

Cartographic Principles: Map design

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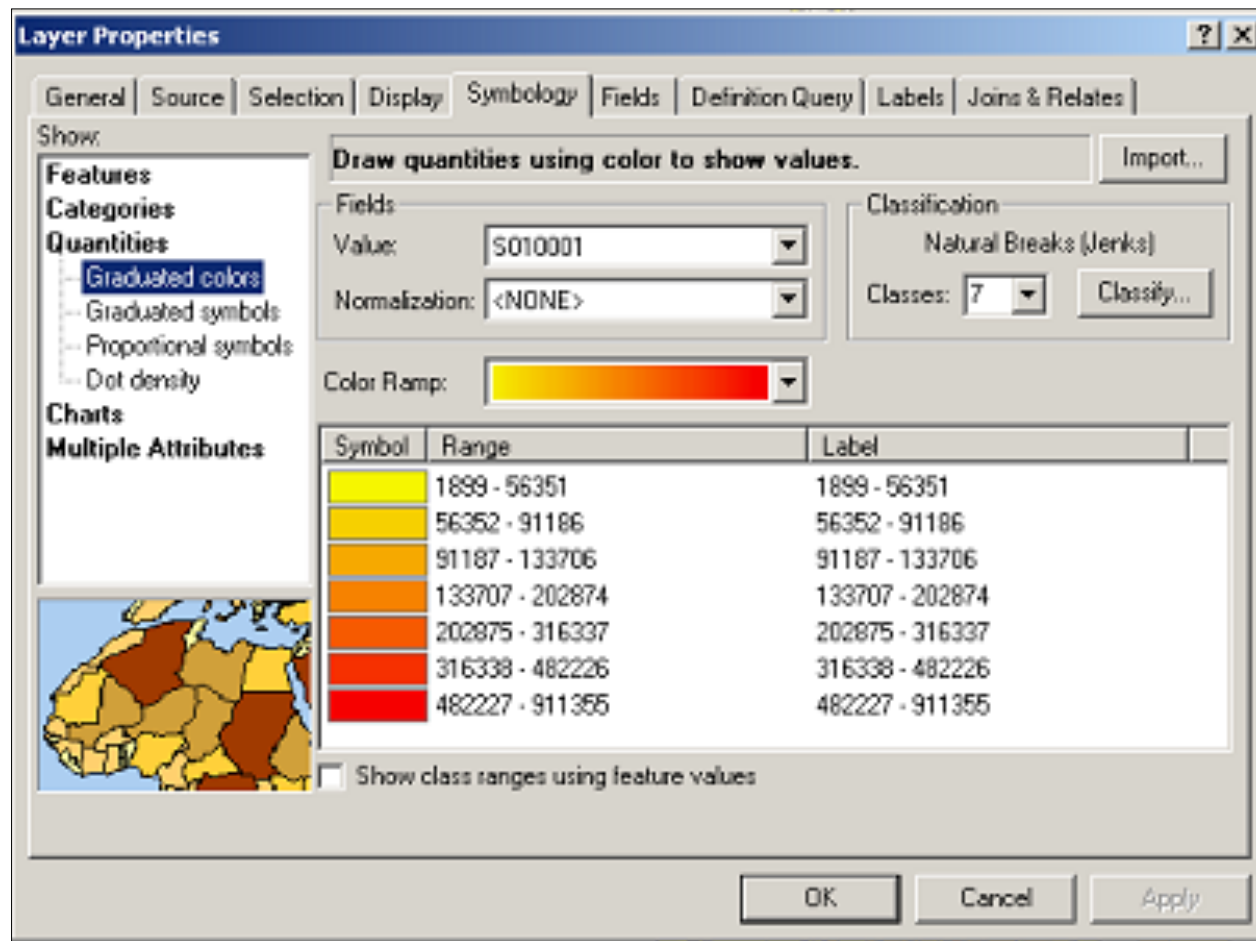
With Changes by Dan Ryan

http://www.casa.ucl.ac.uk/martin/msc_gis/

Map Design

- some (scientific) rules
- much artistic judgment
 - selection of colours
 - symbology
 - labelling
 - arrangement of overall layout
 - data selection, projection, scale, etc.
- subtle design changes yield big readability change

