

# Physics & The User Interface for iOS





@jonathanpenn



**RUBBER CITY  
WIZARDS**

# Goals

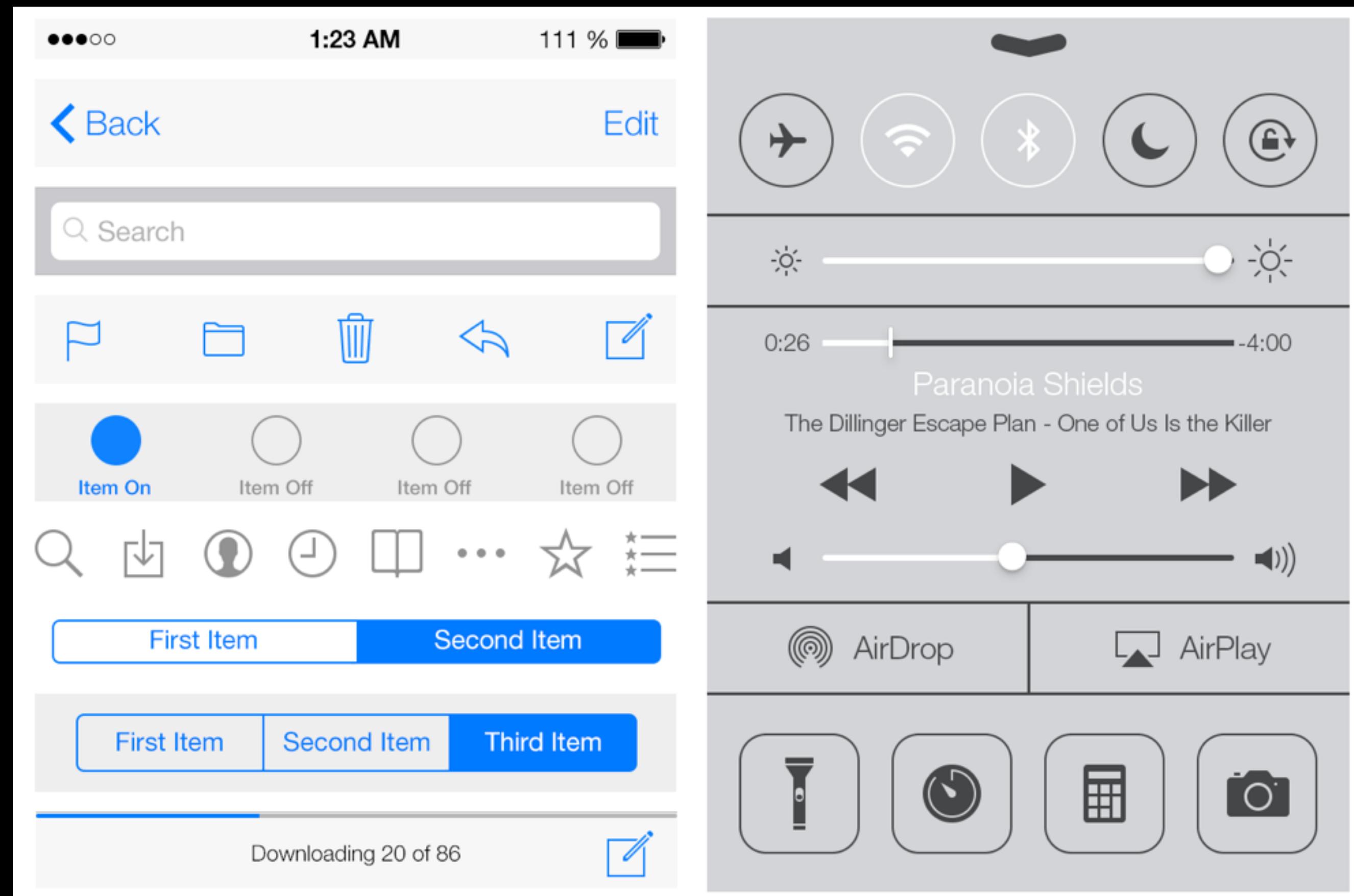
- 1. Dynamic Animations**
- 2. UIKit Dynamics Vocabulary**
- 3. Demos & Comedy**

