

The subject-object-verb word order as a self-cueing strategy in aphasia: An exploratory study



Svetlana Malyutina^{1,2} (s.malyutina@gmail.com), Yulia Akinina^{1,3}, Valeriya Zelenkova¹

¹ Center for Language and Brain, National Research University Higher School of Economics, Moscow, Russia;

² Federal Center for Cerebrovascular Pathology and Stroke, Moscow, Russia; ³ University of Groningen, Groningen, the Netherlands



Background



- People with aphasia often use non-canonical word orders
- Observation: **subject-object-verb (SOV) may be a particularly frequent** non-canonical order
 - Both in Russian, language with flexible word order (Akhutina, 1989)
 - And in English, language with SVO word order (Scholes, 1982)

- **Why** is SOV order prevalent? Typically explained by **syntactic deficits**:
 - Use of unmarked word order (Scholes, 1982)
 - *But: Is SOV really an unmarked order across languages?*
 - Use of "semantic syntax" reflecting the conceptual representation of the situation (Akhutina, 2003)
 - *But: Is SOV the best match to the conceptual representation?*

RESEARCH GOAL 1:

To **quantitatively measure** whether SOV is most frequent among non-canonical word orders in Russian speakers with aphasia

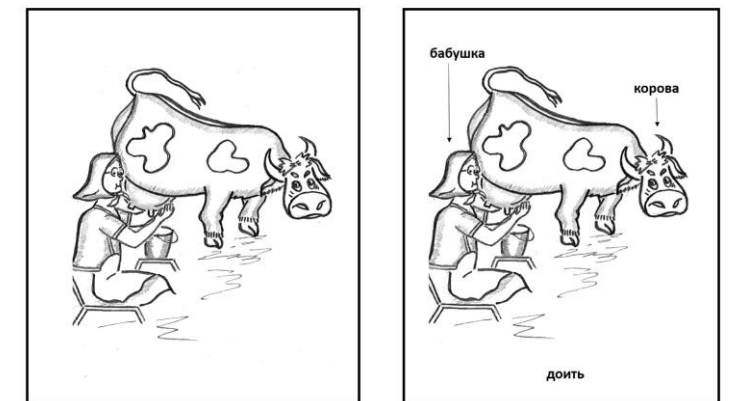
RESEARCH GOAL 2:

To test the **alternative account** for prevalence of SOV order: Can it be a **self-cueing strategy** for verb retrieval?

Method

- Re-analysis of previously collected data (Malyutina, Zelenkova & Savcenko, SoA 2018)
- **Participants:** 40 individuals with post-stroke aphasia (20 'non-fluent', 20 'fluent'; 17 females; age: mean 59, SD 12.1, range 23-77 years)

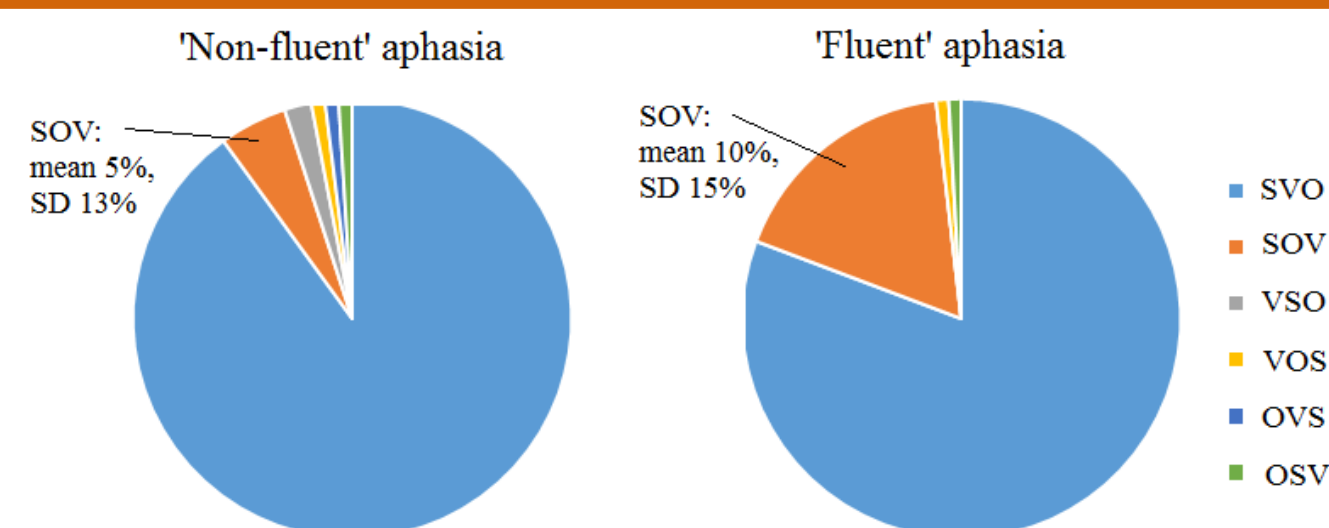
- **Tasks:** (1) Single-word action naming; (2) Cued sentence production
- **Stimuli:** 40 transitive verbs
 - 20 obligatory transitive and 20 optional transitive



