Visualizing Relationships

What do we already know

We can create representations of data on a screen or paper and encode its attributes with things like shape, color, size, position…

What we're going to look at

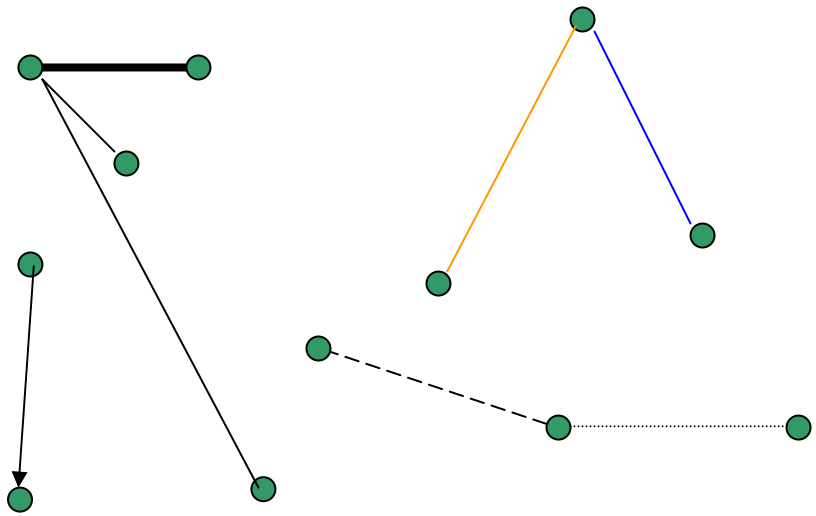
We can also create representations of relationships and encode them with things like shape, color, size, position…

Types of relationships

Similarity
Proximity
Dependence/hierarchy
Common membership
Causality
physical/tangible links

Neither an exhaustive nor definitive list

Encoding



Effectiveness of encoding:

convention and perception

Colin Ware (Information Visualization: perception for design)

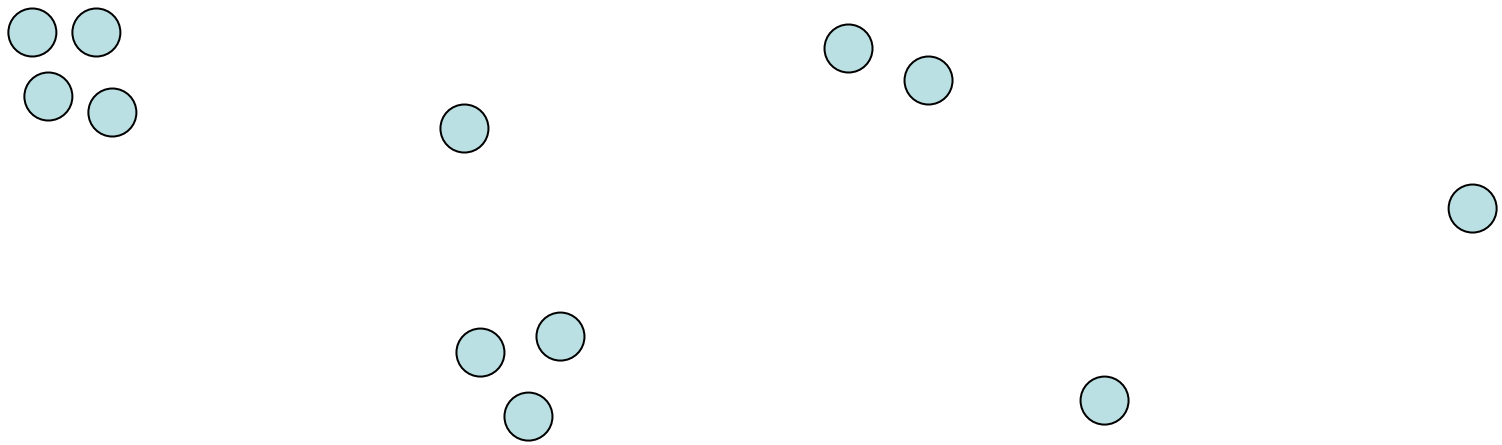
“Diagrams are always hybrids of the conventional and the perceptual...

