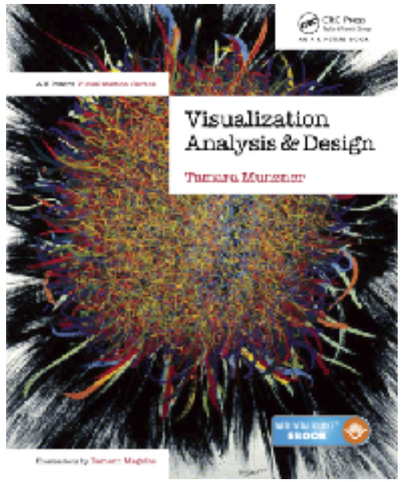
Visualization Analysis & Design



Wrapup

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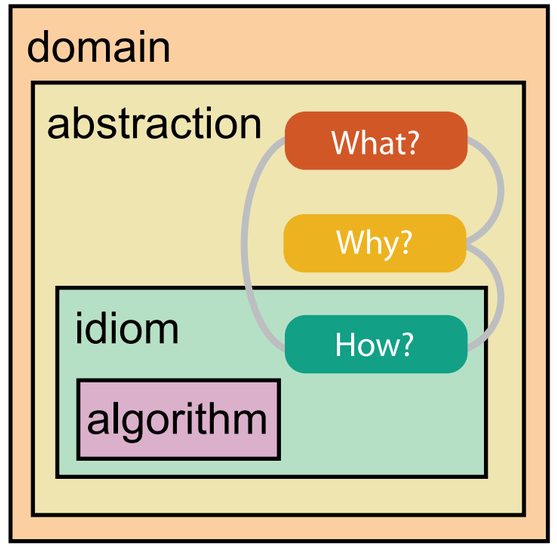
@tamaramunzner


domain
abstraction
What?
Why?
idiom
How?
algorithm

What?

Datasets

Data Types

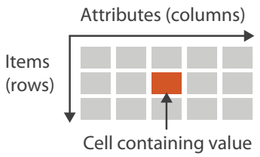
- Items
- Attributes
- Links
- Positions
- Grids

Data and Dataset Types

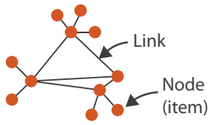
Tables	Networks & Trees	Fields	Geometry	Clusters, Sets, Lists
Items	Items (nodes)	Grids	Items	Items
Attributes	Links	Positions	Positions	
	Attributes	Attributes		

Dataset Types

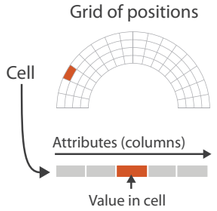
- Tables



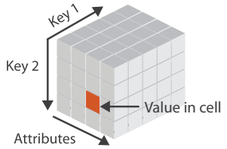
- Networks



- Fields (Continuous)



- *Multidimensional Table*



- *Trees*

- Geometry (Spatial)

Attributes

Attribute Types

- Categorical

- Ordered
  - *Ordinal*

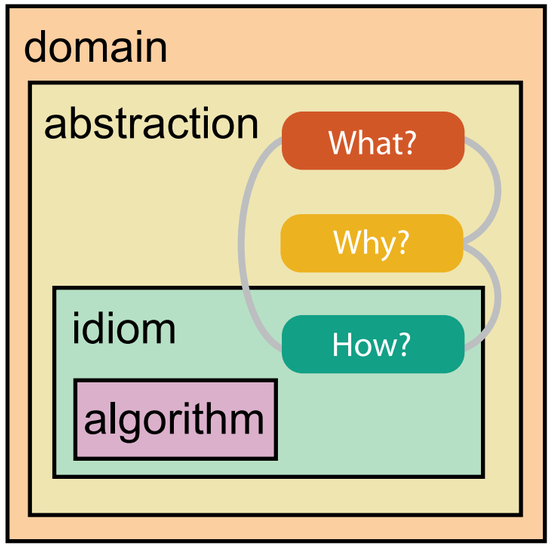
  - *Quantitative*

Ordering Direction

- Sequential

- Diverging

- Cyclic



What?

Datasets | Attributes

Why?

Actions

Analyze

- Consume
  - *Discover*
  - *Present*
  - *Enjoy*

- Produce
  - *Annotate*
  - *Record*
  - *Derive*

Search

	Target known	Target unknown
Location known	*Lookup*	*Browse*
Location unknown	*Locate*	*Explore*

