Glyphs

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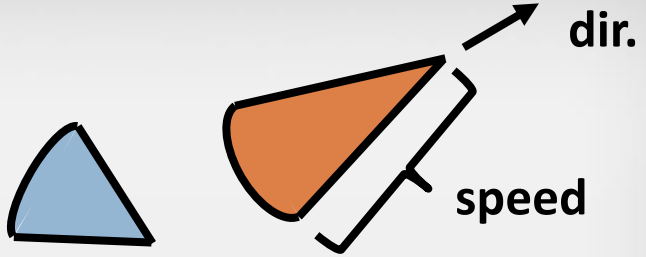
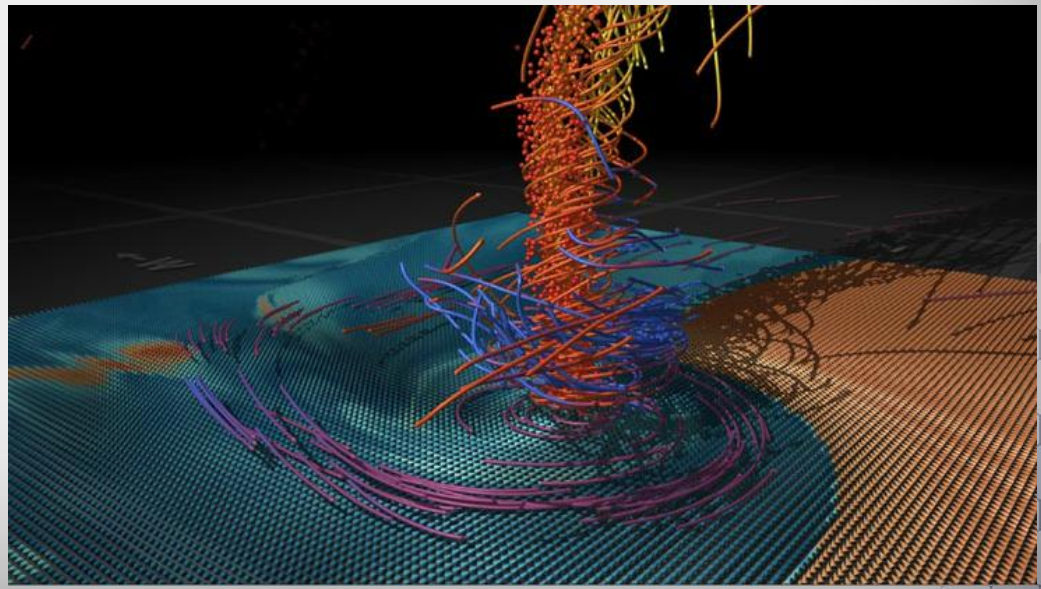
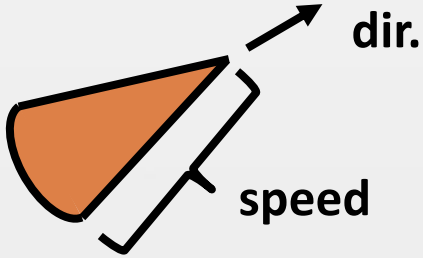
Glyphs



- Cones shape indicates wind speed (size) and direction (orientation)
- Color also used:
  orange → rising
  blue → falling
- Adds extra dimensions of data to visualization





Quantitative	Ordinal	Nominal
Position	Position	Position
Length	Density	Hue
Angle	Saturation	Texture
Slope	Hue	Connection
Area	Texture	Containment
Volume	Connection	Density
Density	Containment	Saturation
Saturation	Length	Shape
Hue	Angle	Length
	Slope	Angle
	Area	Slope
	Volume	Area
		Volume

