?
Composed or seperated in two entities?

Preconditions

➢ Russian native speaker are competent and know that prefixes change aspect and aktionsart (Clasmeier 2015)

➢ morphological decomposition (Kazanina 2011)

Assumptions

❖ Prefixes that solely perfectivize verb stems are perceived faster than lexical/semantical prefixes, because the latter change the verb stem grammatically and lexically and therefore require more processing costs.

❖ Prefixes shown as stimuli trigger the perception and processing and reduce processing costs.

Mental representation of verb stems and prefixes

➢ separated representation

➢ unseperated representation

Word selection task

Method & Design

❖ 3 prefixes po-, za-, c- (filler)

prefix properties:

1. change aspect
2. add new lexical meaning
3. letter combination similar to a prefix

❖ 12 verb stems presented in triplets, two with the same property, one doesn't fit

❖ verb stem property: prefix – non prefix; prefix for alpha-verb; prefix for beta-verb (Lehmann)

❖ conditions (5x3):

α α β; α α 0; β β α; β β 0; α β 0 x position (first, second, third) verbgroups distributed equally to the triplet positions

Word selection task - Design

➢12 Verbs (ВАРГОС) per prefix-group

➢ prefixed verbs and unprefixed verbs; either the prefix has α- or β-function, or the initial syllable resembles a prefix without being a prefix

➢ balanced frequency of occurencies for each verb group (Russian National Corpus)

➢ α-verbs: aspect marking prefixes po- and za-

➢ β-verbs: lexical prefixes in one lexical meaning for all verb stems; po- = ‚a little bit‘, za- = ‚to begin‘

➢ controll group: unprefixed verbs, recognition of prefixes

Word selection task

Task

Select the verb that does not match the verb-triplet!

Examples:

ПОСТАВИТЬ - ПОТЕРЯТЬ – ПОНИМАТЬ

ЗАДУШИТЬ – ЗАВТРАКАТЬ – ЗАОРАТЬ

Assumptions

unprefixed verbs are recognized better than prefixed verbs (less mistakes), grammmatical prefixes (α-verbs) are better recog-nized than lexical prefixes (β-verbs)

Word selection task

Procedure

- VPN=41 (total 60), 100% Russian native speaker, 61% 25-40 age, 80% female; 93% higher education
- 120 Items
- each condition presented twice in alternate position

⇒ Evidence of speaker knowledge of α-verbs and β-verbs

⇒ Evidence of mental representation of prefixes and verbstems

Word selection task - Results

		Position 1	Position 2	Position 3	Total
rating	expected	46,3%	81,3%	65,9%	64,4%
	unexpected	53,7%	18,7%	34,1%	35,6%

Table1. Rating * Exp Crosstab

ZA		Position 1	Position 2	Position 3	total
rating	expected	51,28%	71,15%	53,85%	58,76%
	unexpected	48,72%	28,85%	46,15%	41,24%

Table2. Rating * Exp Crosstab

PO		Position 1	Position 2	Position 3	total
rating	expected	68,55%	67,1%	59,74%	64,9%
	unexpected	31,45%	32,9%	40,26%	35,1%

Table3. Rating * Exp Crosstab

=> verb position influences answers p<.000

=> *po*- is recognized better than *za*-

Word selection task - Results

- marginal differences
- 2/3 expected answers
- condition αß0 is a outlier, only 50,8% unprefixed verbs as unfitting verb recognized
- significant condition (p=.000)

Rating * Prefixe Crosstab

		conditions					total
		ααß	αα0	ßßα	ßß0	αß0	
rating	expected	**67,3%**	**65,4%**	**67,2%**	**71,7%**	**50,8%**	**64,4%**
	unexpected	**32,7%**	**34,6%**	**32,8%**	**28,3%**	**49,2%**	**35,6%**

Table4.

Word selection task

-significant for condition (p=.000)

-significant for position (p=.000)

Rating * Prefixe Crosstab *za*-

		conditions					total
		ααß	αα0	ßßα	ßß0	αß0	
rating	expected	56,99%	59,68%	52,42%	61,29%	67,74%	**59,2%**
	unexpected	**43,01%**	40,32%	47,58%	**38,71%**	32,26%	**40,86%**
Table5.							

Word selection task

  - significant for conditions (p=.000)
  - significant for position (p=.000)

Rating * Prefixe Crosstab *po-*

		conditions					total
		ααß	αα0	ßßα	ßß0	αß0	
rating	expected	67,74%	55,43%	59,68%	75,04%	65,59%	**64,43%**
	unexpected	**32,26%**	44,57%	40,32%	**27,96%**	34,41%	**35,57%**

Table.6

Word selection task with stimulus

Method & Design

12 verbs; presented in triplets, two with the same property, one doesn't fit

modification: First the matching prefixes are shown for 600 ms, only after that the verb triplet appeared

prefixe properties:
1. α-verb, 2. ß-verb, 3. verbs that begin with letter combination similar to a prefix

Conditions

5x3, α α β; α α 0; β β α; β β 0; α β 0 x position (first, second, third)

verbgroups distributed equally to the triplet positions

Word selection task with stimulus

Procedure
VPN=31, 120 Items
each condition presented twice in changed position

Task
Select the verb that does not match the verb-triplet!

Assumptions
prefix stimuli support the recognition of unfitting verbs => less mistakes than in first experiment
grammmatical prefixes (α-verbs) are better recognized than lexical prefixes (β-verbs)

Word selection task with stimulus

- significant correlation between prefix type and result (p<.05)
- not significant for conditions

Rating * Exp Crosstab

	position			total
	1	2	3	
rating expected	56,5%	66,8%	61,9%	61,7%
unexpected	43,5%	33,2%	38,1%	38,3%
Table7.				

Word selection task with stimulus

significant:

-position p=.001

-prefixtype p=.04

Rating * Prefixe Crosstab

		conditions					total
		ααß	αα0	ßßα	ßß0	αß0	
rating	expected	(56,5%)	(52,2%)	(62,9%)	(69,9%)	(67,2%)	(61,7%)
	unexpected	(43,5%)	(47,8%)	(37,1%)	(30,1%)	(32,8%)	(38,3%)
Table.8							

Word selection task with stimulus

Rating * Prefixe Crosstab without prefixe stimuli

		conditions					total
		ααß	αα0	ßßα	ßß0	αß0	
rating	expected	67,3%	65,4%	67,2%	71,7%	50,8%	64,4%
	unexpected	32,7%	34,6%	32,8%	28,3%	49,2%	35,6%

Table9.

Rating * Prefixe Crosstab with prefixe stimuli

		conditions					total
		ααß	αα0	ßßα	ßß0	αß0	
rating	expected	56,5%	52,2%	62,9%	69,9%	67,2%	61,7%
	unexpected	43,5%	47,8%	37,1%	30,1%	32,8%	38,3%
Table10.							

