CSS3 Transforms, Transitions & Animations

@yaili

2D Transforms

"CSS 2D Transforms allows elements rendered by CSS to be transformed in two-dimensional space."

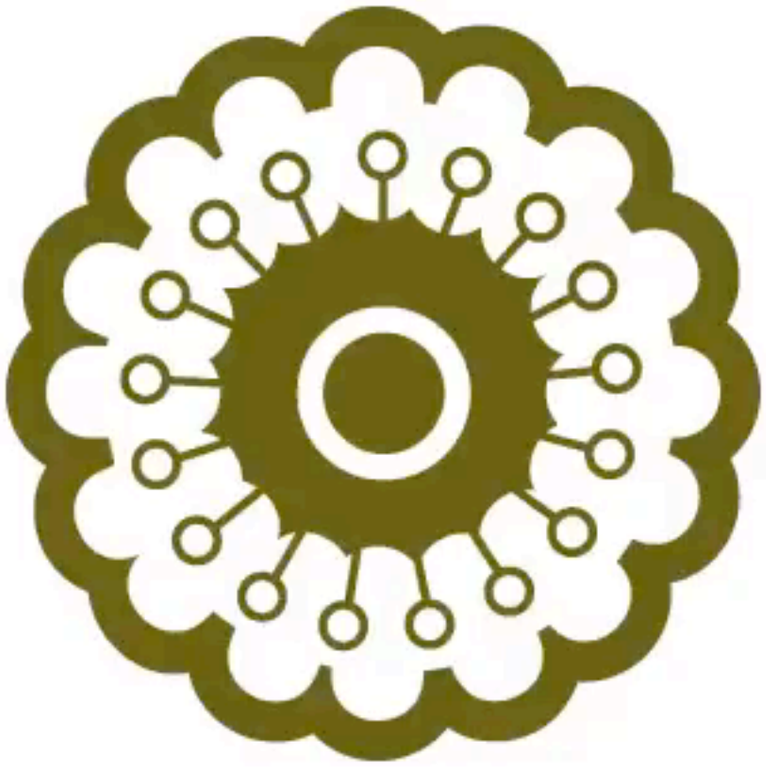
—W3C, http://www.w3.org/TR/css3-2d-transforms/

```
#flower {
   background: url(flower-1.png);
   width: 300px;
   height: 300px; }
```

```
#flower:hover {
   transform: translateX(600px); }
```

CSS Transforms, Transitions and Animations

Transforms 2D

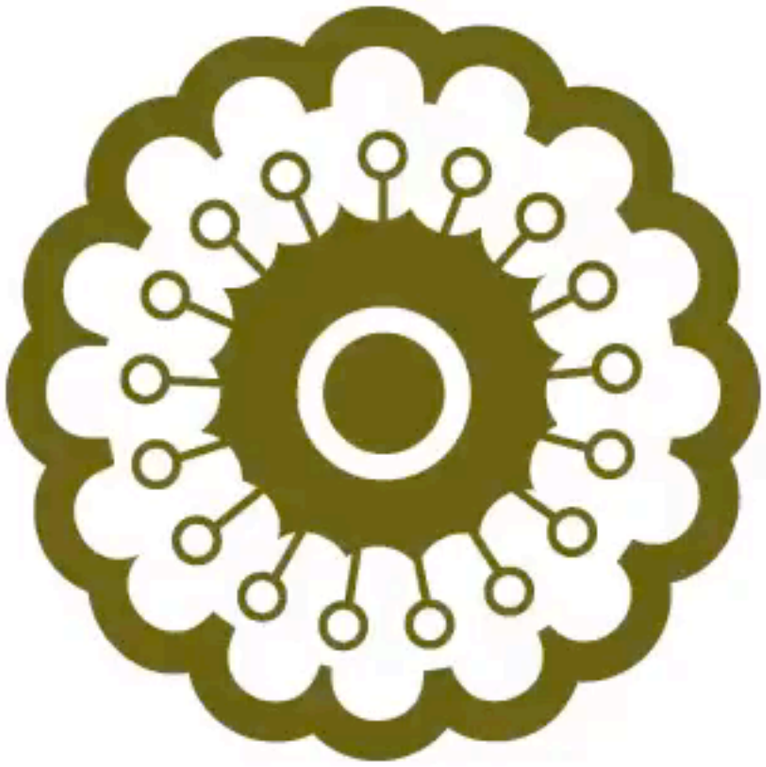


```
translate, translateX, translateY

scale, scaleX, scaleY

rotate

skew, skewX, skewY

matrix
```

```
#flower:hover {
   transform: translate(600px, -50px) scale(1.5) ➥
rotate(15deg) skew(15deg); }
```

CSS Transforms, Transitions and Animations

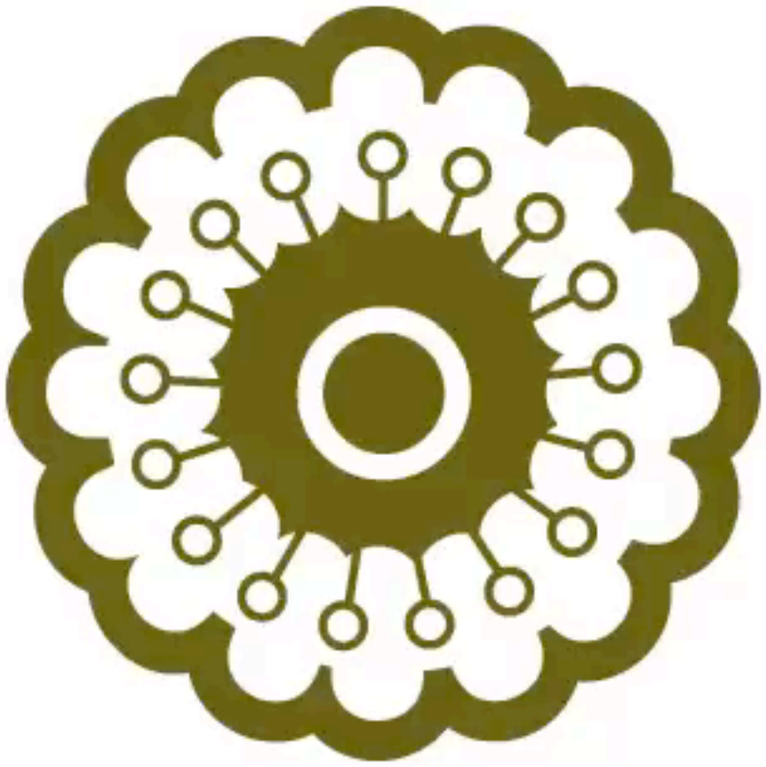
Transforms 2D



```
#flower:hover {
   transform: translate(600px, -50px) scale(1.5) ➥
rotate(15deg) skew(15deg);
   transform-origin: 0 0; }
```

