

CSS3 Transforms, Transitions & Animations

@yaili

2D Transforms

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

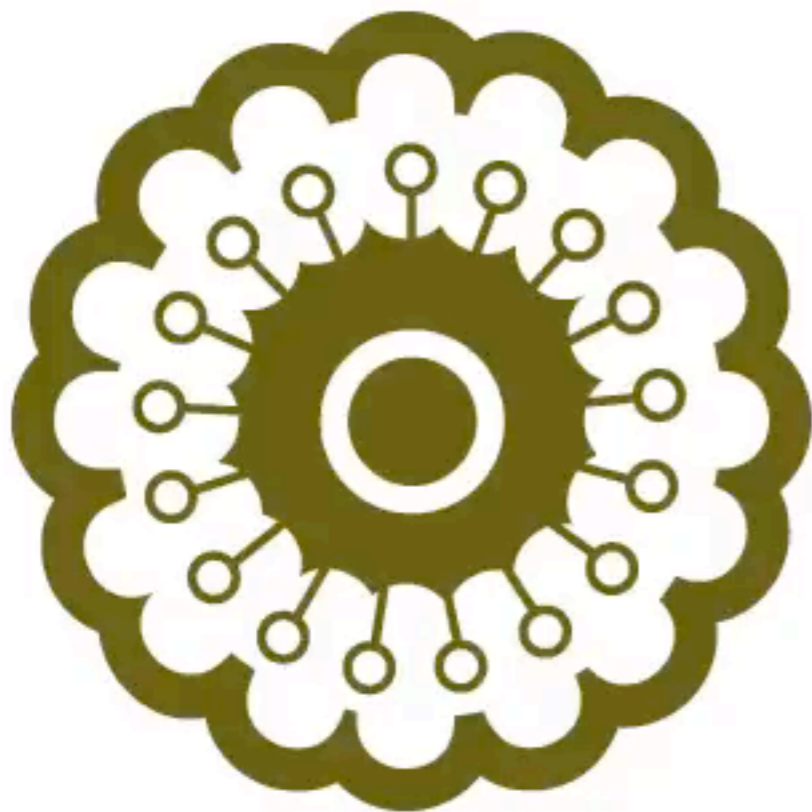
—W3C, <http://www.w3.org/TR/css3-2d-transforms/>

```
#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

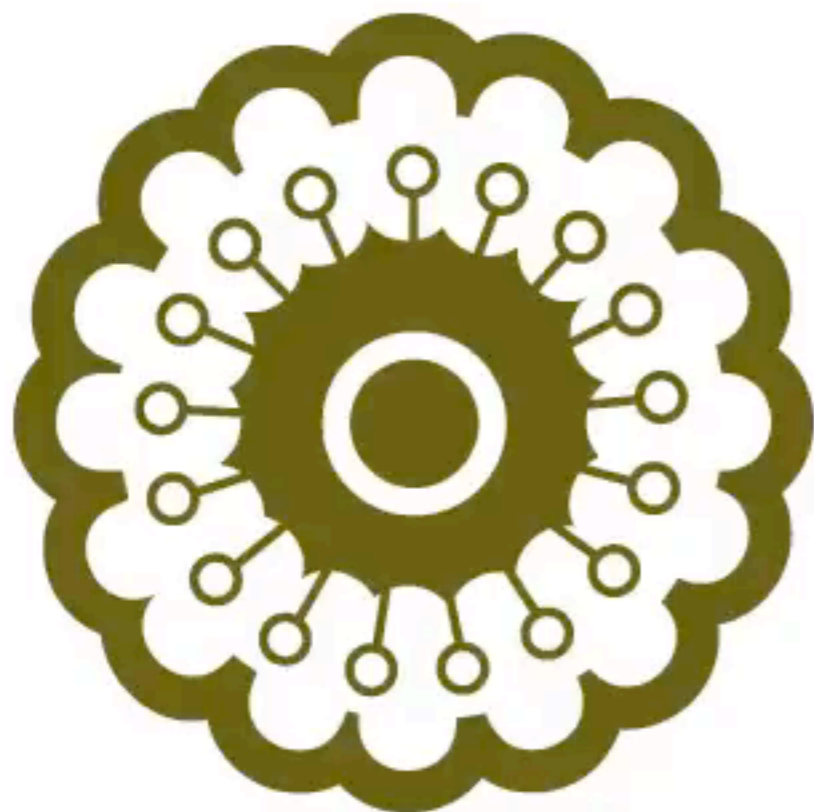
skew, skewX, skewY

matrix

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

CSS Transforms, Transitions and Animations

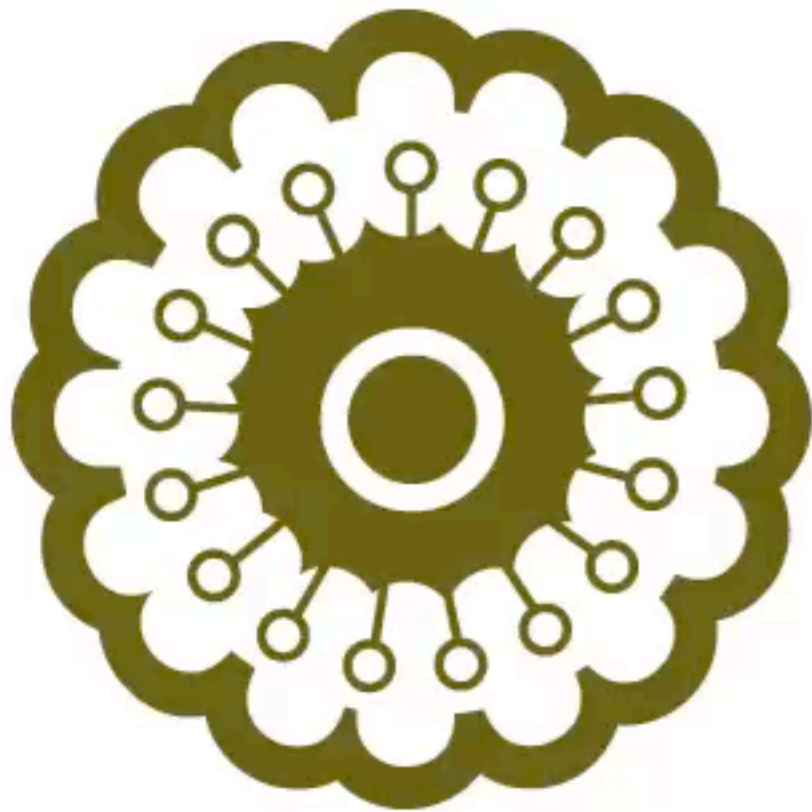
Transforms 2D