Word selection task with stimulus

Rating * Prefixe Crosstab with prefixe stimuli

ZA		conditions					total
		ααß	αα0	ßßα	ßß0	αß0	
rating	expected	56,99%	59,68%	52,42%	61,29%	67,74%	59,62%
	unexpected	43,01%	40,32%	47,58%	38,71%	32,26%	40,38%

Table.9

Rating * Prefixe Crosstab with prefixe stimuli

PO		conditions					total
		ααß	αα0	ßßα	ßß0	αß0	
rating	expected	67,74%	57,61%	59,68%	71,28%	65,59%	64,75%
	unnexpected	32,26%	42,39%	40,32%	28,72%	34,4%	35,25%
Table.10							

Result

- function of the prefixes are recognized, but task was difficult (more than 30% error rate)

- ZA-prefix is worse identified than PO-prefix

- version with stimuli leads to worse results for alpha-verbs and beta-verbs than for unprefixed verbs

- lexical prefixes are better recognized than natural prefixes

=> unseperated representation

Word composition task

stimuli: prefixes po-, za-, na-, u

verb stems were chosen according to derivation:
1. za-, po-, na-, u-;
2. za-, po-, na-;
3. za-, po-, u-;
4. za-; po-;
5. *za-; *po-; *na-; *u-
 12/6 verbs per group

Task:
Push the button as soon as the word fits with the prefix stimulus seen before

Word composition task

Task:

„На экране будет появляться языковой стимул. После этого является ряд слов. Нажмите пробел, всегда когда Вы думаете, что стимул и слово подходят друг другу, и вместе они образуют известный вам глагол."

+	stimulus		verb1	verb2	verb3	verb4		+
(500ms)	(2500ms)		(2500ms)	(2500ms)	(2500ms)	(2500ms)		(500ms)

- 128 word series (each with four words)
- conditions: prefixe fits/doesn't fit; four verb groups
- two runs with a pause of min. 60sec
- VP=18 Russian native speaker, exchange students of University of Tübingen

Word composition task

Research questions:

- Does the prefix type influence the reaction time for correct composition decision?
- How are the decision times for correct/incorrect answers?
- What is more frequent: wrong perfectivization or lacking perfectivization?
- Are there differences according to verb groups?
- Are there differences according to prefixes za- and po-?

Word composition task

Procedure

VPN=18, all Russian native speaker

120 Items

each condition presented twice in changed position

Word composition task

| + | ЗА | нравиться | временить | далять | стыть | + |

| + | ПО | корефаниться | жалеть | бодяжить | хомячить | + |

| + | ЗА | чекиниться | гуглить | мещать | зволять | + |

| + | ПО | ушничать | ражать | муровать | втракать | + |

Word composition task

+	ЗА	нравиться	временить	далять	стыть	+

+	ПО	корефаниться	жалеть	бодяжить	хомячить	+

+	ЗА	чекиниться	гуглить	мещать	зволять	+

+	ПО	ушничать	ражать	муровать	втракать	+

Word composition task

Results

correct answers (58%), incorrect answers (42%)

PO: 57,5% : 42,5%
ZA: 58,2% : 41,8%

Word composition task

Results

correct 58%, incorrect 42%
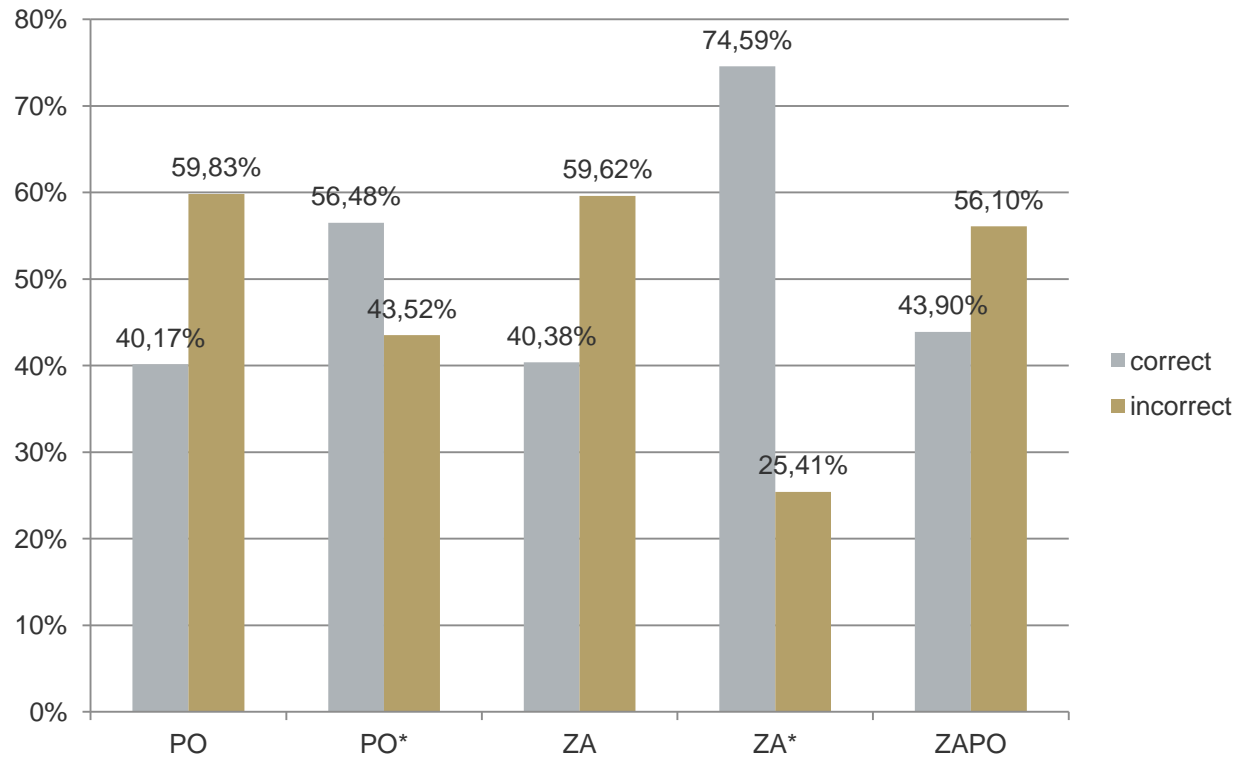
Word composition task

Result

incorrect answers
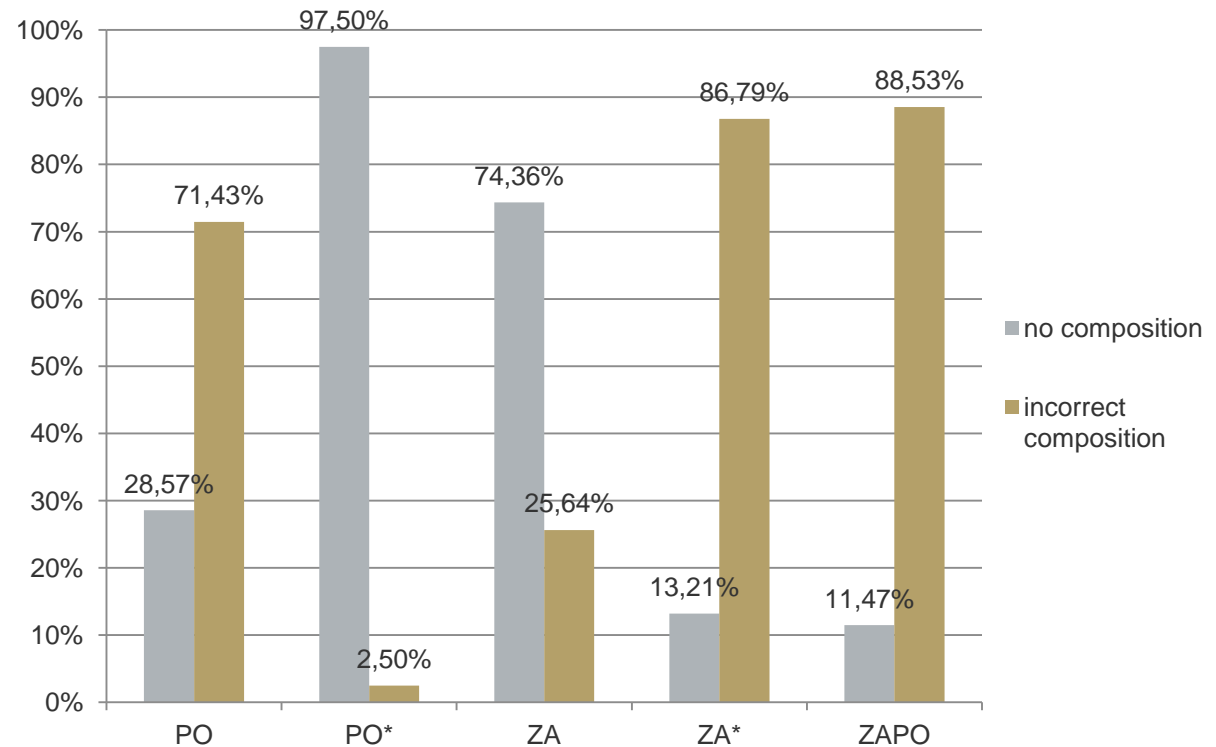
VPN used too much prefixes
cyber verbs 63% incorrect
condition and prefix influence significantly p=.000 results