Analysis and Results

RESEARCH GOAL 1

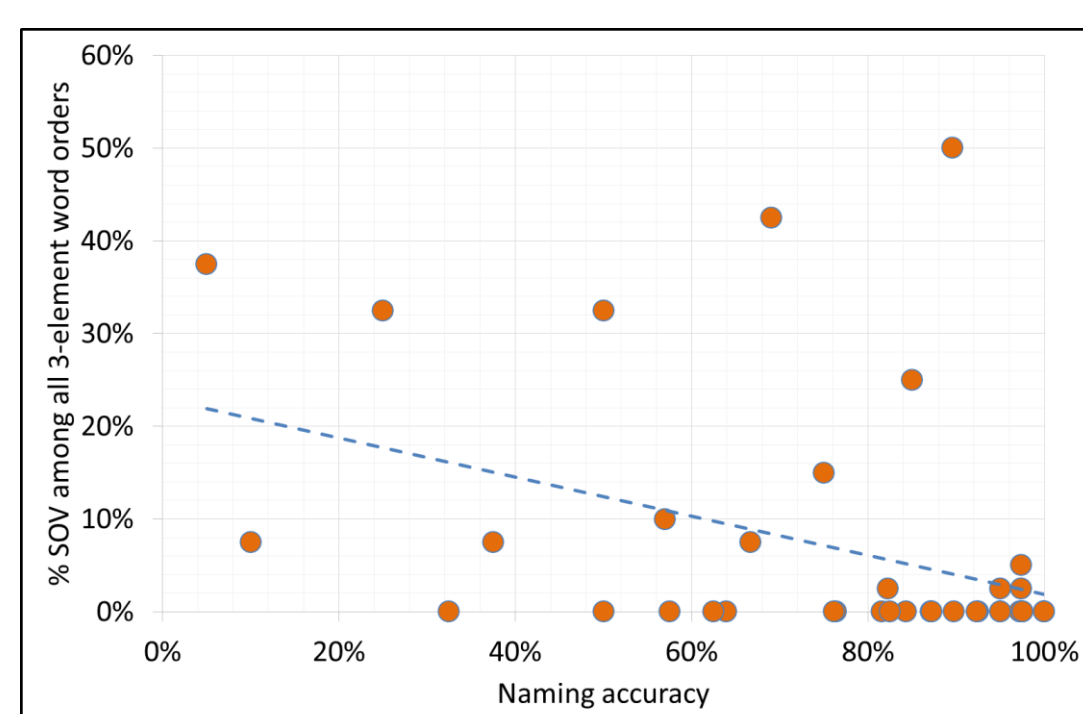
(1a) *Is SOV the most prevalent non-canonical order in sentence production?* → Proportion of different word orders in sentence production



- At the group level: **Yes**, SOV is the most prevalent non-canonical word order
- At the individual level: Out of 18 participants who produced any non-canonical three-element orders, 13 participants produced the SOV order in > 50% of such responses

RESEARCH GOAL 2

(2a) *Do PWA with greater naming difficulty use more SOV in sentence production?* → Correlation of naming accuracy with % SOV in sentence production [1a]