CSS Transforms, Transitions and Animations

Transforms 2D



3D Transforms

```
scale → scale3d

scaleX

scaleY

scaleZ
```

```
translate → translate3d

rotate → rotate3d

matrix → matrix3d
```

perspective-origin

backface-visibility

```
body {
    perspective: 1000;
    perspective-origin: 50% 100%; }


#kitten {
    margin: auto;
    display: block; }


#kitten:hover {
    transform: rotateY(-25deg); }
```

CSS Transforms, Transitions and Animations

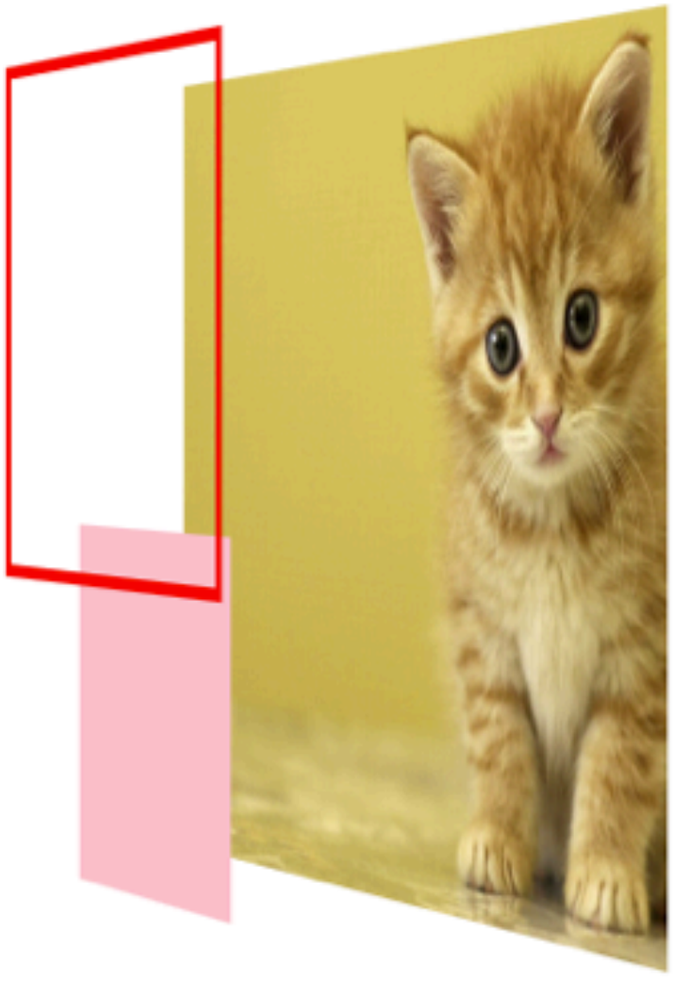
Transforms 3D

```
#level1 {
    background: url(kitten.jpg) no-repeat;
    width: 500px;
    height: 333px;
    transform: rotateY(-25deg);
    transform-style: preserve-3d; }
```

```
#level2 {
    border: 5px solid red;
    width: 200px;
    height: 200px;
    transform: translateZ(50px); }

#level3 {
    background: pink;
    width: 150px;
    height: 150px;
    top: -20px;
    position: relative;
    transform: translateZ(40px); }
```

CSS Transforms, Transitions and Animations

Transforms 3D



Transitions

```
#flower {
   background: url(flower-1.png);
   width: 300px;
   height: 300px; }
```

```
#flower:hover {
   transform: translateX(600px); }
```

```
#flower {
   background: url(flower-1.png);
   width: 300px;
   height: 300px;
   transition-property: transform;
   transition-duration: 1.5s;
   transition-delay: .1s;
   transition-timing-function: ease-in; }


#flower:hover {
   transform: translateX(600px); }
```

```
#flower {
    background: url(flower-1.png);
    width: 300px;
    height: 300px;
    transition: all 1.5s ease-in .1s; }
```

Animations

“CSS Animations allow an author to modify CSS property values over time.”

—W3C, http://www.w3.org/TR/css3-animations/

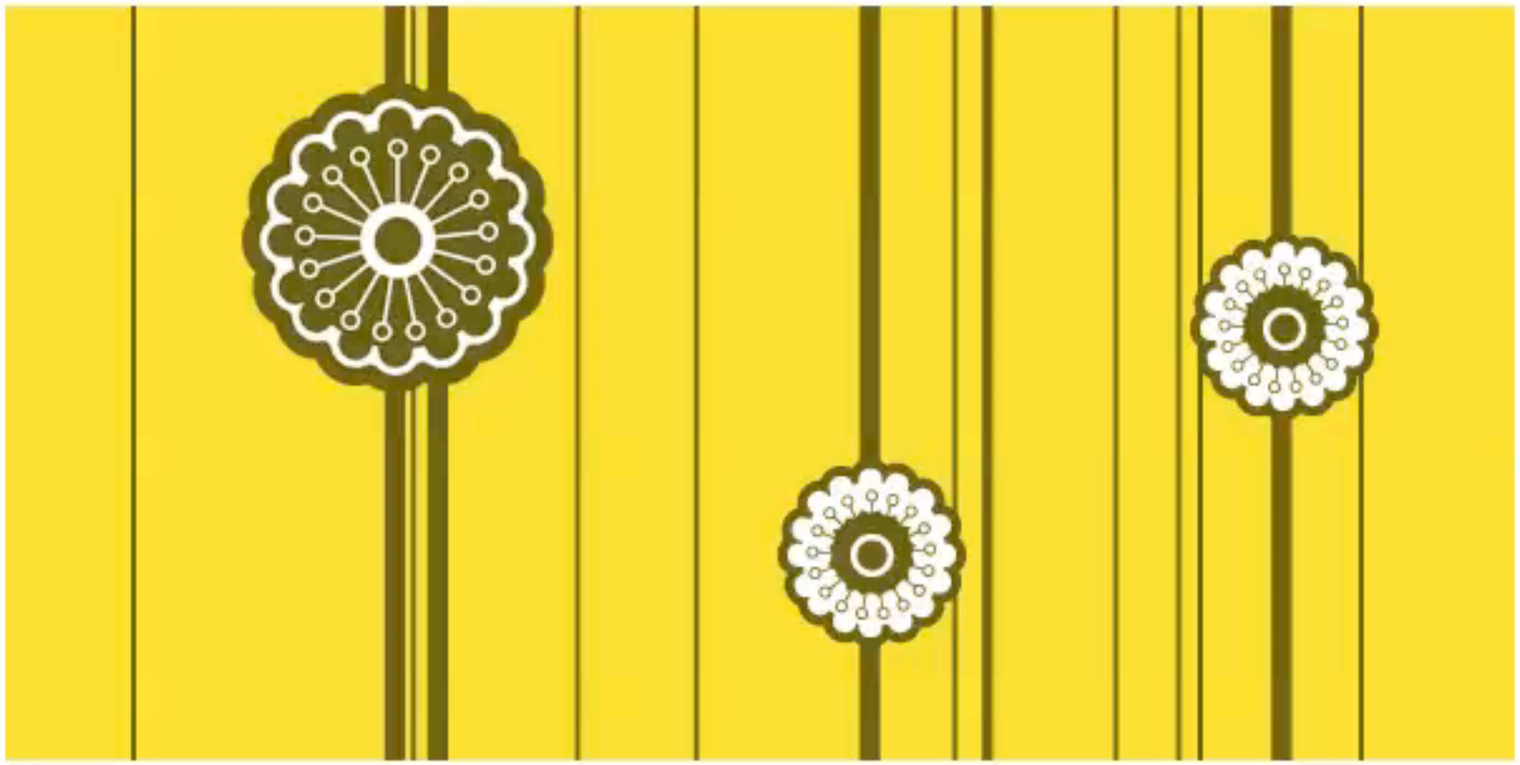
```
@keyframes sky {
    0% { background-color: #daf2f4; }
    50% { background-color: #f7d518; }
    100% { background-color: #f5700d; }
}
```

```
#box {
    animation-name: sky;
    animation-duration: 5s;
    animation-timing-function: linear;
    animation-iteration-count: infinite;
    animation-direction: alternate; }
```

```
#box {
  animation: sky 10s linear infinite alternate; }
```