Word composition task

Result

significant differences are found between Rts of incorrect and correct answers (p<.001), differences within correct/incorrect are not significant
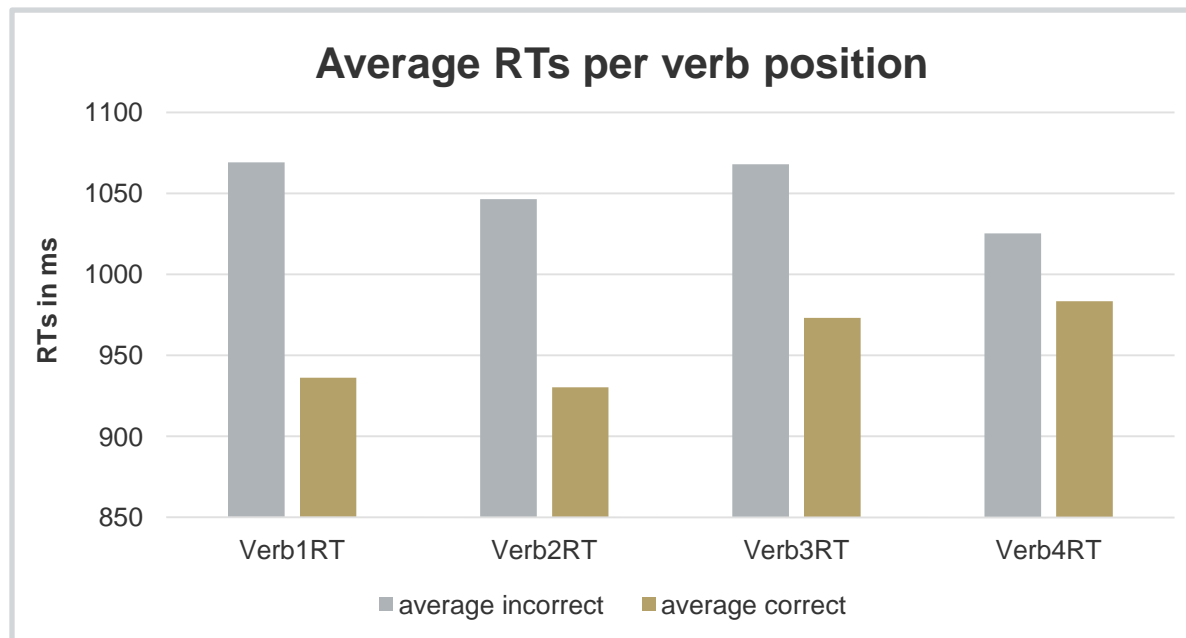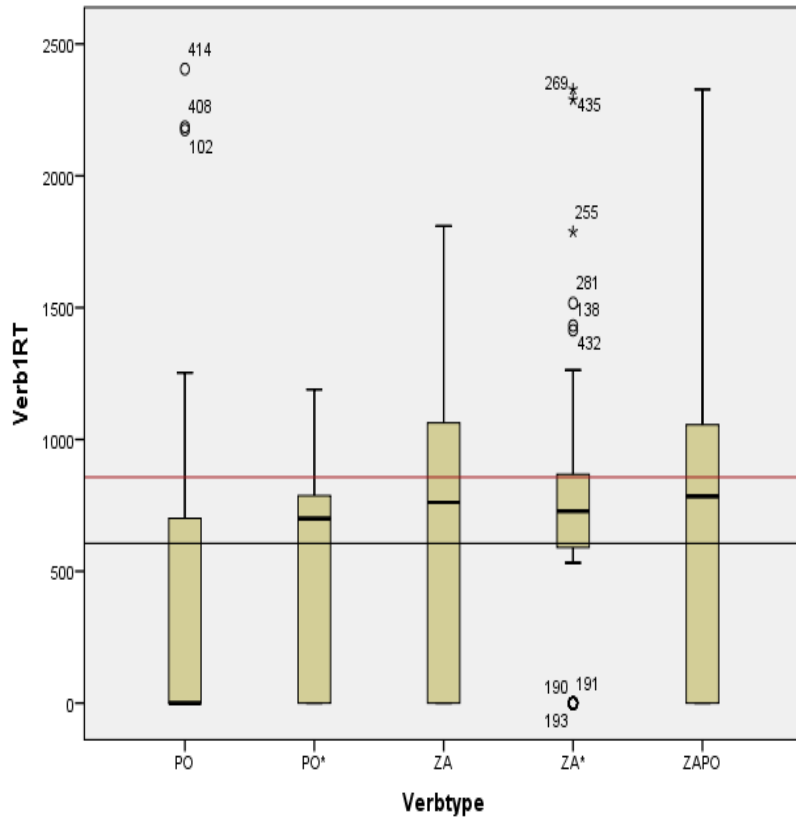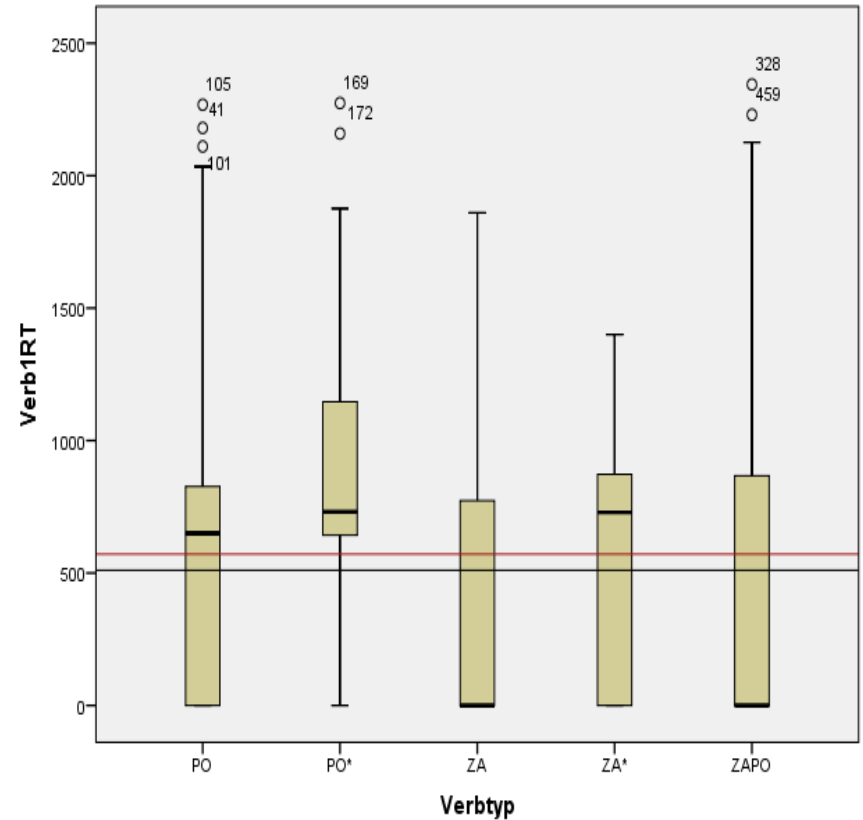
Average RTs per verb position

