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①

- Why Vis -

what can vis do (that alternatives can't)

why should we do Vis? (why should we do it well)

What does "Why Vis" tell us about how we can make better Vis?

- amplify cognition

- present data

-

Tufte -

Sampling Issues (aggregation) ← aliasing

Very into "who" - his style of asserting

→ Make Controlled Comparisons

Chartjunk ← relate to others

Information display should serve the analytic purpose

How does Snow reinforce / demonstrate viz foundations (1/26 page)

- grouping

- outliers

- time into space

- lots of data at once (empty areas are also data)

Snow as a "data rotation"

Ware in a nutshell (12 points)

VISUAL SKILLS ← what you can do

## Comments

- isn't this basic cognitive science - probably, but Z now learned it

1 - fovea and distance (maximum data)  
attention / movement

NK - surprise @ skills not repositories  
what if you don't have a key

- EDA!

1 - Depth Perception / Stereo

4 - Tufte's obsession with "truth"

↳ specific truth that you know to look for  
↑ we construct "truth"

H DISLINE FOR metaphorical writing

↳ engineers reading/writing

↳ what does the dance of meaning metaphor mean?

Or does Tufte inspire people to become nit-pickers?

And to take pot shots at him

## Abstraction

Who is the audience? - this does matter! (why?)

Visualization supports Reasoning

1 Statistics vs Visualization  
(isn't this what Z would do?)

← they aren't necessarily different  
same problems, similar goals  
⇒ use the right tools

Why Vis instead of \_\_\_\_\_

⇒ Card... is good about this

Data Vis  
 A Picture  
 A Diagram

- shift cognitive ⇒ perceptual
- external memory
- employ perceptual system
- grouping / help search / perceptual inferences (Larkin & Simon)

- he  
 OS
- sensory appeal
  - turn time into space
  - bandwidth (actually above)

### Amplify Cognition

increased resources → more data, external memos, ...  
 (bandwidth of eye "parallelism")

reduced search → easier to organize pre-attention  
 avoid (or use) Symbolic Indirection } my term - based on ware

enhanced recognition of patterns → eye is robust pattern matcher } mg  
 auto-summarization

perceptual inference

perceptual monitoring (popout and pre-attention)

manipulable medium (animation interaction) → since we don't use time, we can add it

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Gleicher's Theory -

3 ways to deal w/ too much stuff

summarize

scan

subset / select

Ware's 4 implications (p172)

- ① support pattern finding
- ② optimize cognitive process (nested activities)
- ③ account for economics of cognition
- ④ attention

Statistics - OK, if you know which statistics

⇒ summarize

people are good @ summarizing