User:Cmglee

From Wikimania 2016 • Esino Lario, Italy

Dynamic SVG for Wikimedia projects:

Exploring applications, techniques and best practice for interactive and animated vector graphics

[[:en:user:cmglee]]
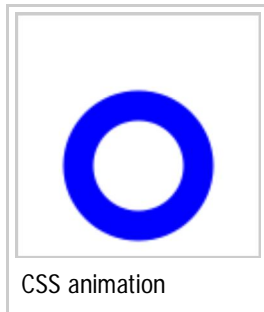
Contents

- 1 Techniques
    - 1.1 Animation
    - 1.2 Tooltips
    - 1.3 Hyperlinks
    - 1.4 Progressive disclosure
- 2 Applications
    - 2.1 Interactive timelines
    - 2.2 Simple 3D viewer
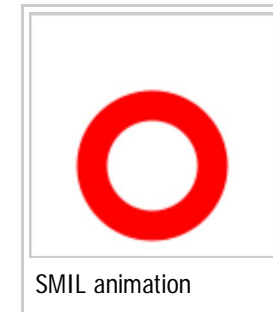- 3 GIF animation to SVG converter
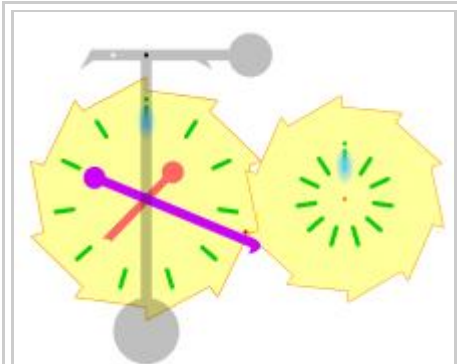- 4 Best practice
- 5 Cheers

#Techniques

Techniques

CSS animation

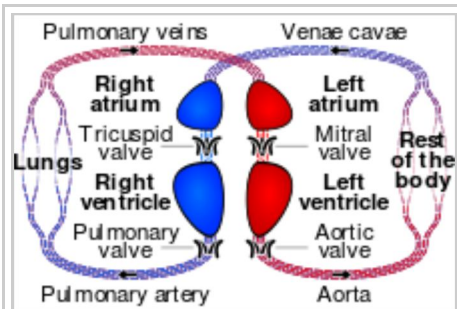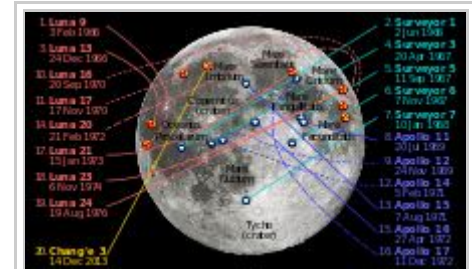| Technology	Power	Compatibility
JavaScript/ECMAScript	■ Almost limitless	Barred for Wikimedia
Cascading Style Sheets (CSS)	■ Hover effects	Most modern browsers
	■ Animation	Not in Internet Explorer
Synchronized Multimedia Integration Language (SMIL)	■ Hover & click effects ■ Animation	Not in Internet Explorer

SMIL animation

#Animation

Animation

A very long animation using SMIL

CSS animation highlighting features of interest on hover and linking to Wikipedia on click

1. Has much smaller file size
2. Can be enlarged without getting blocky
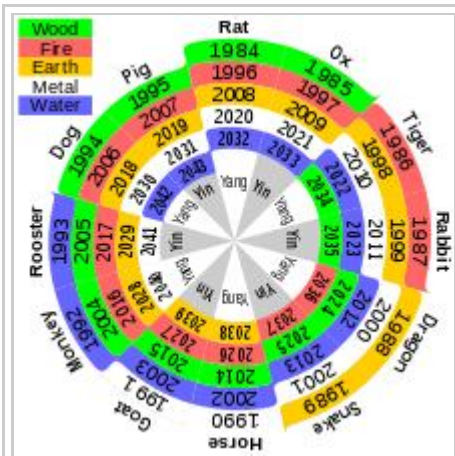3. Allows interaction besides pause and seek

SMIL animation demonstrating change in transformation and CSS attributes

Pseudo-3D rotating CSS animation highlighting building section on hover
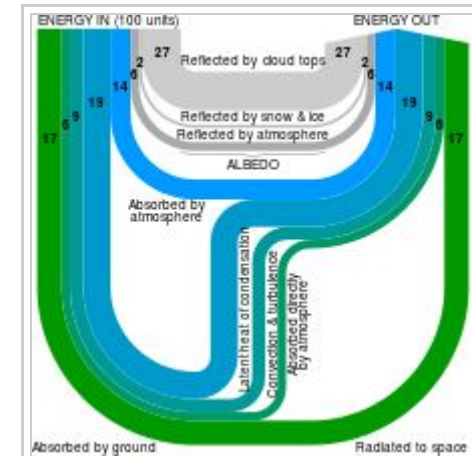
#Tooltips