# Slides ‘n Sample Code

[rubbercitywizards.com/stuff](http://rubbercitywizards.com/stuff)

# UIKIT DYNAMICS ?

# UIKIT



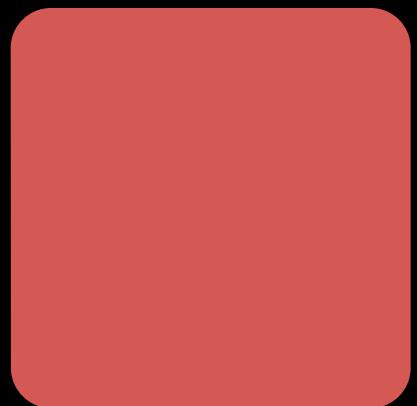
```
[UIView animateWithDuration:3
    delay:0
    options:Curve...
    animations:^{
        // transform
    }];
}
```

$f(x)$

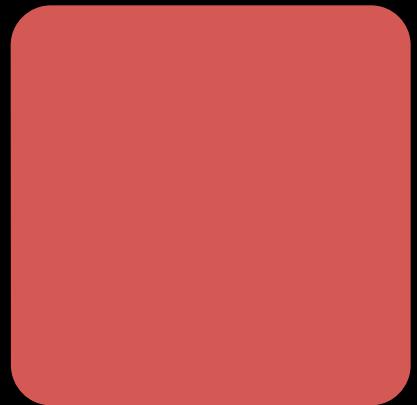
# ANIMATION CURVES



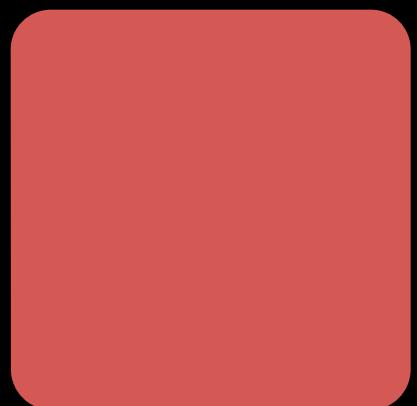
**LINEAR**



**EASED**



**BOUNCE**



●●○○○ AT&T

96%

9:26

Sunday, January 5



[Messages](#)

Colleen

[Contact](#)

Nice. We can take a look  
at the buffing tools  
tonight.

Yesterday 10:08 AM

Going to cost about \$700  
for everything. About an  
hour and a half.

Ok

Yesterday 3:37 PM

Set a 45 min timer for  
kids rest time. The usual  
timer is MIA.