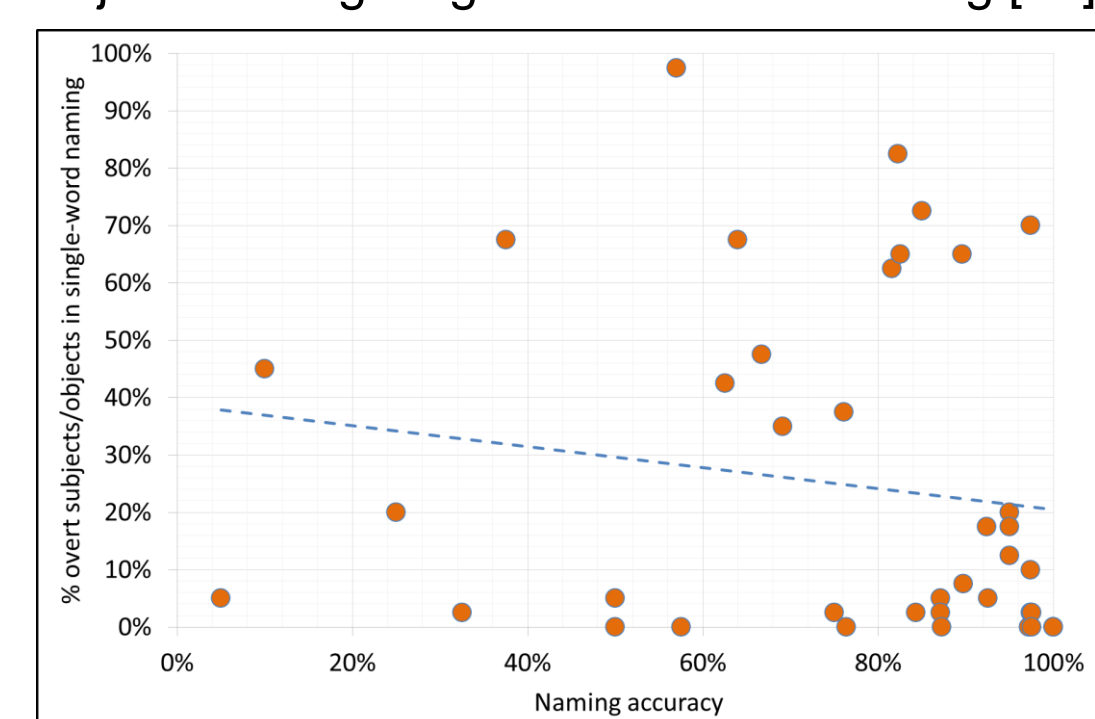
Yes: Lower naming accuracy ~ Greater proportion of SOV in sentence production, $r(38) = -.41, p = .008$

(2b) *Do PWA overtly name subjects/objects in single-word naming, non-compliant with the task?* → % overt use of subjects and objects in naming

% of all trials		Subjects	Objects	Total (subjects, objects, ambiguous)
'Non-fluent'	Mean	2.0%	9.5%	12.6%
	SD	7.3%	15.7%	23.3%
	Min	0.0%	0.0%	0.0%
	Max	32.5%	52.5%	82.5%
'Fluent'	Mean	7.3%	24.5%	37.3%
	SD	16.8%	22.7%	30.2%
	Min	0.0%	0.0%	0.0%
	Max	67.5%	67.5%	97.5%

- **Yes:** PWA name many subjects and particularly objects during single-word naming
- Possibly to self-cue verb retrieval

(2b) *Do PWA with greater naming difficulty use more subject/object cues in naming?* → Correlation of naming accuracy with % overt use of subjects and objects during single-word action naming [2b]



Yes: Lower naming accuracy ~ Greater overt use of subjects and objects in single-word action naming, $r(38) = -.33, p = .04$

(2d) Group-level correlations partly driven by high performers → Additional individual-level analysis for each participant

Within-person, does the use of subject/object cues lead to more accurate single-word action naming? → Fisher's exact test for each participant, 2x2 (Verb naming accuracy x Use of subject/object cue in naming)

- **No** significant effects. Example →

		Use of Cue	
		No	Yes
Naming	Correct	15	11
	Incorrect	4	8
Fisher's exact test: $p = .30$			

Within-person, do single-word verb naming difficulties promote the use of SOV order in sentence production? → Fisher's exact test for each participant, 2x2 (Verb retrieval accuracy x Use of SOV in sentence production)

- **No** significant effects

Discussion

- **SOV is most prevalent** among non-canonical word orders in Russian speakers with aphasia
- Is it a cueing strategy?
 - Possibly, but more appropriate methods of individual-level analysis needed

- Future directions:
 - Non-cued sentence production task
 - Controlled experiment manipulating verb cueing via subjects and/or objects