CSS Transforms, Transitions and Animations

Animations

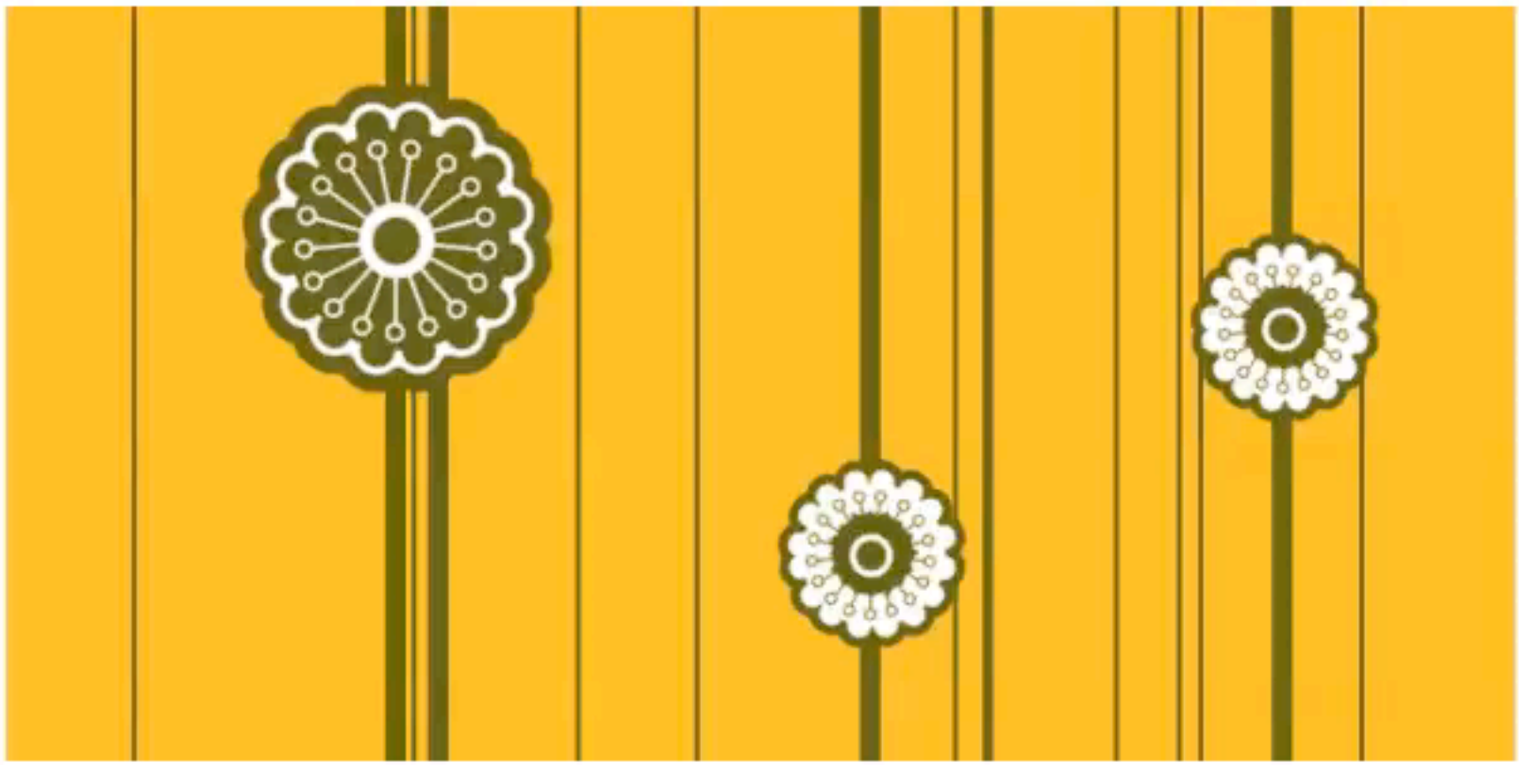


```
@keyframes spin {
    0% {
        transform: rotate(0deg); }
    100% {
        transform: rotate(180deg); }
}
```

```
#flower-1,
#flower-2,
#flower-3 {
   animation: spin .7s linear infinite; }
```

CSS Transforms, Transitions and Animations

Animations



Vendor Prefixes

```
#flower:hover {
  transform: translateX(600px); }
```

```
#flower:hover {
    -moz-transform: translateX(600px);
    -ms-transform: translateX(600px);
    -o-transform: translateX(600px);
    -webkit-transform: translateX(600px);
    transform: translateX(600px); }
```

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The Free Encyclopedia

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Current events
Random article
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Print/export

Languages
中文

Comparison of layout engines (Cascading Style Sheets)

From Wikipedia, the free encyclopedia

The following tables compare CSS compatibility and support for a number of layout engines. Please see the individual products' articles for further information. This article is not all-inclusive or necessarily up-to-date. Unless otherwise specified in footnotes, comparisons are based on the stable versions without any add-ons, extensions or external programs.

