How each element hits you depends on how it is arranged relative to the other elements being used

Composition – the way we arrange the elements of design

Gestalt – whole > sum of parts

Designers employ certain compositional strategies to aid in the clarity of their communication:

* Hierarchy
* Grid
* Form follows function
* Less is more
* Gestalt

Additional things to consider

* Pattern, and human tendency to ascribe to it
* Noise and Information
* Theme and Variation

Viewers unconsciously seek out similarity and apply patterns:

* Based upon similarity of color, shape, size, etc
* Based upon proximate grouping
* Based upon implied or delineated boundaries
* Connecting lines, dots, dashes, etc
* Picking up on focal points or objects of attention that are made prominent by their difference from the mass of objects around them

Study good design – Olympics graphics, Swiss Style (International Style graphic design), good publications

* In what ways can you introduce variety? When is unity of design a better idea?
* Pattern and repetition can be useful. When can variation on a theme help bring out important details in the data?
* We often search for balance in graphs like residual plots--when we evaluate model fit. What other information have you seen communicated by balanced or unbalanced graphs?
* While you don't always choose data distribution and balance, you often choose color palettes. How might color choice change perception of your data visualization?
* Choice of data visualization elements can change the sense of motion or direction in a graph. How might that chance the interpretation of the data?
* Choice of scale can change the visual interpretation of graph elements. When is a choice of scale inappropriate?

A design that shows variety is one in which the elements of the work are varied in size, color, shape, or some other attribute. Many artists introduce variety into their compositions by making sure that no two intervals are the same. An interval is the space between elements, figures, or objects in a work of art

The design principle of scale and proportion is the issue of size of elements both individually and in relation to other elements. Forced perspective is the arrangement of figure and ground that distorts the scale of objects, making small objects appear large or large objects appear small by juxtaposing them with opposites. Forced perspective is most convincing when done photographically.

The design principle of balance is the issue of visual “weight.” Design elements like lines and shapes can attract our attention in a number of ways. For example, they can be brightly colored, they can be large in relation to other similar shapes, or they can be textured in unusual ways. Compositional balance is achieved when these competing visual weights are roughly equivalent. There are two kinds of compositional balance: symmetrical and asymmetrical. The lines and shapes in a composition that uses the principle of symmetrical balance are usually equally arranged around an axis, or central line. Asymmetrical balance is achieved when visual weights do not correspond to one another in shape, size, or placement; they are not distributed equally in a composition

The design principle of emphasis or movement is the intentional use of directional forces to move the viewer’s attention through a work of art. When we see a color shift within a shape, this implies movement. And, when we see a line in a work of art, we are compelled to follow it. For example, arrows of any shape will signify direction and are widely used in advertising to attract and direct the attention of potential customers.

The design principle of rhythm is the repetition of visual elements to establish a pattern. This pattern can then be used to provide a stage for a special object, or the pattern can be interrupted to direct attention to the change

Variables are mapped to graphical elements: position, size, color, etc

Mappings shouldn’t distort the data

Avoid graphical elements that don’t correspond to aspects of the data

Formal Elements: line, shape, value, scale, color, texture, space, motion. Used to convey content and interpretyed in a certain context.

Design Principles/Composition: balance, harmony, hierarchy, grid, form follows function, less is more, gestalt, pattern, signal vs noise, theme and variation, contrast

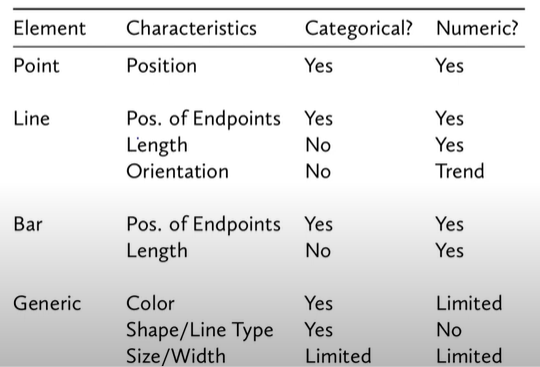
What is the real question?