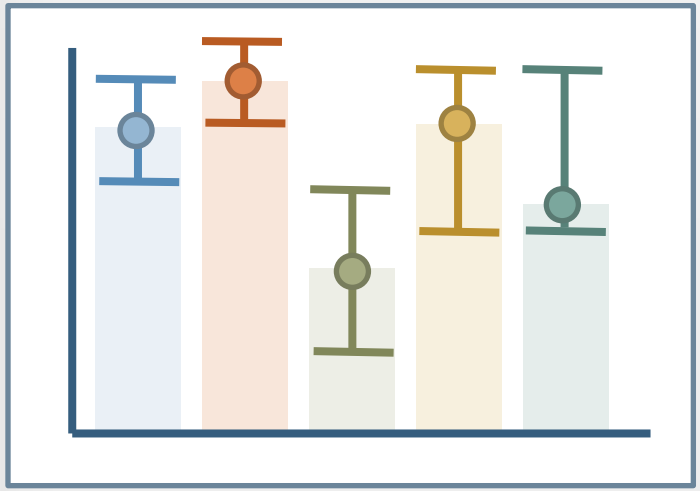
J. Mackinlay, Automating the Design of Graphical Presentations of Relational Information, ACM Transactions on Graphics 5(2), 1986

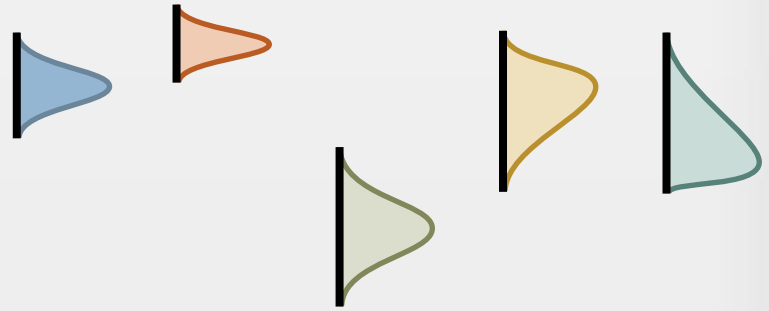
a piece of data is called a glyph

Glyphs in Charts

- Shape at top of bar charts, start/end of Gantt chart, and bar shape
- Shape of points in line charts and scatter plots
- Table is a scatter plot of regular variables
- Can vary shape, color, size, orientation

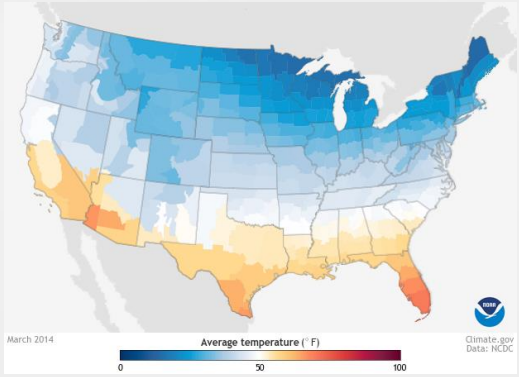
Error Bars





Heatmap

- Table where entries are displayed as a color
- Weather maps are heat maps on a table with columns = latitude and rows = longitude
- Familiar method for visualizing other data too



parameter 2

311	304	298	293	289	286	284	281	283	281
276	270	265	262	258	255	253	254	253	251
260	252	245	240	237	235	233	234	241	260
257	249	246	244	255	303	383	456	531	551
264	273	330	418	553	609	621	623	626	625
363	470	633	661	675	678	680	681	683	680

parameter 1

Microsoft Excel conditional formatting

program optimization

Quantitative

Position

Length

Angle

Slope

Area

Volume

Density

Saturation

Hue

Worlds within Worlds

- Each glyph is itself a plot
- E.g. a table of tables
- Different scales for major axis and minor axis for both horizontal and vertical axes
- Can work in 3-D or even deeper nesting (worlds within worlds within worlds), but less effectively

