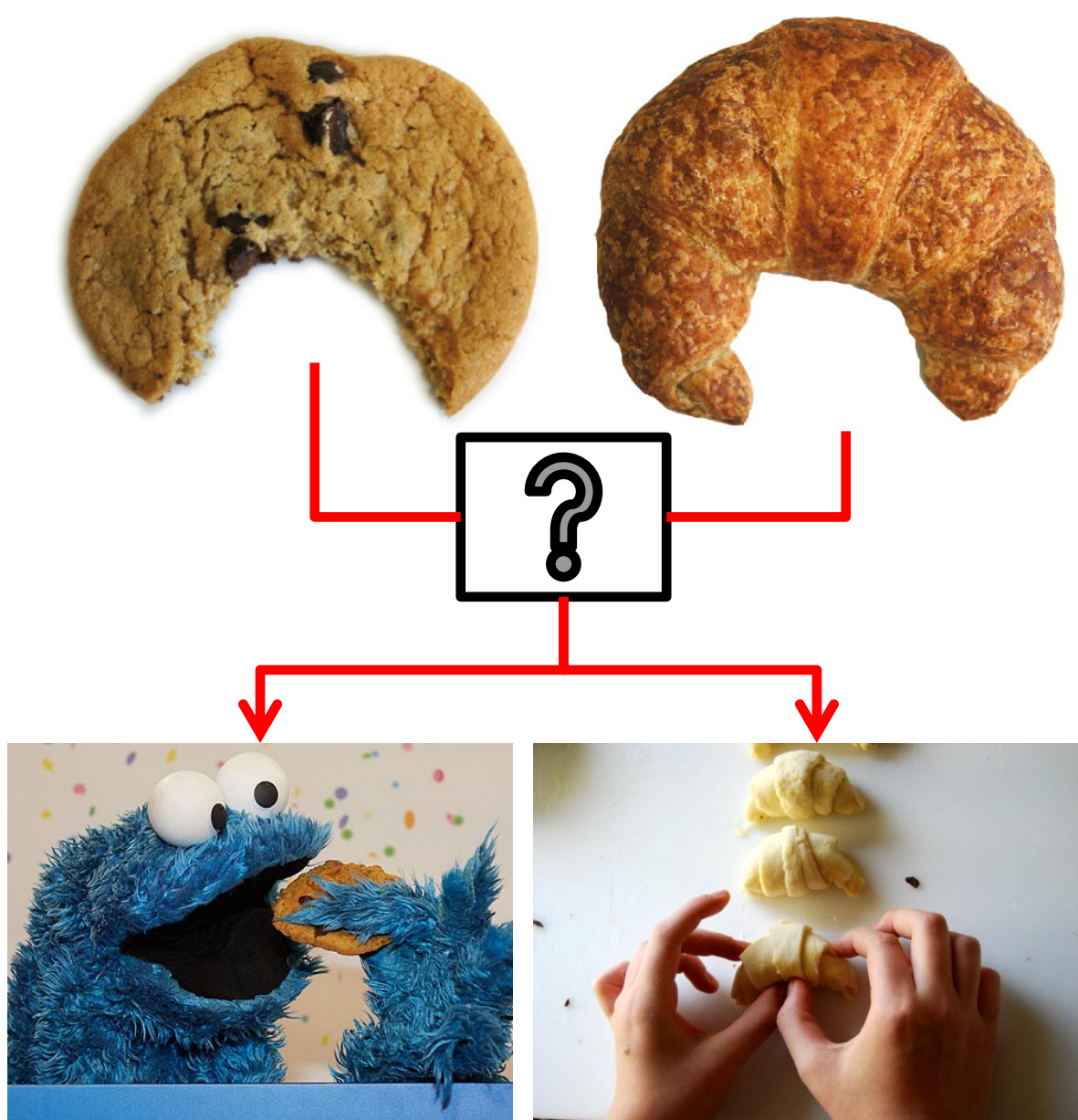


# Bites & bends: Interpreting the visual meaning of concavities

Patrick Spröte & Roland W. Fleming

