How do enhancement and suppression shape selective attention?

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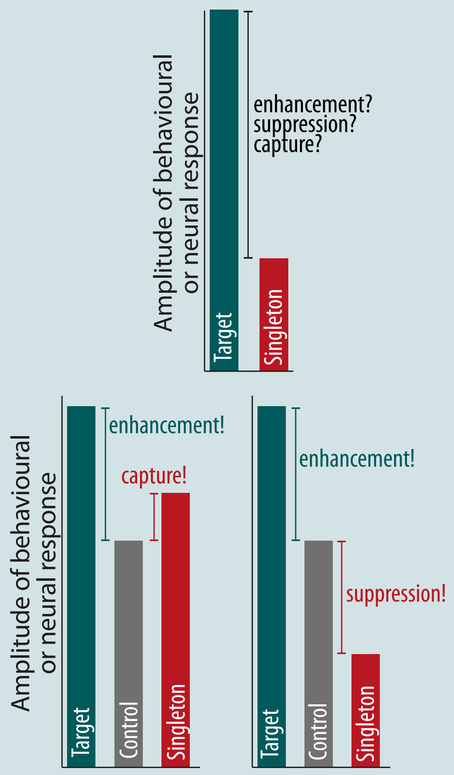
Background

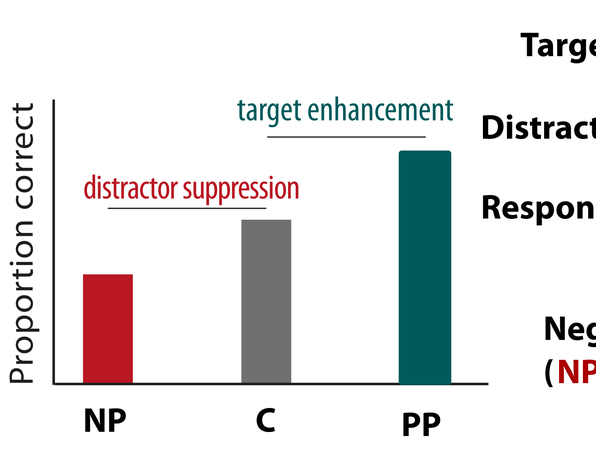
Human environments consist of relevant targets and irrelevant distractors. In auditory attention research, the understanding of capture and suppression is premature, partly because target and distractor effects are often confounded[1].

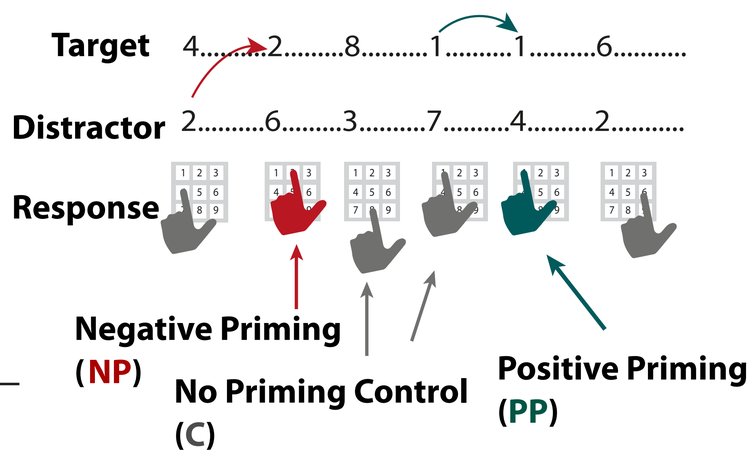
Research goal: We introduce a baseline and directly compare neural and behavioral responses between neutral versus task-irrelevant and target sounds, inferring mechanisms of target **enhancement**, distractor **suppression** and **capture**.



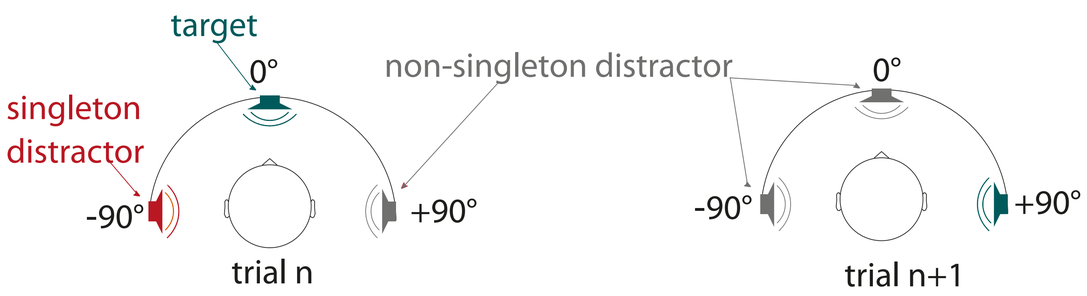
Concepts

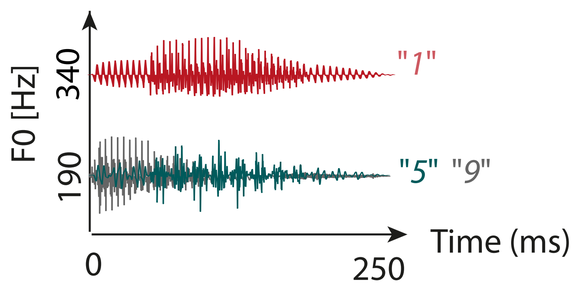
Priming refers to the change in the ability to identify an object as a result of a prior encounter with the same object[2]. This prior encounter can either facilitate (**positive priming**) or inhibit (**negative priming**) the subsequent processing of the object.