Always Question Software Defaults



Tufte's principles of graphical excellence

- show the data
- induce reader to think about substance
 - Not methodology, graphic design, technology
- avoid distorting what the data say
- present many numbers in a small space
- make large datasets coherent
- encourage the eye to compare
- **stay integrated** with statistical and verbal descriptions of a dataset

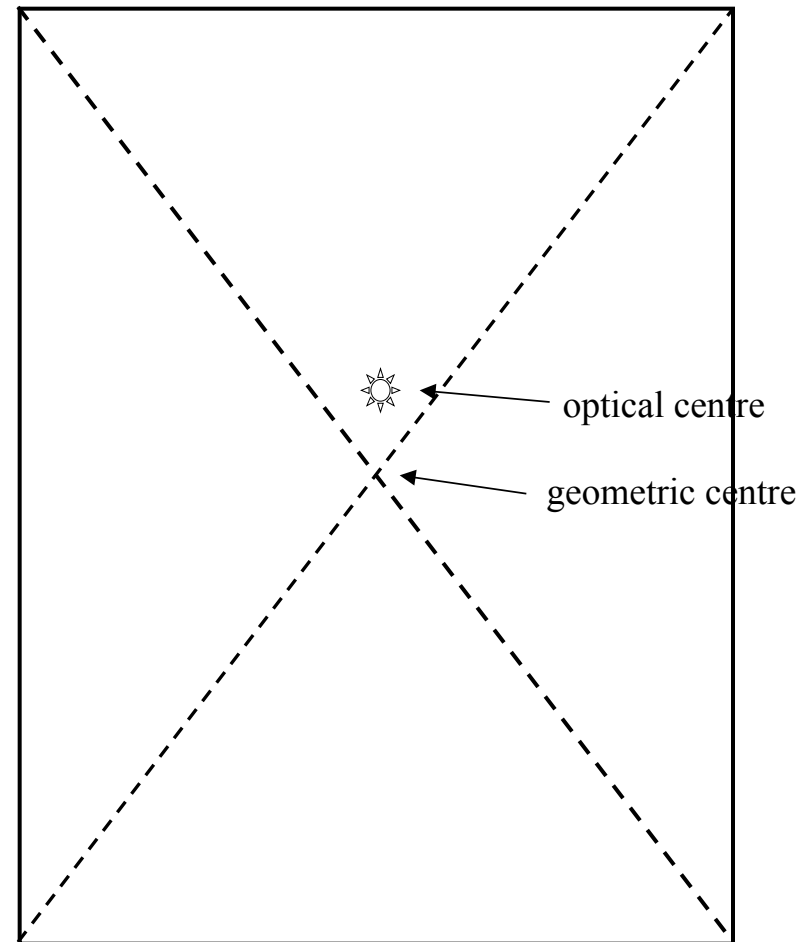


Map layout components

- a title that clearly states what the map shows
- subtitle with date of data, sources, missing values, author, contact info, etc
- legend documenting meaning of symbols & colours
- scale indication
- orientation indication (north arrow)
- borders and neatlines

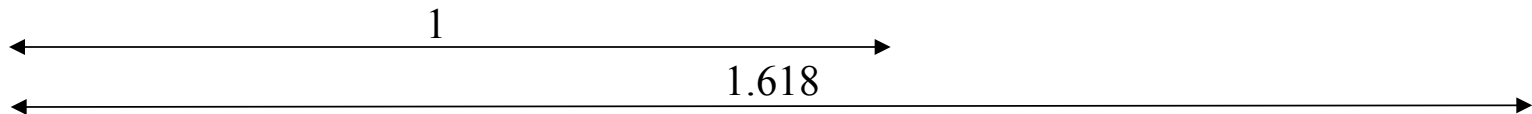
Balance and Center

- Visual impact of arrangement. harmonious arrangement around the optical centre
- concern for weight and direction of objects around the 'natural' centre
- unbalanced compositions look random and accidental



Golden proportions

two quantities are in the **golden ratio** if the ratio between the sum of those quantities and the larger one is the same as the ratio between the larger one and the smaller.