Tooltips

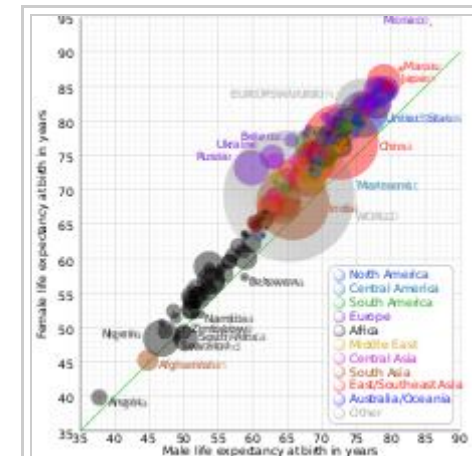Using multiline titles with Chinese characters and highlighting on hover

Using titles and anchor links to show digits' decimal place (position) on hover

Technique	Power	Compatibility
Title tag	- Text (multiline not in IE) - Follows cursor	Most modern browsers
Anchor link	- Text - Ugly - Fixed position	Most modern browsers
Embedded custom cursor	- Image - Follows cursor	Not in IE
CSS hover selector	- Any SVG - Fixed position	Most modern browsers

Using custom cursors to show number of units on hover
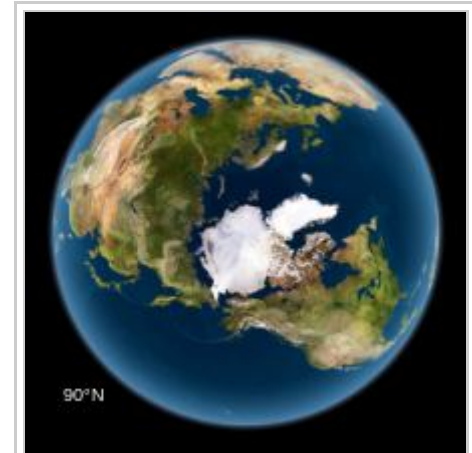

Using CSS and titles on hover

#Hyperlinks 2

Hyperlinks

Airline codes are hyperlinked to their Wikipedia articles
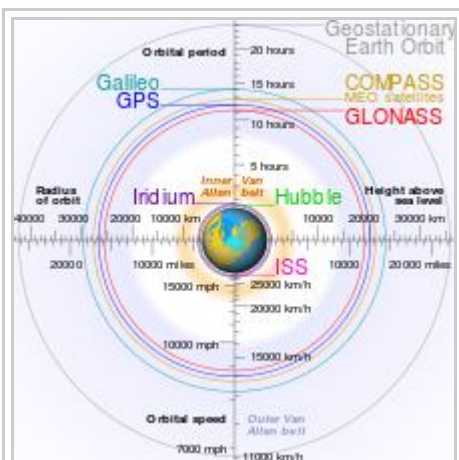
- Supported on most browsers
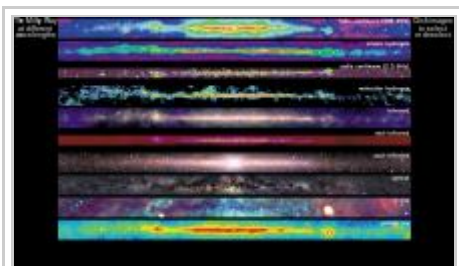- Specify *target* to load in a new tab/window

Geographic coordinates linked to GeoHack

#Progressive disclosure
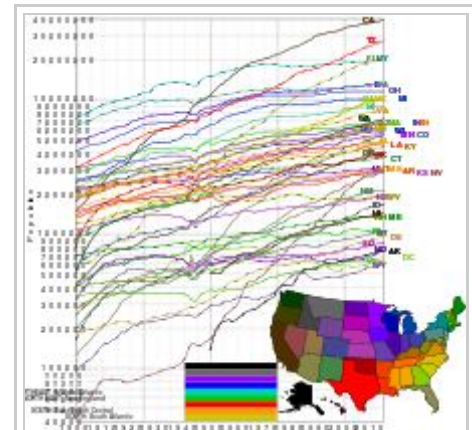
Progressive disclosure

Highlighting on hover using CSS

Selectable objects using SMIL

Technique	Power	Compatibility
CSS hover selector	■ React to hover	Most modern browsers
SMIL click event	■ React to click ■ Grouping has limitations	Not in IE

