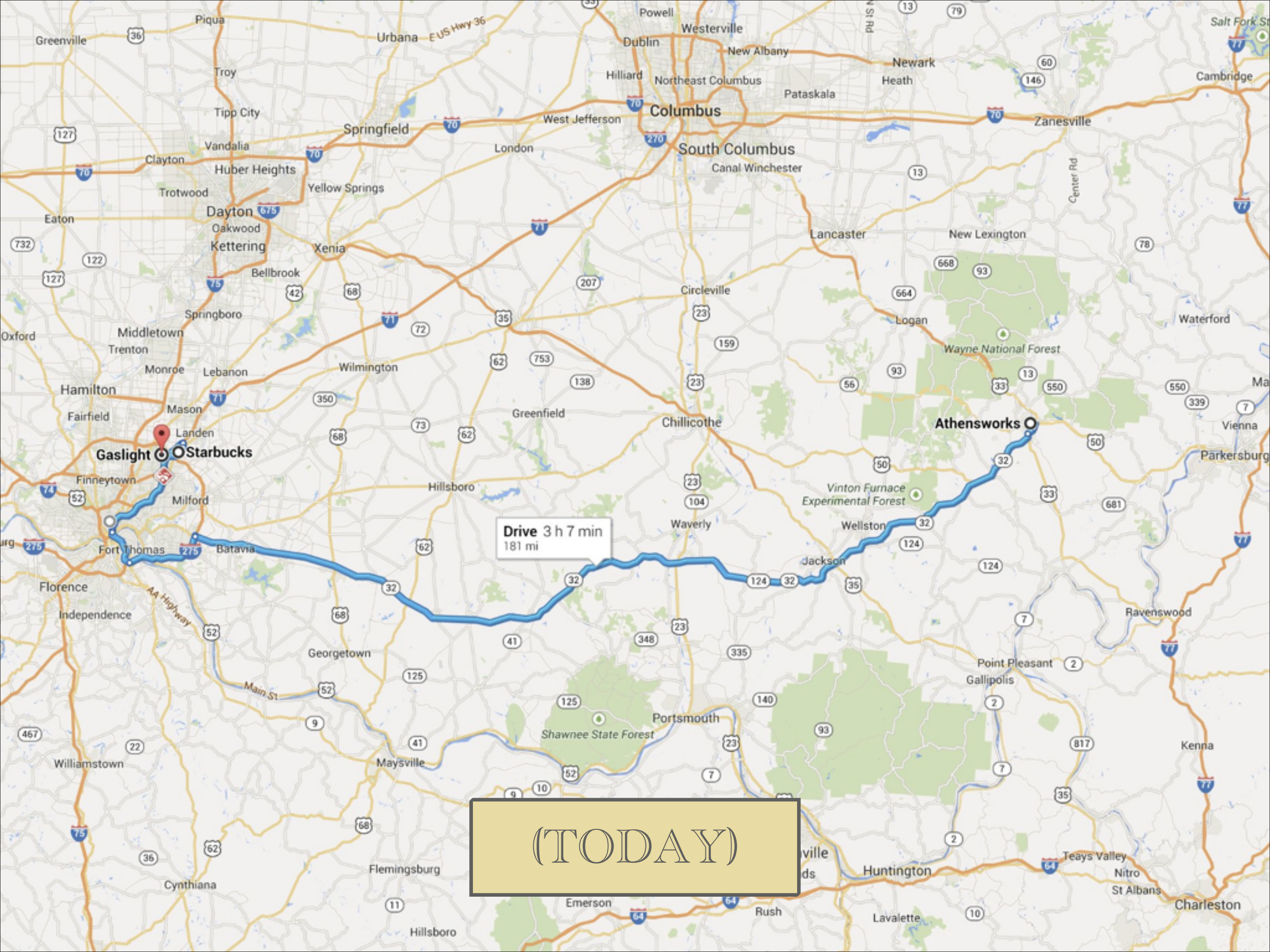
A Quick Intro to ☆ TEXT KIT ☆

Ben Lachman
Nice Mohawk Limited

THE PLAN

1. How I got here
2. Text Kit architecture
3. Things you might want to do with Text Kit
4. Q&A

HOW I GOT HERE


Drive 3 h 7 min
181 mi
Gaslight
Starbucks
Athensworks
(TODAY)