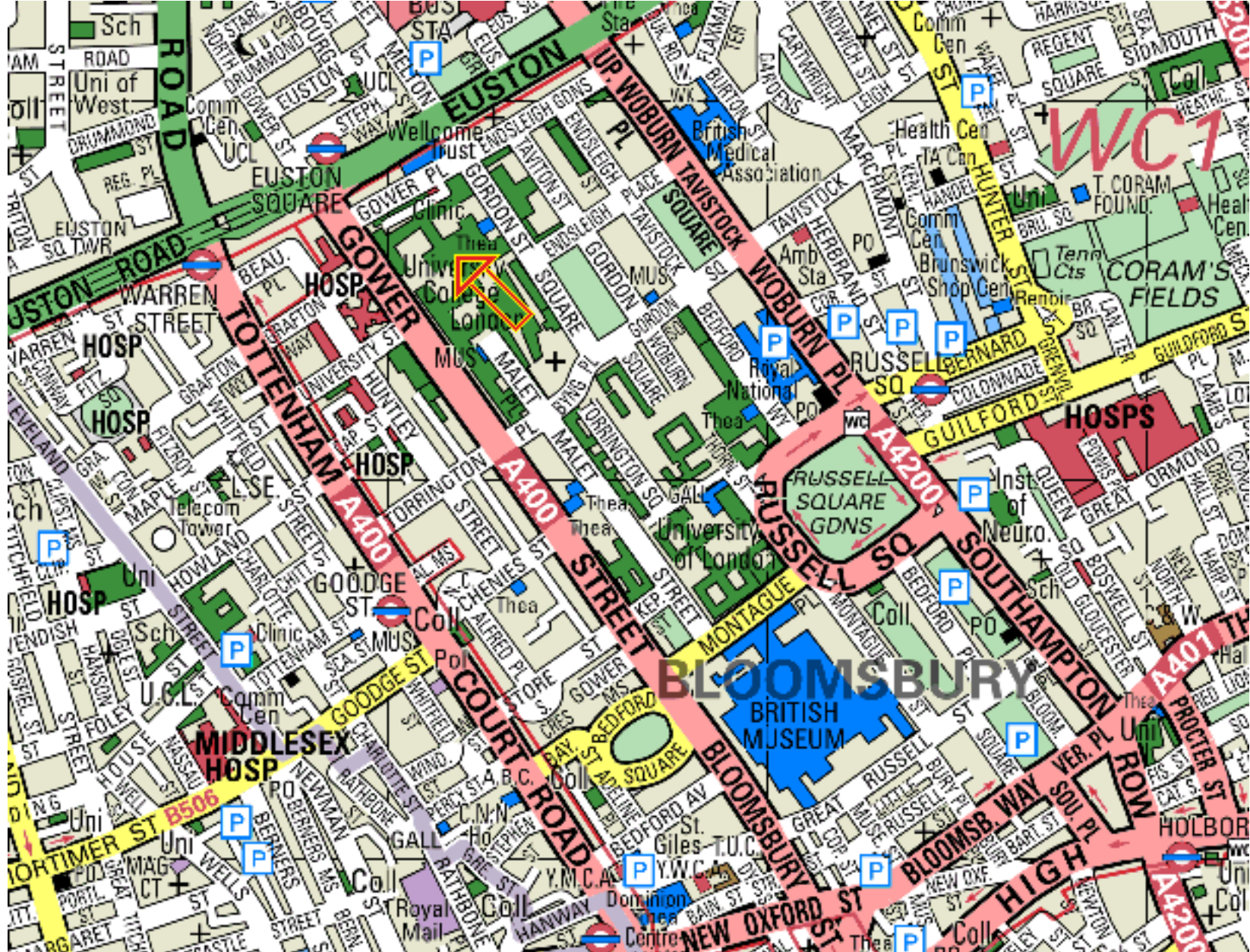
Interesting balance

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Labelling the map

- lettering choice can have a significant impact to effectiveness of the map
- typography - practical and ‘personality’
- map text to label features has several key parameters
 - font typeface, size spacing
 - placement and orientation
- importance of type discernibility
- map labels can communicate important data, e.g. hierarchy of features, implying importance
- Chislehurst, **Bromley, L O N D O N**
- manual labelling of features can get very tedious. but automatic label placement is still far from perfect



