13th May 2021

SUMMARY

Hypothesis 1:

- Question: Is there a fundamental difference in how participants visually explored the cue stimulus, in terms of fixations, depending on whether there was high or low perceptual noise?
- Theory: If there cue has a high perceptual noise/uncertainty, there will be a higher degree of stimulus exploration and scanning. This is because the participant scans to get more information so the heat map will have a bigger radius.
- Method: We measure exploration/scanning by heat map radius (bigger radius = more exploration/scanning). This can be plotted against perceptual noise.
- What we have done: So far we have plotted one game for one participant

Hypothesis 2:

- Question: Is there a difference in how participant visually explored the cue stimulus, in terms of velocity of saccades, depending on whether there was high or low perceptual noise?
- Theory: Faster saccades indicate more exploration?
- Method: Plot velocity of saccades against noise.
- What we have done:

Hypothesis 3:

- Question: Does perceptual noise influence inattention to the perceptual cue?
- Theory: If the eye fixation has 'drifted' from the assigned fixation point, then there is a reduced level of attention.
- Method: Measuring the difference between fixation point centre and the centre of the heat map. We can plot stimulus noise (x) against distance from the centre (y)
- What we have done: a scatter plot for gaze speed vs perceptual noise for one participant

?Hypothesis 4: Learning – gaze spread and reaction time could indicate whether the participant is still exploring/whether they have learnt.

Summary of experiment: (Important for methods section)

- 35 Participants played 18 trials per 16 'games' on a computer in which they had to make a decision as to which option would yield the most valuable outcome
- First, a visual cue was presented which indicated which 'box' a participant had to choose from
- In each box there was a variable and a reliable button (labelled 'V' and 'R')
  Boxes change position (horizontal/verticle) between trials so that the participant doesn't get confused and think they are using the same categories as the previous trial.