Contents [hide]

1 Explanation of the tables
2 CSS version support
3 Grammar and rules
4 Selectors
5 Properties
6 Values and units
7 General notes
8 References
9 External links

Cascading Style Sheets

- CSS Animations
- Dynamic CSS
- **Comparison of layout engines**
- Comparison of stylesheet languages
- Internet Explorer box model bug
- CSS Zen Garden
  - The Zen of CSS Design
- CSSTidy
- Style sheet
- Tableless web design
- Holy Grail (web design)
- WikiBooks: Cascading Style Sheets

This box: view · talk · edit

Explanation of the tables [edit]

Engine nomenclature [edit]

"Comparison of layout engines"
http://en.wikipedia.org/wiki/Comparison_of_layout_engines_(Cascading_Style_Sheets)

Gecko	2.0	6.0a1	All Mozilla software, including Firefox; SeaMonkey and Galeon; Camino; K-Meleon; Flock (up to 2.x); Epiphany-gecko; GNU IceCat (formerly IceWeasel); Icedove, Iceape and Iceowl; Fennec (for Android and Nokia N900 only)
KHTML		N/A	Konqueror

When can I use... Support tables for HTML5, CSS3, etc

When can I use...

Comments Feed Twitter

2,978 tweets retweet 75 Flattr

Compatibility tables for support of HTML5, CSS3, SVG and more in desktop and mobile browsers.

Latest update: Two new features added: Touch events and a TTF/OTF fonts (May 12, 2011)

Ads by Google HTML5 CSS3 HTML5 Demo SVG W3C HTML5

Search: border-radius, WebGL, woff, etc

Index Tables FAQ Resources

Compatibility tables Browser comparison

Hide options

Category
- All
- CSS
- HTML5
- JS API
- Other
- SVG

Web Browser
- All
- Desktop
  - IE
  - Firefox
  - Safari
  - Chrome
  - Opera
- Mobile
  - iOS Safari
  - Opera Mini
  - Opera Mobile
  - Android Browser

Time period
- All
- Three versions back
- Two versions back
- Previous version
- Current
- Near future
- Farther future

Status
- All
- Recommendation
- Proposed Rec.
- Candidate Rec.
- Working Draft
- Other
- Unofficial / Note

Alternatives
- Accept polyfills

Sort
Most users first

Other options
- Detailed tables
- Accessible colors
- Show conclusions

= Supported = Not supported = Partially supported = Support unknown

"When can I use..."

http://caniuse.com/

Two versions back	7.0	3.5	3.2	9.0	10.6	3.2			2.1	
Previous version	8.0	3.6	4.0	10.0	11.0	4.0-4.1		10.0	2.2	
Current	9.0	4.0	5.0	11.0	11.1	4.2-4.3	5.0-6.0	11.0	3.0	2.3
Near future		5.0		12.0	11.5					

Dynamic CSS

LESS & Sass

```
.borders {
   border: 1px solid black;
   border-radius: 4px; }
```

```
.box {
   background: red;
   .borders; }
```

—

```
.box {
   background: red;
   border: 1px solid black;
   border-radius: 4px; }
```

```less
.translateX (@valueX:"") {
   -moz-transform: translateX(@valueX);
   -ms-transform: translateX(@valueX);
   -o-transform: translateX(@valueX);
   -webkit-transform: translateX(@valueX);
   transform: translateX(@valueX); }

#flower:hover {
   .translateX(600px); }
```

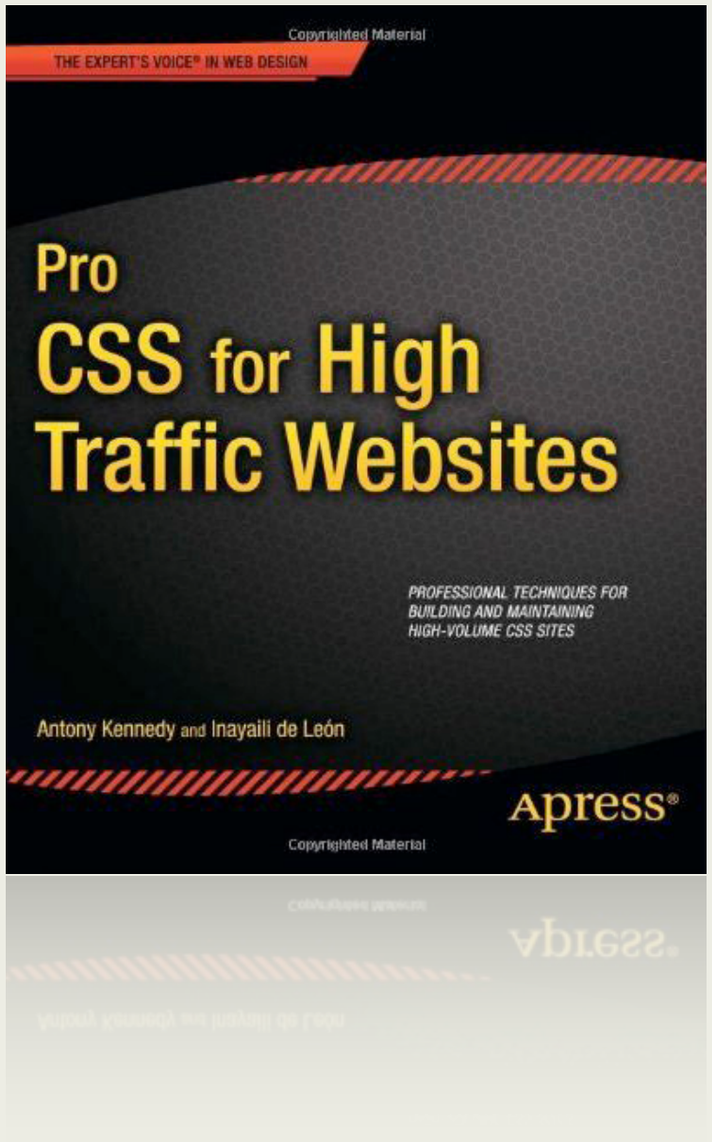
```
.transition (@property:"", @duration:"", @delay:"", @timing:"") {
   -moz-transition-property: @property;
   -o-transition-property: @property;
   -webkit-transition-property: @property;
   transition-property: @property;

   -moz-transition-duration: @duration;
   -o-transition-duration: @duration;
   -webkit-transition-duration: @duration;
   transition-duration: @duration;

   -moz-transition-delay: @delay;
   -o-transition-delay: @delay;
   -webkit-transition-delay: @delay;
   transition-delay: @delay;

   -moz-transition-timing-function: @timing;
   -o-transition-timing-function: @timing;
   -webkit-transition-timing-function: @timing;
   transition-timing-function: @timing; }
```

```
#flower {
  .transition(transform, 1.5s, .1s, ease-in); }
```

