Interactive Examples

First stab (chapter)

1.1 Tangle, d3, and MathJax

Tangle Example

Proposition 21: Vehicle License Fee for State Parks

The way it is now:

California has 278 state parks, including state beaches and historic parks. The current $400 million budget is insufficient to maintain these parks, and 150 parks will be shut down at least part-time. Most parks charge $12 per vehicle for admission.

What Prop 21 would do:

Proposes to charge car owners an extra $18 on their annual registration bill, to go into the state park fund. Cars that pay the charge would have free park admission.

Analysis:

Suppose that an extra $18 was charged to 100% of vehicle registrations . Park admission would be free for those who paid the charge .

This would collect an extra $437 million ($504 million from the tax, minus $67 million lost revenue from admission) for a total state park budget of $837 million. This is sufficient to maintain the parks in their current state, plus fund a program to bring safety and cleanliness up to acceptable standards over the next 7 years.

Park attendance would rise by 34% , to 100 million visits each year.

Interactive Chord Example (using the d3 library)

Euro Debt Crisis

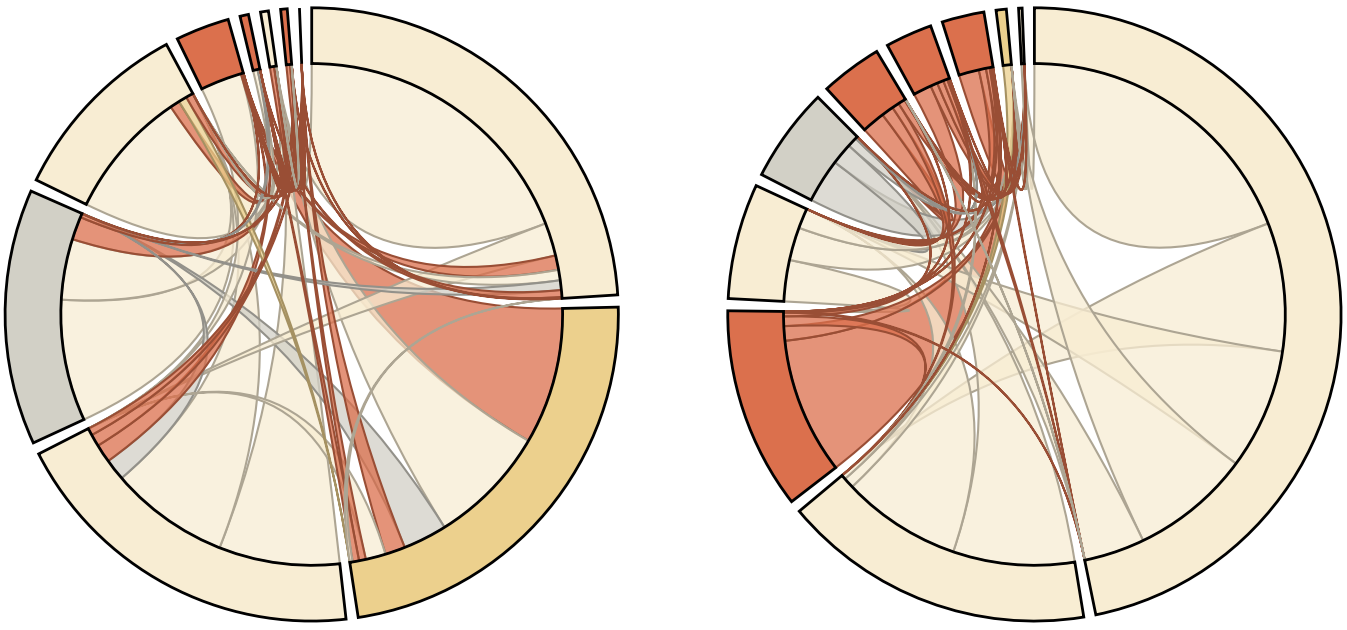

Figure 1.1 Here are two images showing (a) how much each country is owed and (b) how much each country owes. (Hover over different parts for a tooltip)

Interactive Animations (using the d3 library)

This next figure is just javascript. Dragging the handles in one image adjusts the rest.