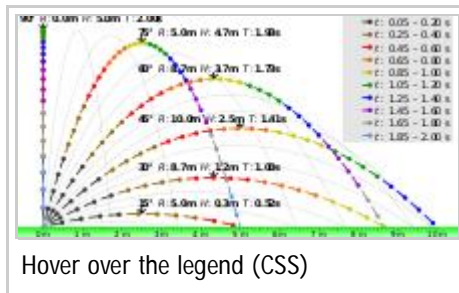Interactive plot with groups of selectable objects

Demonstration using groups

#Applications 2

Applications

Interactive timelines

Hover over the legend (CSS)

Hover over or click buttons on the timeline
(SMIL + CSS)

- Show change to a system over time
- Add triggers (including invisible ones) to change element appearance
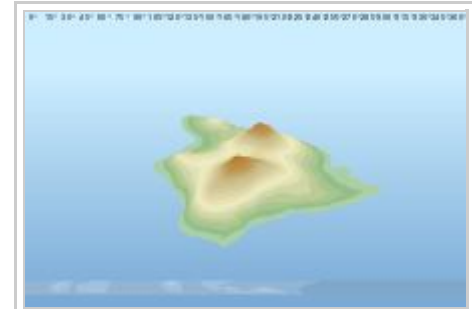- CSS for hover effects
- SMIL for click effects

#Simple 3D viewer

Simple 3D viewer

A large composite of multiple frames tracks the mouse pointer (SMIL)

- As above, but change viewpoint instead of time
- JavaScript, Flash or plug-ins not needed, but angles are limited and resolution is low for file size
- Good for real photographs as number of angles is naturally limited
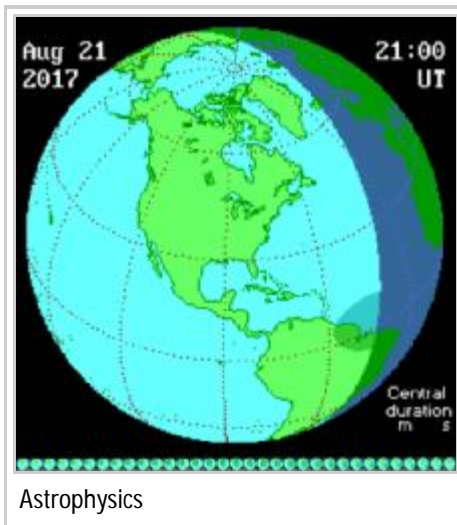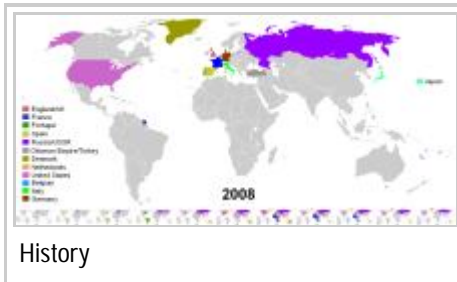

Pointer position controls pseudo-3D rotation angle (SMIL)
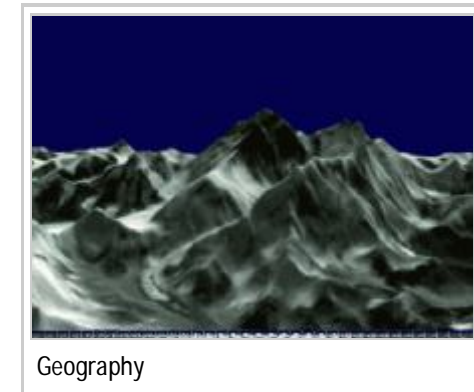
#GIF animation to SVG converter

