In a number of experiments, emotional pictures elicited a frontal positive slow wave in the event-related potential (ERP). This slow wave was initially interpreted as an index of affective information processing, but one experiment showed that this component was also elicited by emotional neutral pictures in a cognitive processing task. The aim of the present work was to reanalyze the functional significance of this slow wave.

A first section of this work presents a theoretical examination of visual perception with a focus on the visual pathways and the control of eye movements by the brain. This section is supplemented by an overview of the principals of ERP methodology and a review of methods to correct ocular artifacts in the EPR.

A second section describes two experiments. The aim of the first experiment was to examine the hypothesis that the frontal positive slow wave is an artifact of eye movements due to the presentation of visual stimuli. This hypothesis was examined with a paradigm that facilitates a systematic variation of eye movements by the visual presentation of matrices. The aim of the second experiment was to examine the hypothesis that a mere perceptual analysis of pictures does not elicit the frontal positive slow wave, but that a content analysis of the pictures is required to elicit this component. This hypothesis was investigates by a variation of content processing demands while the pictures were presented. The results of both experiments confirmed the main hypotheses.