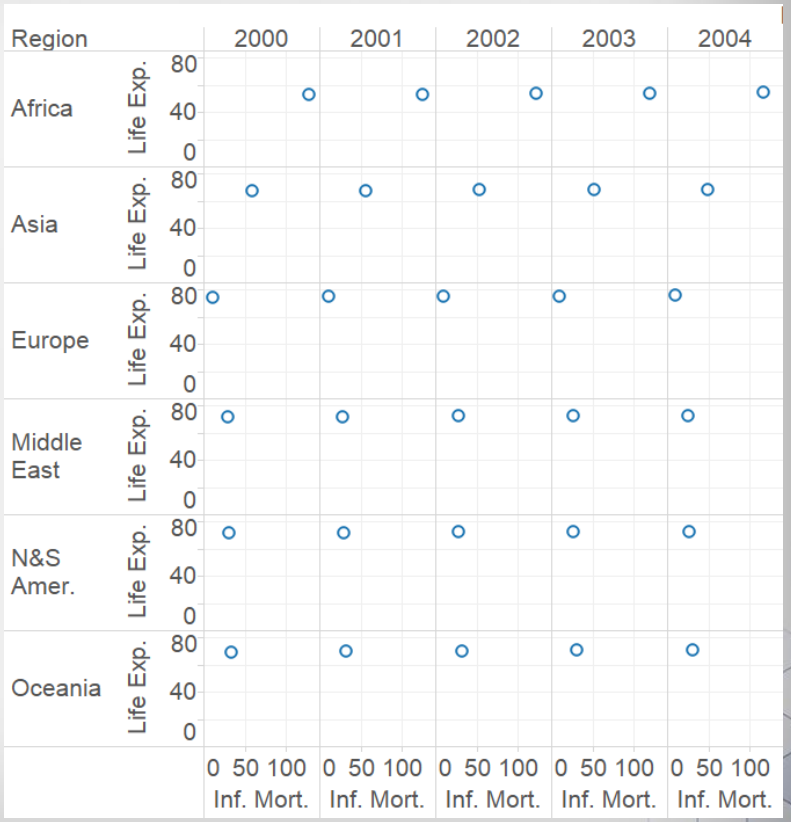
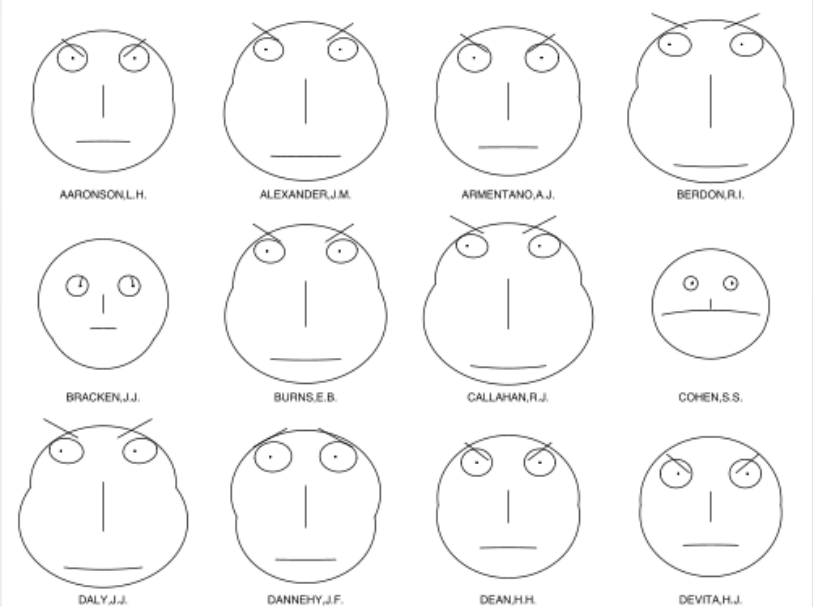


Tableau layout of World Bank Indicator Data

Chernoff Faces

- Glyphs in the form of a cartoon human face
- Maps data to facial features (eyebrows, face shape, expression, etc.)
- Perception and memory designed to detect and recall facial features



12 sample state judges as rated by lawyers and plotted in R by Wikipedia user “Avenue”