

Facet into Multiple Views

Facet

- Facet = Split
- For data sets of multiple attributes, time-varying, and high complexity
- Main issues: how to coordinate different views
 - Visual encoding; data; navigation

③ Juxtapose and Coordinate Multiple Side-by-Side Views

→ Share Encoding: Same/Different

→ *Linked Highlighting*



→ Share Data: All/Subset/None



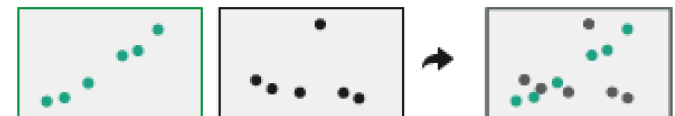
→ Share Navigation



③ Partition into Side-by-Side Views







③ Superimpose Layers



Juxtapose

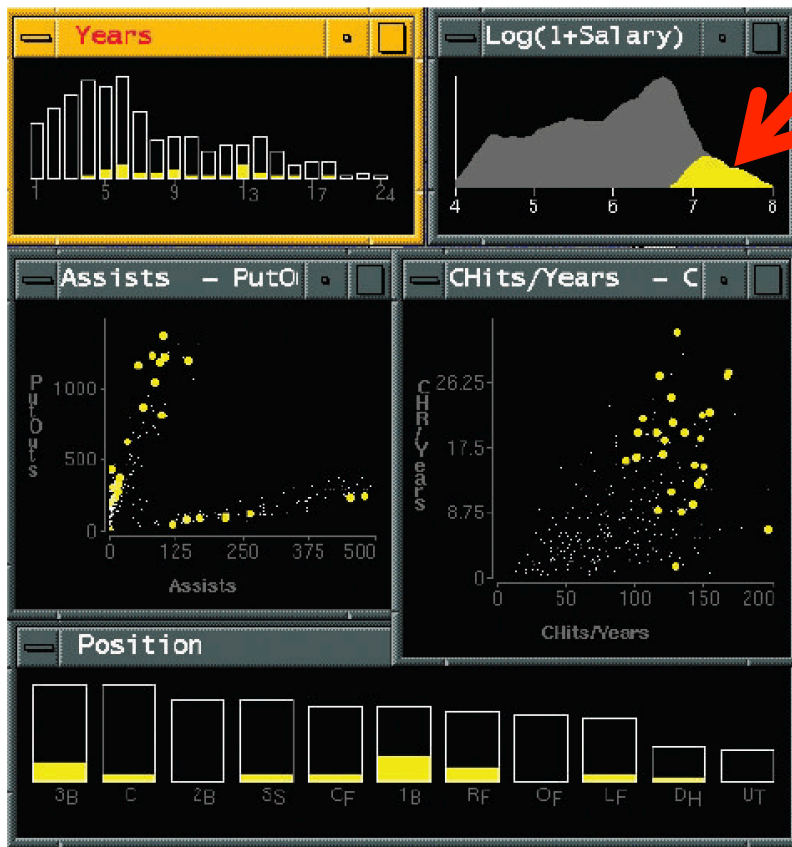
- Juxtapose: showing different views of data side by side
 - Multiform: use different visual encoding for the same data
 - Small multiples: same visual encoding for partitioned data
 - The views need to be linked together
 - Main cost: smaller display area

		Data		
		All	Subset	None
Encoding	Same	Redundant	 Overview/ Detail	 Small Multiples
	Different	 Multiform	 Multiform, Overview/ Detail	No Linkage

