

# VISUOSPATIAL DISTRIBUTION OF ENDOGENOUS ATTENTION

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## INTRODUCTION

Visual stimulation has been employed for decades to investigate the neural substrates of attention<sup>1,2</sup>. Stimuli are commonly located in a region of the space where participants are asked to pay attention. The spatial location of stimuli in the visual field is known to influence perception, as indicated by behavioral as well as visual event-related potential (ERP) studies<sup>3</sup>. However, the influence of stimuli location on visuospatial attention has not been systematically investigated.

Consequently, the purpose of this study was to perform a detailed retinotopic mapping of the modulation of visual ERPs by endogenous attention.

## Participants

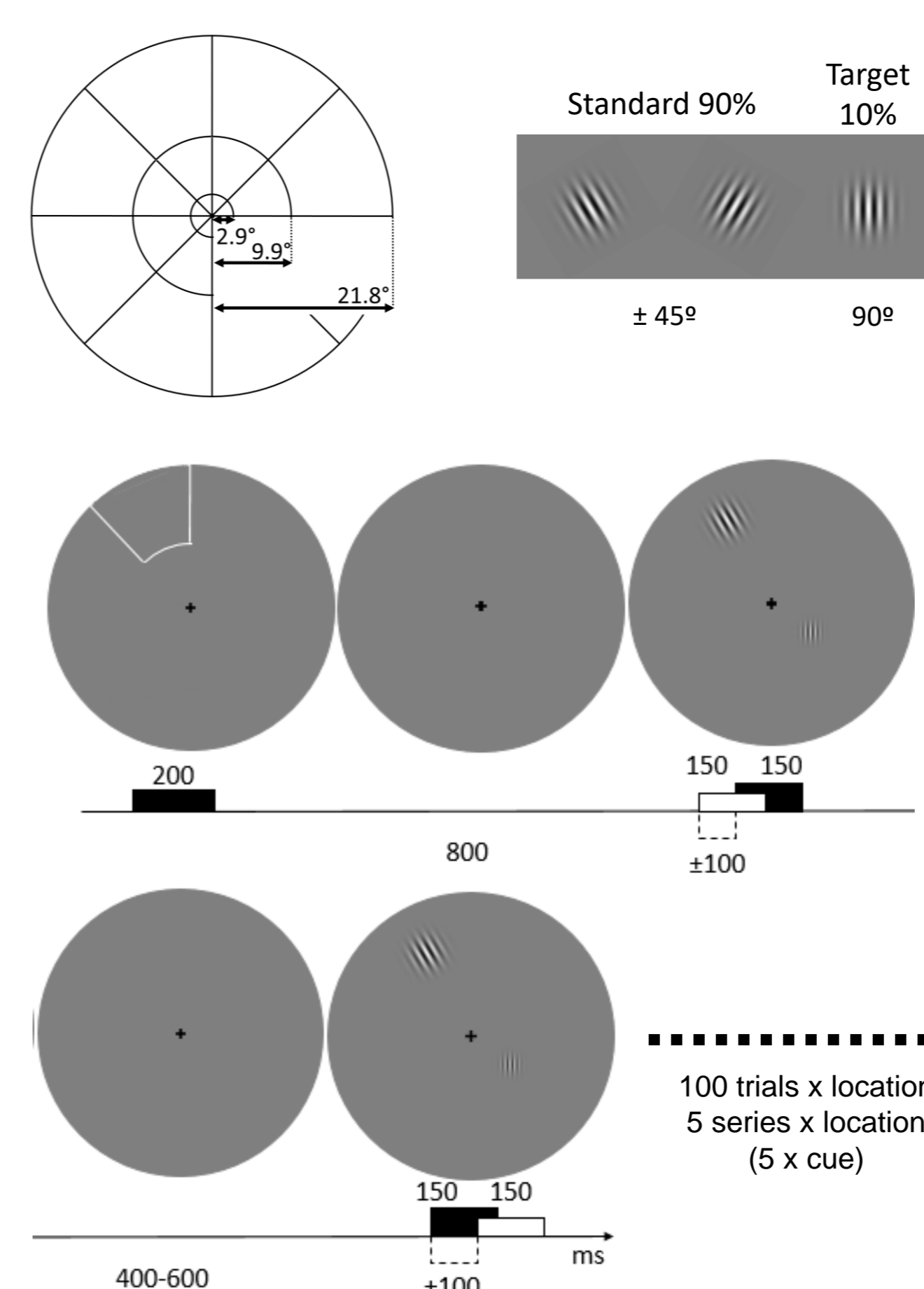
24 graduate students from Autonomia University (5 males; edad  $22 \pm 7.2$  años) voluntarily took part in the experiment. All of them had normal or corrected-to-normal visual acuity.

## EEG Recording

128 electrodes (10/20 system).  
Reference: average.  
EOG-V y EOG-H.  
Sampling rate: 1024 Hz.