```
#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



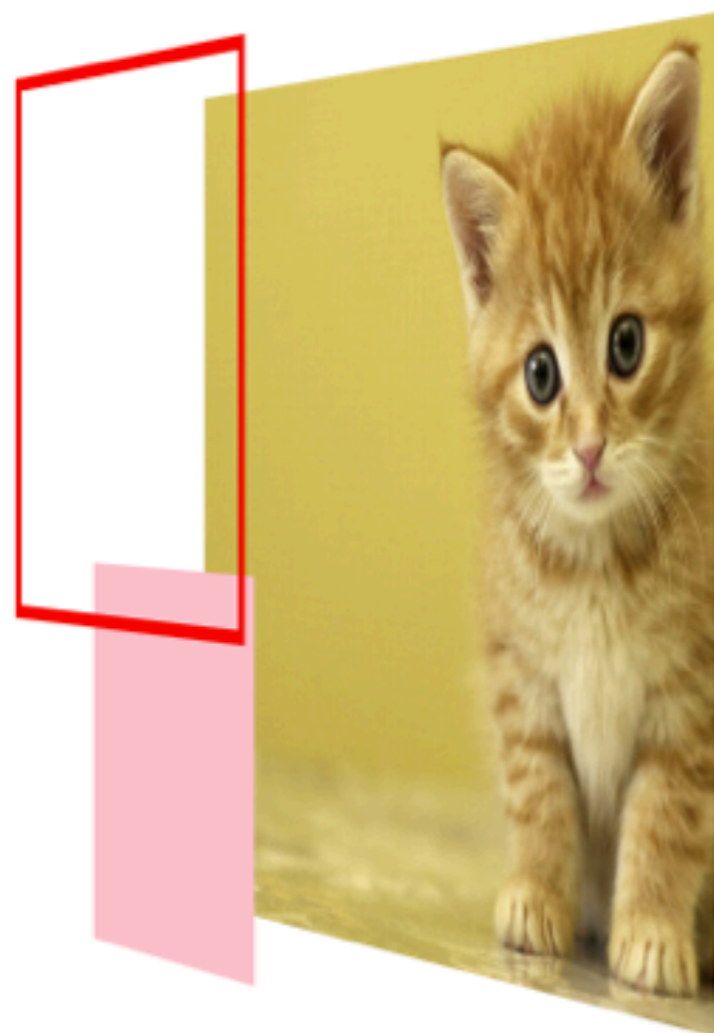
```
#level1 {  
  background: url(kitten.jpg) no-repeat;  
  width: 500px;  
  height: 333px;  
  transform: rotateY(-25deg);  
  transform-style: preserve-3d; }
```

```
#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/>

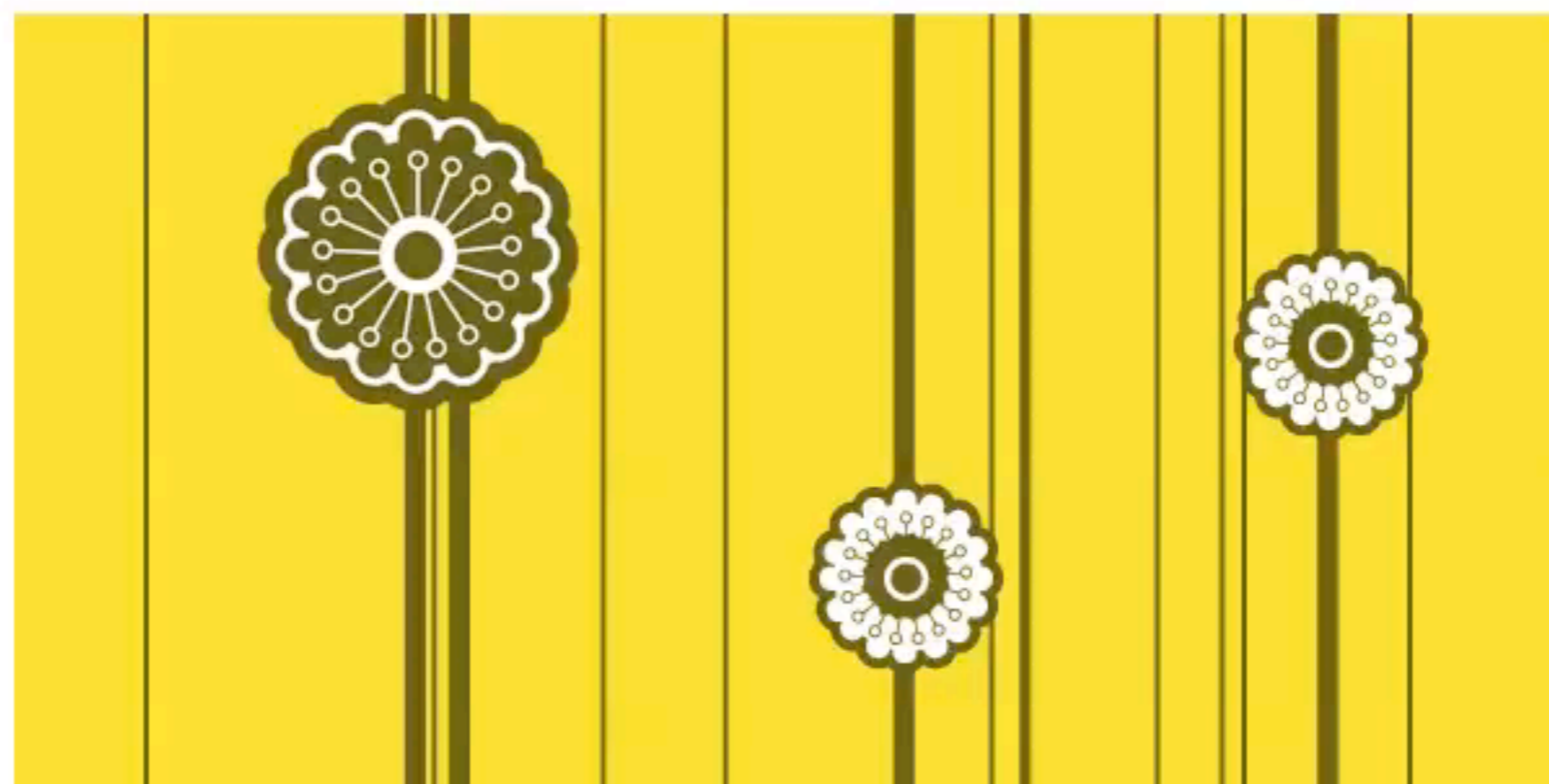
```
@keyframes sky {  
  0% { background-color: #daf2f4; }  
  50% { background-color: #f7d518; }  
  100% { background-color: #f5700d; }  
}
```

