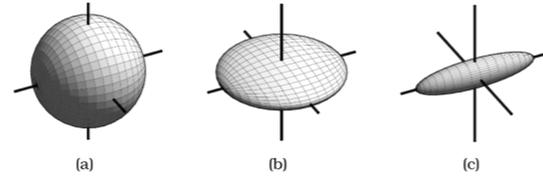


The Influence of Contour on Similarity Perception of Star Glyphs

Johanna Fuchs, Petra Isenberg, Anastasia Bezerianos, Fabian Fischer, and Enrico Bertini

present by Kailun Zhang

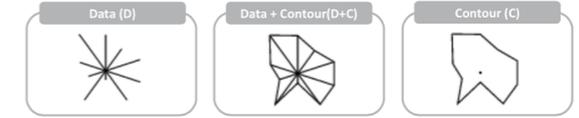
What is a glyph?



Star Glyph



Primary Motivation

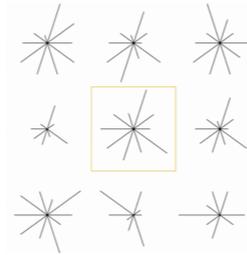


Experiment 1 - Research Question

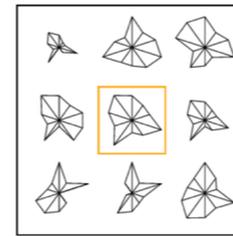
- Does contour affect people's perception of data similarity with star glyphs?

Experiment 1 - Definition

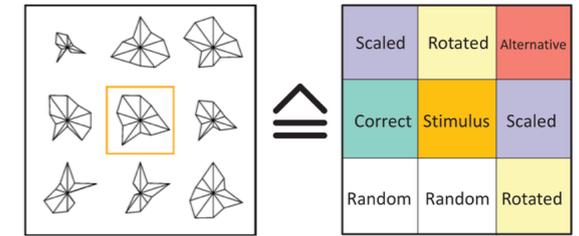
- data similarity
 - d1 = {5,8,4} & d2 = {4,9,4}
 - d1 = {5,8,4} & d3 = {5,3,1}



Experiment 1 - Task Setup



Experiment 1 - Task Setup



Experiment 1 - Experiment Design

- factor 1 - contour variations (D,D+C,C)



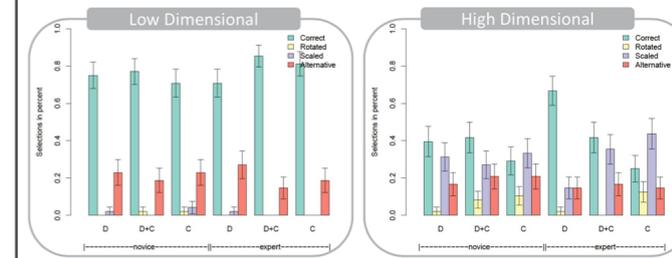
Experiment 1 - Experiment Design

- factor 1 - contour variations (D,D+C,C)
- factor 2 - dimensionalities (high, low)

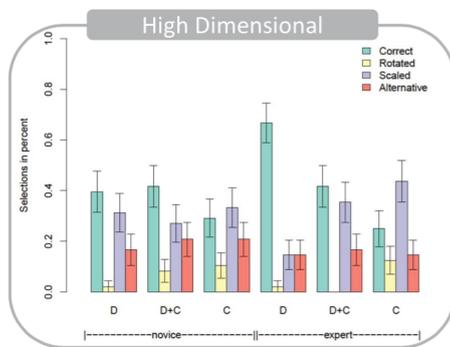
Experiment 1 - Experiment Design

- factor 1 - contour variations (D,D+C,C)
- factor 2 - dimensionalities (high, low)
- factor 3 - expertise (novice user, expert user)