Word composition task
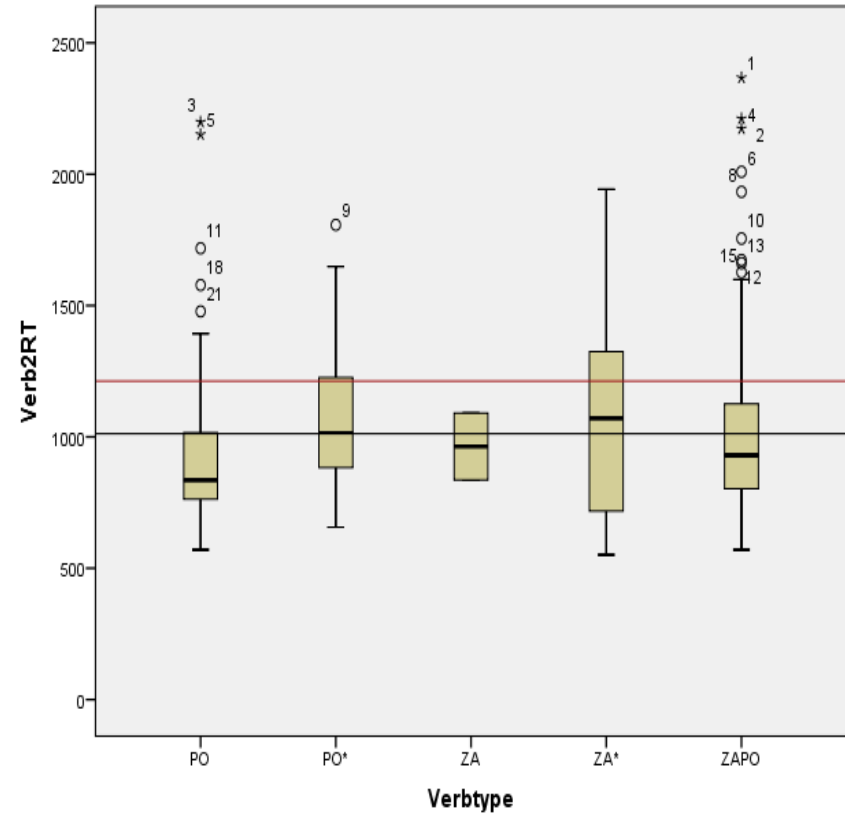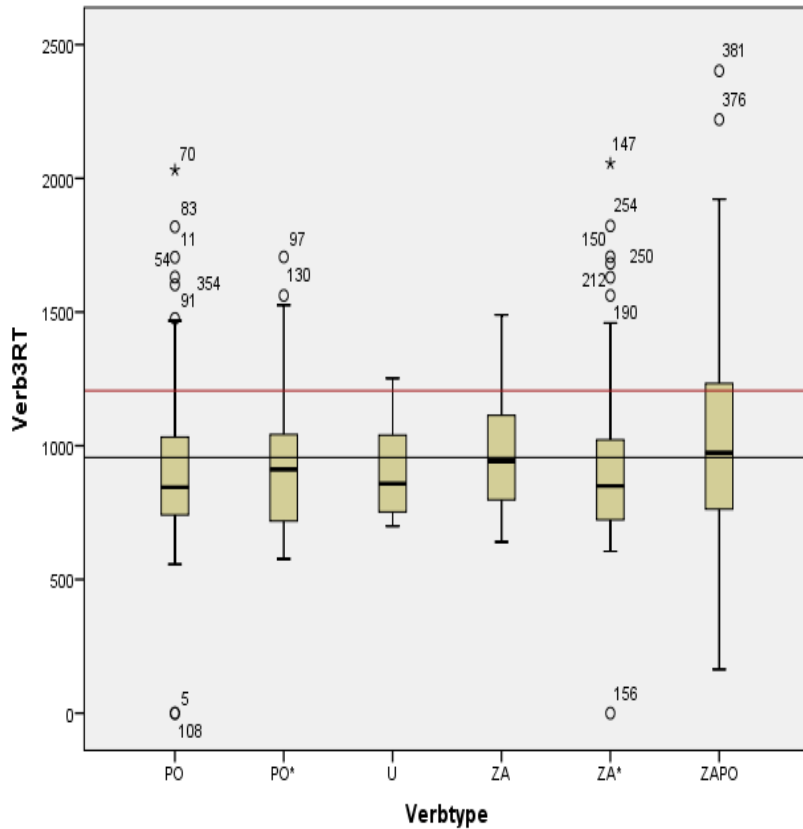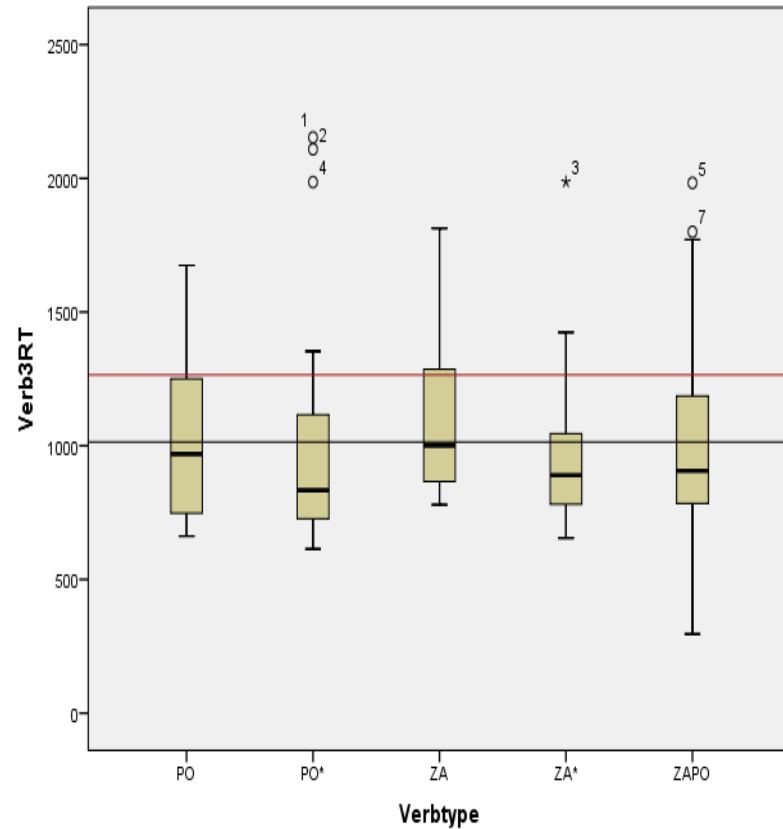