GIF animation to SVG converter

History

Astrophysics
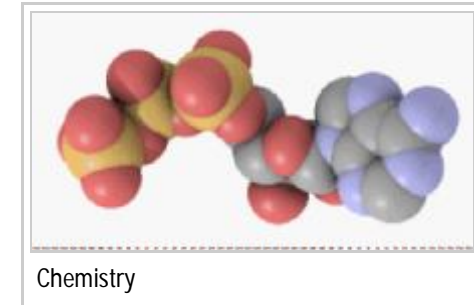
- Converts a GIF animation into an interactive timeline/simple 3D view
- Command-line Python 2 script using ImageMagick, tested on Ubuntu and Win 7
- Usage:

```
gif_animation_to_svg.py
  <URL of GIF animation file>
  [<use every nth GIF frame;
          negative reverses order>]
  [<action message or '3D' or 'time'>]
```
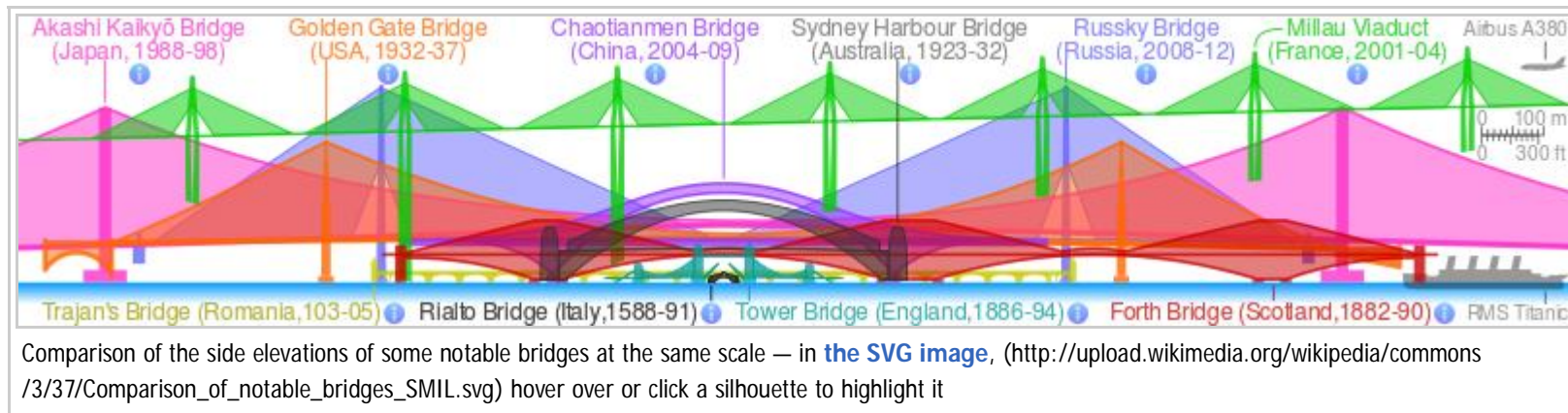
- Uses CSS (no SMIL) so works in most modern browsers

Chemistry

Geography

Source code:

```python
#!/usr/bin/env python
import re, json

## http://stackoverflow.com/questions/3503879
import subprocess, sys
def system(command, is_verbose=False):
  if (is_verbose): sys.stdout.write(command) ## write omits newline
```
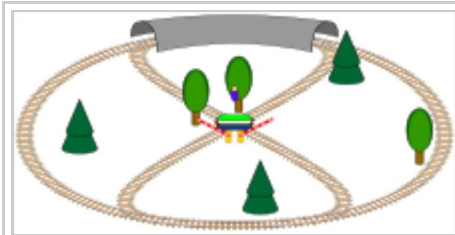
#Best practice

Best practice

- Degrade gracefully on less well-endowed browsers e.g.
    - Fall back on CSS hover effects if SMIL click effects unsupported
    - Check tooltips read fine if newlines are replaced with spaces
- Touchscreens have no hover: click includes hover
    - To maintain click effect, hyperlink an icon
- Check thumbnail is OK
- Add link to SVG file in caption

Comparison of the side elevations of some notable bridges at the same scale — in **the SVG image**, (http://upload.wikimedia.org/wikipedia/commons /3/37/Comparison_of_notable_bridges_SMIL.svg) hover over or click a silhouette to highlight it

#Cheers ♪

Cheers

Demonstration of motion along a path and simulation of 3D using SMIL
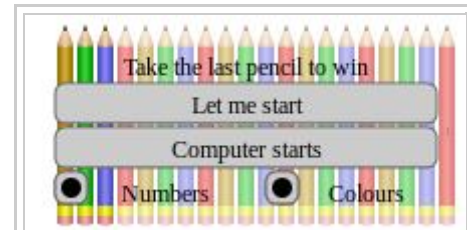

A simple action game using SMIL

Thank you*!*

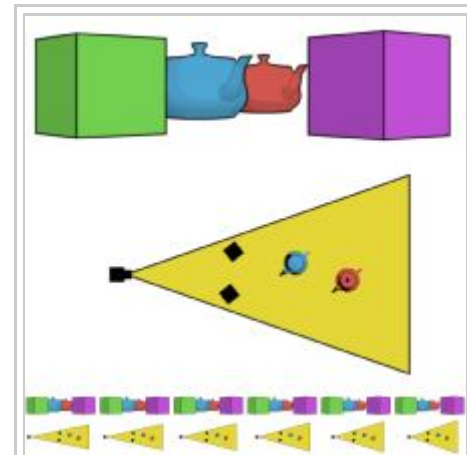Any questions*?*

Wanna collaborate*?*

[[:en:user:cmglee]]

The *21* game with AI using SMIL

Novel application of CSS timeline

Retrieved from "https://wikimania2016.wikimedia.org/w/index.php?title=User:Cmglee&oldid=37705"