Experiment 1 - Result



Experiment 1 - Result

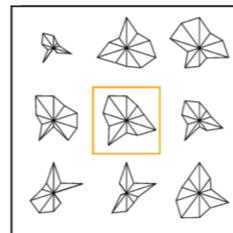


Experiment 1 - Discussion

- the negative effect of contour



- Judging shape rather than data similarity

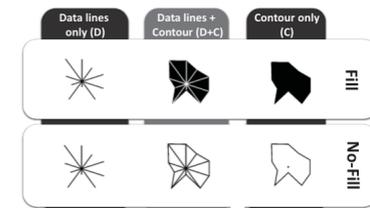


Experiment 2 - Question

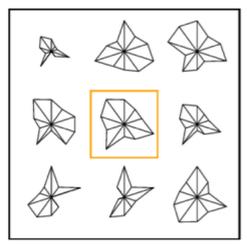
- If viewers do not know which similarity they are looking for, will they go with shape similarity or data similarity?

Experiment 2 - Experiment Design

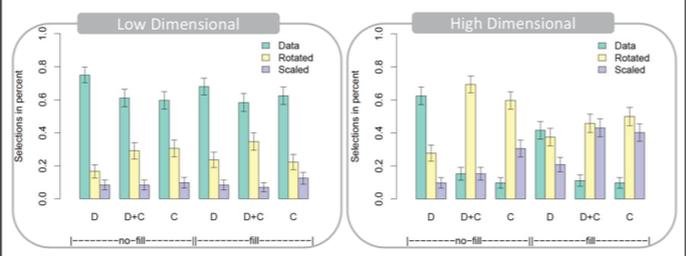
- factor 1 - contour variations (D,D+C,C)
- factor 2 - dimensionalities (high, low)
- factor 3 - filling types (Fill, No-Fill)



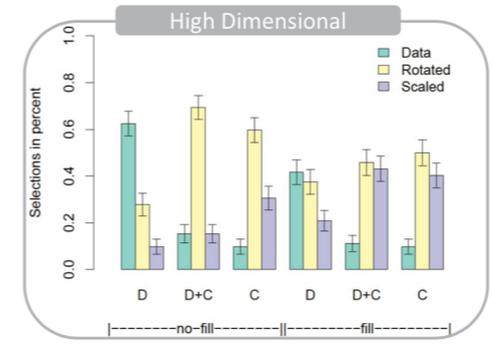
Experiment 2 - Task Setup



Experiment 2 - Result



Experiment 2 - Result



Experiment 2 - Discussion

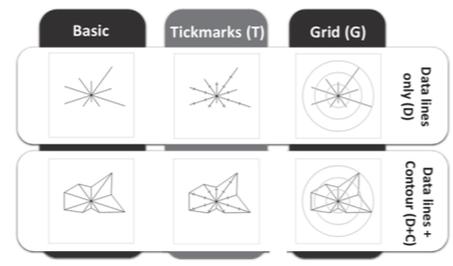
- Natural tendency of people to judge glyphs
 - low-dimension: "data-centric"
 - high-dimension + D: "data-centric"
 - high-dimension + C (+ D) : "shape-centric"

Experiment 3 - Research Question

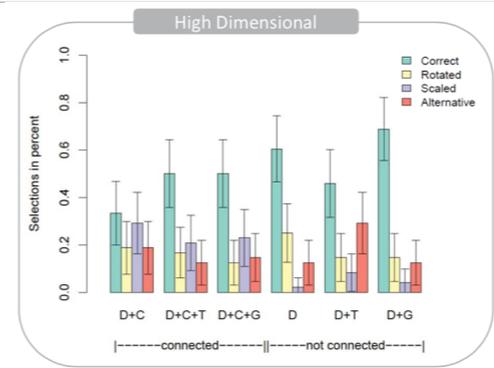
- Can we improve accuracy of data similarity by adding reference structures?

Experiment 3 - Experiment Design

- factor 1 - contour variations (D,D+C)
- factor 2 - improvements (basic, T, G)



Experiment 3 - Result & Discussion



Experiment 3 - Result & Discussion

- Strongly preferred
 - D+C
 - D+C+G
- Hardest to use
 - D

Critics

- Methodology-wise
 - Participant group
 - Order effect of conditions
- Content-wise
 - Generalizability to other glyphs?
 - Cut-off point in dimensionality