CORRECT ANSWER

INCORRECT ANSWER

Word composition task

CORRECT ANSWER   INCORRECT ANSWER
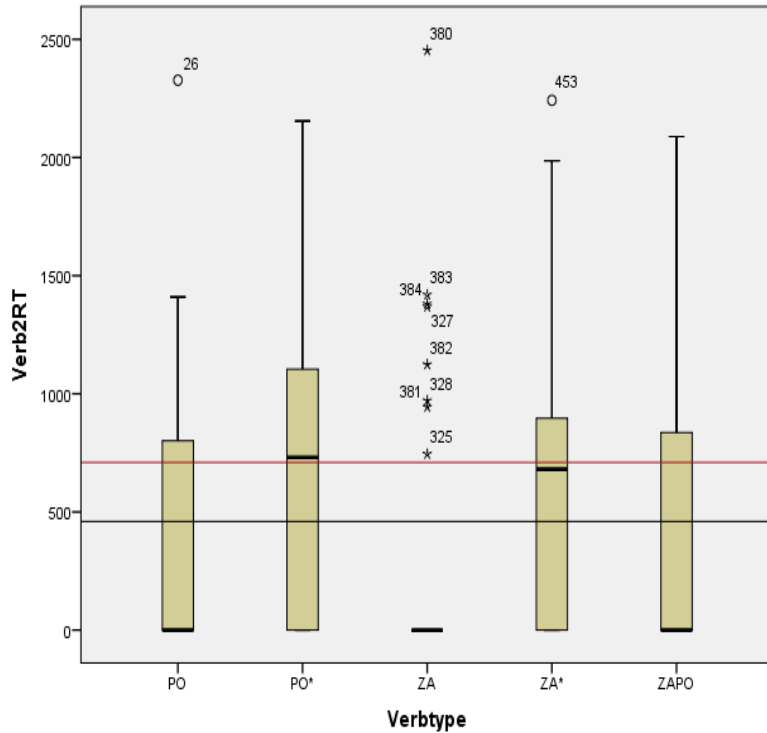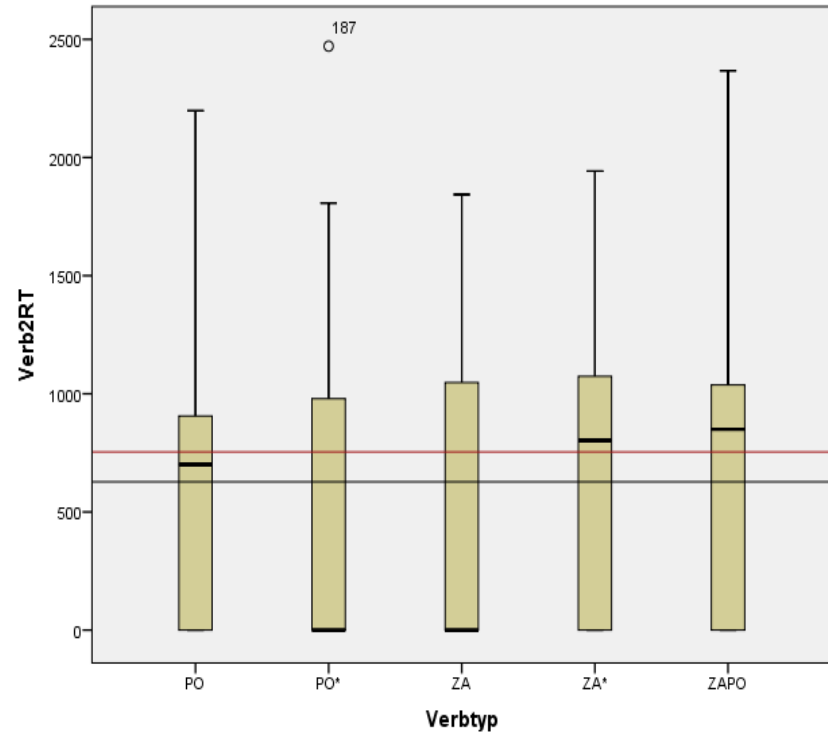
Word composition task

CORRECT ANSWER   INCORRECT ANSWER
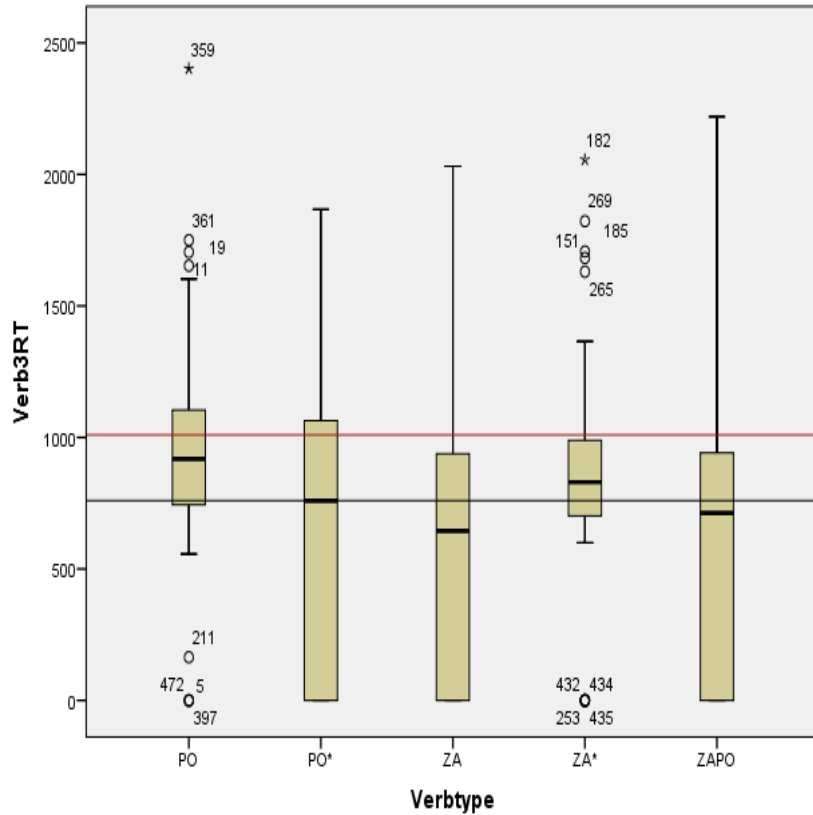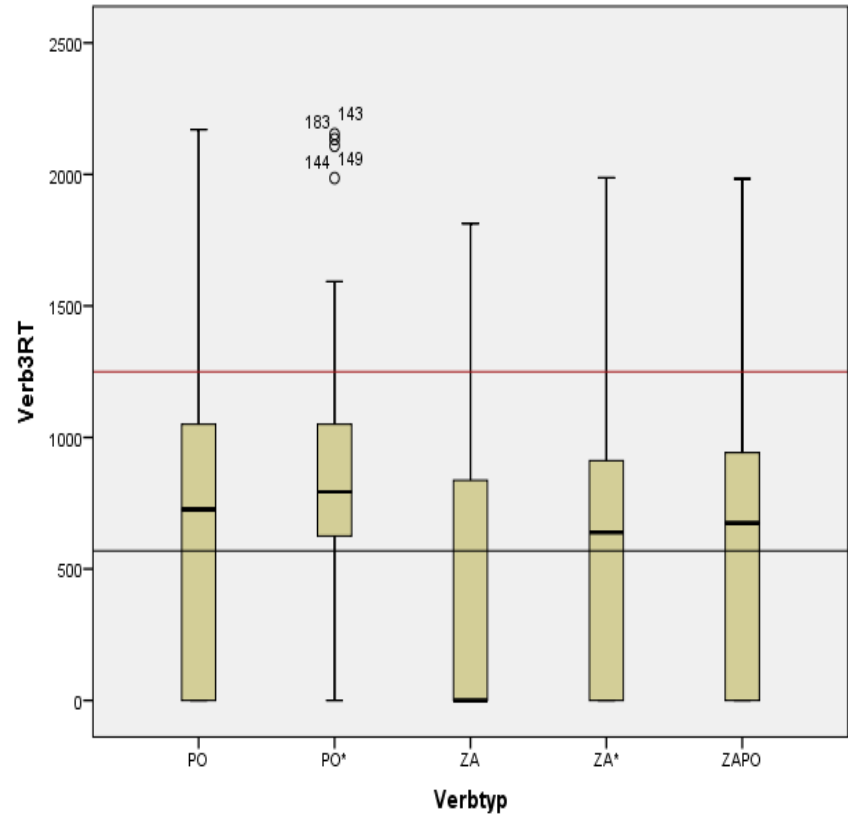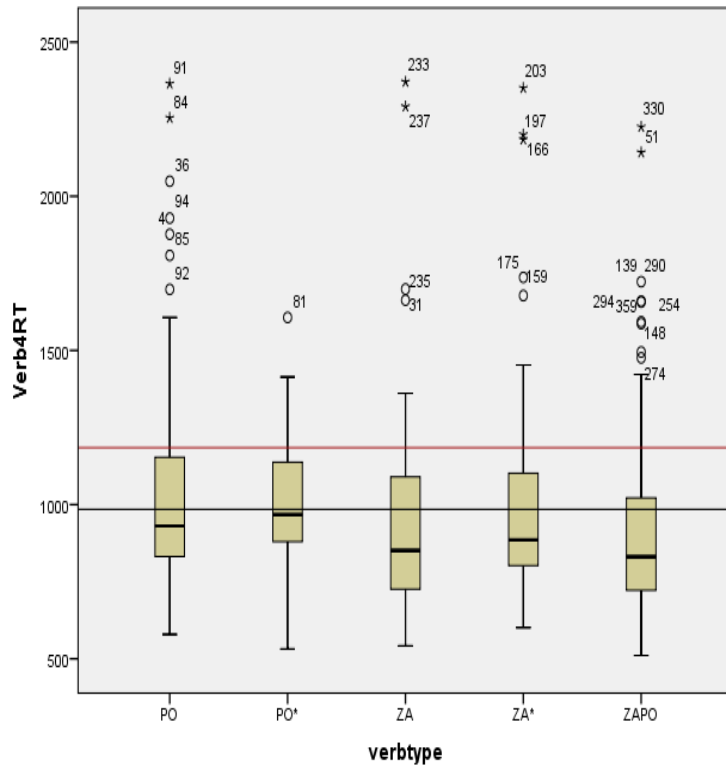
Word composition task