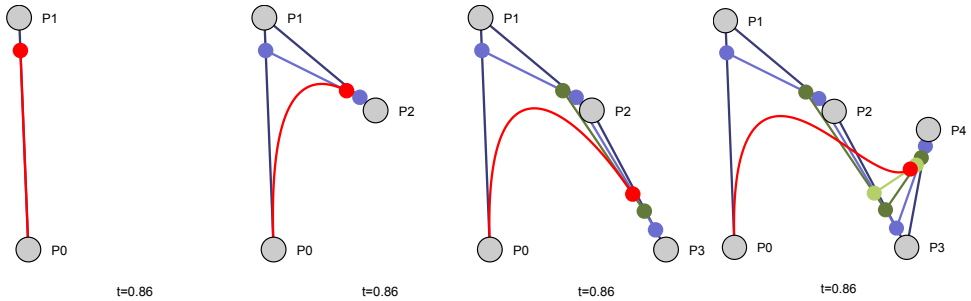

Figure 1.2 Bezier curves wdrawn with 2 to 5 points

Interactive Bar Chart Example (using the d3 library)

Alas, I'd be remiss without including a bar chart. This one is ugly but interesting. If you click on an item you can drill down to see more information. Also, the printed version shows the default high-level view.

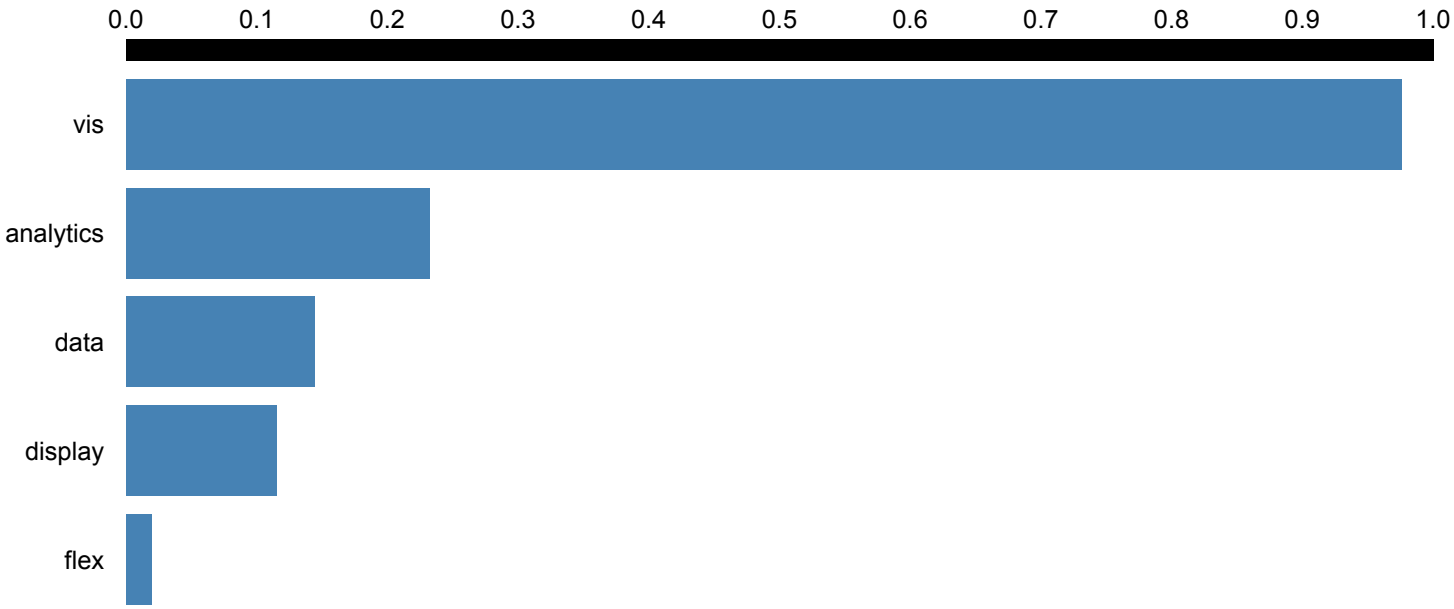

Figure 1.3 Here is a figure with a bar chart showing the number of lines of code for different packages

MathJax Example

This math is typeset using MathJax instead of pmml2svg. One advantage is that we hopefully no longer need to generate PNG files. MathJax can be configured to generate HTML+CSS (should work in EPUB) or SVG (should work in PDF).

$$\int_{-\infty}^{\infty} s(t) e^{\frac{j2\pi kt}{T_s}} e^{-(j2\pi ft)} \, dt = \int_{-\infty}^{\infty} s(t) e^{-\left(j2\pi\left(f-\frac{k}{T_s}\right)t\right)} \, dt = S\left(f - \frac{k}{T_s}\right)$$