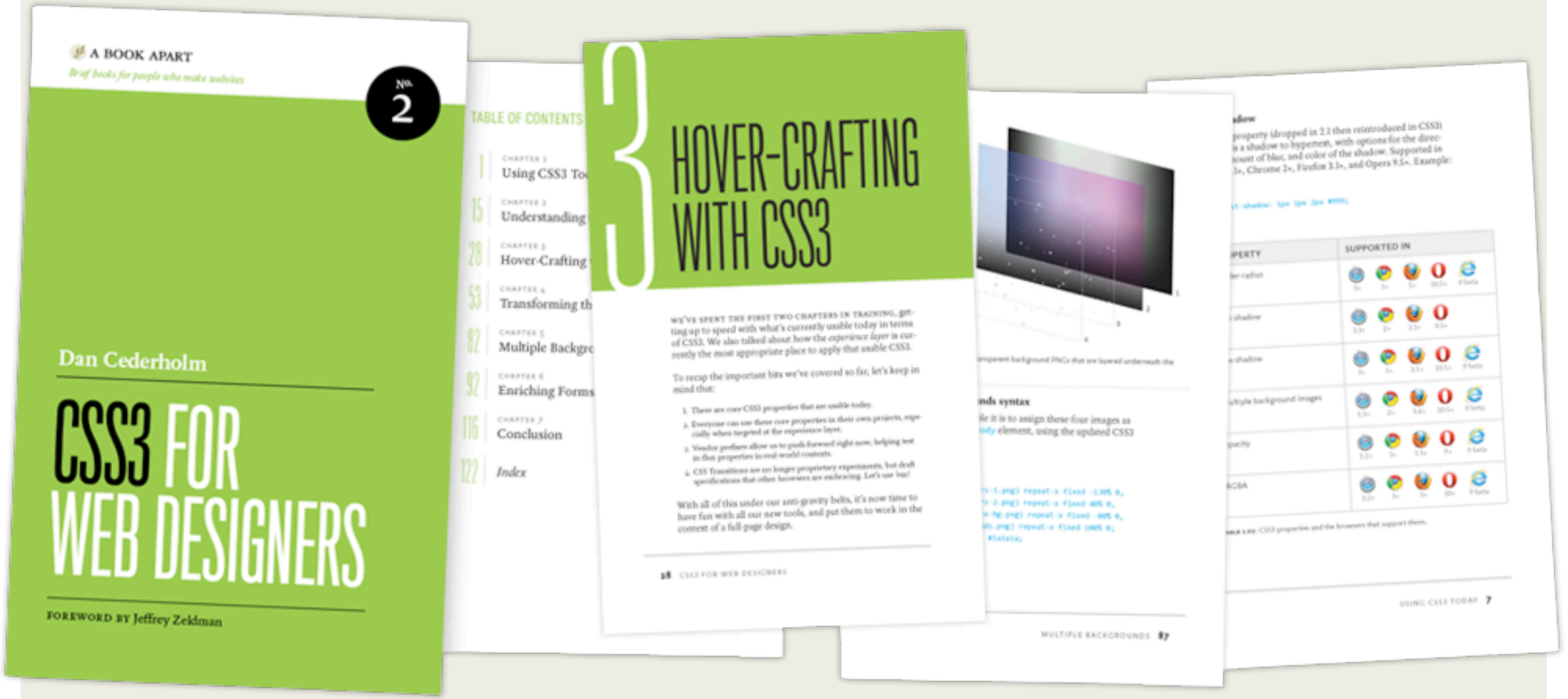


"Pro CSS for High Traffic Websites"

by *Antony Kennedy & Inayaili de León*

procssforhightrafficwebsites.com

Resources



"CSS3 for Web Designers", by Dan Cederholm

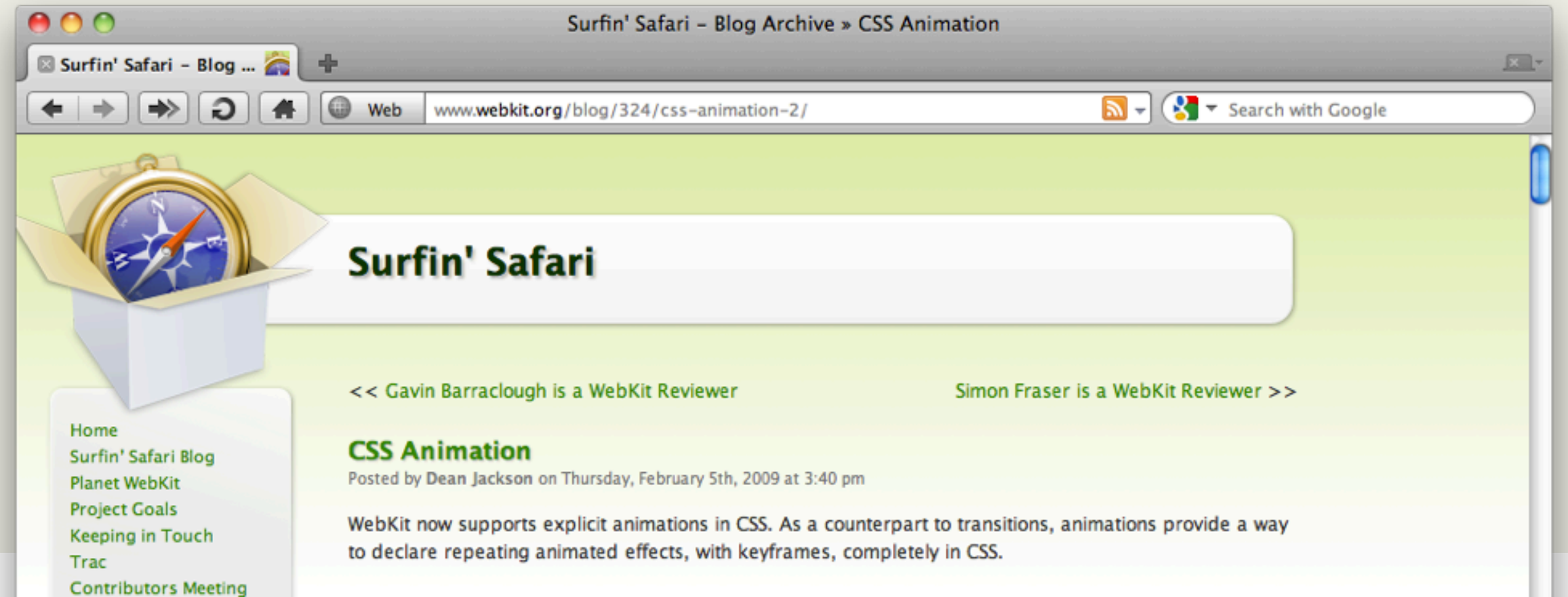
http://www.abookapart.com/products/css3-for-web-designers

