Prior knowledge and prior expectations give rise to a P600 response to semantically anomalous words

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**Titel**
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**Tid**

**Plats**
Rum 357, Frescati Hagväg 14, plan 3.

**Ansvarig avdelning**
Perception och psykofysik.

**Presentation/abstract**
The P600 ERP effect is often assumed to be specific to language processing and to reflect higher-level linguistic processing. However, the P600 has been suggested to be an instance of the domain-general P300 response. The P300 is engendered by subjectively salient stimuli that are perceived as important for the experimental task. As with the P300, the P600 is sensitive to probability of occurrence, task relevance, it is engendered for dichotomously categorized stimuli (e.g., grammatical or not), and it is response time locked rather than stimulus time locked.

In this talk, I will present an exploratory study that tests this idea further by investigating how the participants’ prior knowledge and prior expectations about the experiment influences the ERP response to semantic anomalies. Two groups read semantically anomalous and semantically normal sentences. In the informed group, participants were well familiar with the experiment and the stimuli. In the naive group, participants had no prior knowledge about the experiment. Semantically anomalous words engendered an N400 effect in both groups. In the informed group, this N400 was attenuated, and was followed by a late positive effect identical to the P600. Single trial analyses were used to investigate mean amplitude changes over the course of the experiment. In the naive group, there was a reliable amplitude decrease in response to semantically normal words in the N400 time window, and a reliable increase in the response to semantic anomalies in the P600 time window.

These results show that P600 is thus dependent on participants’ prior knowledge and expectations about the experiment. They also indicate that naive participants can gradually form expectations about the stimulus material and its relevance for the experimental task, as indexed by the increase in P600 amplitude over the course of the experiment. These findings speak in favor of the idea that the P600 is a manifestation of the domain-general P300 effect and that it is related to participants’ response to expected stimuli.

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