```
#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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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](#)

Explanation of the tables [\[edit\]](#)

Engine nomenclature [\[edit\]](#)

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](#)

“Comparison of layout engines”

[http://en.wikipedia.org/wiki/Comparison_of_layout_engines_\(Cascading_Style_Sheets\)](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...

[Comments](#)

[Feed](#)

[Twitter](#)

2,978 tweets

75

retweet

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 Mobile
 - IE iOS Safari
 - Firefox Opera Mini
 - Safari Opera Mobile
 - Chrome Android Browser
 - Opera

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; }
```

=

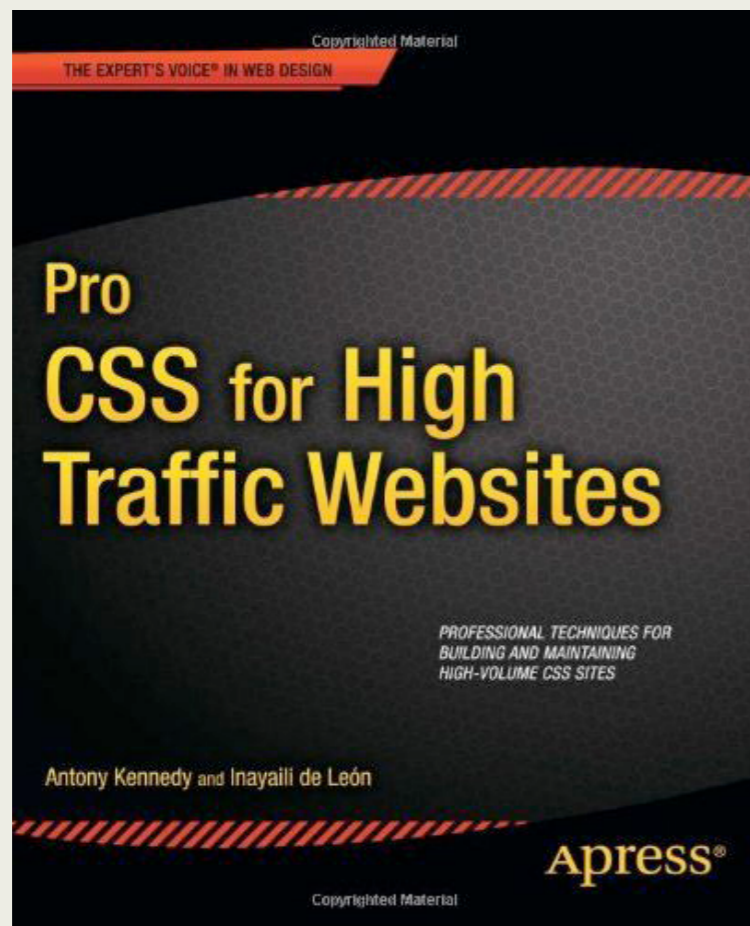
```
.box {  
  background: red;  
  border: 1px solid black;  
  border-radius: 4px; }
```

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