“Hardboiled Web Design”, by Andy Clarke

http://fivesimplesteps.com/books/hardboiled-web-design

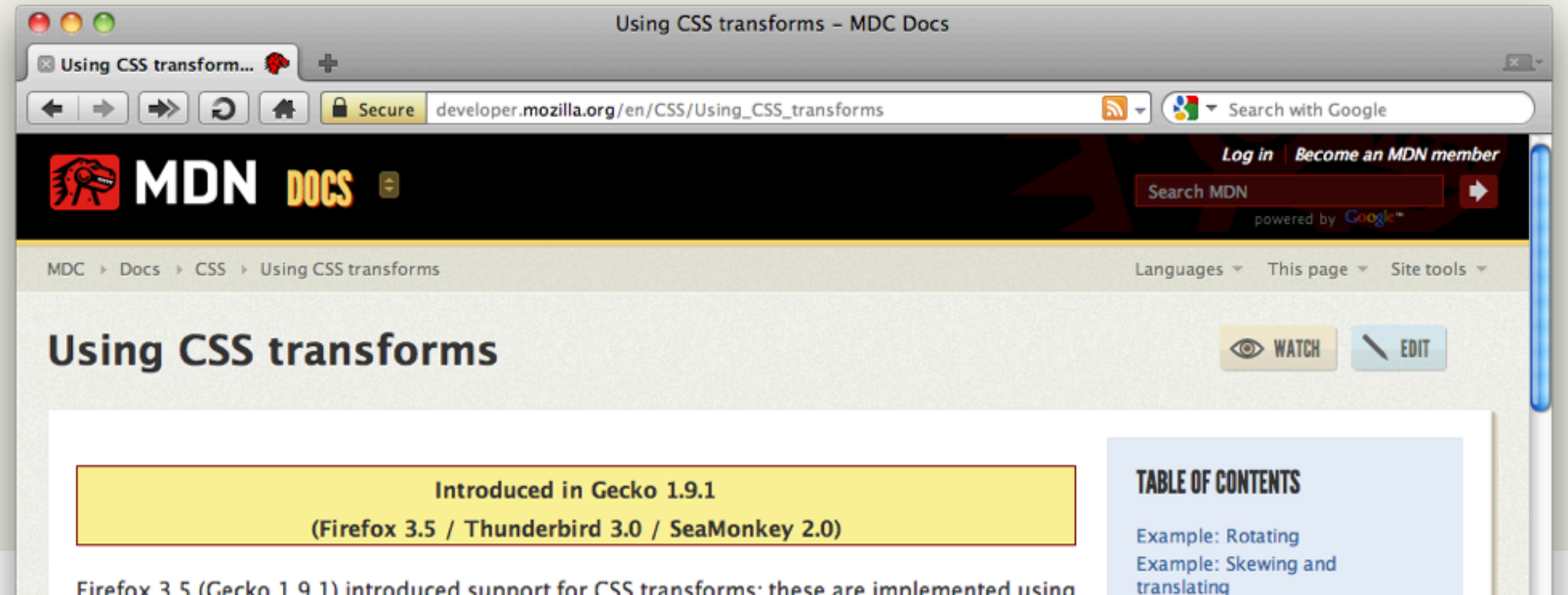
Surfin' Safari

http://www.webkit.org/blog/



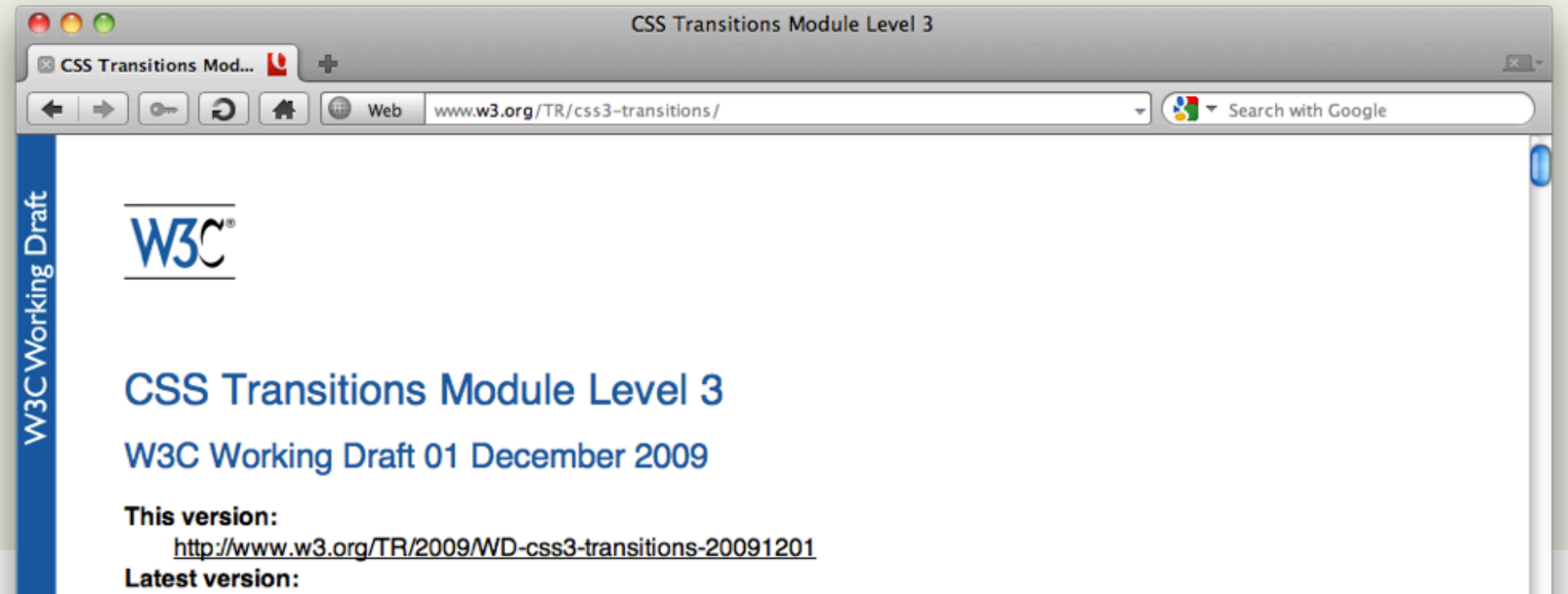
Mozilla Developer Network

https://developer.mozilla.org/en-US/



The Specification

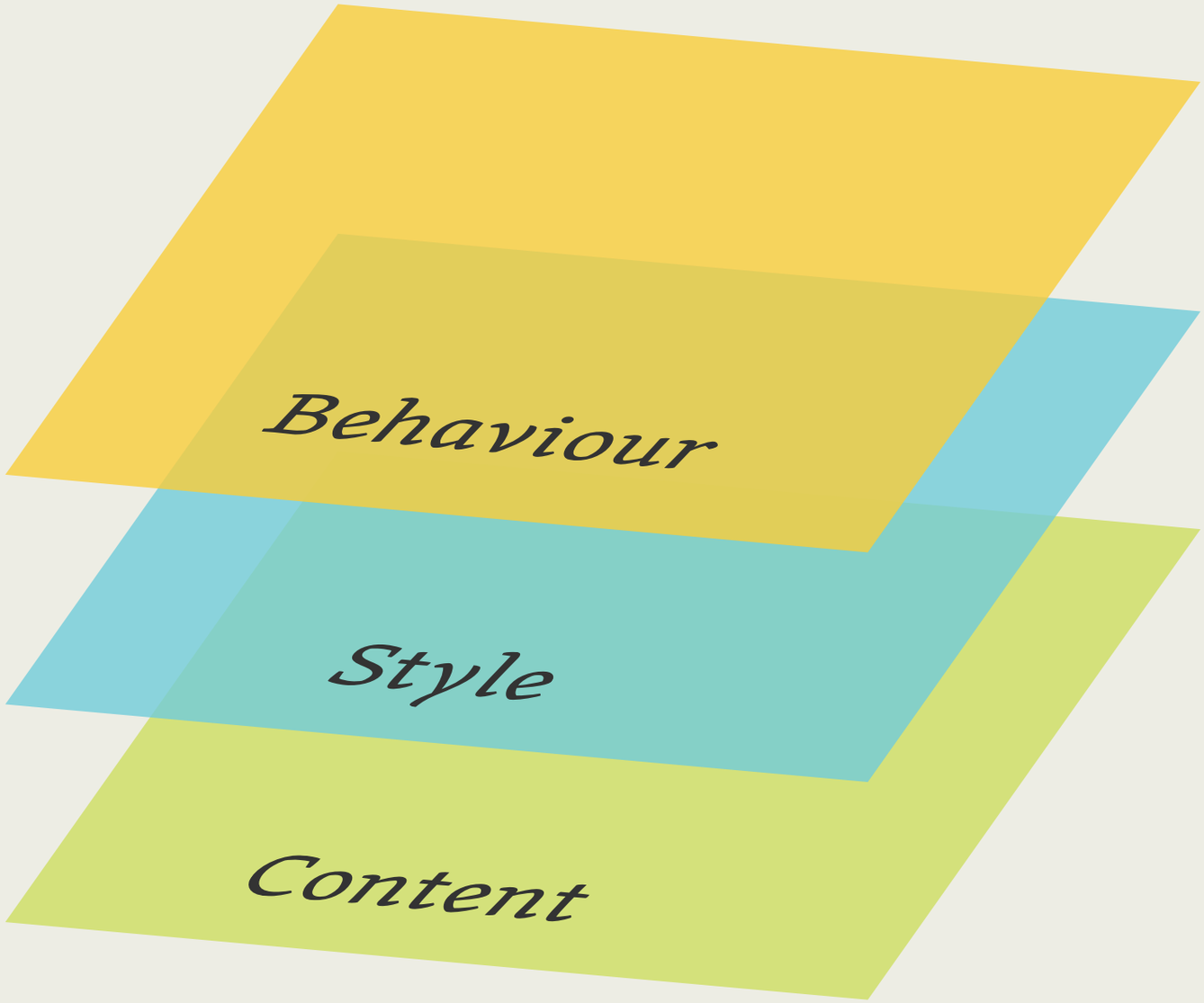
http://www.w3.org/



Considerations

	IE	Firefox	WebKit	Opera
2D Transforms	*IE 9*	*Firefox 3.5*		*Opera 10.5*
3D Transforms	*IE 10*			
Transitions	*IE 10*	*Firefox 4*		*Opera 10.5*
Animations		*Firefox 5*		

UNDER
CONSTRUCTION