K

Read Yesterday



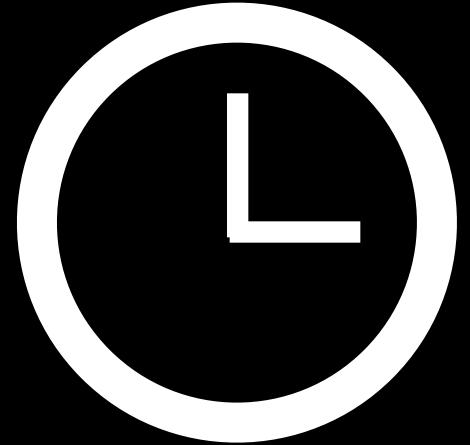
iMessage

Send



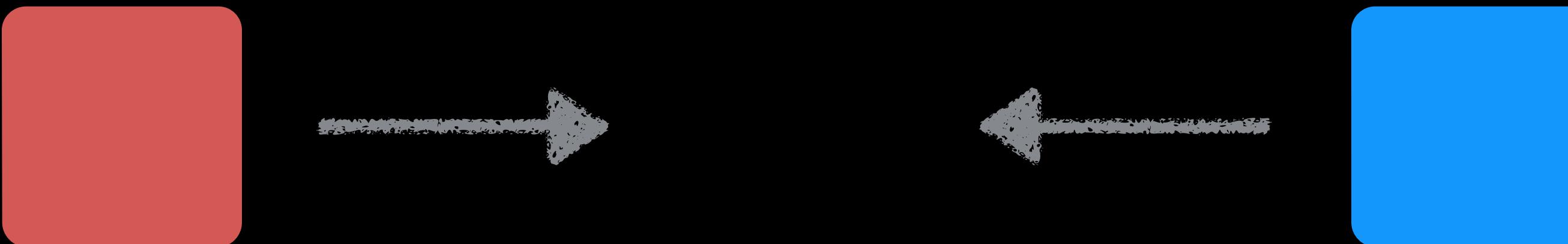
# PHYSICS ENGINE 101

approximate  
~SIMULATION