## Background

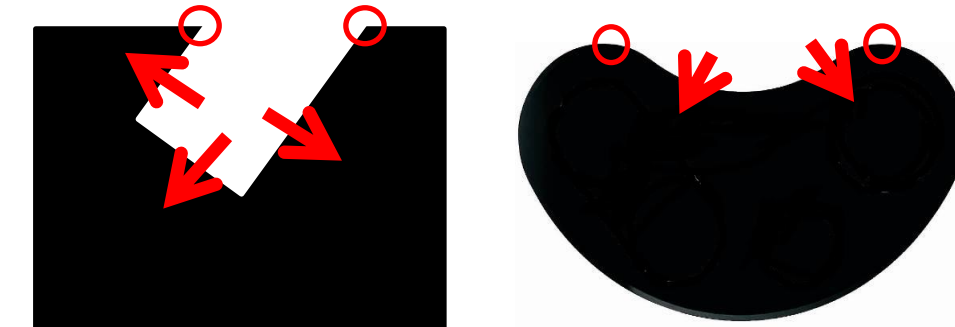
### Perceived causality



### Negative parts



### Relatability

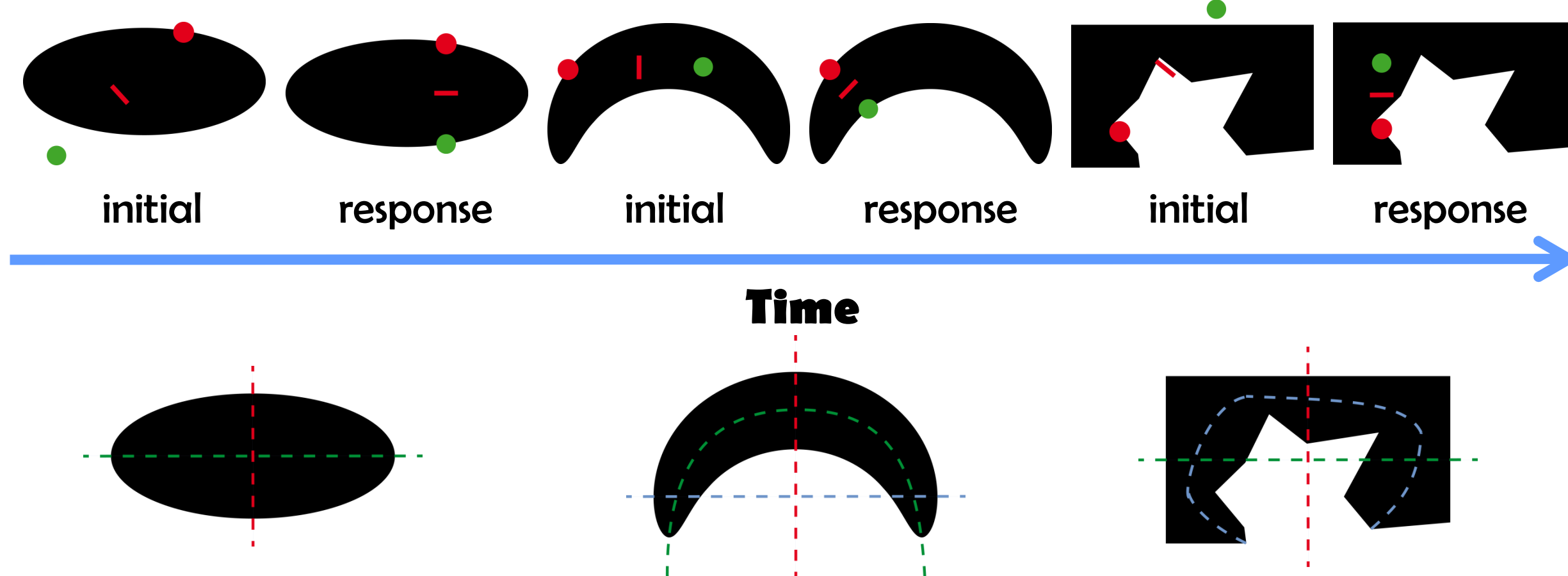


