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To cite this version:

Suzan Dilara Tokaç, Srđan Popov, Seçkin Arslan, Roelien Bastiaanse. Processing of evidentiality in Turkish: An ERP study. 19th International Science of Aphasia Conference, Sep 2018, Venice, Italy. hal-02054640

HAL Id: hal-02054640

https://hal.science/hal-02054640v1

Submitted on 11 Mar 2019

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Jaargang 23, Supplement 1, september 2018

Stem-, Spraak- en Taalpathologie

19th International Science of Aphasia Conference - Venice

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11.00 Workshops

Processing of evidentiality in Turkish: An ERP study

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Introduction

Evidentiality constitutes a grammatical category that marks information sources indicating how one has gained the knowledge regarding the event in his/her statement. That is, evidentiality signals whether a form of evidence is present for the statement uttered, through the speaker's direct personal experience (i.e. witnessing) or through an indirect information source, such as inferring or report from a third speaker. Different languages have distinct ways of expressing information sources (e.g. inflectional affixes, clitics or particles). In languages like English, evidential meanings are conveyed by the means of lexical elements, whereas in one-fourth of all the world languages, including Turkish, evidentiality is expressed as grammatical forms (Aikhenvald, 2004).

In Turkish, there are two distinct evidentiality markers inflected at the verb (suffix): the direct evidential (-DI) and the indirect evidential (–mIş), either of which is mandatorily used when referring to the past.

If one saw Sedat while he was washing the car, the direct evidential marker (-DI) is used (1).

(1). Sedat arabayı yıka**dı**.
Sedat car$_{ACC}$ wash$_{\text{direct evidential 3SG}}$
*I have witnessed myself that **Sedat washed the car**.*

If one sees Sedat next to a wet and cleaned car holding some cleaning tools or someone else said that it was Sedat who washed the car, the indirect evidential marker (–mIş) is the appropriate one to use (2).

(2). Sedat arabayı yıka**mış**.
Sedat car$_{ACC}$ wash$_{\text{indirect evidential 3SG}}$
*It has been reported to me or I infer it from the traces of the event that **Sedat washed the car**.*

Acquisition studies showed that the direct marker is acquired in natural speech slightly earlier than the indirect one. This acquisition profile suggests that children associate with the direct referential easier, as its the mental representation of a direct experience (Aksu-Koç, Ögel-Balaban, & Alp, 2009).

For agrammatic speakers, the direct evidential is more effortful and more prone to errors than the indirect evidential (Arslan, Aksu-Koç, Maviş, & Bastiaanse, 2014). The results were explained by the PAst DIscourse LInking Hypothesis (PADILIH; Bastiaanse, et al. 2011), which suggests discourse-linked elements referring to the discourse outside the sentence (that is the past time-window) requires an extra computational cost. The direct evidential requires discourse linking as it marks specific readings

(much like definite articles) while the indirect evidential lacks such a discourse linking relationship. Therefore, agrammatic speakers find the direct evidential form harder to parse (Arslan et al., 2014).

Investigation of evidentiality processing of Turkish monolingual and Turkish/German bilingual speakers in an eye-tracking experiment by Arslan, Bastiaanse, &Felser (2015) have shown that for direct evidentials Turkish speakers strongly fixated to the pictures depicting the in-progress version of an action before they turned to the target pictures (depicting the resultative state). Arslan et al. (2015) argued that Turkish native speakers are looking for an evidence to verify that action is indeed 'witnessed' (Arslan, Bastiaanse, & Felser, 2015). A timed sentence-verification task carried out with Turkish monolingual speakers has shown that native speakers of Turkish are more sensitive to violation of seen direct information when it's followed by an indirect evidential marker (Arslan, de Kok, & Bastiaanse, 2017).

Although several questions related to evidentiality have been answered, their precise neurolinguistic processing has been left unexplored. This is the topic of the current study. In order to explore the electrophysiological modulation of evidentiality in the brain, an EEG (electroencephalogram) experiment is being administered to a group of Turkish native speakers. By this it is aimed a) to investigate the moment-by-moment processing of these grammatical units and b) to understand how the brain activation affiliated with evidentiality modulated in Turkish speakers' online processing.

Methods

Participants

Thirty non-brain-damaged native speakers of Turkish, who completed their high school education in Turkey before coming to the Netherlands for a limited period of time have been recruited.

Materials

The experimental stimuli consist of 320 sentences constructed with 80 verbs that are used across four different conditions: a match between the information source (seen and heard/inferred) and the target verb that follows; and violation of the information source by presenting the mismatching evidential marker. Half of the 80 filler sentences consist of grammatical sentences referring to past and future, whereas the other half involves a tense mismatch.

Condition 1 – Seen Information – Direct Evidential

Condition 2 – Seen Information – Indirect Evidential*

Condition 3 – Heard Information – Indirect Evidential

Condition 4 – Heard Information – Direct Evidential*

The stimuli are distributed over four lists. Each participant is presented with 160 sentences; 80 target (twenty sentences per condition) and 80 filler sentences.

Evaluation of the material through an Offline-rating study

In order to understand how speakers of Turkish respond to evidentiality violations in an offline task without time constraints and to evaluate the experimental stimuli an offline sentence acceptability

judgment task has been administered to 75 Turkish speakers (35 females; mean age= 26) with via-the-web questionnaires. Analyzes have shown that the grammatical items are acceptable and that Turkish native speakers are sensitive to violation of the information source (Above 90% accuracy rate for all conditions).

Predictions & Discussion

Use of evidentiality markers in Turkish loads both morphosyntactic and semantic aspects to processing. This makes ERPs (Event Related Potentials) the most suitable way to decipher the per-millisecond time course of evidentiality processing. The distinct nature of direct and indirect evidentials is expected to evoke different brain activation. According to our hypothesis, it is expected the ungrammatical sentences elicit a P600, the component that is associated with morphosyntactic processing, accompanied by left anterior negativity (LAN). However, specifying the information source of an event also imposes pragmatic features to the sentence. Violating information sources, that is evidentiality, would be inappropriate for the semantic coherence of the context. That is why an N400 component on the verb that creates the violation is not a priori excluded.

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