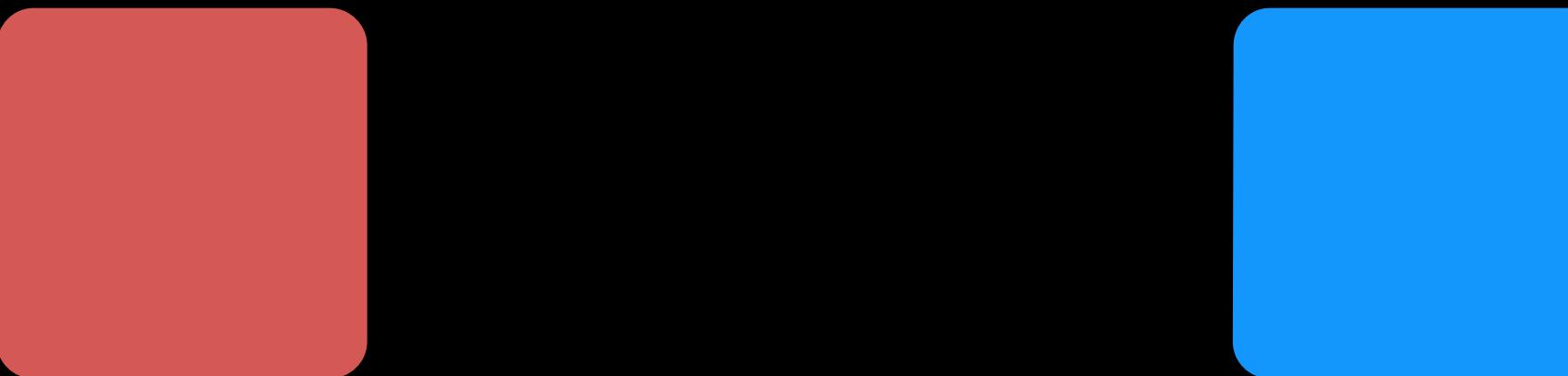


# COLLISION

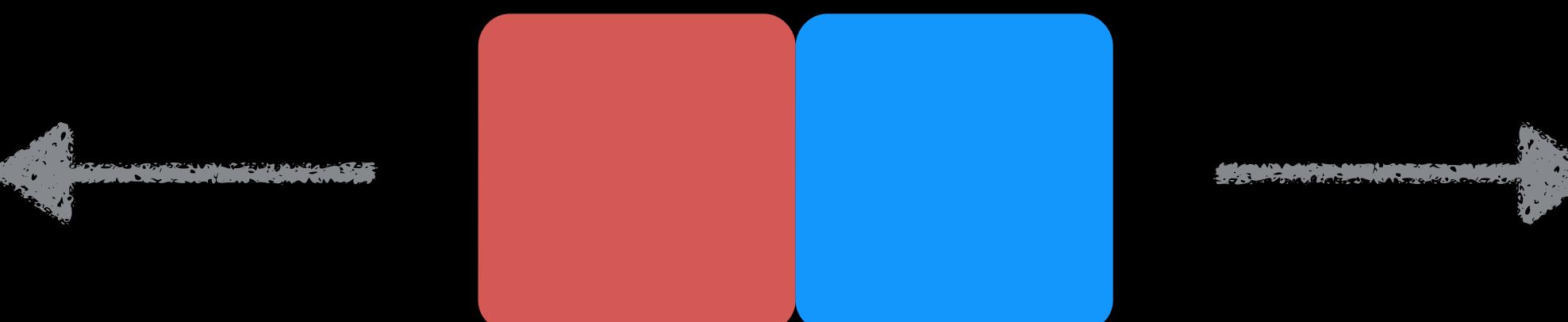
T 0



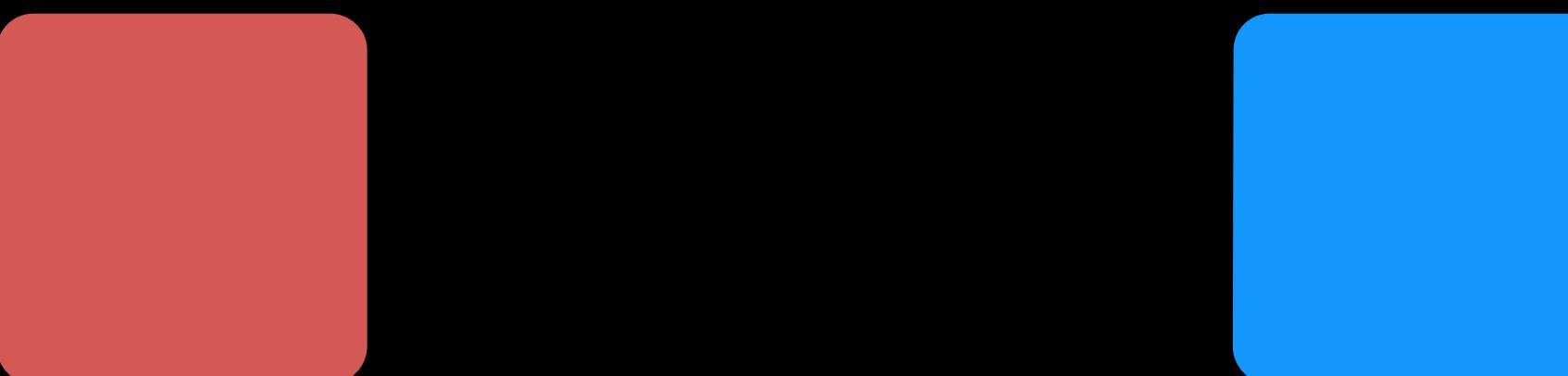
T 1

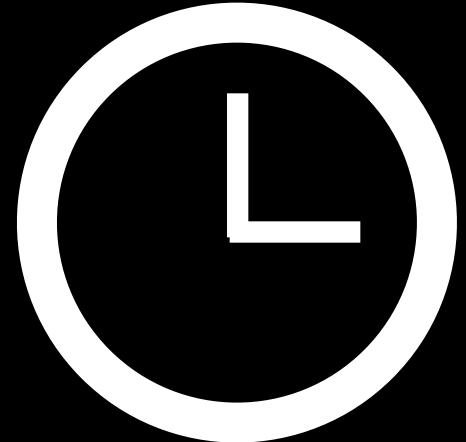


T 2