Linked Highlighting

- Interactivity is the key

Select high salary players



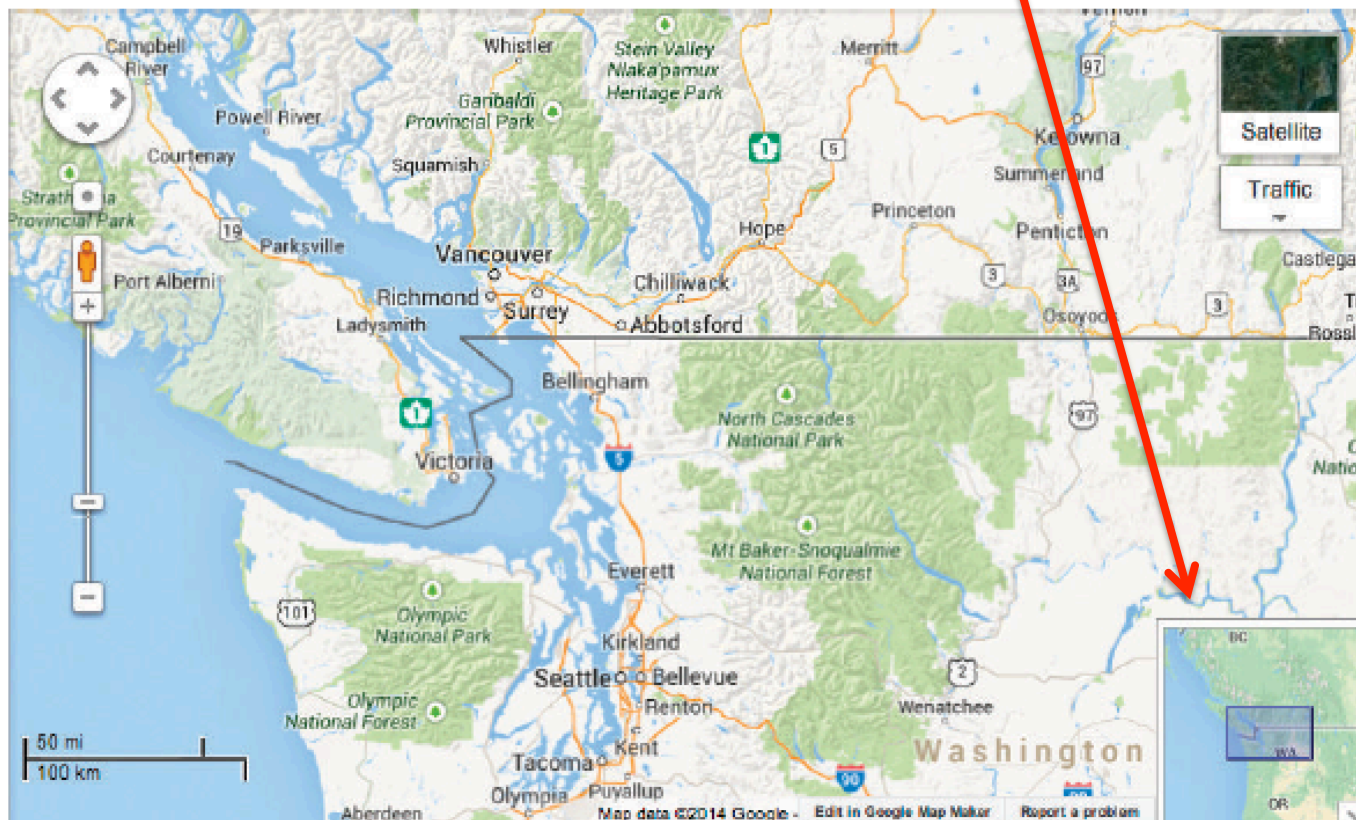
Select low put outs players

Share Data: All/Subset/None

- How are data are shared between two views
 - Share data: both view show all data
 - Common with multiform systems
 - Overview-detail: one view show a subset of what is in the other view
 - Can show different viewpoints of the same data, e.g. Bird's-eye maps
 - Small multiples: the views show different partitions of the data