Diagrams contain conventional elements, such as abstract labeling codes, that are difficult to learn but formally powerful.

They also contain information that is coded according to perceptual rules, such as Gestalt principles…a good diagram takes advantage of basic perceptual mechanisms that have evolved to perceive structure in the environment.”

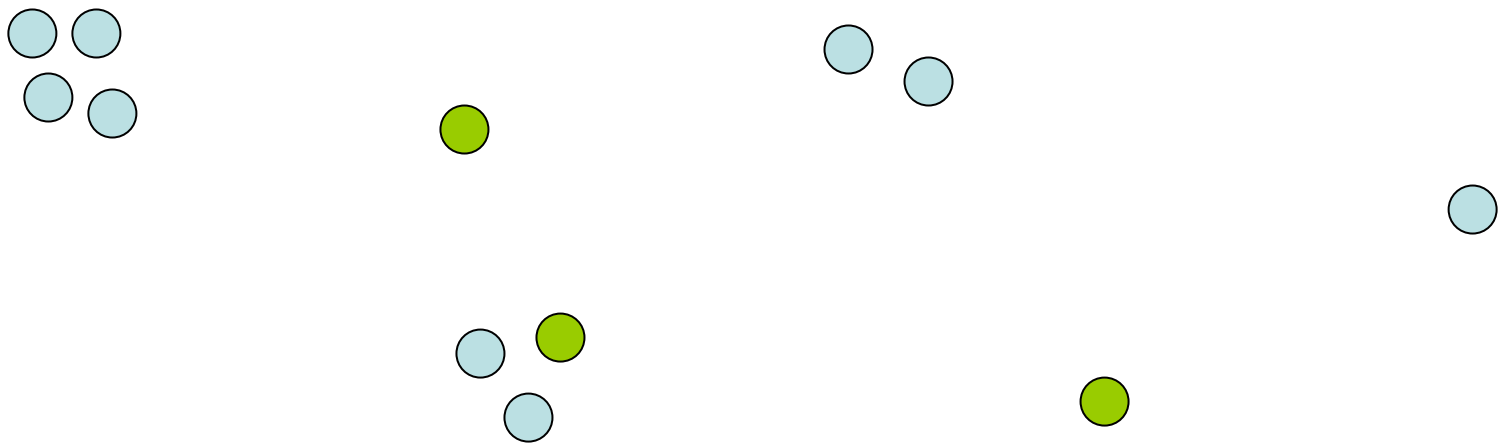
…perception

Gestalt concepts - proximity



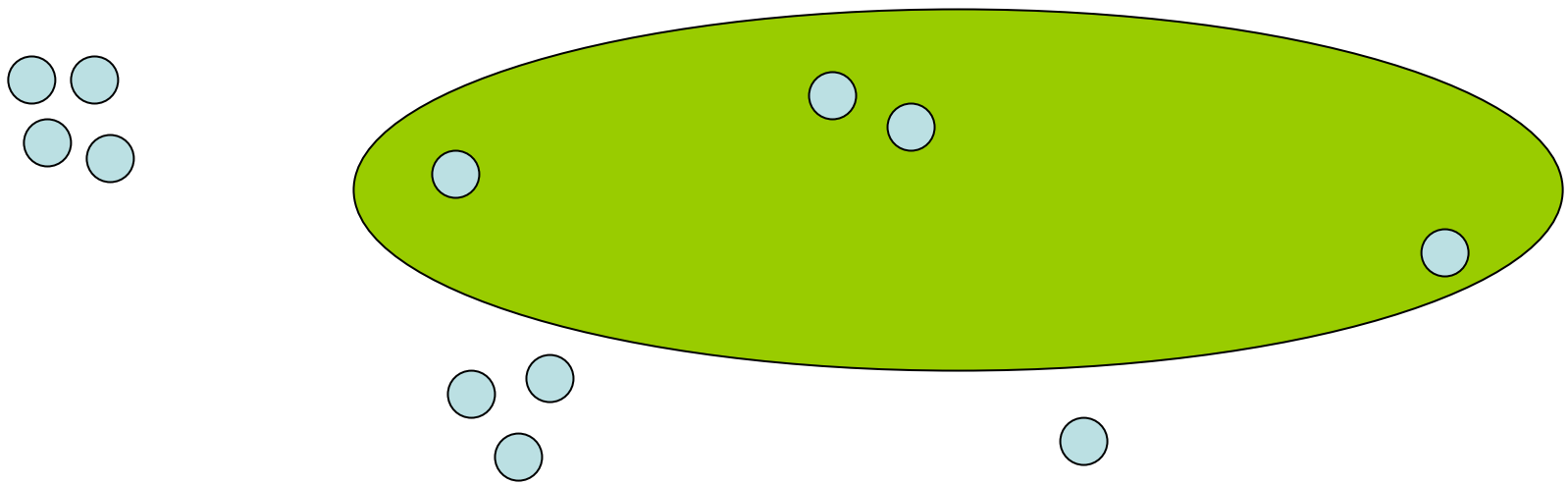
…perception

Gestalt concepts - similarity



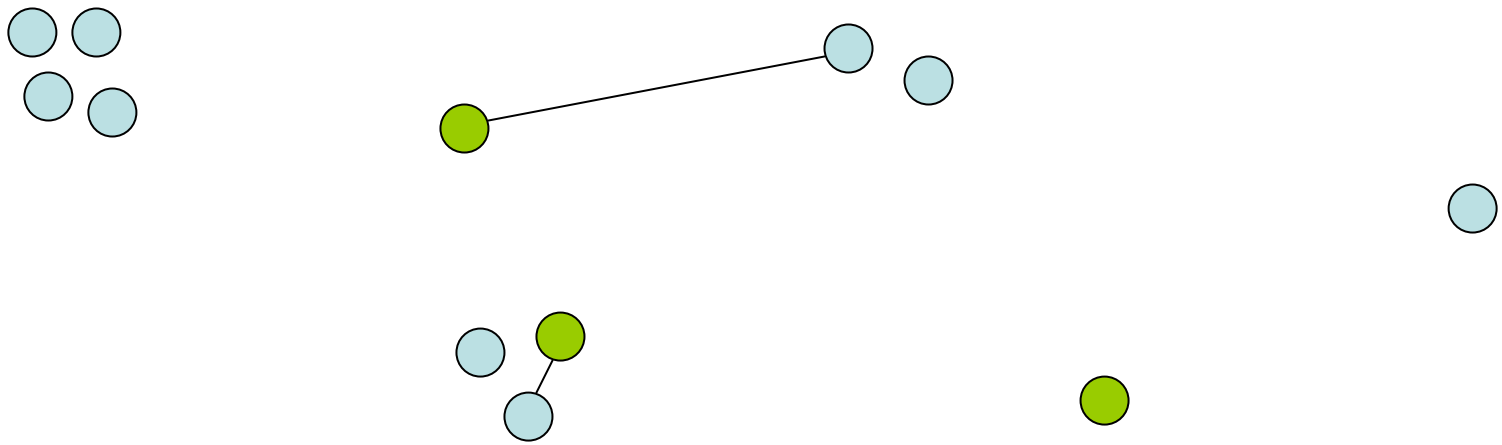
…perception

Gestalt concepts - enclosure



…perception

Gestalt concepts - connection

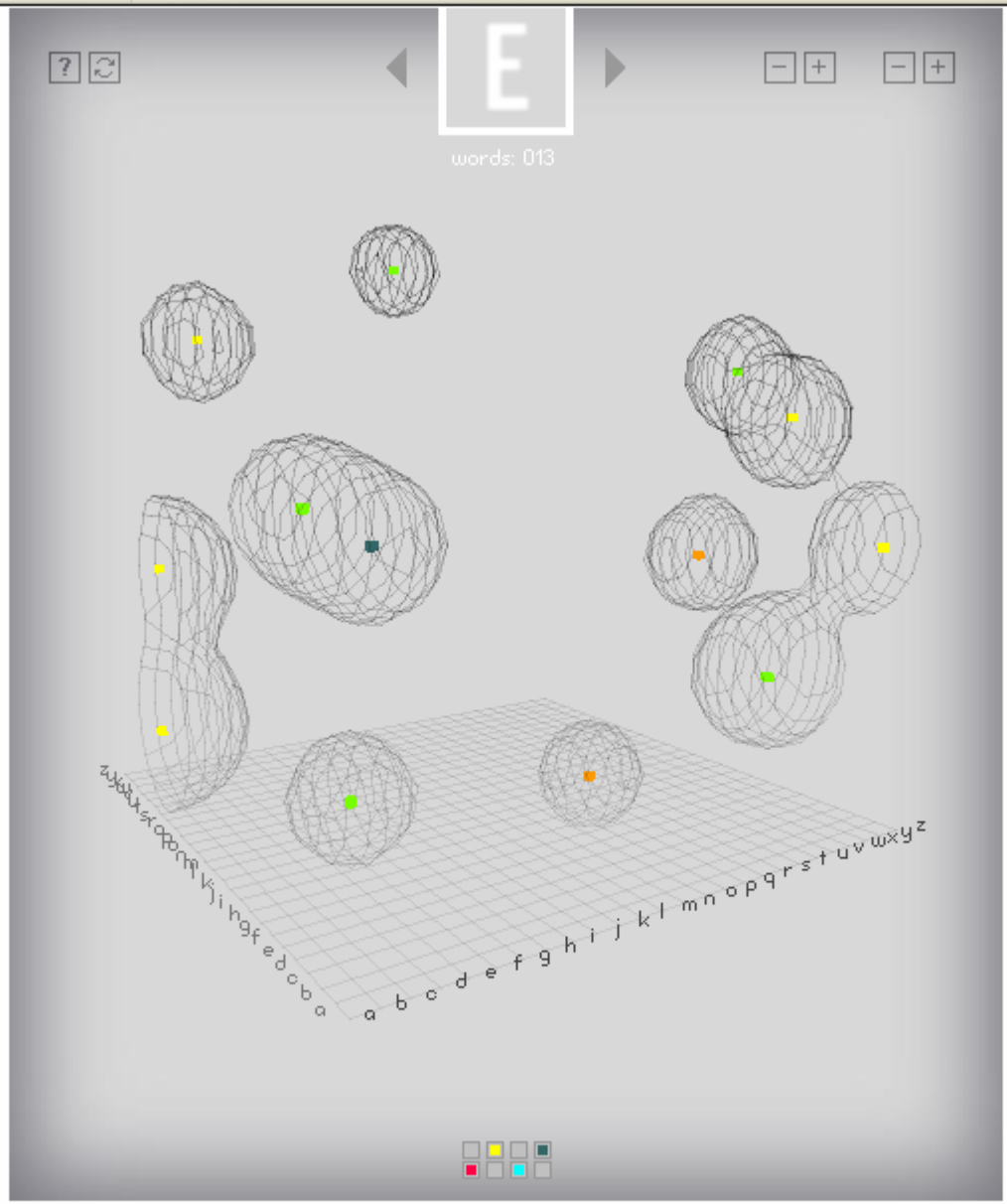


examples

Effectiveness of Communication

What real questions does it answer?

p://toxi.co.uk/p5/b
e26/



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Stakeholders/Audiences

Is this the question your audience wants an answer to?

Summary – what did we learn

Objects – Relationships

Relationship types

Encoding (types and effectiveness)

Effective communication (what questions are answered)

Relevant communication (are they the right questions?)

Student topics:

Job market – job similarity based upon skill sets, jobs based upon seniority, job categories that are subsets of each other, job similarity based on wages…

Bandwidth – obvious possibility of showing physical locations and flows with different colors and widths to indicate bandwidth and wireless/not, perhaps with multiples to show variations based on time of day

GDP of nations – clusters based upon GDPs or rate of change of GDP

Fortune 500 – similarity of companies based on…? Products, size, revenue, connections based on subsidiary…, splitting off/merging

Facebook – similarities based on interests, physical location as well as based upon actual social contact

Degrees – relationships between degrees, hierarchy of degree types

Baseball – team membership, similar positions, similar statistics,

Fishing – lakes based upon travel routes/travel distance

Website traffic similar traffic patterns, links between sites…