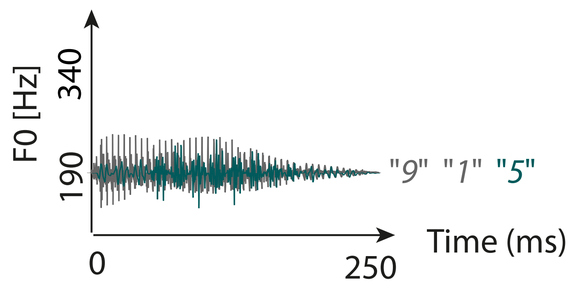




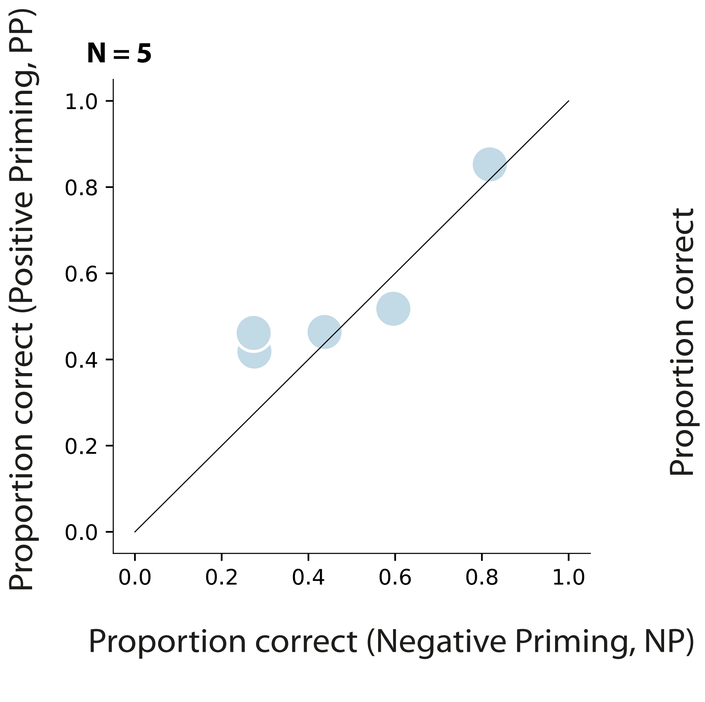
Experimental paradigm

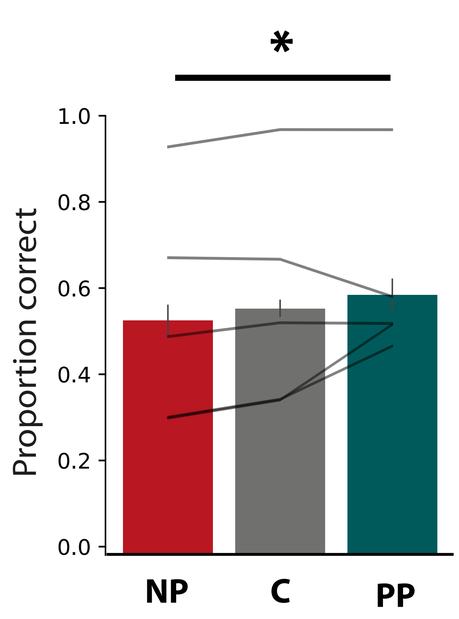




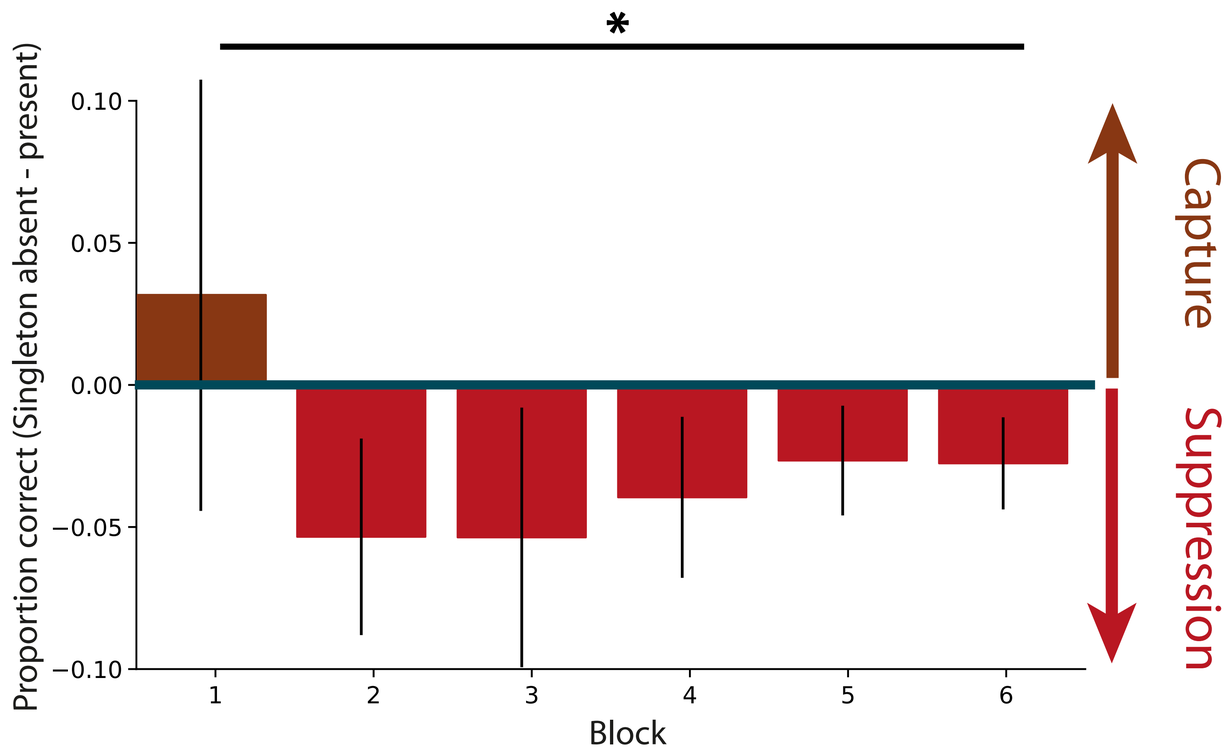


Priming influences response accuracy

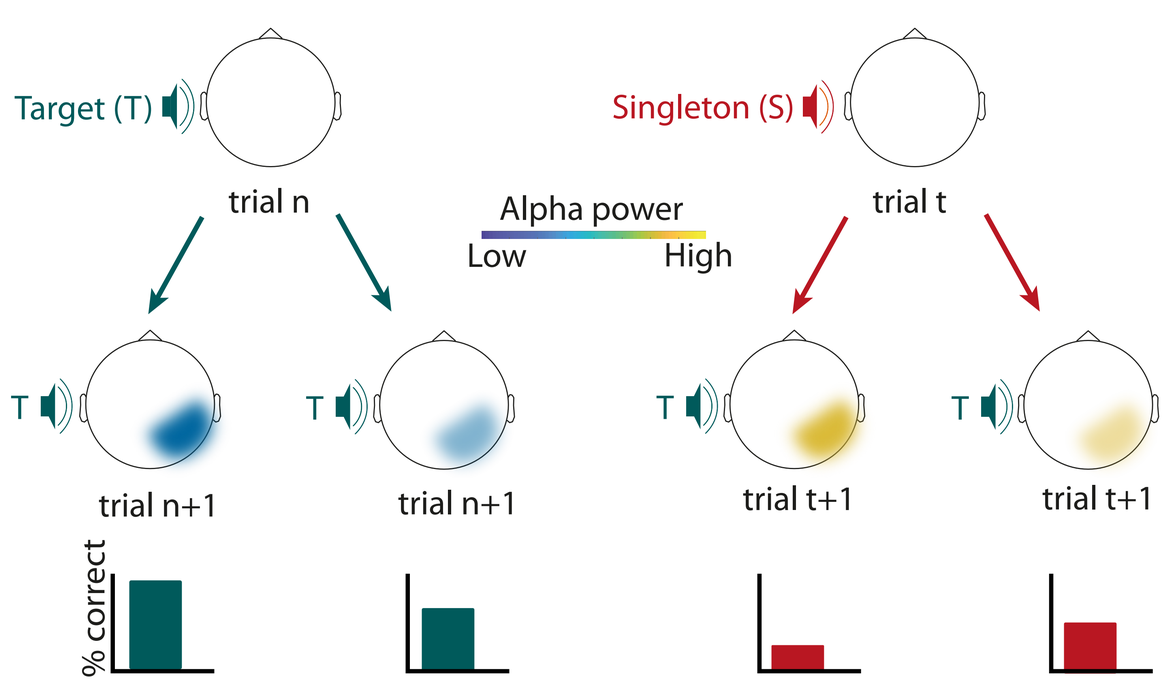




Distractor suppression develops over time



Outlook - EEG Hypotheses



Discussion

1. Our novel paradigm allows to successfully delineate target enhancement from distractor suppression[3]

2. The singleton initially captures attention but is suppressed after repeated exposure[4]

3. Response accuracy in priming conditions is hypothesized to relate to alpha power modulation[5]

References

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