Behaviour
Style
Content

Final thoughts

CSS3 MEMORY

A game of memory in which you will have to find **three matching cards**. (as a tribute to the CSS level used for the transitions)

"CSS3 Memory"

http://media.miekd.com/css3memory/

Crafted with love by Maykel Loomans.

Love it? Hate it? Questions? Tweet me!

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Fonts from

Kaleidoscope — File comparison for Mac

Twitter Release Notes Support

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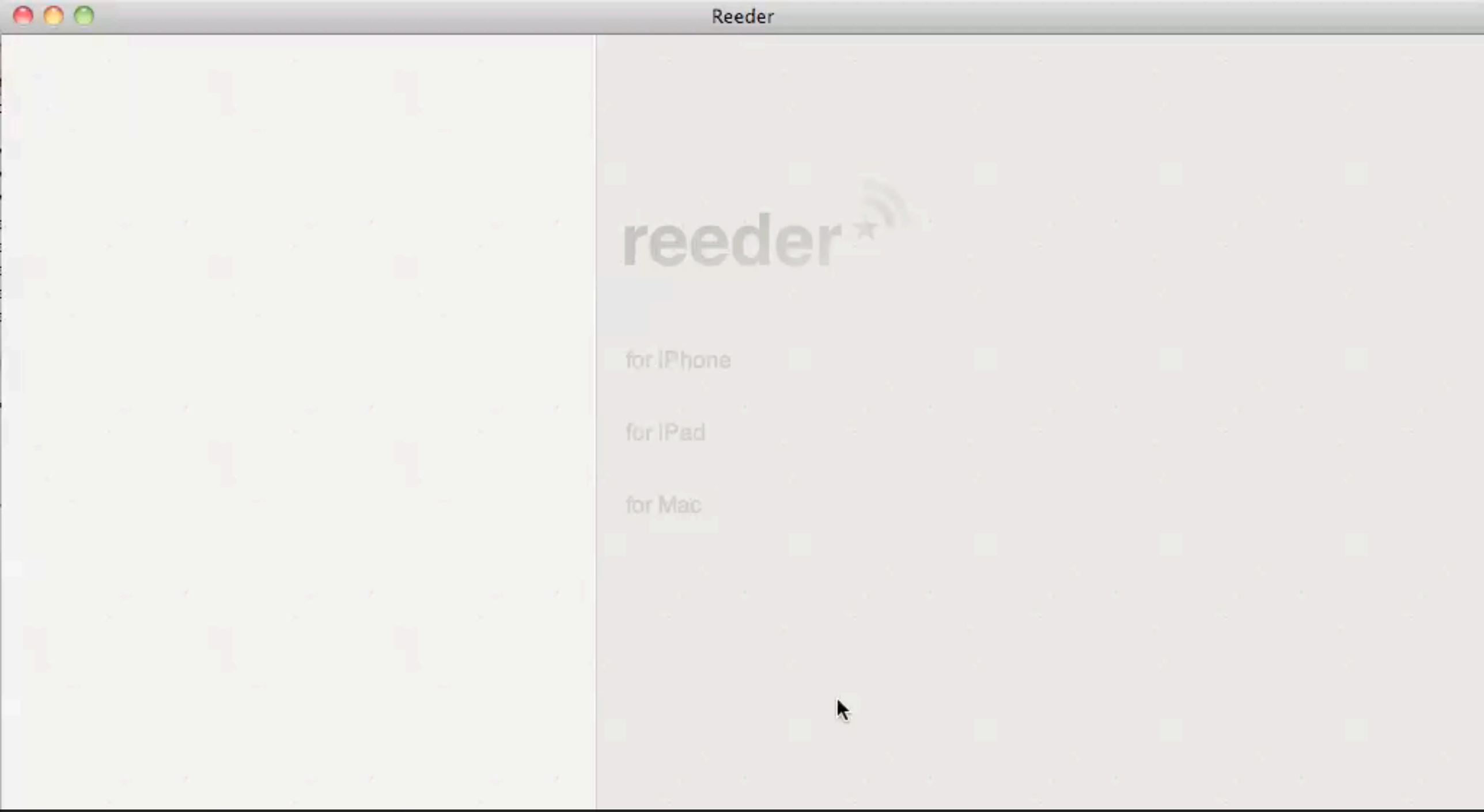
"Kaleidoscope"
http://www.kaleidoscopeapp.com/