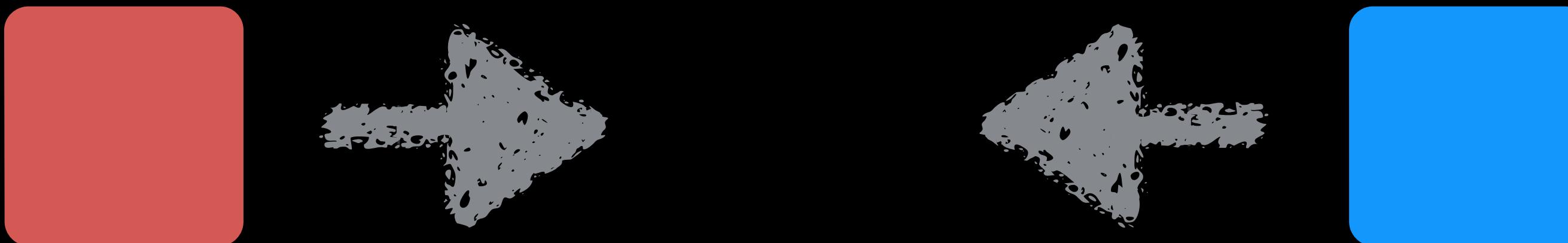
T 3



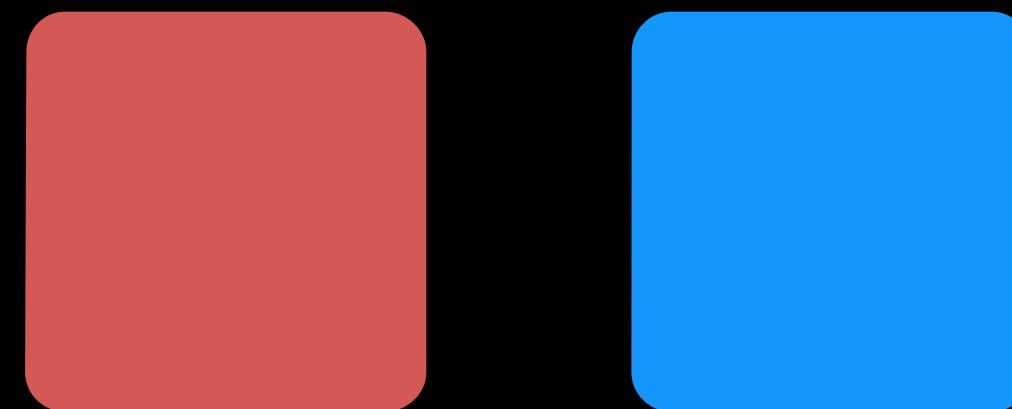


# WHOOPS!

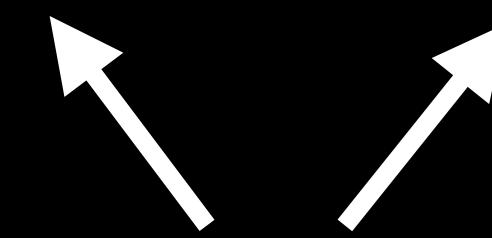
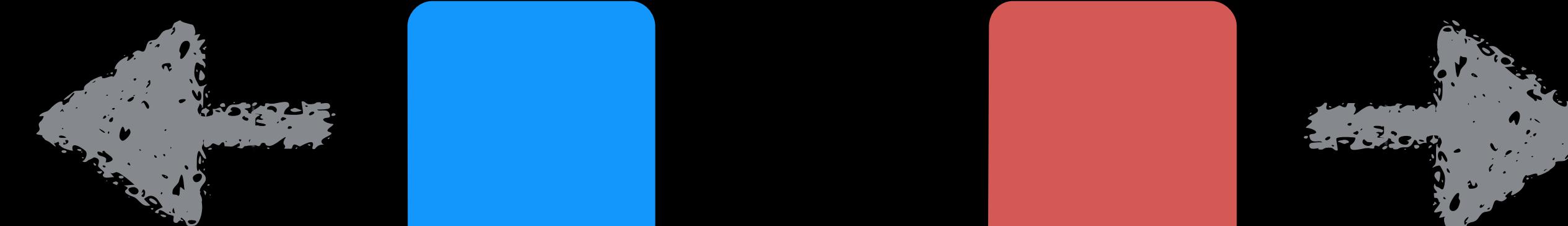
T 0