HOW I GOT HERE

(IN THE MORE PHILOSOPHICAL SENSE)

SOUSCHEF

YOUR DIGITAL COOKING ASSISTANT

- 100K+ Users
- Mac, iPhone, and iPad versions
- 300K+ User Contributed Recipes
- Recently acquired by a UK Company

NICE MOHAWK

ITA

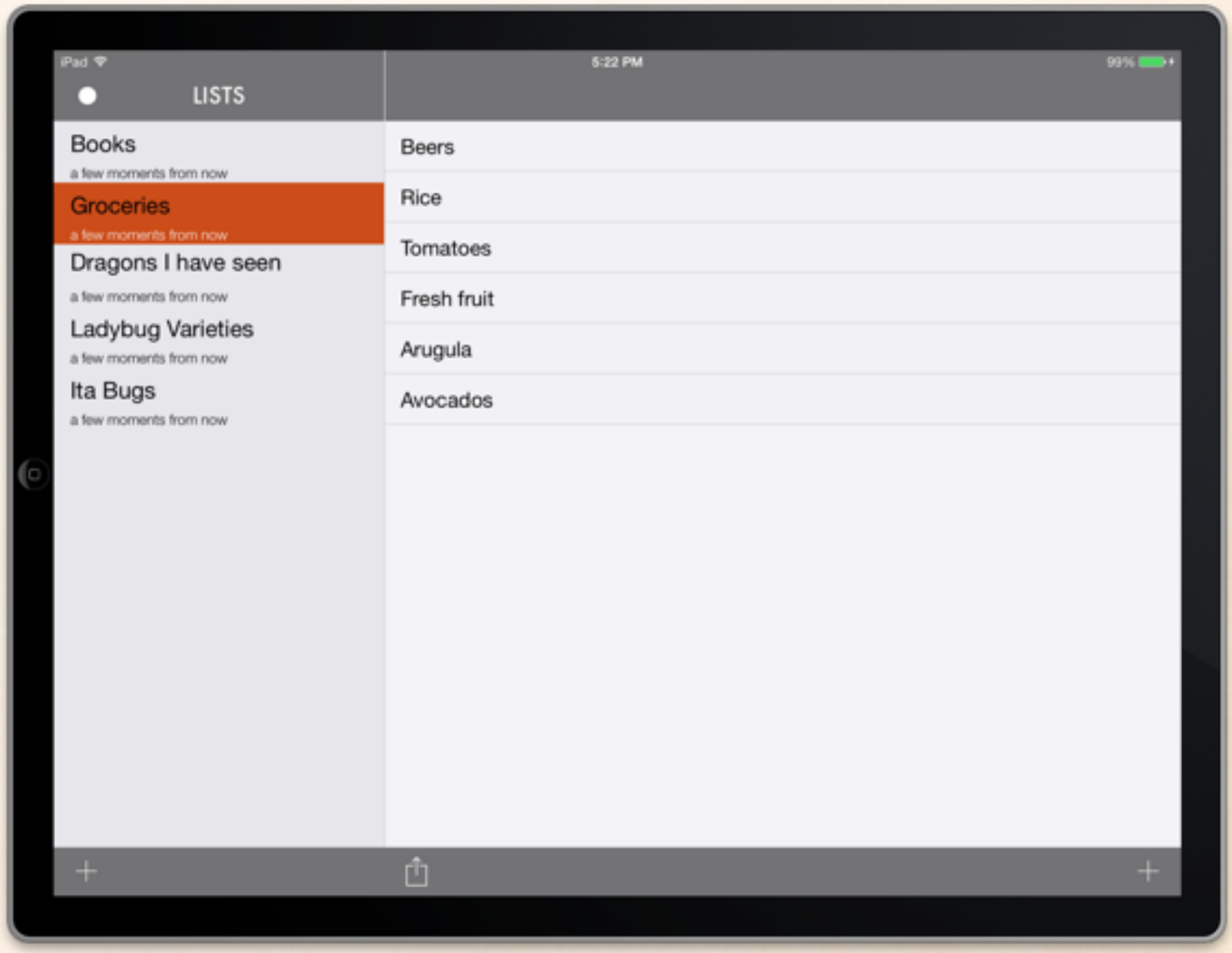
A FINE LIST-MAKING APP

- Universal iOS App
- iCloud Data Storage
- Hit Top 100 in USA
- Recently had a 75K d/l day during promotion