## METHOD

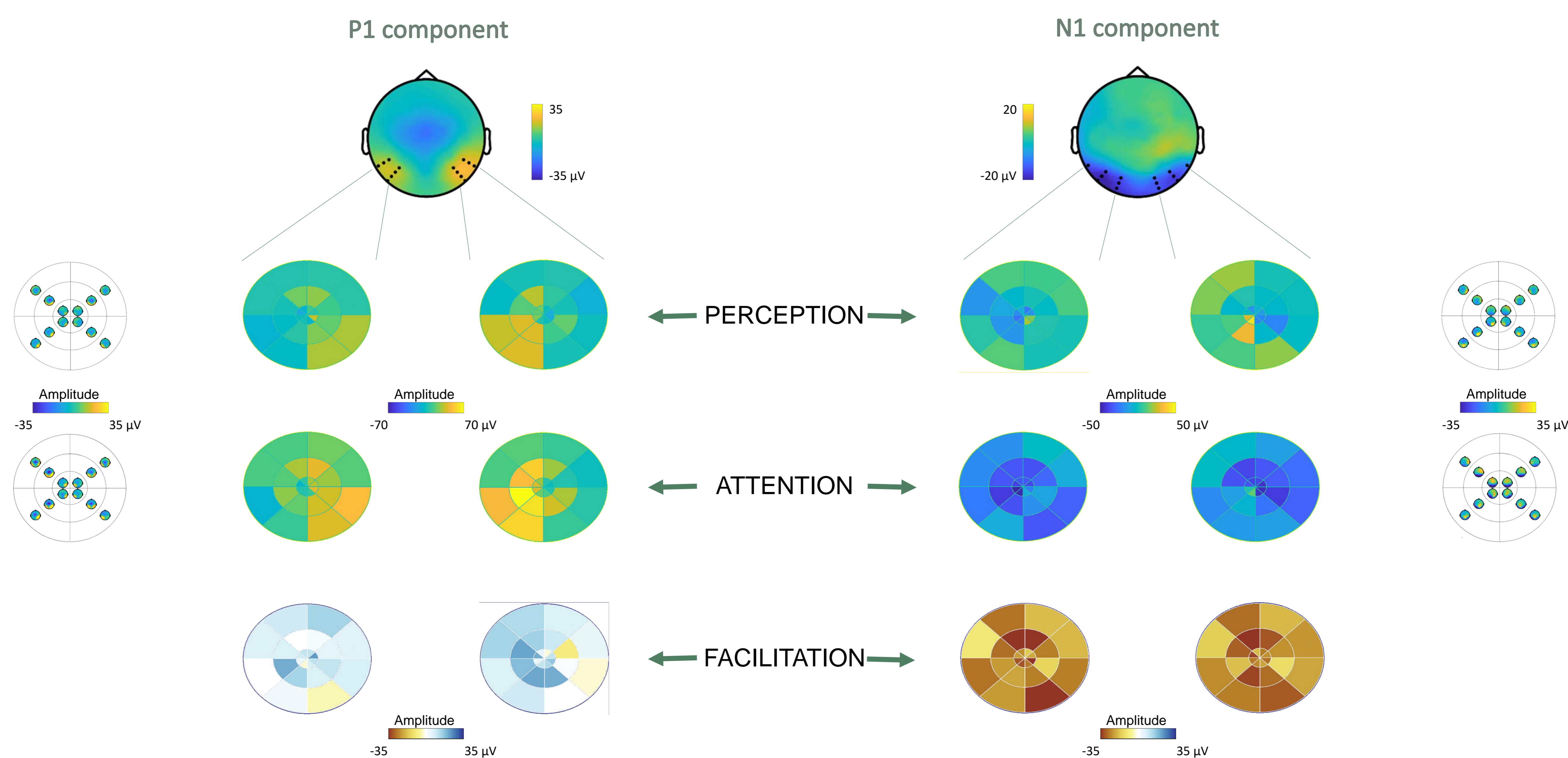
### Stimulation



### EEG Analysis

- **Preprocessing:** a low-pass filter (40 Hz) was applied, to remove epochs with artifacts a visual inspection was conducted and 100 ms pre-stimulus was used for baseline correction.
- **Spatial Independent Component Analysis (sICA)** was applied over participant x location x condition average.
- **Retinotopic distribution:** representation of the average of highest amplitude electrodes for P1 and N1 for each location of the visual field. Facilitation was calculated as (attention - perception amplitude). Twelve main sectors topographies were obtained.

## RESULTS



## CONCLUSION

Results showed a specific distribution of endogenous attention as a function of polar angle and eccentricity that must be taken into account when presenting visual stimulation depending on the component of interest. Behavioural data will be necessary to fully understand the effect of the stimulus location on the visual field.

## REFERENCES

- <sup>1</sup>Di Russo, F. et al. (2012) Spatiotemporal brain mapping of spatial attention effects on pattern-reversal ERPs. *Hum Brain Mapp*
- <sup>2</sup>Luck, S.J., Woodman, G.F. & Vogel, E.K. (2000) Event-related potential studies of attention. *Trends Cogn Sci* 4, 432-440.
- <sup>3</sup>Capilla, A., Melcón, M., Kessel, D., Calderón, R., Pazo-Álvarez, P., & Carretié, L. (2016). Retinotopic mapping of visual event-related potentials. *Biological psychology*, 118, 114-125.