Bird's Eye View

Shared Data and Synchronization



Google Map

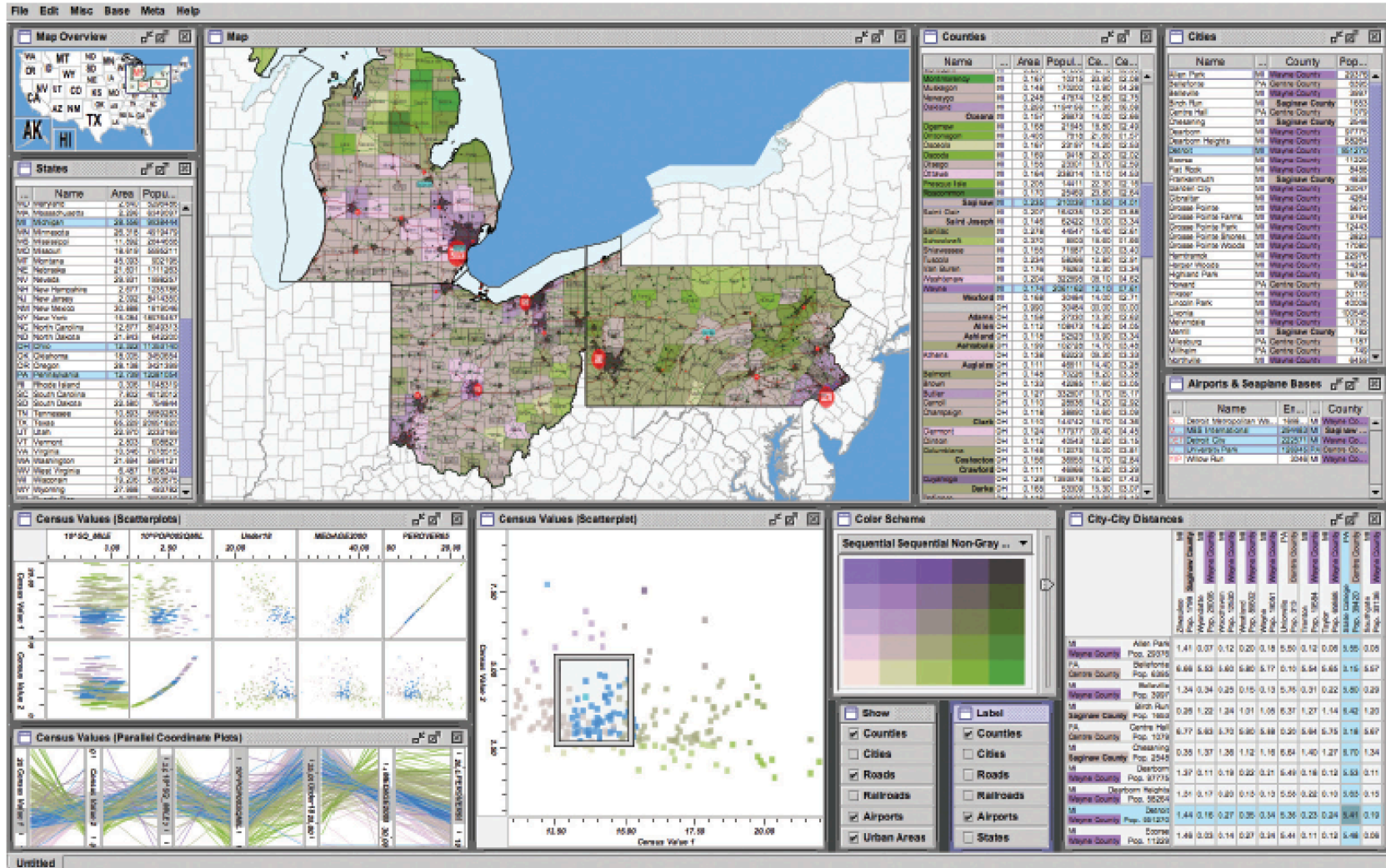
Small Multiples

- Same visual encoding (thus comparison is easier), different data partitions
- Often aligned into a list or matrix
- Making different partitions of data simultaneously visible
- Often use as an alternative to animations
- Smaller screen real estate is a weakness

Small Multiples



Example



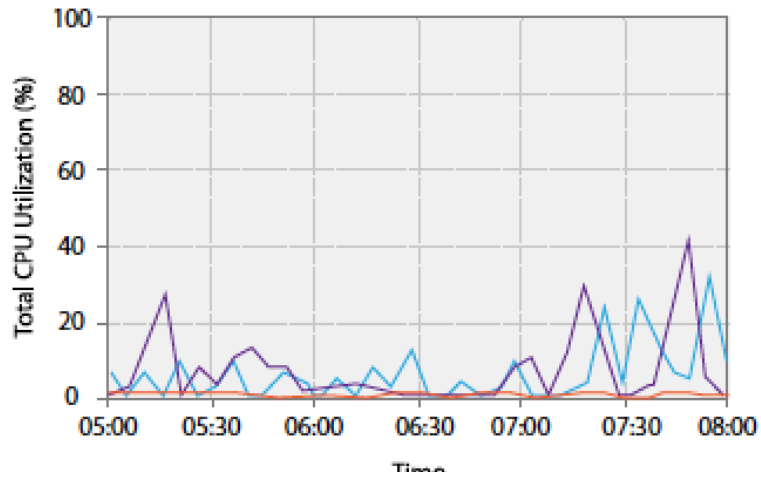
Superimpose Layers

- Combine multiple layers of drawings on top of each other in a single composited view
- The objects in each layer should be a visually distinguishable group
- Design choices:
 - how many layers?
 - How are layers visually distinguishable from each other
 - Static or dynamic layers?
 - How to partition objects into layers