ITA

A FINE LIST-MAKING APP

- Universal iOS App
- iCloud Data Storage
- Hit Top 100 in USA
- Recently had a 75K d/l day during promotion



REVERB

A COMPLETELY NEW WAY TO DISCOVER NEWS

- SF Bay Area Client
- Interesting move into the News discovery market
- NML hired to do animations and social integrations, push notifications
- iPad only

THE FINE EDGE

nicemohawk.com/blog

☆ TEXT KIT ☆

☆ TEXT KIT ☆

"Text Kit is a set of classes and protocols in the UIKit framework providing high-quality typographical services that enable apps to store, lay out, and display text with all the characteristics of fine typesetting, such as kerning, ligatures, line breaking, and justification."

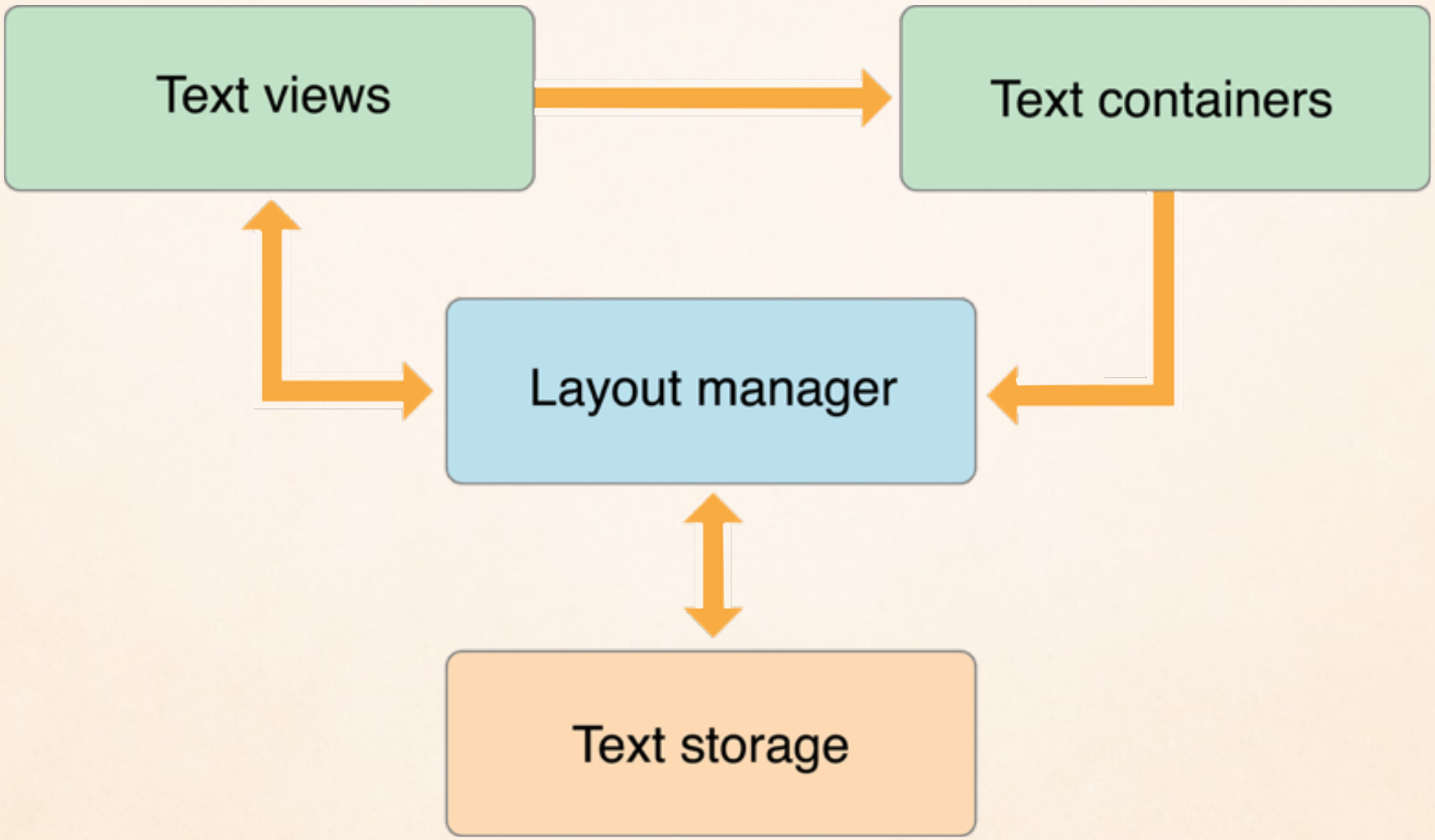
—Apple, https://developer.apple.com/library/ios/documentation/StringsTextFonts/Conceptual/TextAndWebiPhoneOS/CustomTextProcessing/CustomTextProcessing.html