```
.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; }  
}
```

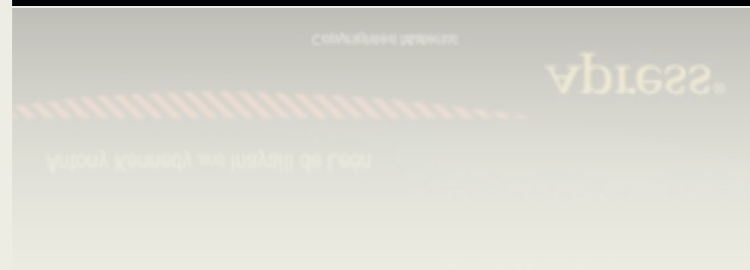
```
#flower {  
  .transition(transform, 1.5s, .1s, ease-in); }
```



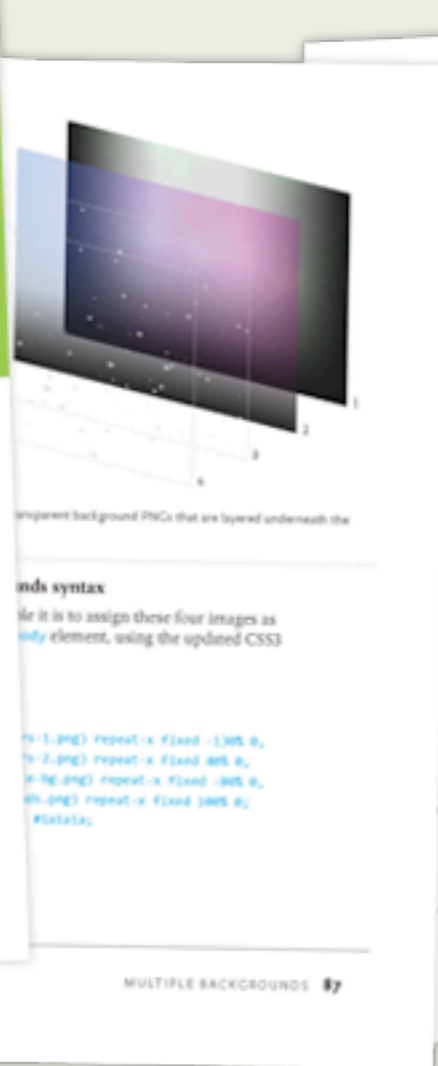
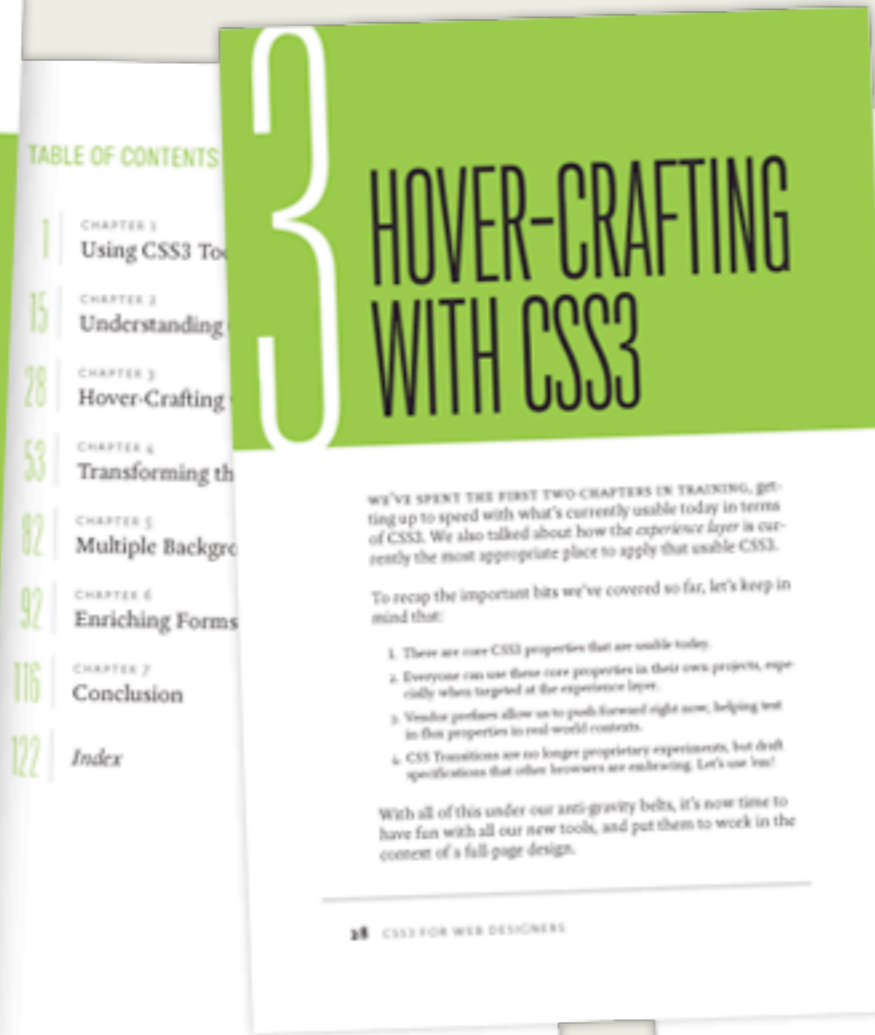
“Pro CSS for High Traffic Websites”

*by Antony Kennedy
& Inayaili de León*

procssforhightrafficwebsites.com



Resources



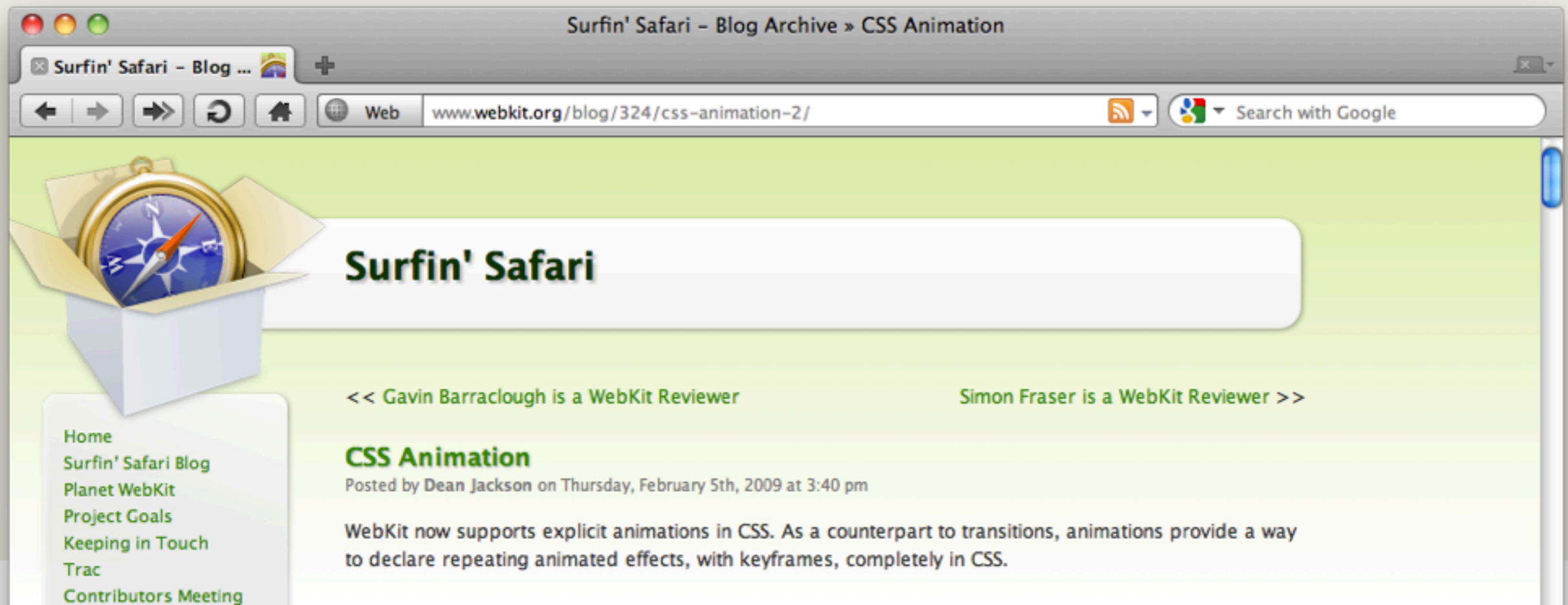
“CSS3 for Web Designers”, by Dan Cederholm
<http://www.abookapart.com/products/css3-for-web-designers>



“Hardboiled Web Design”, by Andy Clarke
<http://fivesimplesteps.com/books/hardboiled-web-design>

Surfin' Safari

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



The screenshot shows a Safari browser window with the following elements:

- Window Title:** Surfin' Safari - Blog Archive » CSS Animation
- Address Bar:** www.webkit.org/blog/324/css-animation-2/
- Navigation:** Back, Forward, Home, Reload, and Web icons.