Think about different types of lettering styles and placement/orientations used and the effects it has

Some considerations

- from Dent (1999, page 271)
 - legibility of individual letters is of paramount importance, especially in smaller type sizes. Choose a typeface in where there is little chance of confusion between c and e and i and j
 - select a typeface with a relatively large base height
 - avoid extremely bold forms
 - choose a typeface that has softer shading; extreme vertical shading is more difficult to read than rounder forms
 - do not use decorative typefaces on the map as they are difficult to read

Basic Principles of Graphic Design

C.R.A.P.

Proximity

When objects are near one another they become a visual unit. Proximity's basic purpose is organization. Good use of proximity also produces good white space.

Proximity Rules

- Limit number of visual units on page.
- Don't stick things in corners and middle.
- Avoid leaving exactly equal amounts of white space between objects unless part of a subset.
- Allow no confusion about what goes with what.
- Don't create relationships between things that are not related.

Repetition

AKA “being consistent.” Unifies piece.
Keeps reader’s eye on the page.

Repetition Rules

- Find existing repetitions and strengthen them.
- But avoid overdoing it. Keep contrast in mind.

Alignment

Alignment helps tie together the elements that make up a page. Always find something else on the page to align each new element with.

Alignment Rules

- Avoid mixing text alignments on same page.
- Always choose centered alignments consciously, never by default.

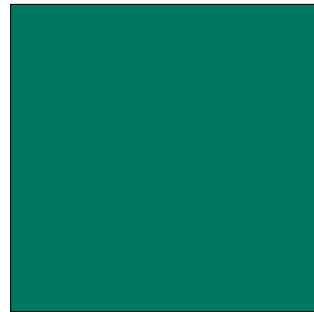
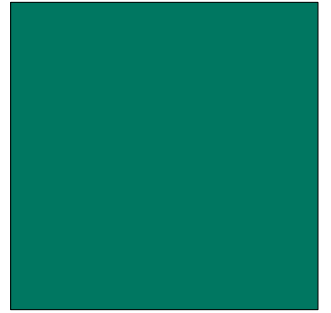
Contrast

- For contrast to be effective, it must be strong. If things are different, do not let them be similar.
- Creates interesting page. Adds to organization. Must support intended focus, not create new ones.

Contrast Rules

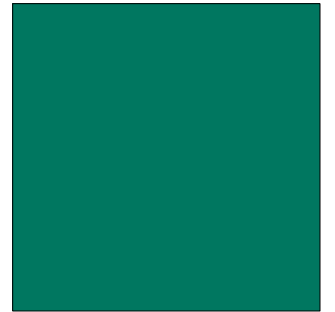
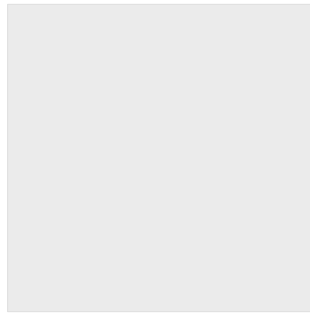
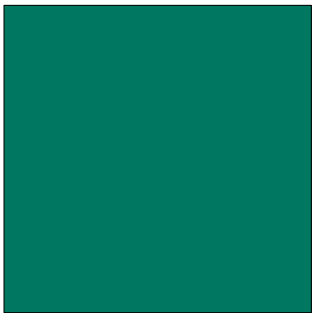
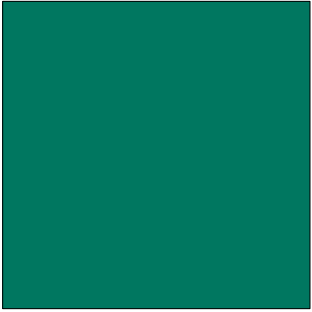
- Avoid using two typefaces that are similar. If they are not exactly the same, they should be different. Don't mix brown text with black titles.