CORRECT ANSWER
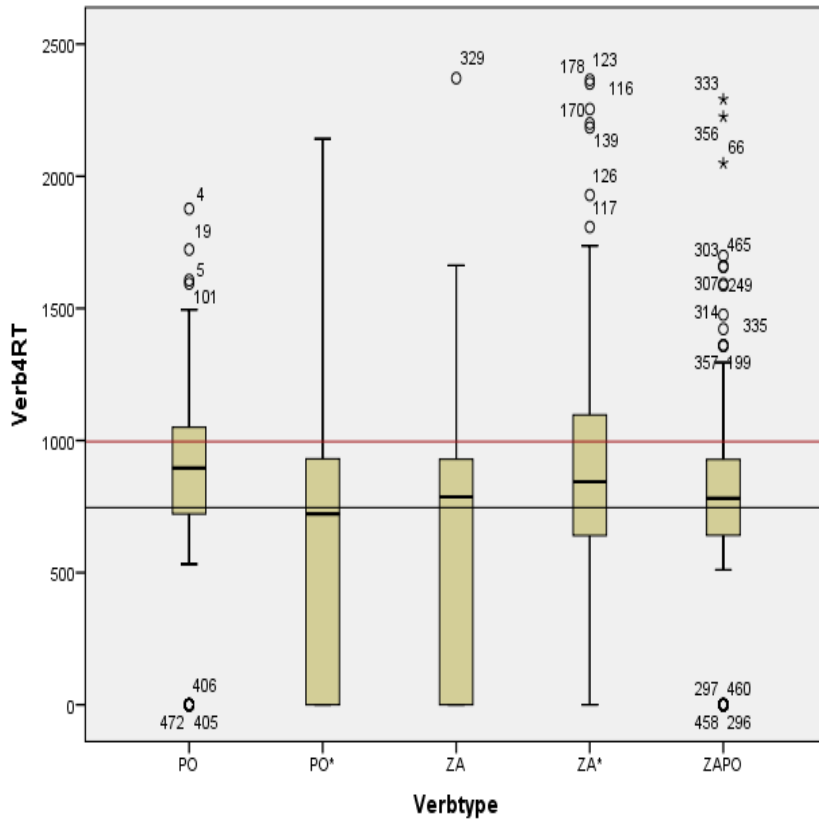
INCORRECT ANSWER
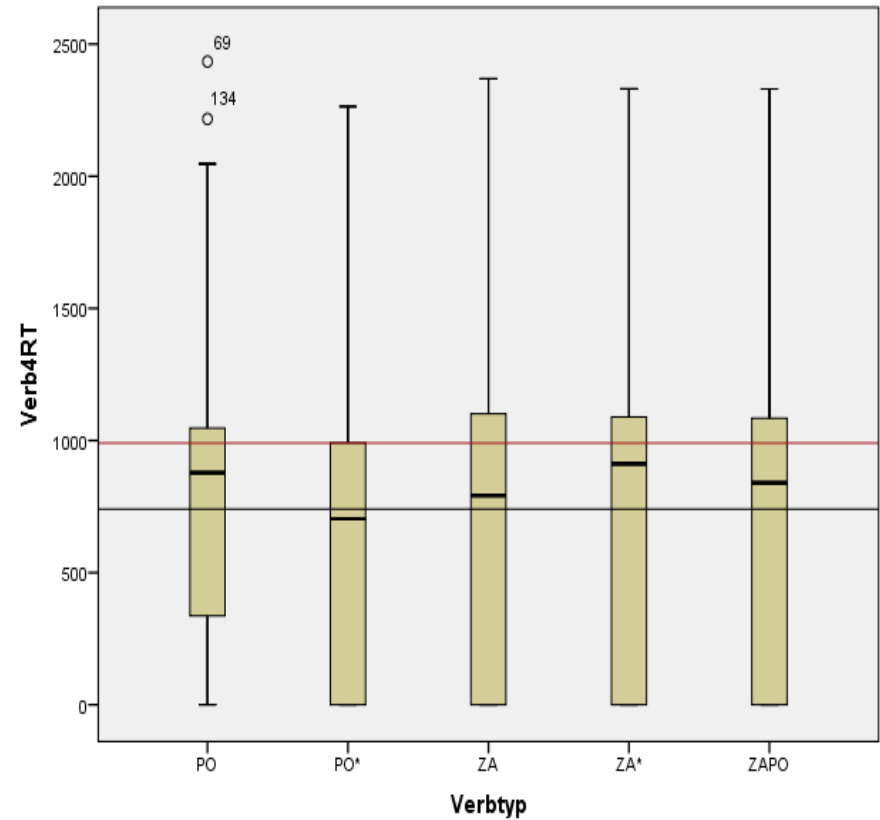
Word composition task