- Search:** Search with Google.
- Header:** A large white rounded rectangle containing the text "Surfin' Safari" next to a compass icon in a box.
- Navigation Links:** << Gavin Barraclough is a WebKit Reviewer and Simon Fraser is a WebKit Reviewer >>
- Post Title:** CSS Animation
- Post Info:** Posted by Dean Jackson on Thursday, February 5th, 2009 at 3:40 pm
- Post Content:** WebKit now supports explicit animations in CSS. As a counterpart to transitions, animations provide a way to declare repeating animated effects, with keyframes, completely in CSS.
- Left Sidebar:** Home, Surfin' Safari Blog, Planet WebKit, Project Goals, Keeping in Touch, Trac, Contributors Meeting.

Mozilla Developer Network

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

The screenshot shows a web browser window with the title "Using CSS transforms - MDC Docs". The address bar displays "developer.mozilla.org/en/CSS/Using_CSS_transforms". The page header includes the MDN logo, a search bar, and navigation links like "Log in" and "Become an MDN member". The main content area features the article title "Using CSS transforms" with "WATCH" and "EDIT" buttons. A yellow box highlights the text "Introduced in Gecko 1.9.1 (Firefox 3.5 / Thunderbird 3.0 / SeaMonkey 2.0)". A "TABLE OF CONTENTS" sidebar is visible on the right.

Using CSS transforms - MDC Docs

Using CSS transform... +

Secure developer.mozilla.org/en/CSS/Using_CSS_transforms

Search with Google

MDN DOCS

Log in | Become an MDN member

Search MDN powered by Google

MDC > Docs > CSS > Using CSS transforms

Languages This page Site tools

Using CSS transforms

WATCH EDIT

Introduced in Gecko 1.9.1
(Firefox 3.5 / Thunderbird 3.0 / SeaMonkey 2.0)

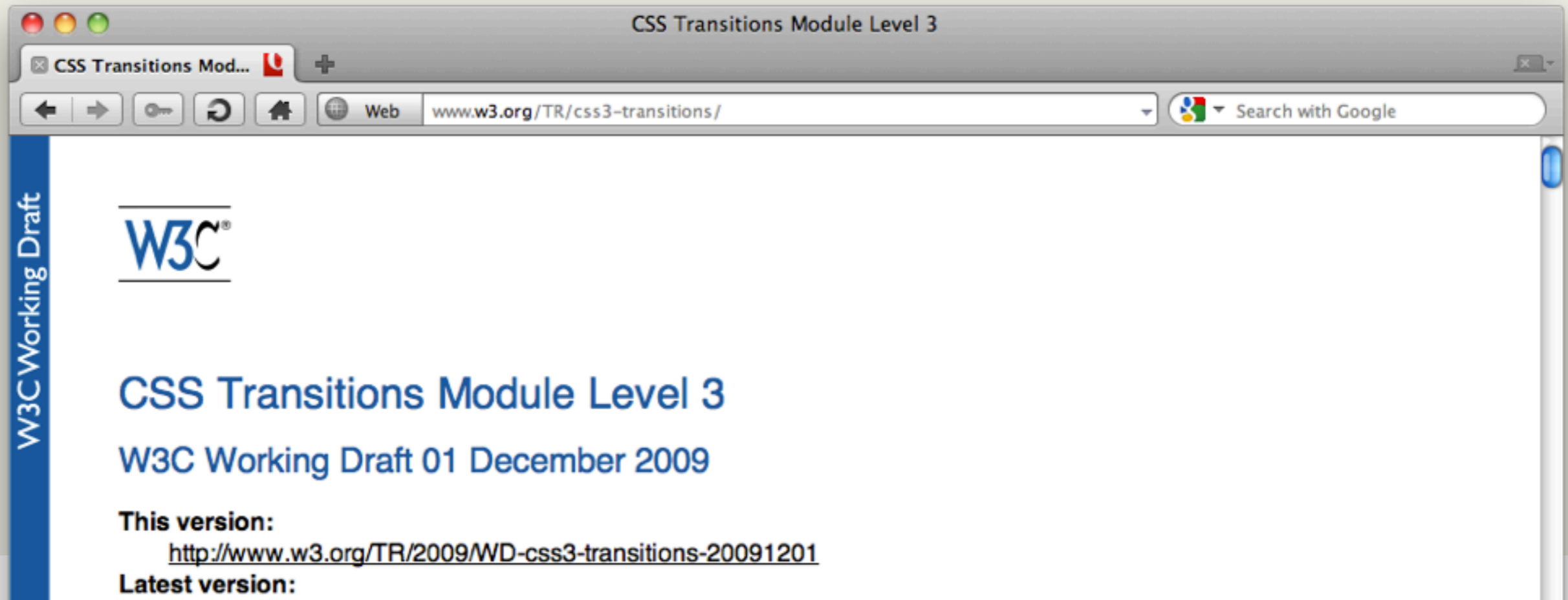
Firefox 3.5 (Gecko 1.9.1) introduced support for CSS transforms: these are implemented using

TABLE OF CONTENTS