## Dot task

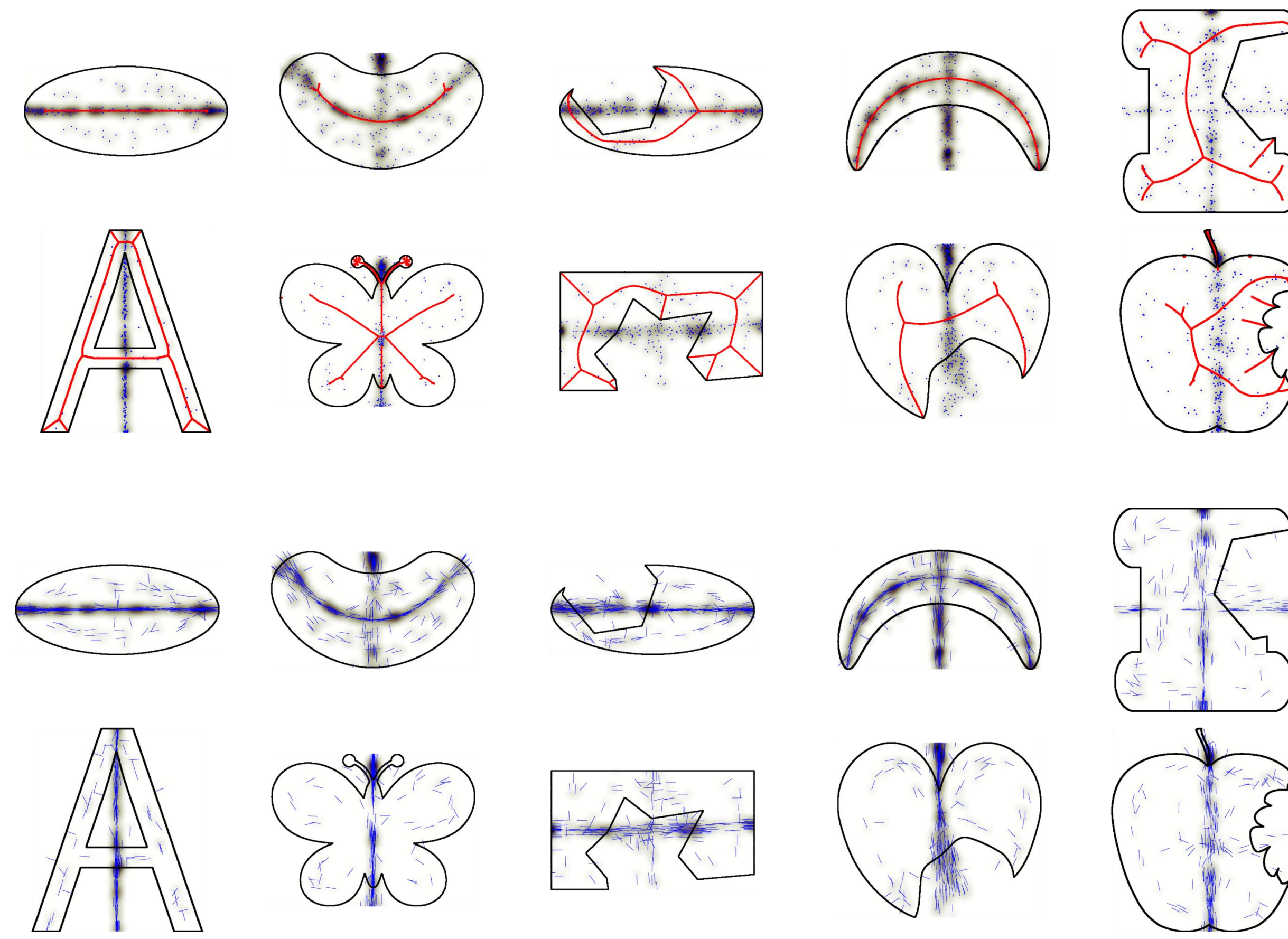
**Question:** How does the interpretation of negative parts influence perceived symmetry of shapes?