T 1



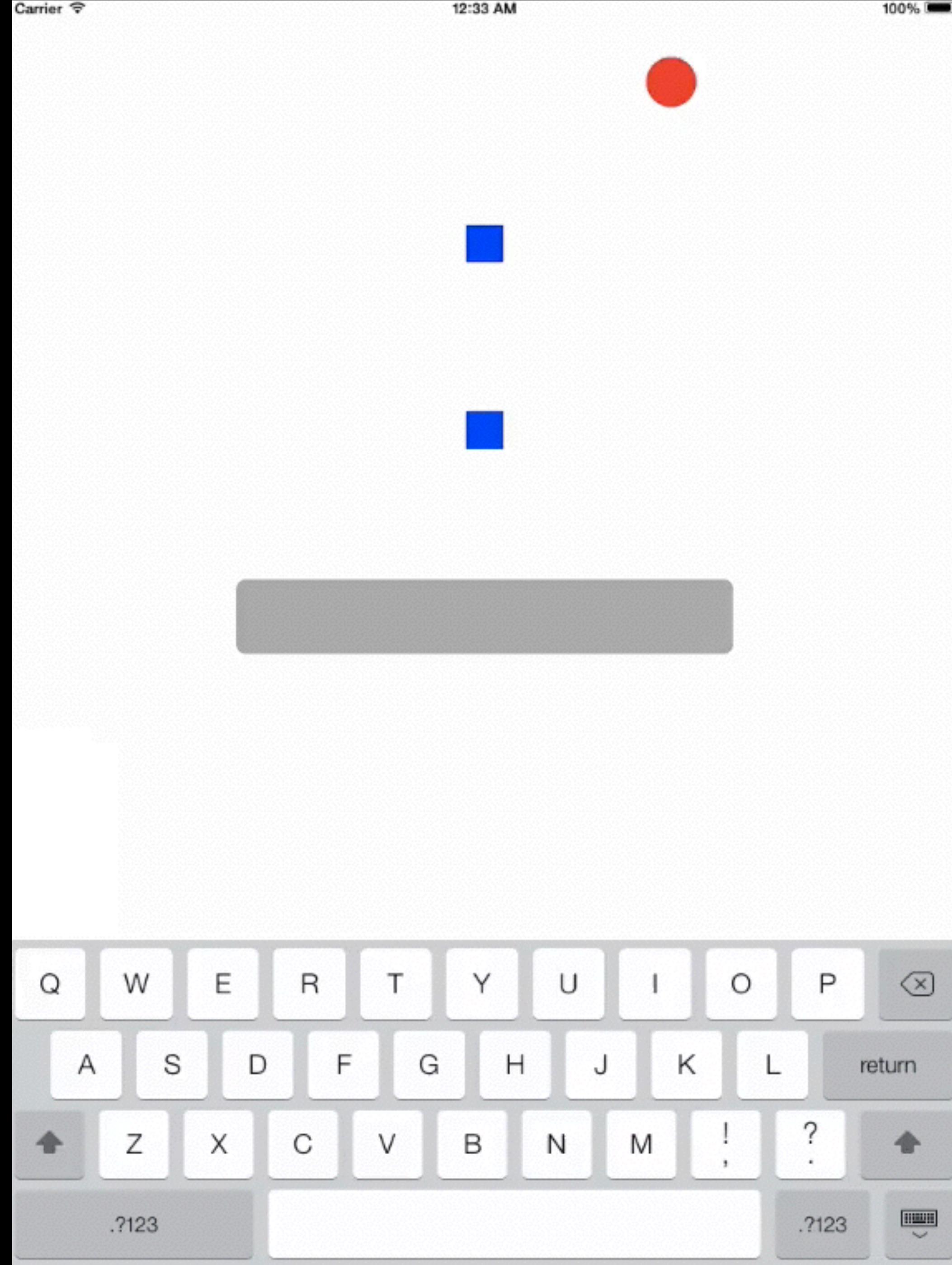
T 2



Quantum Superposition!?