Example: Rotating
Example: Skewing and translating


The Specification

<http://www.w3.org/>



The screenshot shows a web browser window with the title "CSS Transitions Module Level 3". The address bar contains the URL "www.w3.org/TR/css3-transitions/". The page content includes the W3C logo, the title "CSS Transitions Module Level 3", the date "W3C Working Draft 01 December 2009", and the current version URL "http://www.w3.org/TR/2009/WD-css3-transitions-20091201". A vertical blue bar on the left side of the page contains the text "W3C Working Draft".

W3C Working Draft



CSS Transitions Module Level 3

W3C Working Draft 01 December 2009

This version:
<http://www.w3.org/TR/2009/WD-css3-transitions-20091201>

Latest version:

Considerations



IE



FIREFOX



WEBKIT



OPERA

2D Transforms



IE 9



Firefox 3.5



Opera 10.5

3D Transforms



IE 10



Transitions



IE 10



Firefox 4



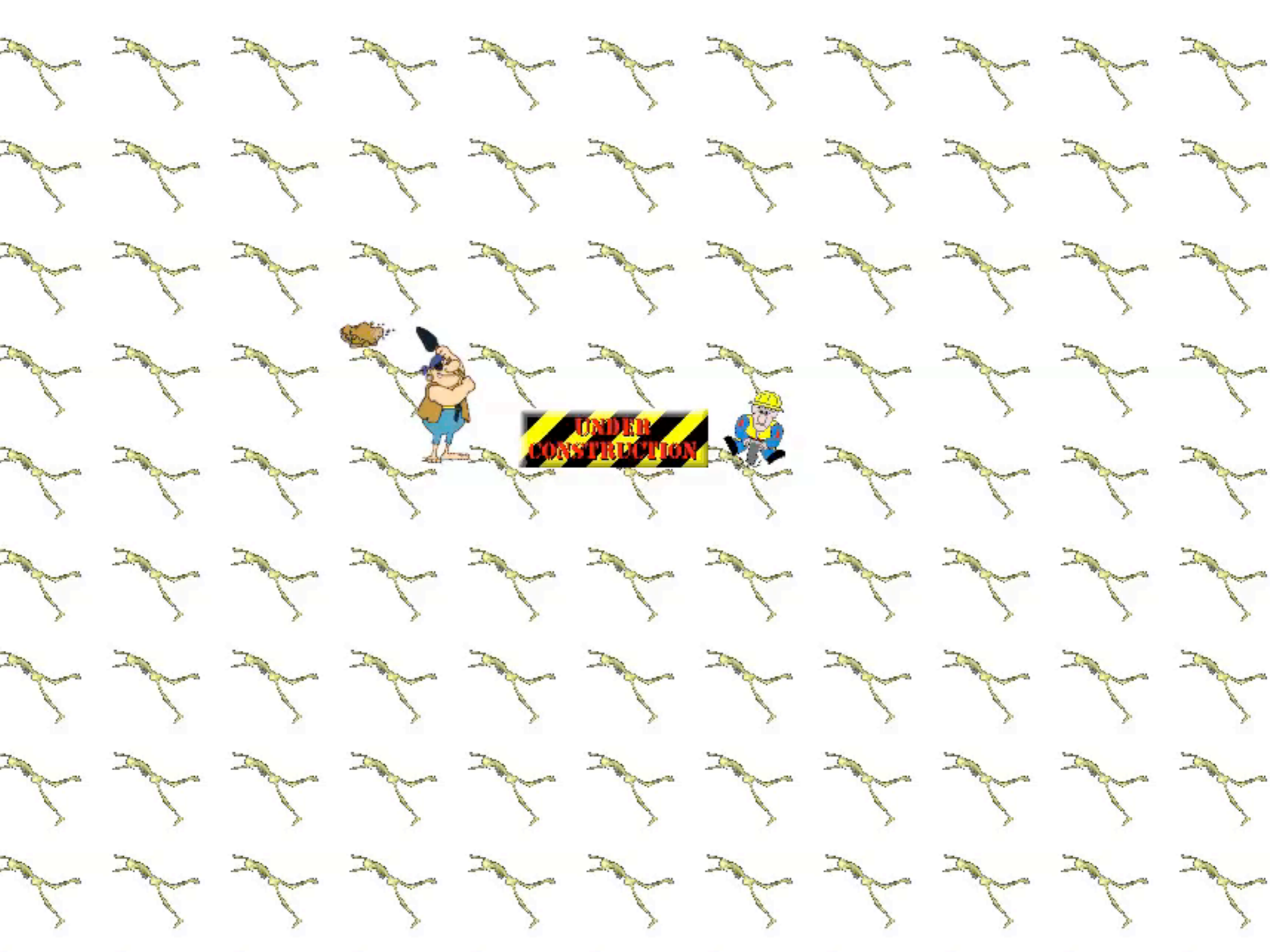