CORRECT ANSWER
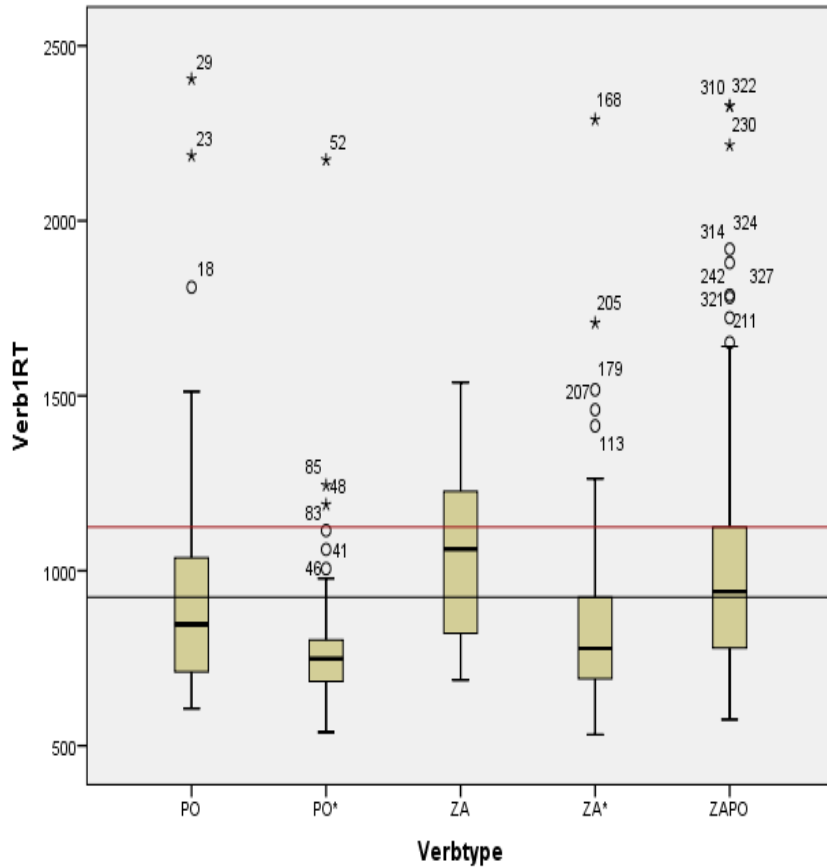
INCORRECT ANSWER
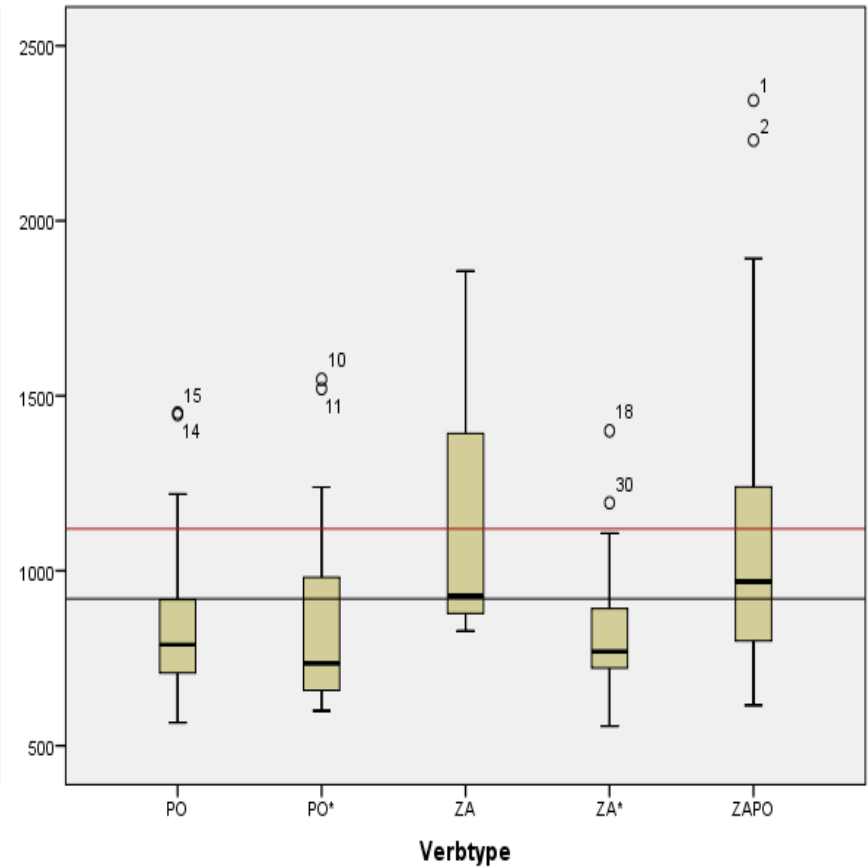
CORRECT ANSWER   INCORRECT ANSWER

