



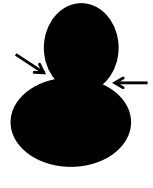
"To bite, or not to bite": Perceived causality in the perception of negative parts



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Background

Decomposition

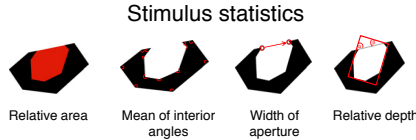
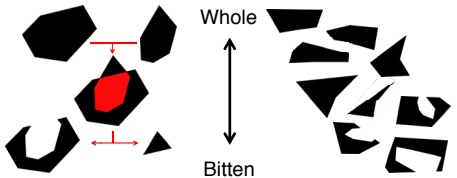


Negative Parts



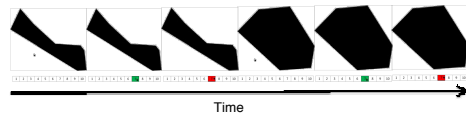
Stimuli: "Hexagon world"

Stimuli were created from convex, irregular hexagons. From half of the stimuli, a portion of the shape was deleted by random intersection with another hexagon and removing the region of overlap.

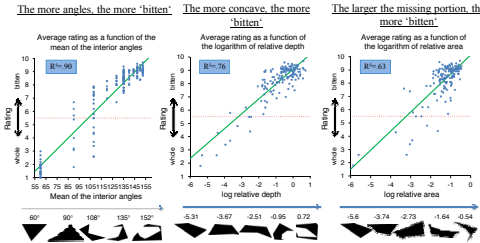
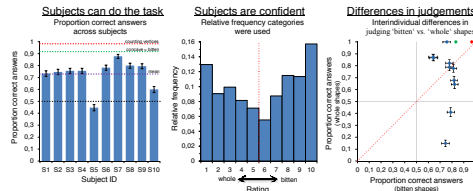


Task

We presented different shapes in different sizes and orientations. Subjects indicated with a cursor on a 10-point scale the extent to which each object appeared to them to be 'bitten'.



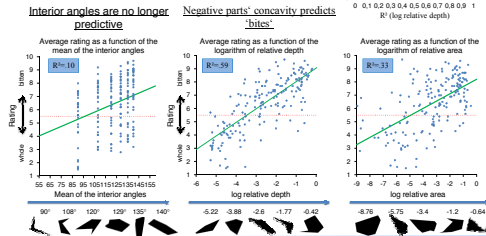
Results (Experiment 1)



Results (Experiment 2)

The investigated shape properties in Experiment 1 were highly inter-correlated. Therefore we conducted a second Experiment with a set of stimuli for which, by design, the correlation between "mean of interior angles" & "relative depth" was kept near zero.

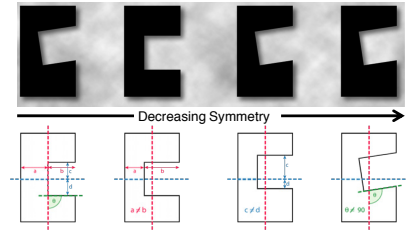
Mean of interior angles loses predictive power when uncorrelated with relative depth. R^2 (mean interior angles) as a function of R^2 (log relative depth).



Discussion

Our data suggest that subjects are good at inferring the causal history of unfamiliar 'bitten' 2D shapes. On a between subject basis the relative depth of a negative part & its relative area are good predictor of the subjects' judgements.

Genericity



Relation to figure/ground



Reliability

