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Influence of pupil size on reaction time in the gaze-cueing paradigm

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Reconstructing and tracking the attention is of great importance to theory of mind [1]. Focus of attention largely determines the content of mind of an individual at any given moment [1]. Most of previous works emphasize the role of gaze as a lot of information about mental states could be conveyed through the eye gaze and people are acutely attuned to receiving such signals [2]. Gaze direction is a significant cue to the attention of an individual, however, not an exhaustive one. An individual might look at an object and then attend to something else entirely (think about another object, concentrate on sounds around). That is why the process of modeling someone else's attention is deeper than simply tracking an eye gaze [1]. It also takes into account various cues: context [3], facial expression [4], body language, saliency, type of attention [5] and even "meaningfulness" of the cue [6].

Dilated pupils signal engagement and attention [7]. Recent study by Colombatto & Scholl revealed that faces with dilated pupils break into visual awareness faster than faces with constricted pupils [8]. Even subtle cues seemed to be salient enough as they were serving a proxy for someone else's attention.

To my knowledge, there was no study manipulating pupil size in the gaze-cueing paradigm. I hypothesize that reaction-time in response to faces with larger pupils will be shorter than reaction-time in response to faces with narrower pupils in the gaze-cueing paradigm employed with target localization task. Faces will be faces of actors taken from an open database.

Findings on dilated pupils promoting attraction are quite controversial [8] so it does not present a confound, however, I would control for it by offering participants to judge attractiveness of actors' faces and also choosing faces that are judged as similar on the attractiveness scale by another group of participants.

References

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