

Time Reference in Turkish Agrammatic Speakers

Elif Bamyacı^{1,2,4} & Roelien Bastiaanse^{3,4}

¹European Master's in Clinical Linguistics (EMCL), ²University of Konstanz, Germany

³Center for Language and Cognition Groningen (CLCG), The Netherlands, ⁴University of Groningen, The Netherlands

Introduction

Agrammatic speech is characterized by problems with bound and free-standing grammatical morphemes. Verb inflections seem to be particularly vulnerable, although not each verb inflection morpheme is impaired to an equal extent. It is shown that Tense features are particularly prone to errors (Friedmann & Grodzinsky, 1997; Wenzlaff & Clahsen, 2004; 2005). Within the Tense domain reference to the past seems to be more impaired than reference to the present (Bastiaanse, 2008 for Dutch; Stavrakaki & Kouvara, 2003 for Greek; Simonsen & Lind, 2002 for Norwegian) and future (Yarbay Duman & Bastiaanse, 2009 for Turkish). These selective problems with past are not restricted to Tensed verbs. Bastiaanse (2009) showed that for Dutch non-tensed verb forms referring to the past by participles are also more impaired than non-tensed infinitives in present continuous constructions.

The present study focuses on Tense in Turkish agrammatic speech. Turkish is an agglutinative language with a rich verb paradigm. Present continuous, past and future can all be expressed through Tense, so no auxiliaries are used. Interestingly, Turkish has two forms of past Tense, so-called 'seen past' and 'heard past'. Seen-past Tense is used when the speaker himself witnessed the action; heard-past Tense is used when the speaker expresses information from a source other than himself. The aims of this study are two-fold:

- (1) to evaluate whether in Turkish, with the rich verb inflection paradigm present Tense is better preserved than past Tense, like in Dutch, Greek and Norwegian;
- (2) to see whether there is a difference between heard and seen past Tense.

Methods

The Turkish version of the Test for Assessment of Reference of Time (TART; Bastiaanse, Jonkers & Thompson) was used to test age and education matched subjects:

- 7 agrammatic speakers (4 male; age range 39-74, aphasic due to a single left-hemisphere stroke)
- 7 non-brain-damaged Turkish speakers

A 'sentence completion paradigm with prompting' was used to elicit the intended verb form. An example of a picture pair is (see picture 1):

1. for this picture, you could say "Now the man is reading a letter";
2. for this picture, you could say "Now the man..." and
3. the patient was supposed to continue with "... is writing a letter".

There were three conditions with 20 items each:

- present continuous Tense
- seen past Tense
- heard past Tense

okumak

„to read“



yazmak

„to write“



Picture 1: sample stimuli

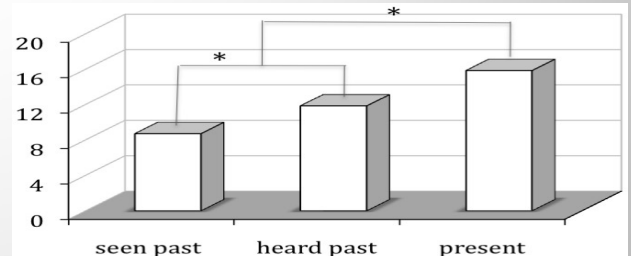


Figure 1: Performance of the Turkish agrammatic speakers (max.=20)

Results

The non-brain-damaged subjects performed perfectly in all conditions. Figure 1 depicts the results of agrammatic speakers.

For statistical comparison, Fisher's exact tests were used.

- Present Tense is significantly better than both past Tenses ($p=0.0001$ in both comparisons).
- Seen past tense is more difficult than heard past Tense ($p=0.0012$).

Discussion

These data confirm the findings in earlier group and case studies to Dutch, Greek, and Norwegian, and Turkish: reference to the past through verb inflection is selectively impaired in agrammatic aphasia, when tested with an oral production task. Interestingly, within reference to the past, those forms that refer to events that have been witnessed by the speaker are even more impaired than those that the speaker only heard of or read about. A theory on a purely syntactic or morphological basis cannot account for these data: expressing the notion 'time' in verb morphology, with present being least impaired.

It has been suggested that Tense is discourse linked (Zagona, 2003). The tense of the verb has to be linked to a specific point on a timeline.

For present this is easy: the event has to be linked to the here and now. For heard past this is more difficult, since the event should be linked to a point somewhere in the past. The linking seems even more complex for events that the speaker has witnessed, because it has to be linked to a specific memory. Agrammatic speakers are known to have problems with discourse linking. For example, understanding sentences with reflexives is relatively easy for them compared to understanding pronouns that are linked to an antecedent outside the sentence (Avrutin, 2000). The consistent finding that reference to the past is difficult is compatible with this idea. The finding that seen past is more difficult than heard past further strengthens this idea.

References

- Avrutin, S. (2000). Comprehension of Wh-questions by children and Broca's aphasics. In: Y. Grodzinsky, L.P. Shapiro & D.A. Swinney (eds.), *Language and the brain: Representation and processing*. San Diego: Academic Press, 295-312.
- Bastiaanse, R. (2008). Production of verbs in base position by Dutch agrammatic speakers: Inflection vs. finiteness. *Journal of Neurolinguistics*, 21, 104-119.
- Bastiaanse, R., Bouma G. & Post W. (2009). Linguistic complexity and frequency in agrammatic speech production. *Brain & Language*, 109, 18-28.
- Friedmann, N. & Grodzinsky, Y. (1997). Tense and agreement in agrammatic production: Pruning the syntactic tree. *Brain and Language*, 56, 397-425.
- Simonsen, H.G. & Lind, M. (2002). Past tense expression in a Norwegian man with Broca's aphasia. In: F. Windsor, M.L. Kelly & N. Hewlett (eds.), *Investigations in clinical phonetics and linguistics*. Mahwah, N.J. & London: Lawrence Erlbaum Associates, 45-56.
- Stavrakaki, S. & Kouvara, S. (2003). Functional categories in agrammatism: Evidence from Greek. *Brain and Language*, 86, 129-141.
- Wenzlaff, M. & Clahsen, H. (2004). Tense and agreement in German agrammatism. *Brain and Language*, 89, 57-68.
- Wenzlaff, M. & Clahsen, H. (2005). Finiteness and verb-second in German agrammatism. *Brain and Language*, 92, 33-44.
- Yarbay Duman, T. & Bastiaanse, R. (2009). Time reference through verb inflection in Turkish agrammatic aphasia. *Brain and Language*, 108, 30-39.
- Zagona, K. (2003). Tense & Anaphora: Is there a tense-specific theory of coreference? In: A. Barss (ed.), *Anaphora: A Reference Guide*. Malden, MA: Blackwell, 140-171.