Opera 10.5

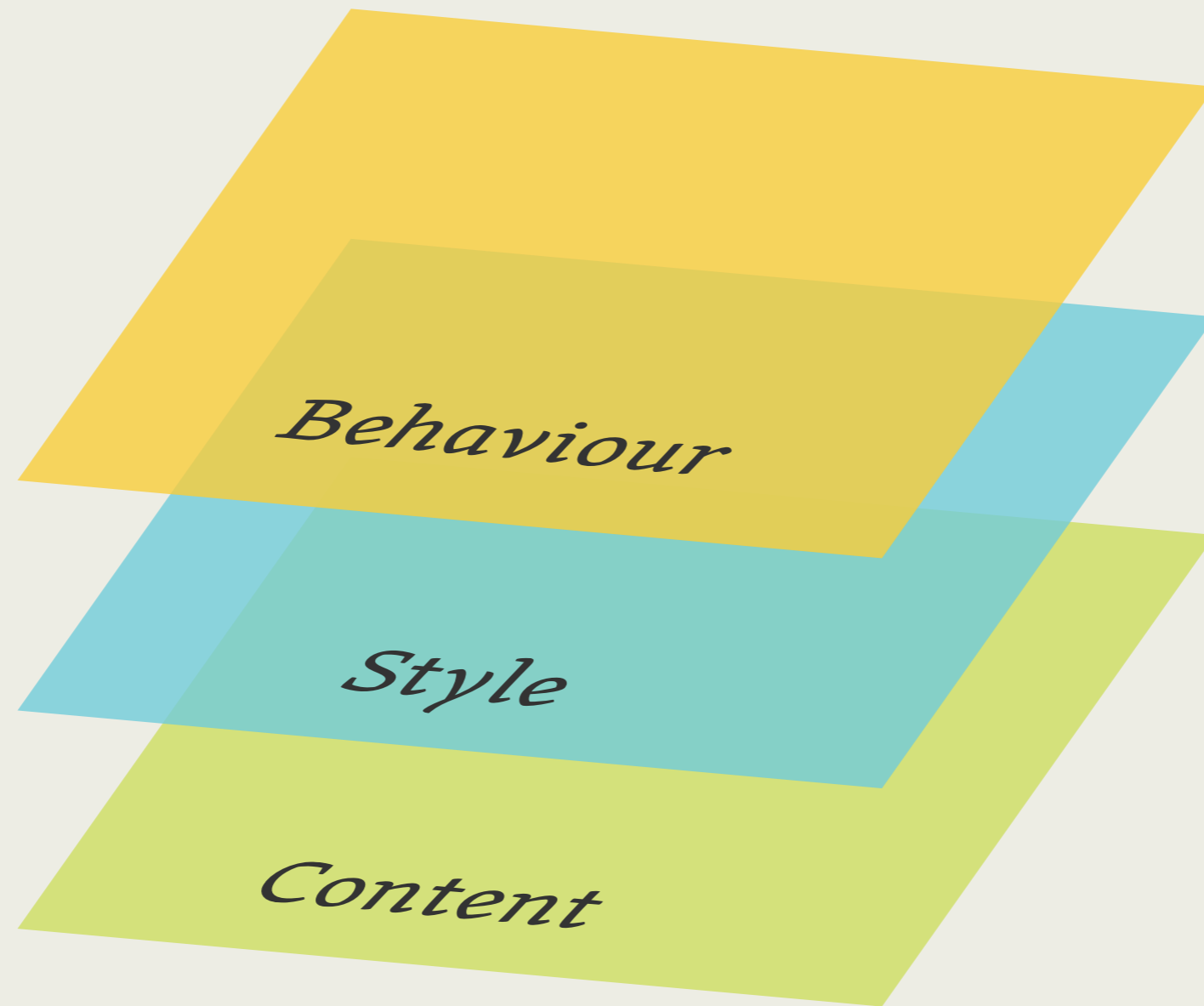
Animations



Firefox 5



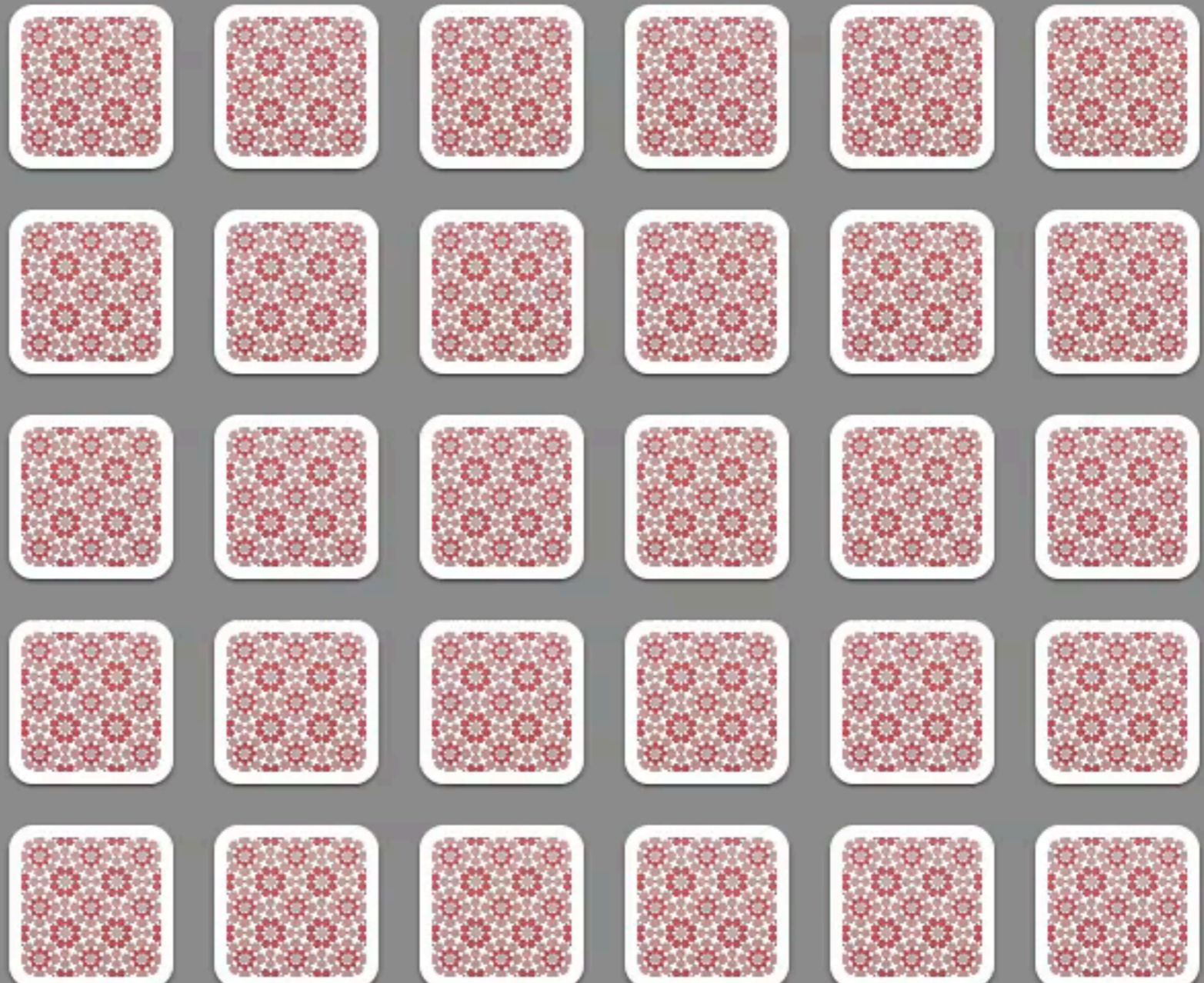




Final thoughts

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)



Crafted with love by [Maykel Loomans](#).
Love it? Hate it? Questions? [Tweet me!](#)

“CSS3 Memory”
<http://media.miekd.com/css3memory/>



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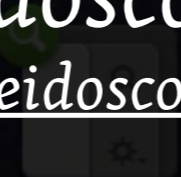
Text Scope

Compare text and source code.



Image Scope

Compare photos and photos.



Workflow

Automate just about anything.



Details

Skim through the feature list.

“Kaleidoscope”
<http://www.kaleidoscopeapp.com/>

reeder

for iPhone

for iPad

for Mac

“Reeder”

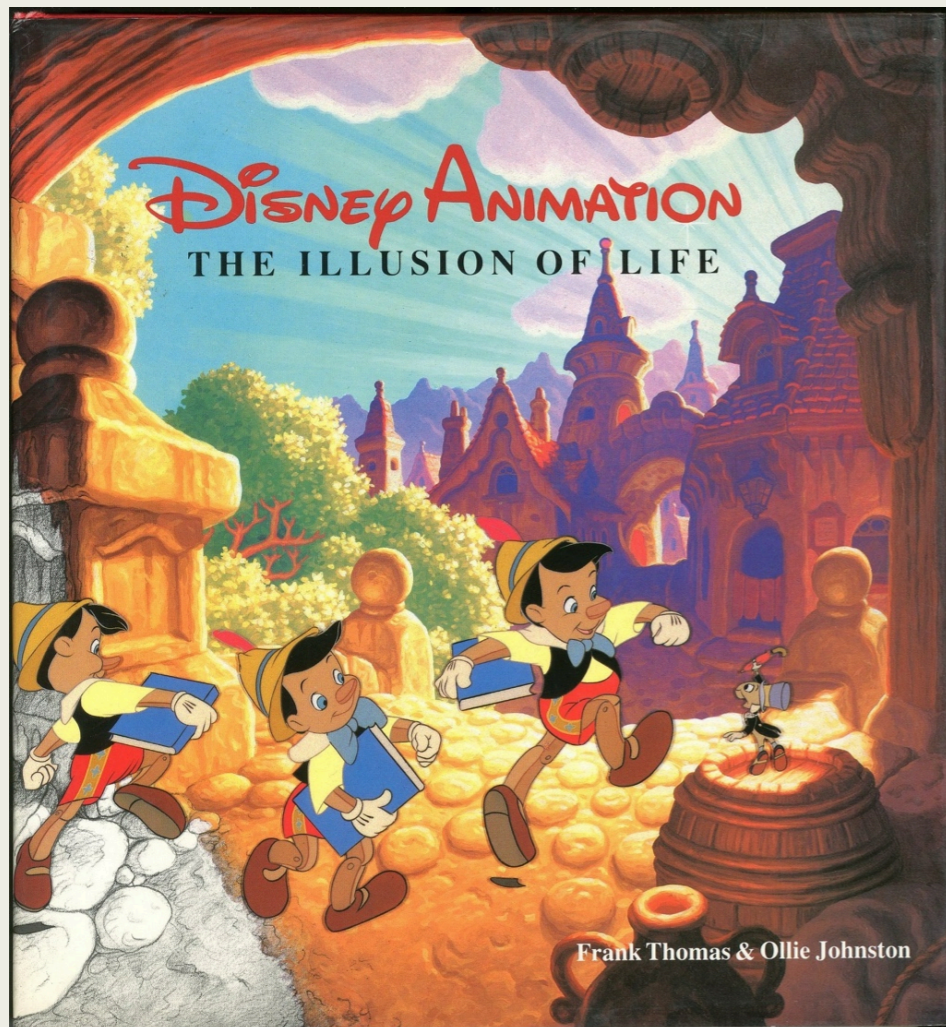
<http://reederapp.com/>

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



<http://www.flickr.com/photos/8790226@No6/3577837508/>





“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