

Exposé Bachelor Thesis

'On the modulation of the N2pc component in a context of visual selective attention'

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Selective attention is a vital function of the mind. We are able to differentiate between information relevant to our behavior and information which is not. The necessity of this function becomes even more apparent if we consider that our processing resources are ultimately limited (Desimone & Duncan, 1995). Attentional research still aims to give a full explanation on how available resources are divided among multiple stimuli and how a subset of stimuli is chosen to be relevant in a natural context.

In the field of EEG-based research on the subject of attentional processes, researchers hope to find components that can be clearly connected with particular functions and sub-functions.

One of the components which has been examined numerously in the last 20 years is the N2pc component. It is described as a relative negativity contralateral to presented target stimuli amongst distractors in the N2 time-range (200-300ms poststimulus onset) on posterior scalp sites and has been linked with activity in both parietal and occipito-temporal areas (Hopf et al. 2000).

Luck and Hillyard reported this component in 1994 to be related to filtering relevant information out in a visual search task. Other theories occurred, connecting the N2pc mostly with either target selection (Eimer, 1996), or distractor suppression (Woodman 2009). But also an enhancement of target features is discussed to be reflected by the component (Mazza, 2009) as well as the hypothesis that distractor and target processing can be apprehended as separate mechanisms (Hickey, DiLollo & McDonald 2008).

In any case, the results observed lead to the crucial question whether visual attentional processes are primarily guided by top-down or bottom-up mechanisms (Theeuwes, 2010; Ansorge, 2011).

This thesis intends to give an account of current hypotheses existing on the mechanisms reflected by the N2pc component and a discussion of existing research results on that matter.

Methoden

Die Literatursuche für diese Arbeit erfolgt über die Internetplattformen *Pubmed* und *Web of Knowledge*, wobei die Suchbegriffe „N2pc“ und „attention“ hauptsächlich einzeln und kombiniert verwendet werden. Darüber hinaus werden viele Quellen aus den gefundenen Texten verfolgt und nach Relevanz für dieses Thema geprüft, bei den davon ausgewählten Studien werden dann wiederum wieder die Quellen durchgesehen.

Es werden nur Studien ausgewählt, die die N2pc Komponente im Kontext von visueller selektiver Aufmerksamkeit behandeln und sich auf Humandaten beziehen.

Die Studien werden chronologisch nach Publikationsjahr sortiert und organisiert und die Auswahl der Studien anhand von festen Kriterien vorgenommen. Zusätzlich zu den themengebundenen Studien wird „Grundlagenlektüre“ akquiriert, dies geschieht wieder hauptsächlich aus den häufig zitierten Quellen der relevanten Studien.

Die Inhalte der ausgewählten Studien werden erarbeitet und eine inhaltliche Gliederung vorgenommen, bevor sie in der Thesis diskutiert und reflektiert werden.

Literaturangaben

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