**Stimuli:** Different shapes with a red dot at a random location on their outline

**Task:** Indicate with the green dot the location that is symmetric to the red dot along the shapes primary symmetry axis



## Results (dot task)



## Conclusion (Dot task)

- Subjects can extract symmetry axes from arbitrary shapes (e.g. incomplete).**
- Inferred symmetry axes are in line with shape interpretation based on relatability (perceptual completion)**

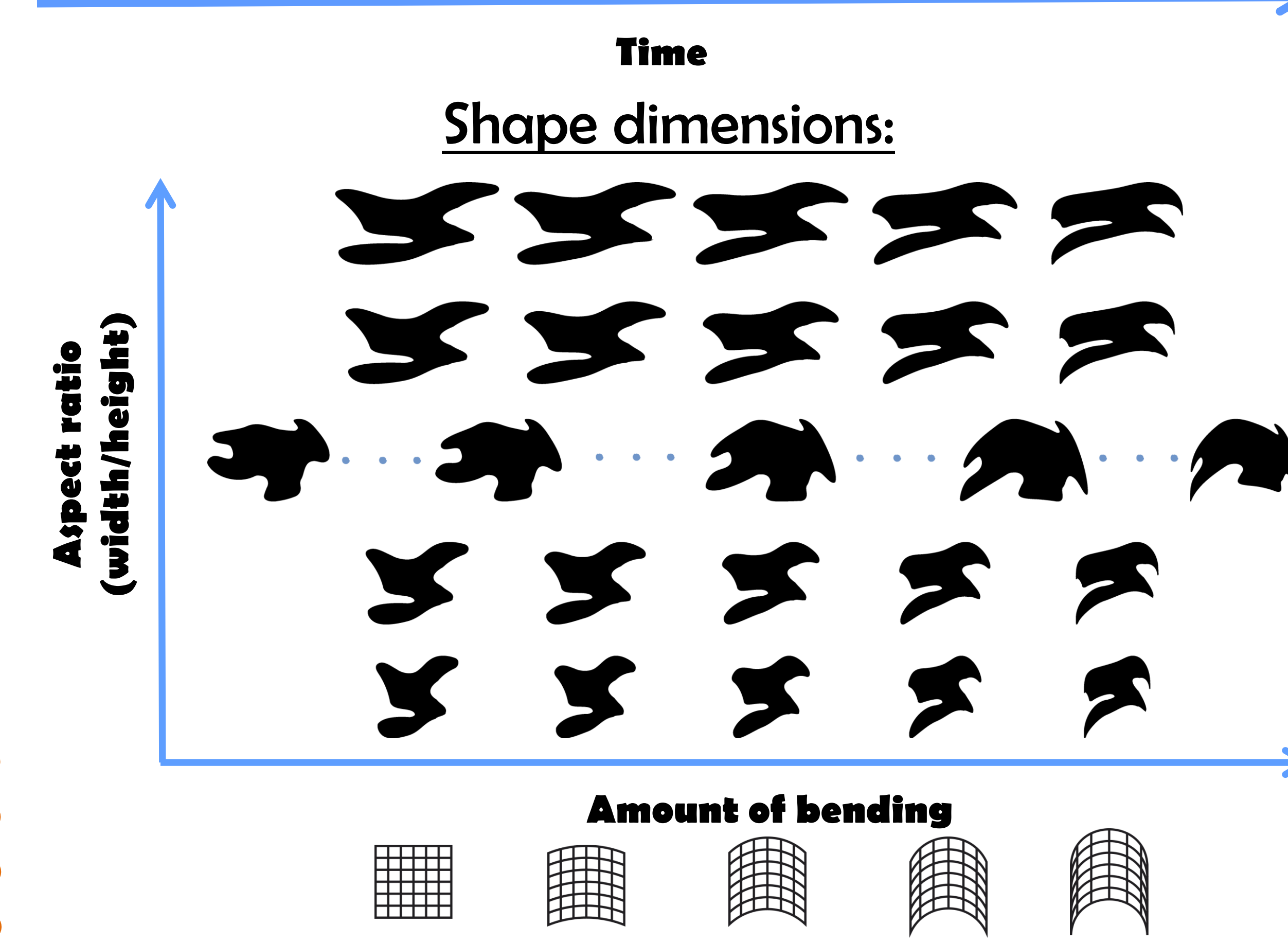
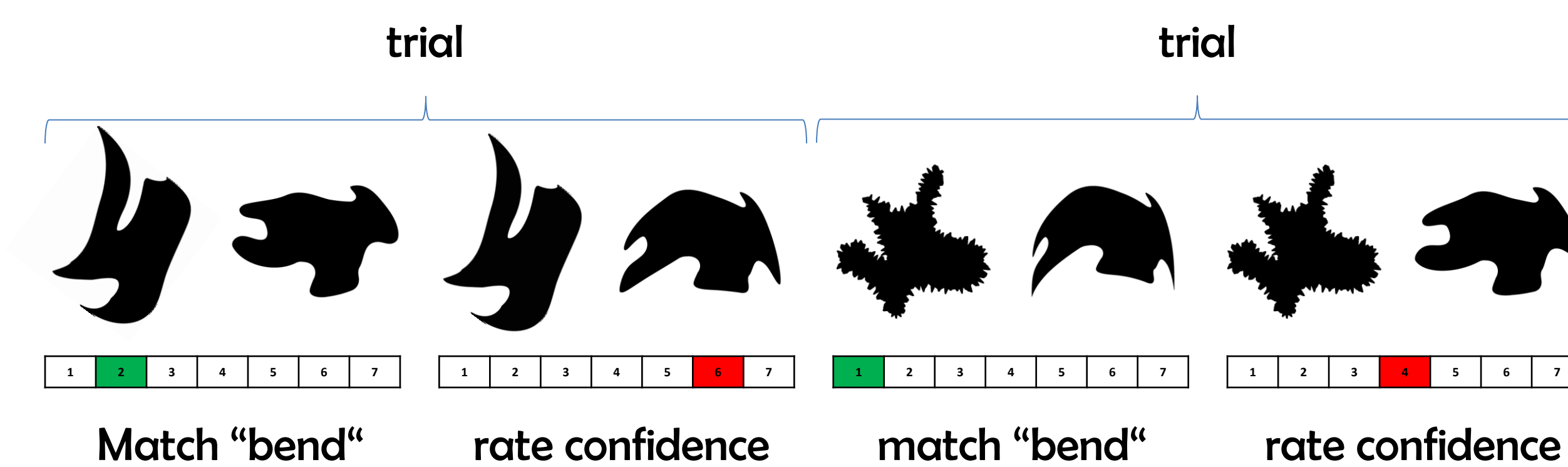
- Subjects perceive symmetry axes as bent in bent shapes.
- In 'bitten' shapes subjects perceive symmetry as they would in the completed versions of the same shapes.