**EXPENSIVE...**

**YET, FINE TUNED BY APPLE  
IN CALIFORNIA**



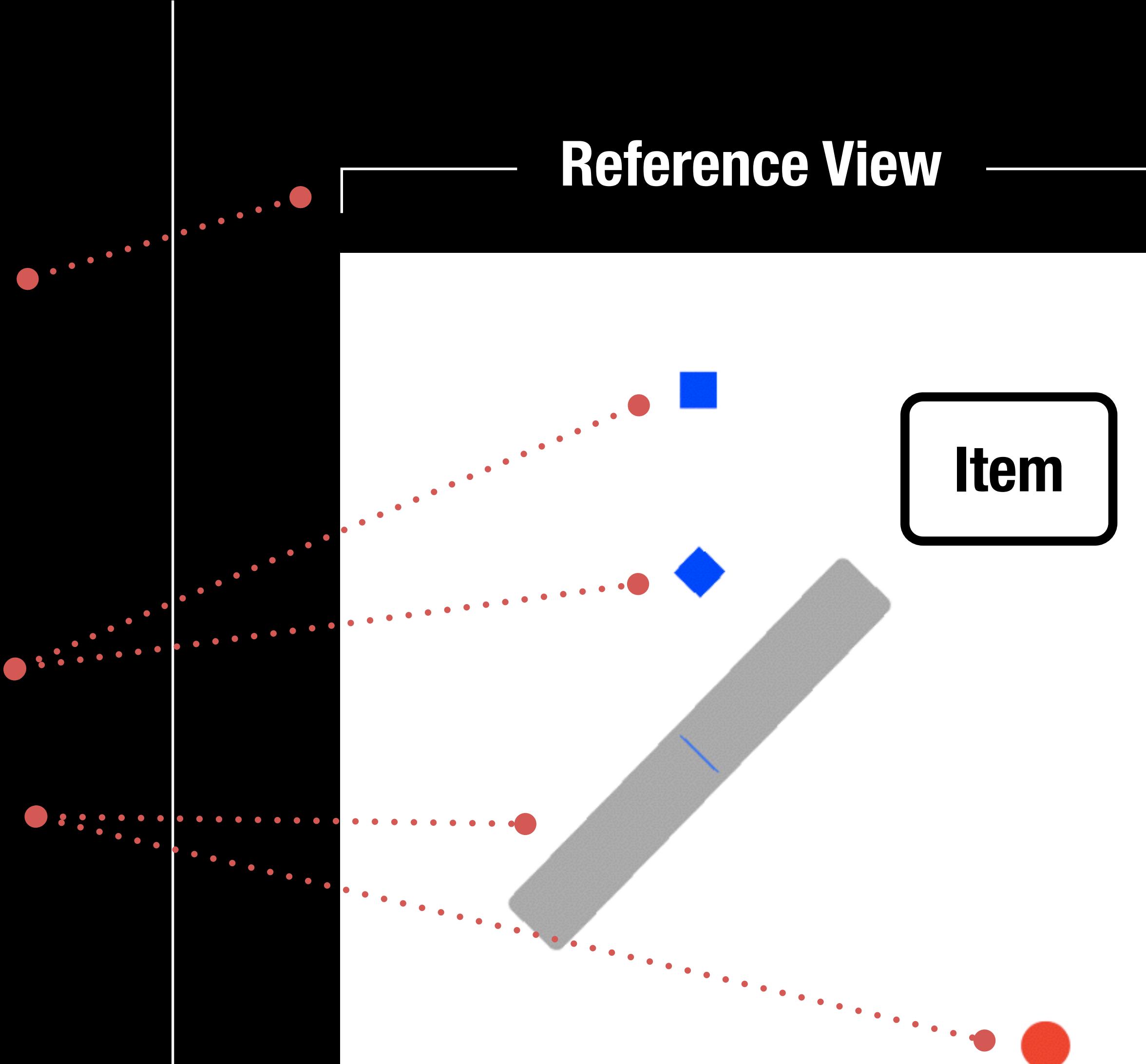
**Dynamic Animator**

**Behavior**

**Behavior**

**Reference View**

**Item**



[ insert demo here ]



# Apple's WWDC Videos

[developer.apple.com/wwdc/videos](http://developer.apple.com/wwdc/videos)

**Getting Started with UIKit Dynamics (#206)**

**Advanced Techniques with UIKit Dynamics (#221)**

**Exploring Scroll Views on iOS 7 (#217)**

# Apple's UIKit Dynamics Catalog

[developer.apple.com/library/ios/samplecode/DynamicsCatalog/Introduction/Intro.html](http://developer.apple.com/library/ios/samplecode/DynamicsCatalog/Introduction/Intro.html)