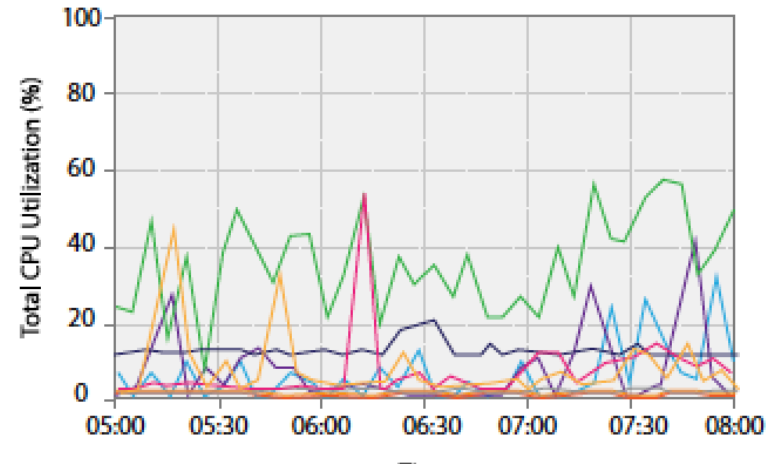
Visually Distinguishable Layers

- Use non-overlapping range of visual channels
- The number of layers that can be used is typically very small
 - Two: foreground and background
 - Three layers require careful design, and more than three layers is possible only each layers contain very little