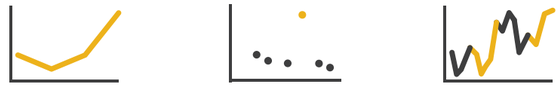
Query

- Identify
- Compare
- Summarize

Targets

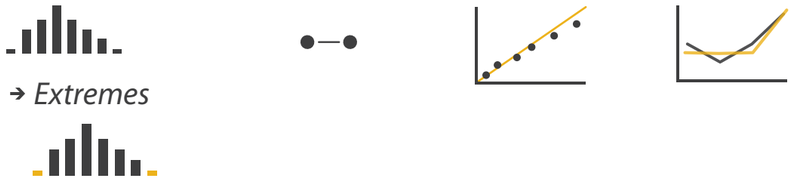
All Data

- Trends
- Outliers
- Features



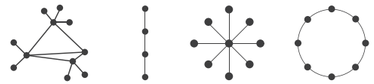
Attributes

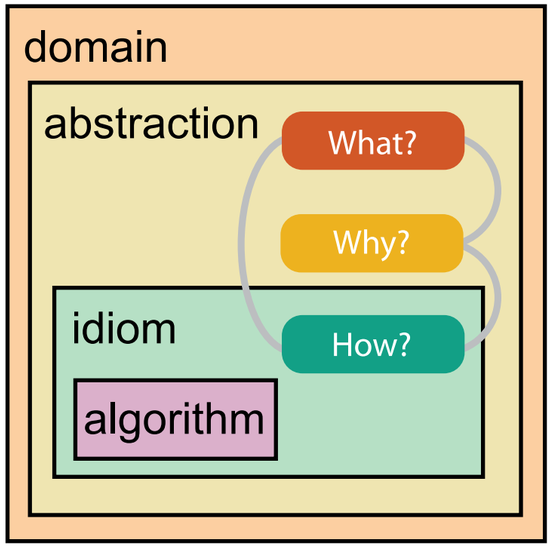
- One
- Many
  - *Distribution*
  - *Dependency*
  - *Correlation*
  - *Similarity*
  - *Extremes*



Network Data

- Topology
  - *Paths*





What?

Datasets | Attributes

Why?

Actions | Targets

How?

Encode

- **Arrange**
  - Express
  - Separate
  - Order
  - Align
  - Use

- **Map**
  from categorical and ordered attributes
  - Color
    - *Hue*
    - *Saturation*
    - *Luminance*
  - Size, Angle, Curvature, ...
  - Shape
  - Motion
    Direction, Rate, Frequency, ...

Manipulate

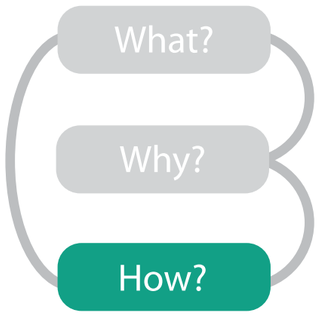
- **Change**
- **Select**
- **Navigate**

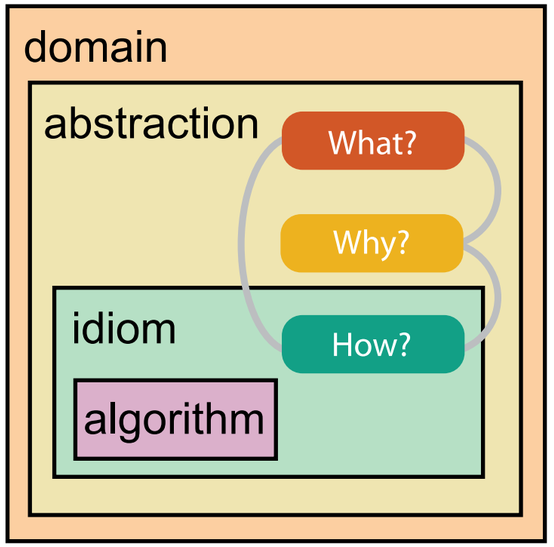
Facet

- **Juxtapose**
- **Partition**
- **Superimpose**

Reduce

- **Filter**
- **Aggregate**
- **Embed**

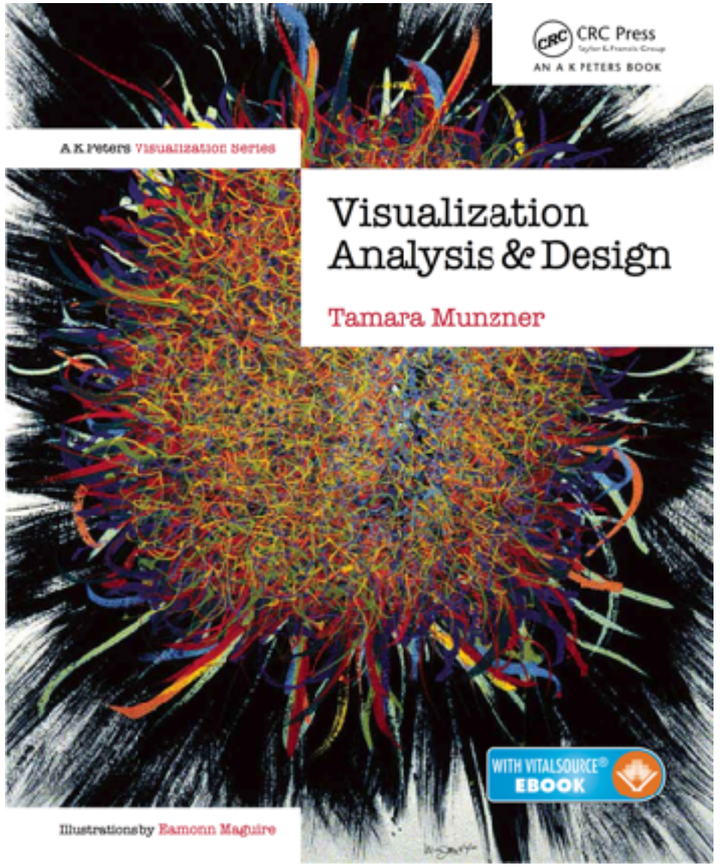




More information

- book
  http://www.cs.ubc.ca/~tmm/vadbook
  - 20% promo code for book+ebook combo: HVN17
  - http://www.crcpress.com/product/isbn/9781466508910
  - illustration acknowledgement: Eamonn Maguire

- full courses, papers, videos, software, talks
  http://www.cs.ubc.ca/group/infovis
  http://www.cs.ubc.ca/~tmm



Visualization Analysis and Design. Munzner.
CRC Press, AK Peters Visualization Series, 2014.

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