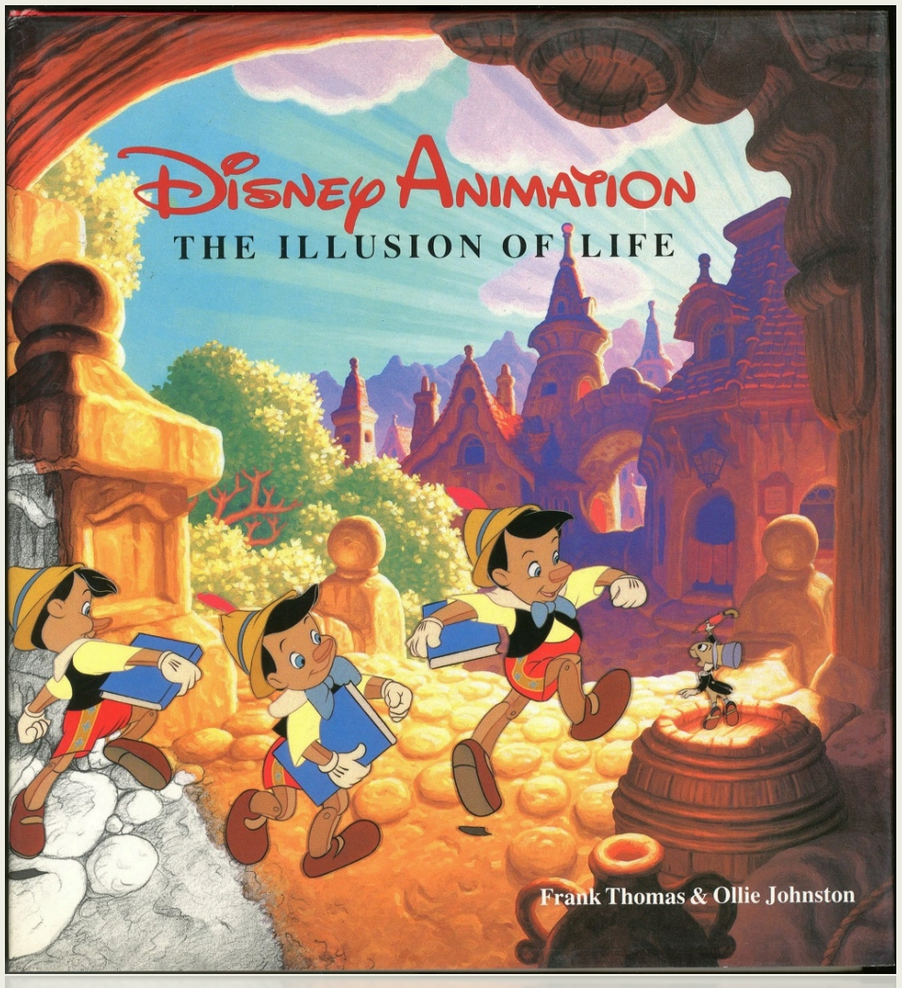


“Reeder”

http://reederapp.com/

Just because you can, doesn't mean you should.

http://www.flickr.com/photos/8790226@N06/3577837508/

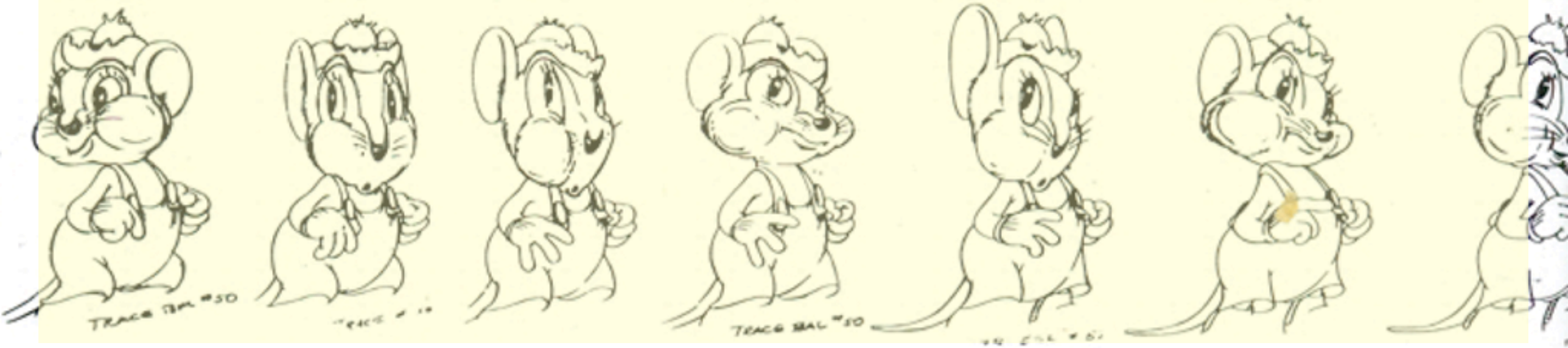


"The Illusion of Life: Disney Animation"

by *Ollie Johnston & Frank Thomas*

“Anything composed of living flesh, no matter how bony, will show considerable movement within its shape in progressing through action.”

—Ollie Johnston & Frank Thomas, “The Illusion of Life: Disney Animation”



"If the character has any appendages, such as long ears or a tail or a big coat, these parts continue to move after the rest of the figure has stopped."

—Ollie Johnston & Frank Thomas,
"The Illusion of Life: Disney Animation"

Thank You!

@yaili