Accurately match variables to design elements

Use gestalt principles to focus attention and highlight important aspects of data visualization

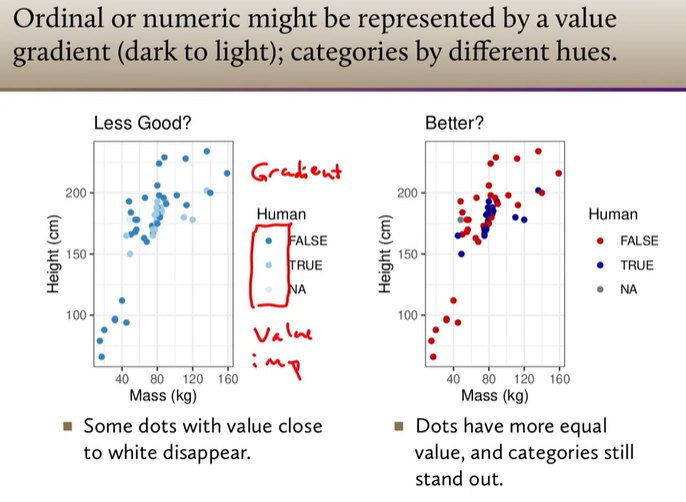
Let the data speak: use appropriate space and scale, balance summary and complexity, avoid chart junk

