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# Stem-, Spraak- en Taalpathologie

## 16th International Science of Aphasia Conference

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### Saturday, September 18, 2015

11:30	Contributed Papers I	1
17:00	Poster Session I	17

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### Sunday, September 19, 2015

12:00	Poster Session II	61
14:30	Contributed Papers II	105
16:30	Contributed Papers III	122

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### Monday, September 20, 2015

09:30	Keynotes 7, 8 and 9	
14:00	Social Event and Conference Dinner	

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### Tuesday, September 21, 2015

10:15	Poster Session III	144
11:30	Contributed Papers IV	187
16:00	Contributed Papers V	206



# Stem- Spraak- en Taalpathologie

Supplement, 17-22 September 2015

16<sup>th</sup> International Science of Aphasia  
Conference



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## Verbs in Turkish agrammatic narrative speech

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### Introduction

Narrative speech production in agrammatic speakers has often been characterized by simple sentences with affected verb morphology (e.g. Abuom & Bastiaanse, 2012; Bastiaanse & Jonkers, 1998; Menn & Obler, 1990; Saffran, Berndt, & Schwartz, 1989). However, the proportion of finite verbs and the diversity of lexical verbs have been shown to be related: Dutch agrammatic speakers who use a normal diversity of lexical verbs are poor in verb inflection and the other way around (Bastiaanse & Jonkers 1998). It was suggested that there is a trade-off here: agrammatic speakers who focus on the content of their message (and use a normal variety of lexical verbs) use relatively many non-finite verb forms, whereas agrammatic speakers who focus on grammaticality have little variation in the verbs that they produce. Bastiaanse (2013) formulated it more precisely: to retrieve the name of an event and to express the time frame in which the event took place are hard for agrammatic speakers.

Turkish is a language that has an extensive verb inflection paradigm. Turkish finite verbs require inflections for tense and evidentiality. Evidentiality expresses the information source of how the event is known to the speaker. A direct evidential conveys that the speaker has witnessed the event, while an indirect evidential expresses that the speaker knows about the event by either hearsay or inference. Experimental studies have showed that Turkish agrammatic speakers are poor in producing and comprehending direct evidential verb forms compared to present and future tense (Bastiaanse, Bamyacı, Hsu, Lee, Yarbay-Duman, & Thompson, 2011; Yarbay-Duman and Bastiaanse, 2009) and to indirect evidential verb forms (Arslan, Aksu-Koç, Maviş, & Bastiaanse, 2014). Narrative speech in Turkish agrammatic aphasia has not been studied before.

The research questions were whether (1) Turkish agrammatic speech can be characterized morphosyntactically in the same way as in languages with a simpler (verb) inflection paradigm; (2) the trade-off pattern that was found for Dutch is also present in Turkish agrammatic speech.

### Methods

#### *Participants*

A group of 10 agrammatic speakers (6 males, age = 58.6, mean-post-onset = 7.9 months) and a control group of 10 non-brain-damaged speakers (age = 51.7) were recruited.

#### *Materials & Analysis*

Participants were interviewed with open-end questions, and were asked to tell a story on the basis of two pictures, similar to the methods of Abuom and Bastiaanse (2012); Olness (2006). Each narrative

was recorded, orthographically transcribed, and a 200-word sample from each participant was used for the analysis of the following variables:

- Speech rate (words per minute)
- Mean length of utterances (MLU)
- Percentage of correct sentences
- Percentage of embedded clauses
- Number and diversity of lexical verbs
- Number and percentage of finite lexical verbs and nominal predicates
- Tense inflection for past tense/direct evidential, past tense/indirect evidential, present progressive, and future

## Results

Table 1 shows an overview of variables in Turkish agrammatic and NBD speakers' narratives. Turkish agrammatic speakers have slower speech rate ( $t(18)=8.539$ ;  $p<.001$ ), shorter MLU ( $t(18)=7.166$ ;  $p<.001$ ), a lower percentage of correct sentences ( $t(18)=6.007$ ;  $p<.001$ ), and fewer embeddings with non-finite verbs ( $t(18)=-2.330$ ;  $p=0.032$ ), but not with finite verbs ( $t(18)=-1.019$ ;  $p=.322$ ) as compared to the NBDs. The diversity of lexical verbs (TTR;  $t(18)=2.604$ ;  $p<.05$ ) and the number of verbs per utterance ( $t(18)=5.02$ ;  $p<.001$ ) were lower for agrammatic speakers than for NBDs.

The number of finite verbs ( $t(18)=-0.47$ ;  $p=.64$ ) and the proportion of finite verbs (on all verbs, including non-finite verbs) ( $t(18)=1.42$ ;  $p=.17$ ) are similar in agrammatic and NBD speakers. The agrammatic speakers produced fewer participles than NBDs ( $t(18)=-2.717$ ;  $p<.05$ ), however.

In terms of verb inflection for tense and evidentiality, there is no group-difference for direct and indirect evidentials, present progressive and future tense (all  $p>.09$ ). Within the produced direct evidentials, however, a trade-off pattern is found. Agrammatic speakers who produce a high number of direct evidentials show little diversity of the lexical verbs inflected for direct evidential, or those who produce larger diversity of lexical verbs produce fewer direct evidentials.

## Discussion

Turkish agrammatic speech is impaired along similar lines as in other languages: it is slow, and grammatically simple. Like in other languages, the diversity of the produced verbs is lower than normal. The proportion of finite verbs is not reduced, implying that the trade-off pattern that was found in Dutch is not perceived in Turkish. However, a trade-off pattern is observed when direct evidentials are considered – a verb form that is known to be impaired in Turkish agrammatic production. The agrammatic speakers who produce relatively many direct evidentials show relatively low diversity of direct evidential verb forms whereas the agrammatic speakers who produce many different verbs (high diversity) use direct evidential less frequently. This is in line with Bastiaanse (2013) who suggests that the processes that are relevant to retrieving the name of an event and inflecting it for the time frame in which the event took place require a high processing load. This makes finite verbs effortful for agrammatic speakers in narrative speech. The current study suggests that for agrammatic speakers of Turkish this is only true for verb forms that need to be linked to 'witnessed' events.

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**Table 1.** General and verb-specific variables in narrative speech of Turkish agrammatic and NBD speakers

	Speech rate	MLU	Correct sentences (%)	# embeddings		Verbs per utterance	finite verbs (#)	Parti-ci-ples (#)	direct evidential		indirect evidential		present prog.	
				with finite verbs	with non-finite verbs				#	TTR	#	TTR	#	TTR
<i>A-gram-ma-tic s.</i>														
mean	33.70	2.52	48.40	1.10	5.60	0.61	42.8	1.10	20.5	0.72	4.0	0.68	11.6	0.71
sd	11.63	0.50	20.37	1.44	4.00	0.23	9.78	1.44	11.3	0.14	3.06	0.32	5.82	0.19
<i>NBDs</i>														
mean	82.80	5.06	92.60	1.80	11.10	1.16	41.2	4.60	12.8	0.86	3.4	0.86	15.0	0.83
sd	13.98	1.00	10.23	1.61	6.29	0.27	9.53	3.80	8.0	0.13	2.59	0.31	7.51	0.16