$$1+1=3^*$$

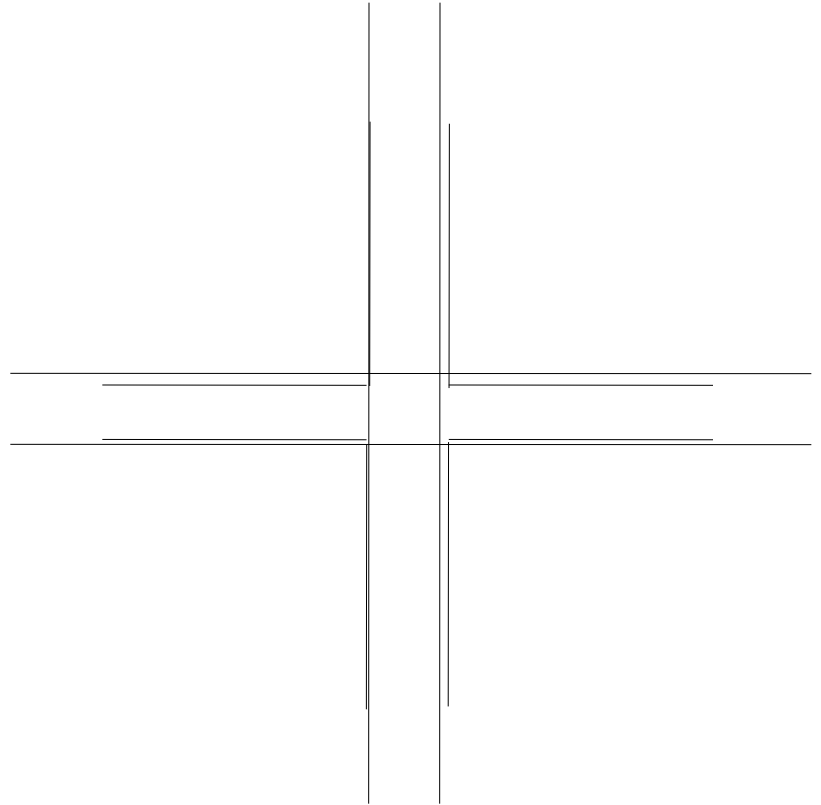
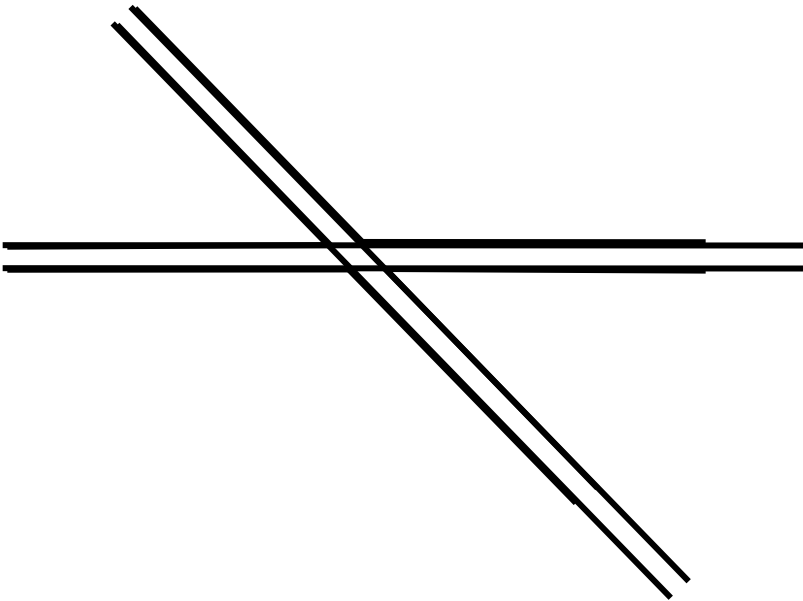


*Credited to Josef Albers.

$$1+1=3$$



$$1+1=3$$



Thematic Maps Code of Ethics

After from Dent (1999, page 19)

1. Know your agenda
2. Know your audience
3. Do not intentionally lie with data
4. Show all relevant data
5. Do not discard disliked data
6. Portray data accurately (show real values)
7. Avoid plagiarizing; report all data sources
8. Symbolize rather than editorialize
9. Be replicable by other cartographers
10. Pay attention to differing cultural values