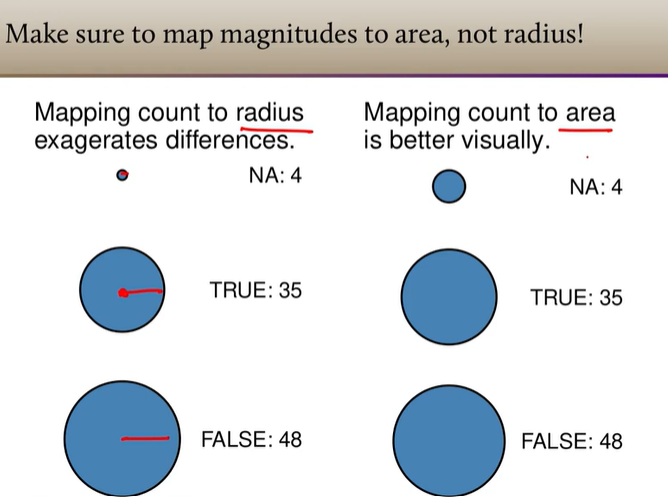
Explore multiple options

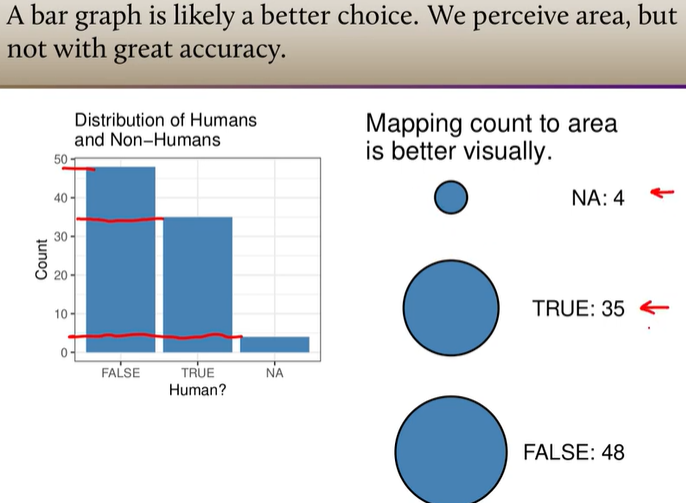


Chart, bar chart

Description automatically generated

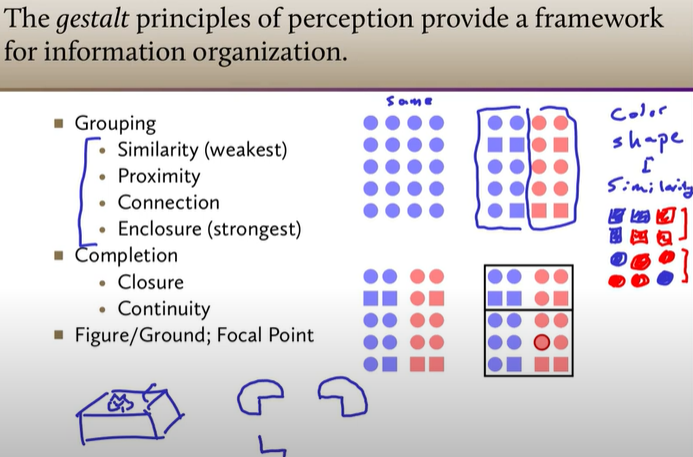






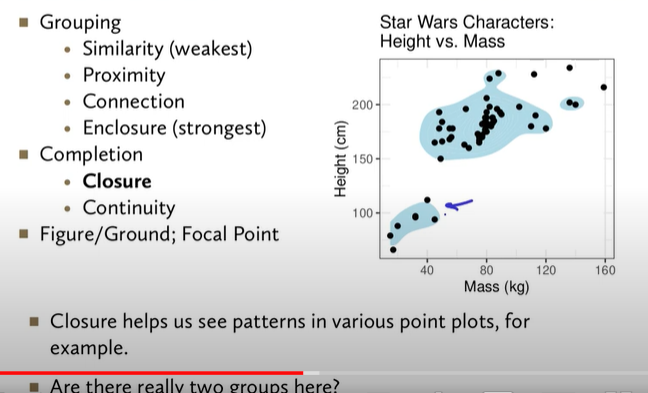
Chart, pie chart

Description automatically generated



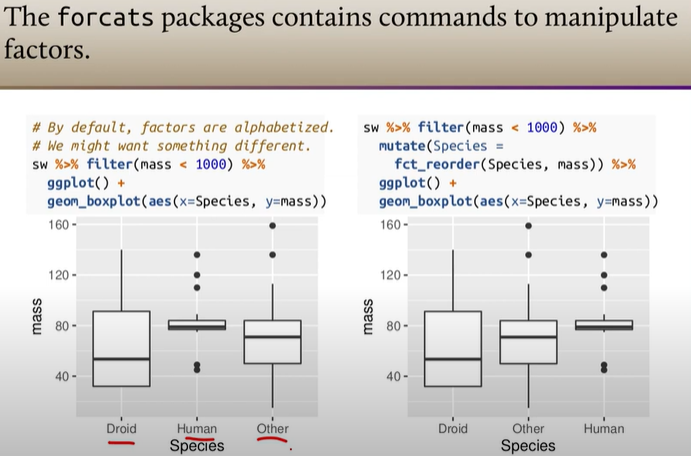
Diagram, schematic

Description automatically generated



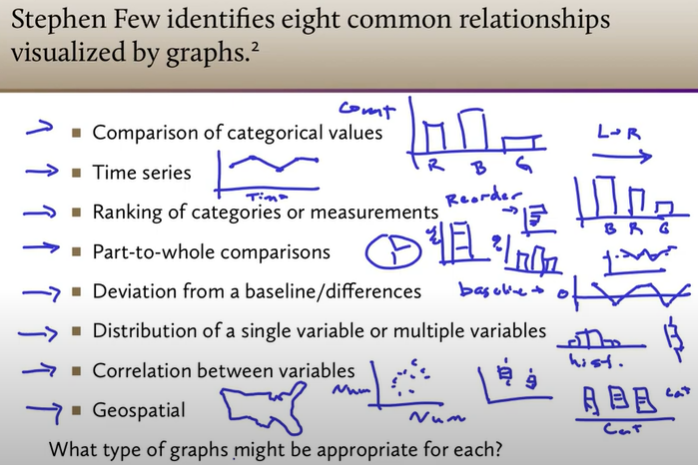
Chart

Description automatically generated



Chart

Description automatically generated with medium confidence



Chart, box and whisker chart

Description automatically generated