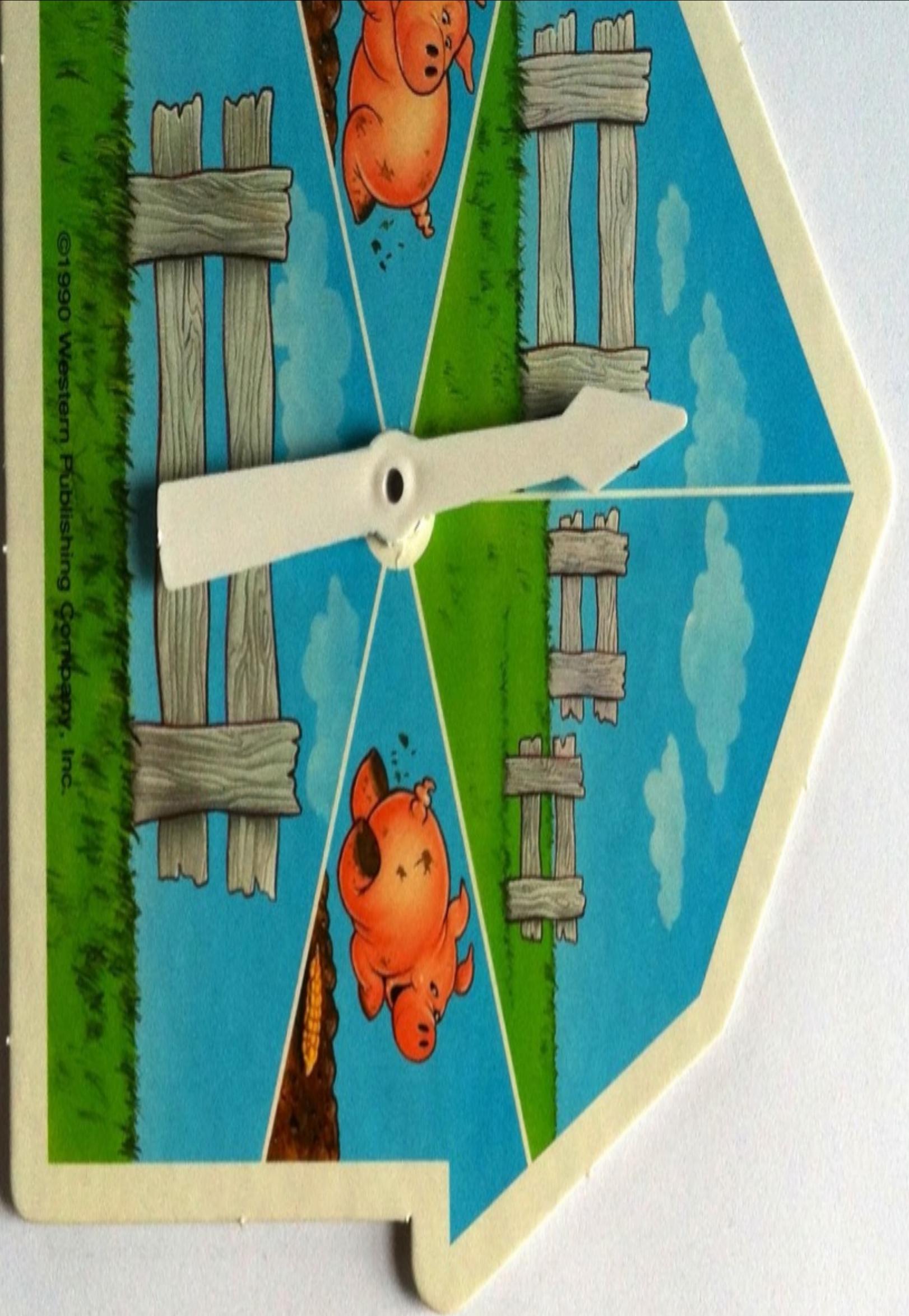
# UICollectionView and UIKit Dynamics

[objc.io/issue-5/collection-views-and-uidynamics.html](http://objc.io/issue-5/collection-views-and-uidynamics.html)

# My Samples

[rubbercitywizards.com/stuff](http://rubbercitywizards.com/stuff)





©1990 Western Publishing Company, Inc.



**Thanks!**  
**(and please feedback)**

**@jonathanpenn**  
**[rubbercitywizards.com](http://rubbercitywizards.com)**