Protovis: A Graphical Language for Visualization
Jeffrey Heer - Stanford University

http://protovis.org

The Commercial and Political Atlas, William Playfair 1786

Price of Wheat and Wages of Labor, William Playfair 1822

"Coxcomb" of Crimean War Deaths, Florence Nightingale 1856

"to affect thro' the Eyes what we fail to convey to the public through their word-proof ears"
The Rise of Graphical Literacy and Expression

Historically, the best visualizations were meticulously constructed by hand.

Currently, the best visualizations are also meticulously constructed in custom code.

How might tools facilitate the creation of expressive visualization designs?
What is the most common way to create a visualization?

Chart Typology
Today’s first task is not to invent wholly new [graphical] techniques, though these are needed. Rather we need most vitally to recognize and reorganize the essential of old techniques, to make easy their assembly in new ways, and to modify their external appearances to fit the new opportunities.

**Protovis**

Create customized visualizations using a declarative specification language.

```javascript
var vis = new pv.Panel();
vis.add(pv.Bar)
  .data([1, .2, .1, 1.5, .7])
  .bottom(10)
  .width(20)
  .height(function(d) d * 70)
  .left(function() this.index * 25 + 20);
vis.render();
```

**Protovis (protovis.org) - JavaScript Visualization Tools**

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**Bullet Charts** | Clint Ivy

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**Climate Graph** | Robert Kosara
Bach’s Prelude #1 in C Major | Jieun Oh

FlickrSeason | Ken-Ichi Ueda

Dymaxion Maps | Vadim Ogievetsky

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Look for v3.2 soon! http://protovis.org