☆ TEXT KIT ☆

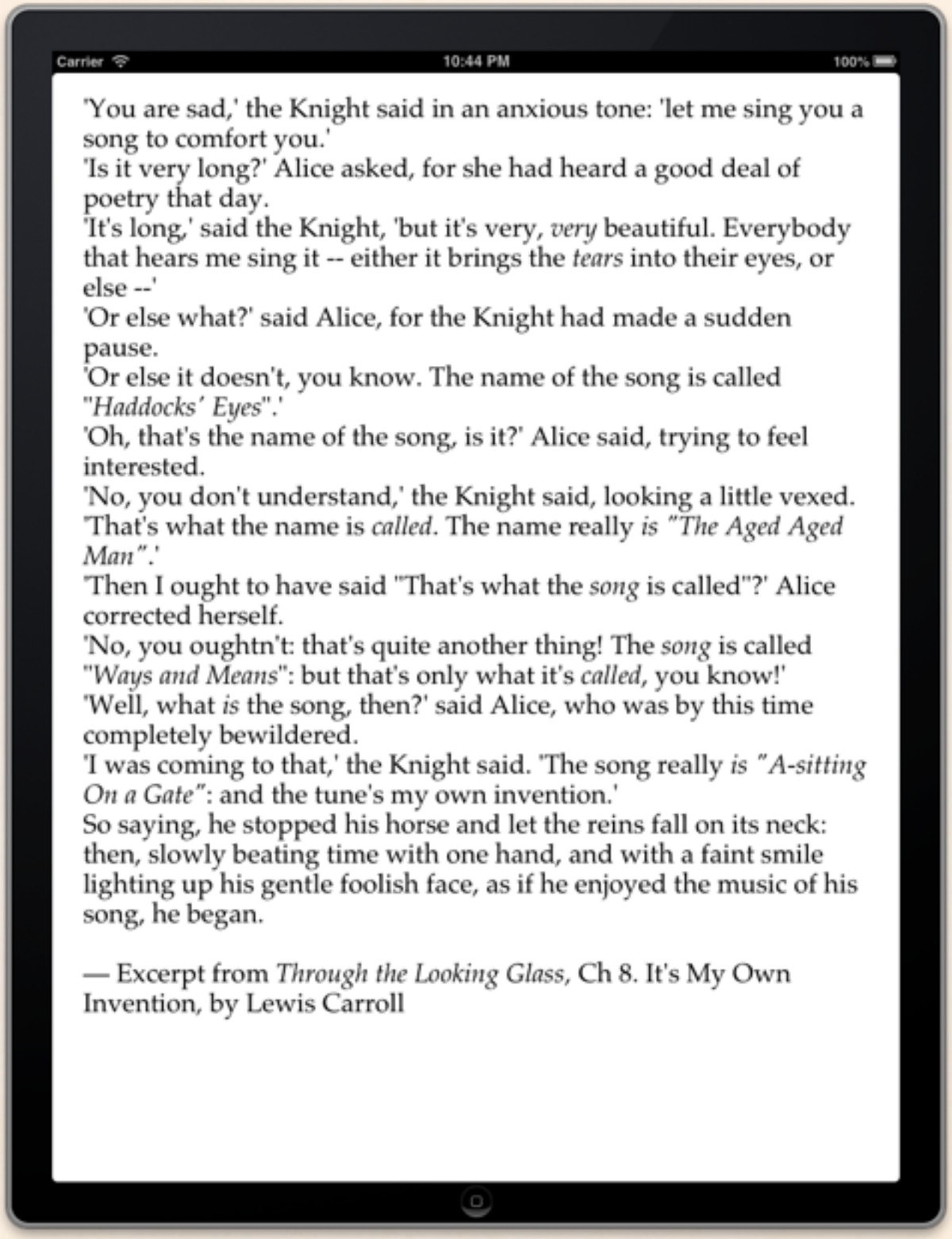
“Text Kit is a way to mess with the text system while (mostly) avoiding the pain and suffering inevitable when working with CoreText.”

