

Demonstrative Pronouns as Attention Orienting Devices

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Addresses cannot attend equally well to all information presented in discourse. Speakers thus direct attention to specific information, e.g. to prominent referents and the focus of attention can be shifted from one referent to another. In German, demonstrative pronouns are an important attention orienting device. We investigate two types of German demonstrative pronouns and hypothesize that these referential forms take priority in the brain and that attentional (re-)orientation is computationally demanding. Two ERP components are relevant: The N400 – a negativity with a peak latency around 400 ms – reflects the predictability of a particular referent. The P300 – a positivity usually peaking around 300 ms after stimulus onset, but which can also appear later – reflects discourse updating costs.

German demonstrative pronouns have two functions: i) They refer to a non-prominent referent from preceding discourse. We propose that the underlying mechanism is reflected in the N400. ii) They serve to shift the focus of attention towards a less prominent referent in the upcoming discourse, thus initiating a topic shift. We suggest that this is reflected in the P300/late positivity. German has two demonstrative pronouns (*der/dieser*), but previous studies have exclusively focused on *der*. Regarding (i), both demonstrative pronouns refer back to less prominent referents but it has been argued that *dieser* prefers the last-mentioned referent [1], while *der* relies on other cues like thematic role [2]. Regarding (ii), there are conflicting accounts with respect to which demonstrative pronoun has the stronger topic shift potential [3]. In two ERP studies that differed with respect to the features of the antecedents in the context sentences, we contrasted the processing of the two demonstrative pronouns and the personal pronoun *er*. 30 participants per experiment read a context and a target sentence (containing one of the three pronouns). Stimuli were presented in segments and ERPs were time-locked to pronoun onset. *Dieser* evoked a biphasic N400 – late positivity pattern relative to the other two pronouns over all contexts. No difference was observed for *der* vs. *er*.

Crucially, the demonstrative *dieser* differs substantially from the other pronouns, revealing its important role in structuring discourse. In contrast to previous studies [2], we could not find an effect for *der*. We propose that this is due to subtle positional differences in the stimuli across experiments (i.e. presentation of the pronouns in sentence-initial or -medial position), indicating that this affects the processing of the attention orienting cues of the different demonstrative pronouns.

Regarding (i), the results show that *dieser* evokes the strongest effect of unexpectedness (N400). This may further support the claim that *dieser* is subject to a specific interpretive principle (last-mentioned preference) while the other pronouns are subject to more contextdependent interpretive strategies. Regarding (ii), the data suggest that attentional reorienting in discourse is mainly triggered by the demonstrative pronoun *dieser* (late positivity).

Our research thus indicates that *dieser* is an important attention orienting device and that the N400 and late positivity reflect the neural correlates of its attention orienting functions.

Example stimuli with varying features of the antecedent in the context sentence:

a. Subject/Agent before Object/Patient

Im Restaurant hat der Fussballspieler den Tennisspieler getroffen. Dort hat **er/der/dieser** wie immer ein Steak bestellt.

*In the restaurant has the football player_{NOM} the tennis player_{ACC} met. There has **he**PERS.PRO/he_{DEM I}/he_{DEM II} as usual ordered a steak.*

‘In the restaurant, the football player met the tennis player. There **he** ordered a steak as usual.’

b. Object/Patient before Subject/Agent

Im Restaurant hat den Tennisspieler der Fu&flballspieler getroffen. Dort hat **er/der/dieser** wie immer ein Steak bestellt.

*In the restaurant has the tennis player_{ACC} the football player_{NOM} met. There has **he**PERS.PRO/he_{DEM I}/he_{DEM II} as usual ordered a steak.*

‘In the restaurant, the football player met the tennis player. There **he** ordered a steak as usual.’

c. Object/Experiencer before Subject/Stimulus

Beim Konzert hat dem Boxer der Musiker imponiert. An diesem Tag hat **er/der/dieser** wie immer eine schwarze Hose getragen.

*At the concert has the boxer_{DAT} the musician_{NOM} impressed. On that day has **he**PERS.PRO/he_{DEM I}/he_{DEM II} black trousers worn.*

‘At the concert, the musician impressed the boxer. On that day, **he** was wearing black trousers as usual.’

d. Subject/Stimulus before Object/Experiencer

Beim Konzert hat der Musiker dem Boxer imponiert. An diesem Tag hat **er/der/dieser** wie immer eine schwarze Hose getragen.

*At the concert has the musician_{NOM} the boxer_{DAT} impressed. On that day has **he**PERS.PRO/he_{DEM I}/he_{DEM II} black trousers worn.*

‘At the concert, the musician impressed the boxer. On that day, **he** was wearing black trousers as usual.’

References:

- [1] Zifonun, Gisela, Ludger Hoffmann, Bruno Strecker & Joachim Ballweg. 1997. *Grammatik der deutschen Sprache*, Volume 1. Berlin: de Gruyter.
- [2] Schumacher, Petra B., Jana Backhaus & Manuel Dangl. 2015. Backward- and Forward-Looking Potential of Anaphors. *Frontiers in Psychology* 6, 1746.
- [3] Ahrenholz, Bernt. 2007. *Verweise mit Demonstrativa im gesprochenen Deutsch: Grammatik, Zweitspracherwerb und Deutsch als Fremdsprache*. Berlin: de Gruyter.