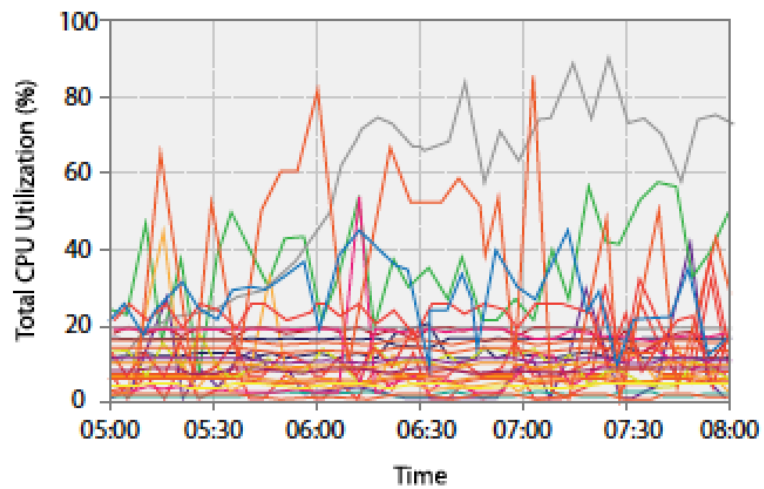
Static Layers



Okay



Difficult



Static Layers

- Cartographic Layering

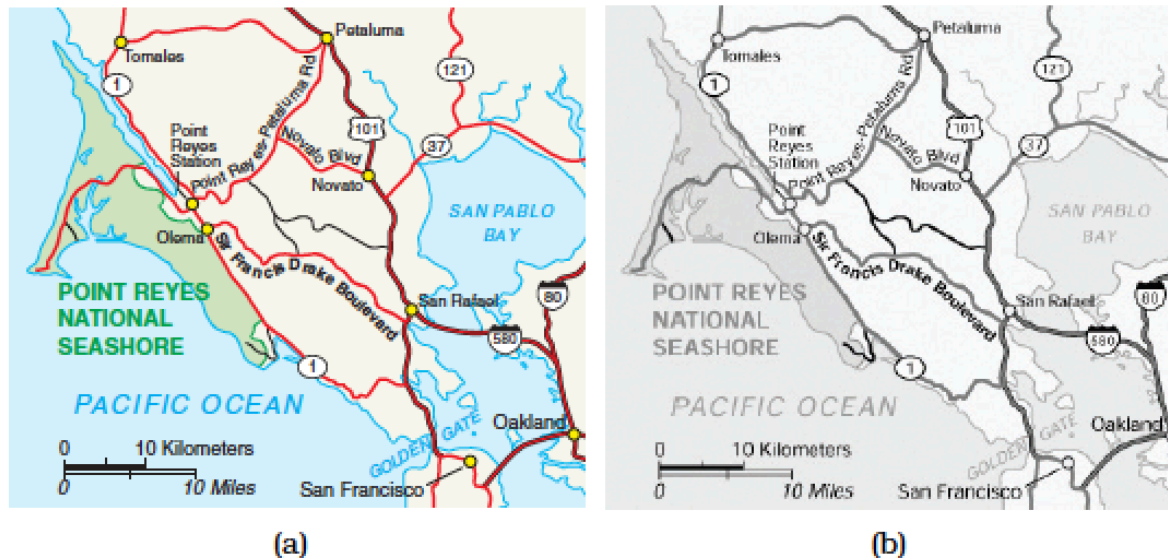
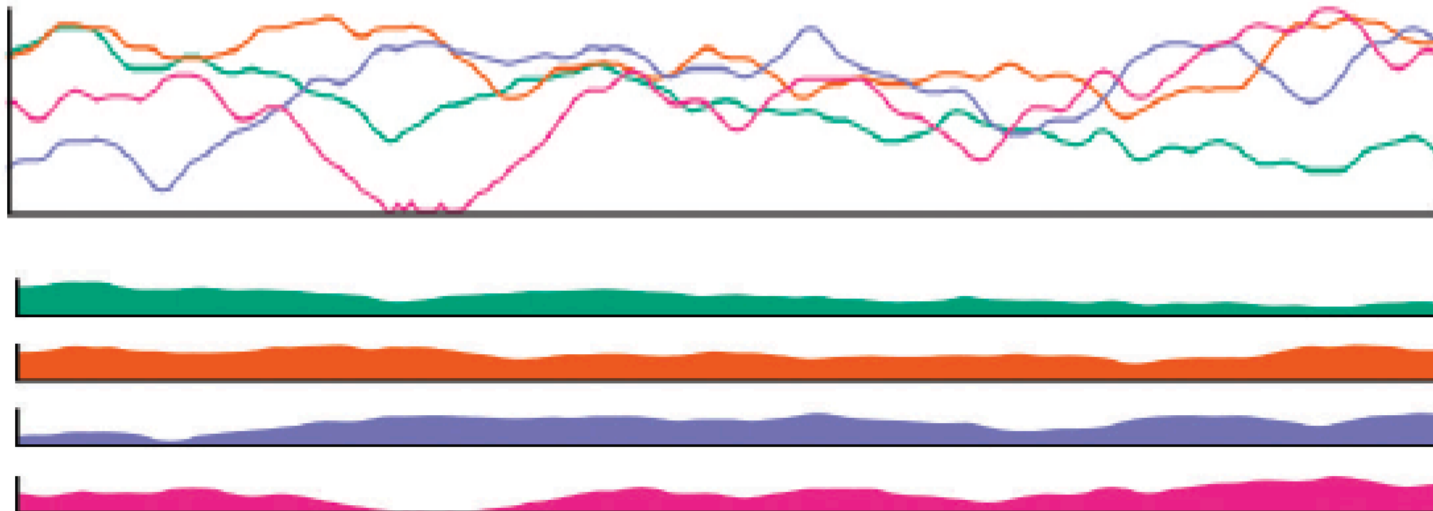


Figure 12.13. Static visual layering in maps. (a) The map layers are created by differences in the hue, saturation, luminance, and size channels on both area and line marks. (b) The grayscale view shows that each layer uses a different range in the luminance channel, providing luminance contrast. From [Stone 10].

Superimpose vs. Juxtapose

- Tradeoffs between less vertical space (juxtapose) but less visual clutter and more vertical space (superimpose)
- Superimpose is better for local value comparison and juxtapose is better for tasks that require larger visual span



Dynamic Layering

- Foreground layer is constructed interactively