Word composition task

CORRECT ANSWER INCORRECT ANSWER

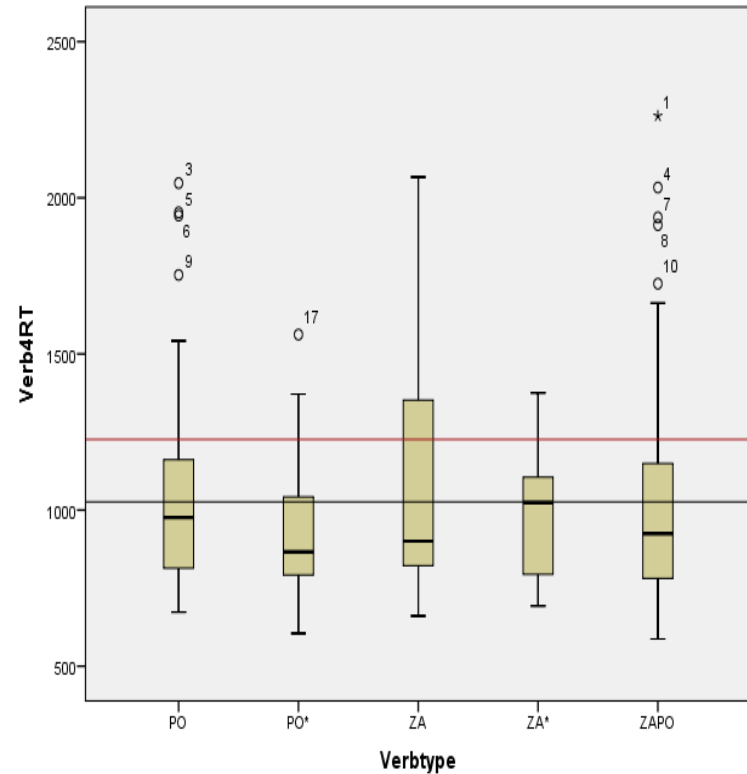# Word composition task

CORRECT ANSWER

INCORRECT ANSWER
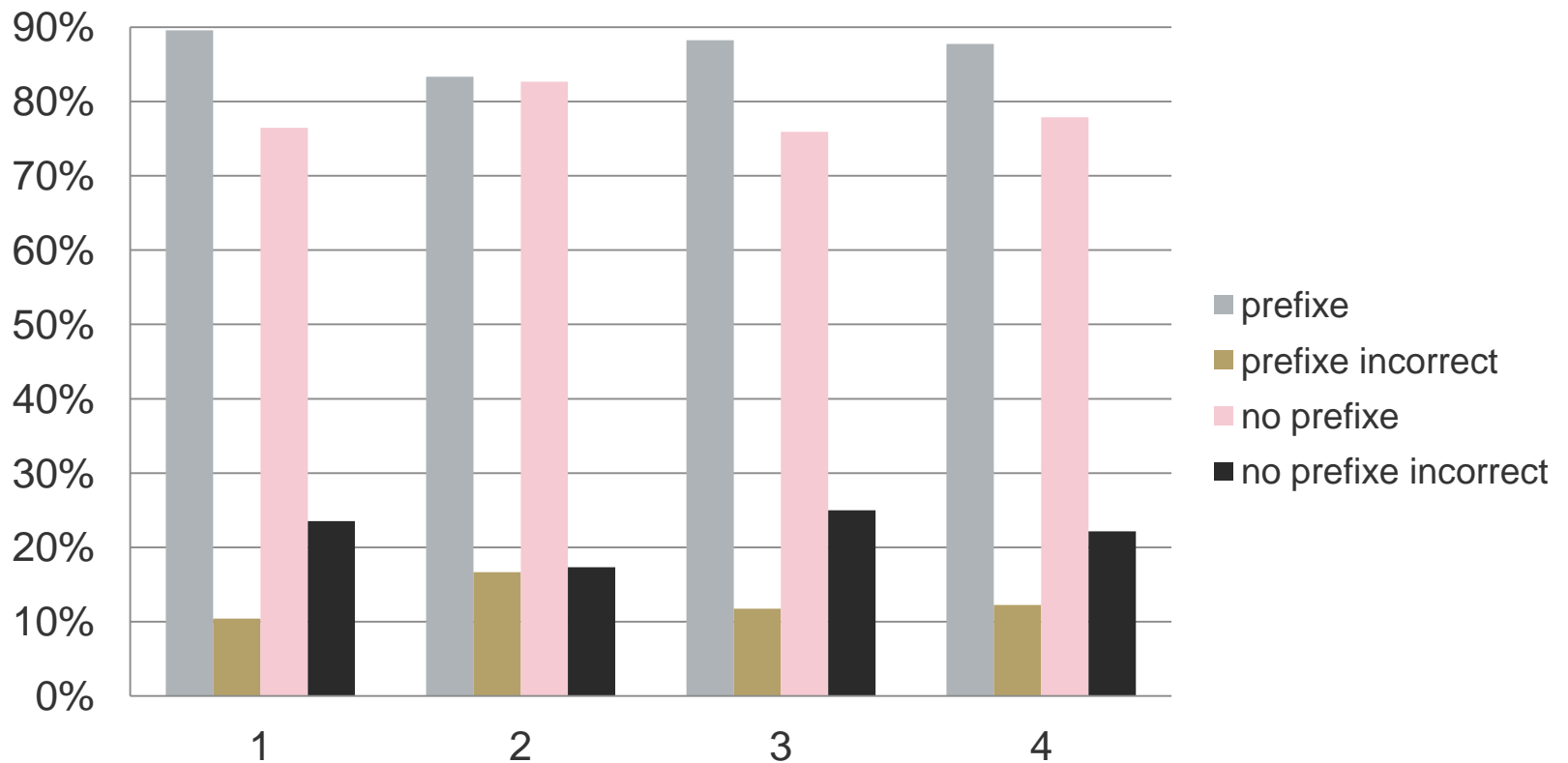
Word composition task

CORRECT ANSWER   INCORRECT ANSWER

Results correct/incorrect per cycle

1. Cycle

Results correct/incorrect per cycle

2. Cycle

Legend:
- prefixe
- prefixe incorrect
- no prefixe
- no prefixe incorrect

X-axis: Position (1, 2, 3, 4)
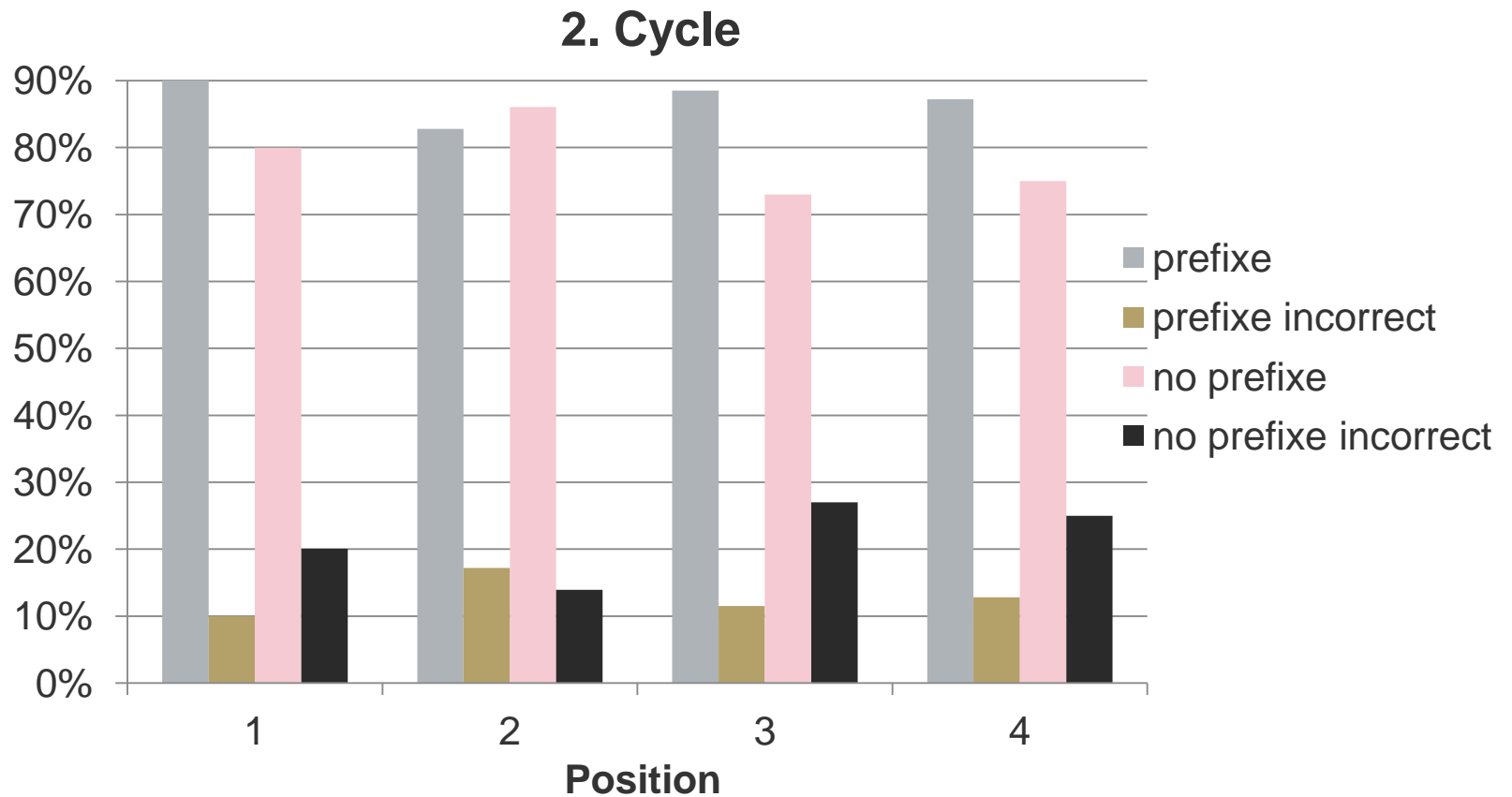
Summary

- function of prefixes are recognized
- no differences for first and second cycle
- derivation prefix as stimulus leads to better results
- more mistakes when prefix stimulus does not fit with presented verb stem

➢ PO and ZA recognized similarly
➢ PO is more incorrect combined with a verb stem than incorrect not combined; ZA is more incorrect not combined than incorrect combined
➢ fake prefixes are recognized on a high level

Conclusion

- first and second cycle similar: there is mental representation of prefixes and verb stems

- unseperated representation: results are better if stimul is a correct derivation prefix of verb stem

- more mistakes and longer Rts if stimul and verb stem do not fit and cannot build a new verb

=> unseperated representation

Thank you.

Contact:

SFB 833 / C2
Naukler Str. 35, 72074 Tübingen
Telefon: +49 7071 29-72732
anja.gattnar@uni-tuebingen.de