

# Summary

- **Data types:** nature of the data (5)
  - items, attributes, links, positions, grids
- **Data set types:** how the data is arranged (4)
  - tables, networks, fields, geometry
- **When the data is available** (2)
  - static, dynamic
- **Attributes:** properties of the data (2)
  - categorical, ordered (ordinal, quantitative)
- **Direction:** ways of ordering (3)
  - sequential, diverging, cyclic

## The **Analyse** action

- **Consuming:** user simply accesses the data using the visualisation
  - to **discover** information not known before
  - to **present** information to another person
  - **enjoy** and find something interesting
- **Producing:** user actively creates something
  - **annotations** of the data or the visualisation
  - a persistent **record** of a visualisation (or aspects thereof)
  - **derive** new data based on existing data



## The **Search** action

Locating target of interest in the visualisation

- **Lookup:** target known & location known (*where and what*)
- **Browse:** target unknown & location known (*where*)
- **Locate:** target known & location unknown (*what*)
- **Explore:** target unknown & location unknown

	Target known	Target unknown
Location known	<b>Lookup</b>	<b>Browse</b>
Location unknown	<b>Locate</b>	<b>Explore</b>

Why is it useful to describe data types and visualisation tasks in such an abstract way?

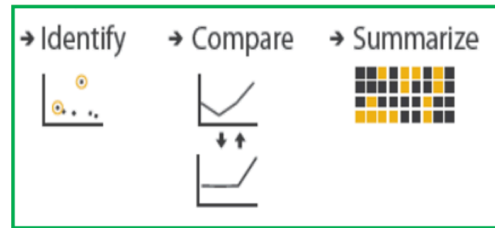
Add “and compare ” to the end of some task description

- It is always good to pause and think about your data, and its use
- Decisions you make in your visualisation for one domain can be compared or used with those needed for another domain

## The Query action

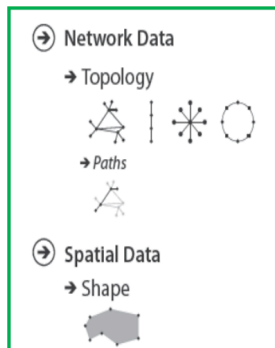
Once you have found the data you are interested in, what will you do with it?

- **Identify:** get all the information about it
- **Compare:** differences between more than one data item
- **Summarise:** produce an overview of more than one data item



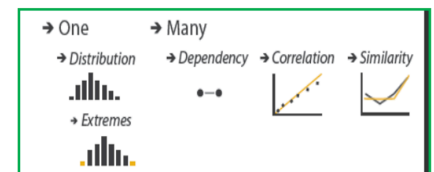
## Summary

- **Actions** (verbs): things a user can do
  - analyse, search, query
- **Targets** (nouns): things a user can be interested in
  - all data *(not necessarily just the individual data points)*
  - **trends, outliers, features**



- attributes
  - *for ... one attribute* **distribution, dependency, correlation, similarity**
- networks *for the values of more than one attributes*
  - **topology, paths**
- spatial data
  - **shape**

*structure of the network*  
*sequences of connections between nodes*



- **Univariate:**
  - bar charts
  - histogram
  - box plot
  - ...
- **Bivariate**
  - clustered bar chart
  - stacked bar chart
  - 100% stacked bar chart
  - scatter plot
  - ...
- **Tri-variate**
  - scatter plot matrix
  - heat map
  - mosaic plot
  - ...
- **Multivariate**
  - parallel co-ordinates
  - SPLOM
  - ... and other techniques from a later lecture

X pie charts  
bubble  
3D