## Asymmetric Matching Task

**Question:** Can subjects perceive shape transformation and apply them to different shapes?

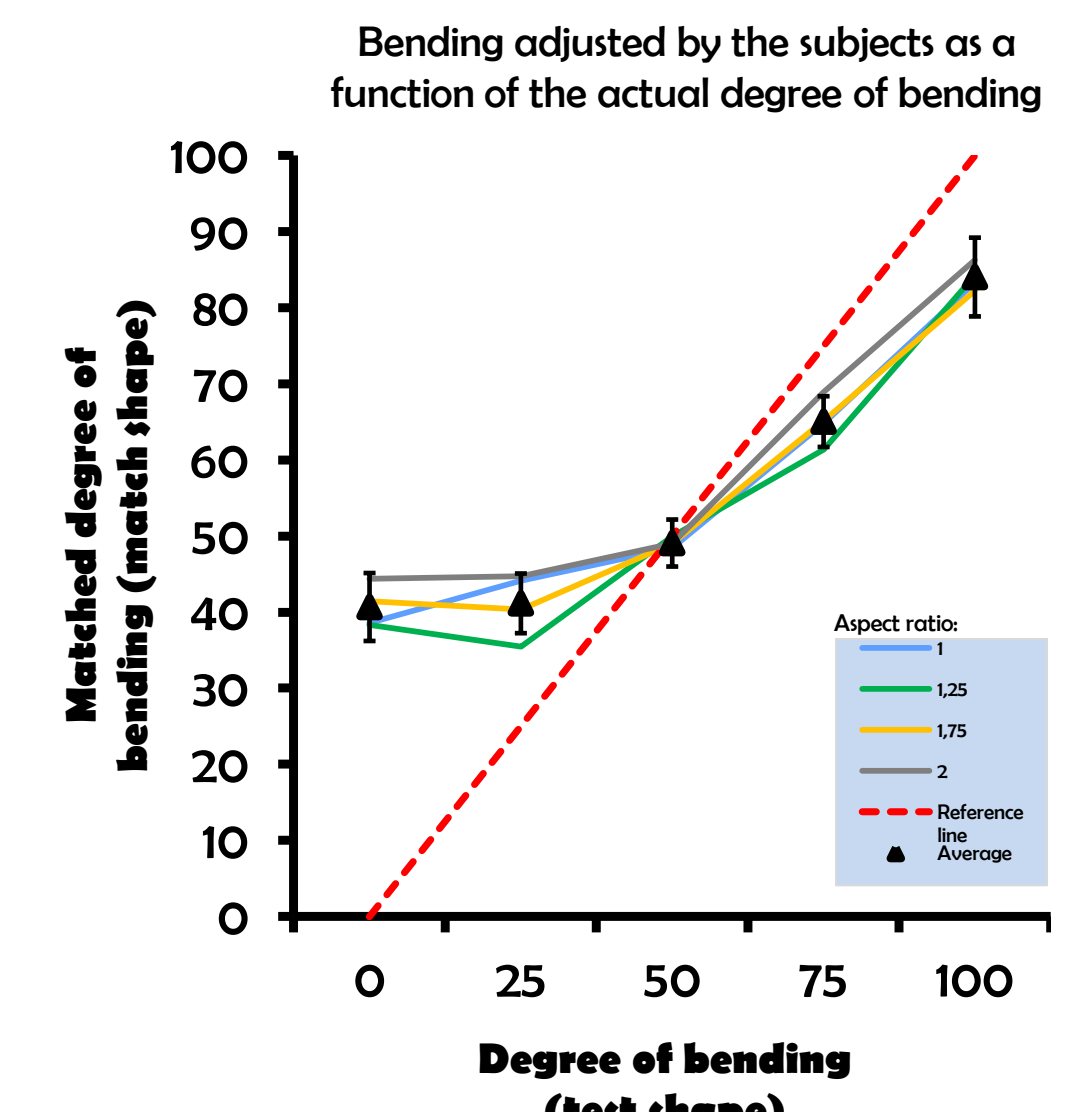
**Shapes:** Differed in aspect ratio, Degree of bending, Orientation

**Task:** Make the match shape as "bent" as the test shape (while ignoring any other difference in shape) & rate your confidence:

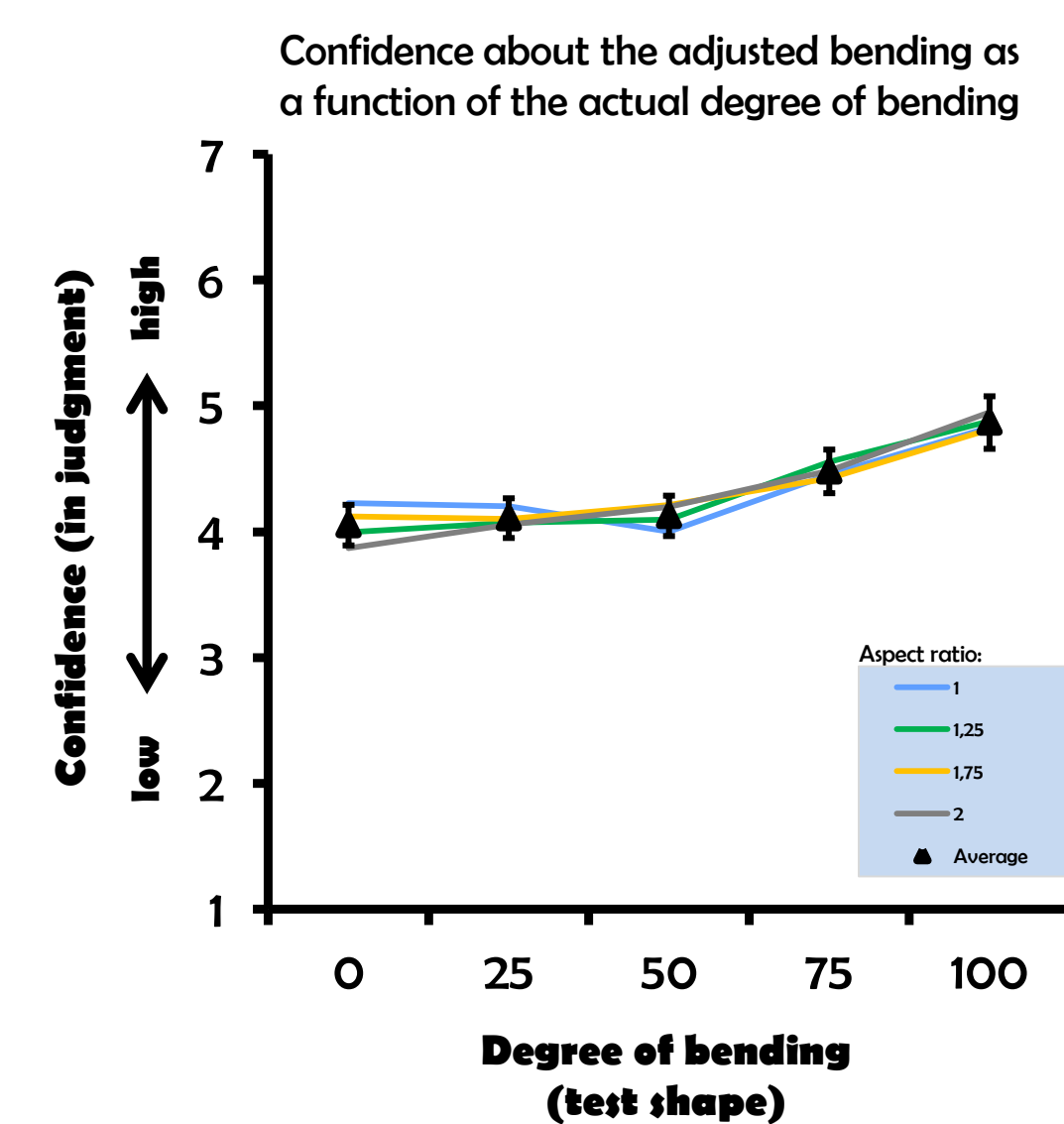


## Results (Matching task)

### Subjects extract transformations



### Higher bending = higher confidence



## Conclusion (Matching task)

**Subjects can extract information about certain transformations applied to shapes (while ignoring other differences)**

## Discussion

