Introduction:

- The internal representation of visual stimuli is imperfect and subject to biases.
- Under a Bayesian framework, bias is expected to be greatest when representation precision is poor.
- Here, we investigate the relationship between precision and bias across: Subjects, Time, Stimuli.

Methods:

- 400 participants recruited from Amazon Mechanical Turk.
- Stimuli were COLORS or FACES drawn from a circular distribution.
- Participants completed two Dataset 1 or six Dataset 2 blocks of 30 trials each.
- Each trial consisted of 5s of adaptation, followed by a 100ms mask and a 100ms target.
- Responses were entered using a color/face wheel.
- Experiments were conducted online:
  - http://cfn.upenn.edu/iadapt
  - 400 participants recruited from Amazon Mechanical Turk.
  - Stimuli were COLORS or FACES drawn from a circular distribution.
  - Participants completed 2 Dataset 1 or 6 Dataset 2 blocks of 30 trials each.
  - Each trial consisted of 5s of adaptation, followed by a 100ms mask and a 100ms target.
  - Responses were entered using a color/face wheel.

Trial structure:

- 5s adaptation
- 100ms mask
- 100ms target
- wait for click
- response

Results:

Dataset 1 [n=202 observers]

Is precision a stable property of the observer?

What is the relationship between representation precision and adaptation bias?

Representation precision is negatively correlated with adaptation bias.

Is individual variation in bias and precision stimulus specific?

Variance is shared between stimulus category.

Conclusions:

- Precision of perceptual representations negatively predicts the magnitude of adaptation bias.
- Under a Bayesian framework, this corresponds to a PRIOR TO DIFFERENT STIMULI.

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