—*Me*

TEXT KIT ARCHITECTURE



https://developer.apple.com/library/ios/documentation/StringsTextFonts/Conceptual/TextAndWebiPhoneOS/CustomTextProcessing/CustomTextProcessing.html

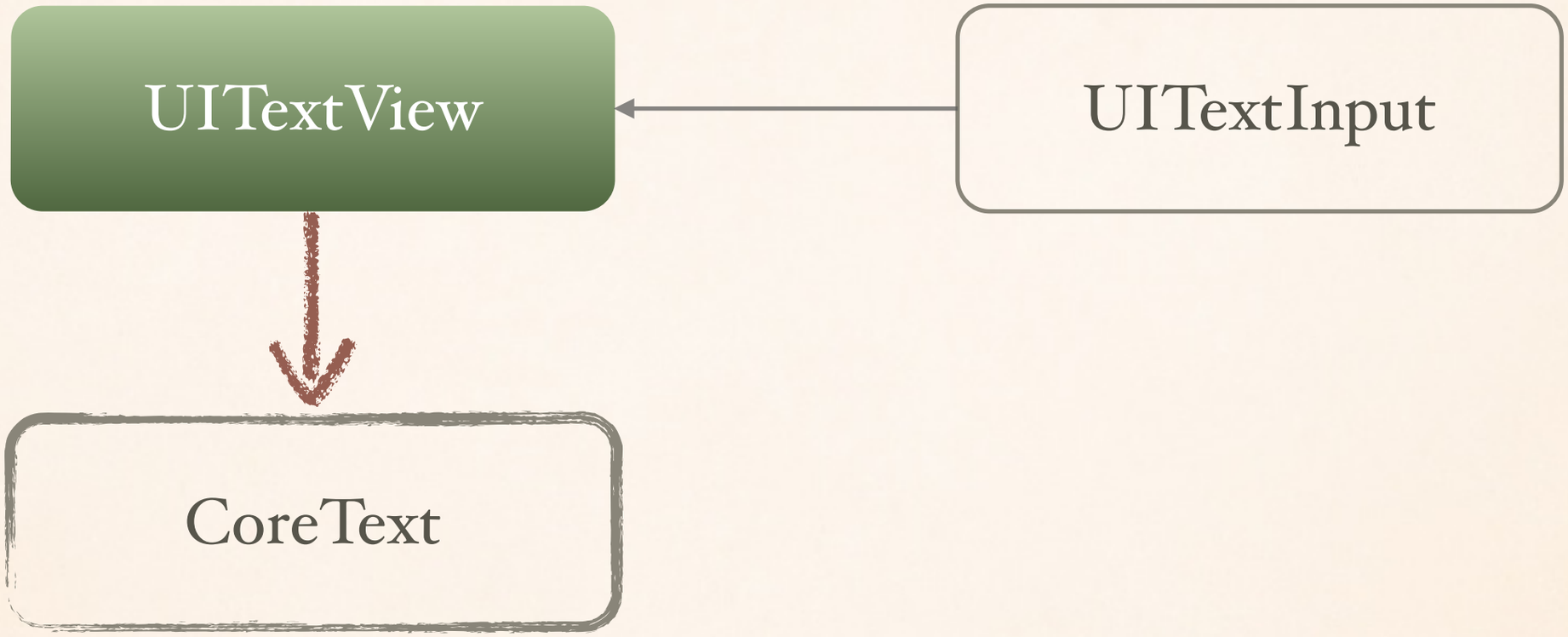


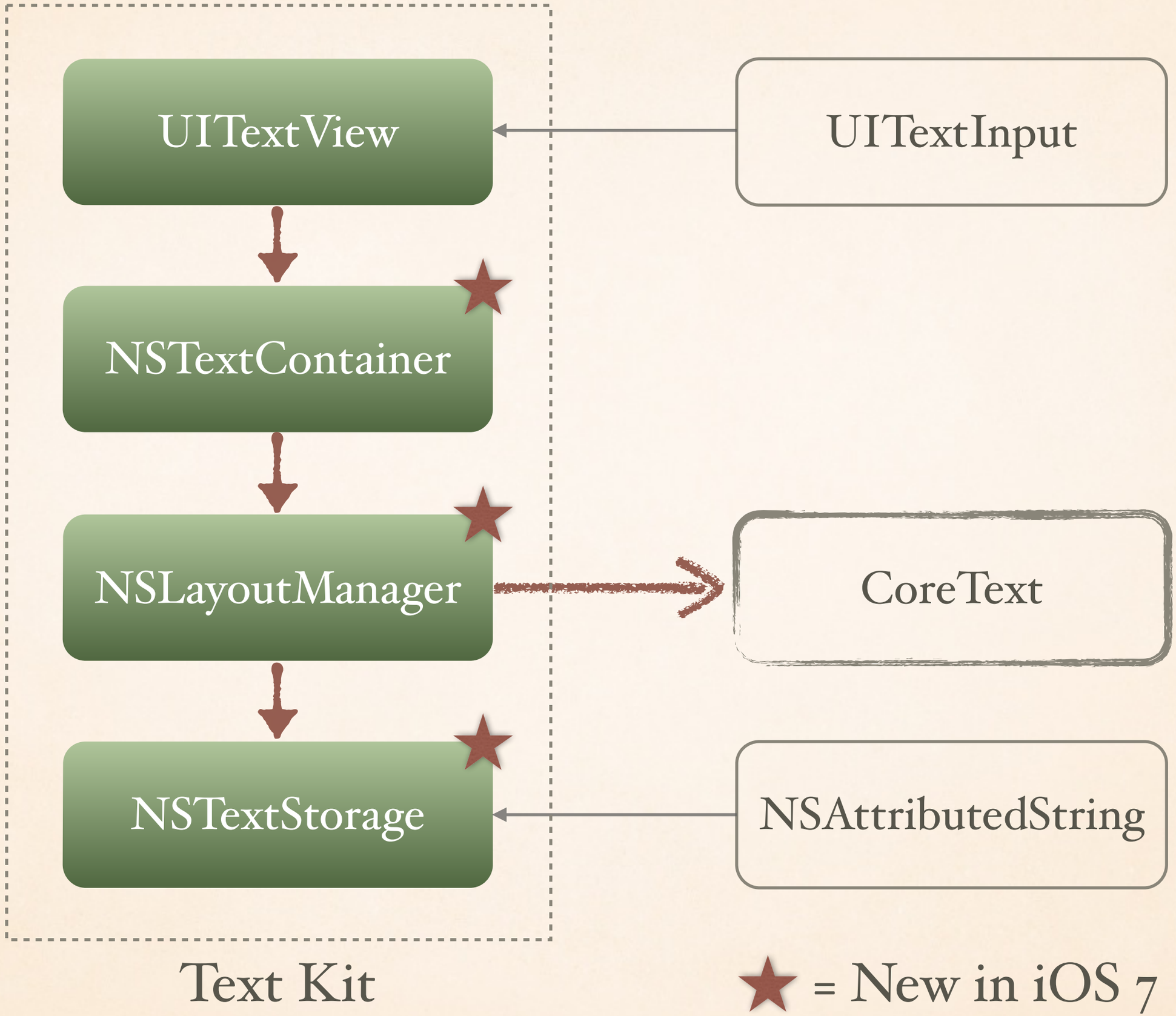
UITextView on iOS 6

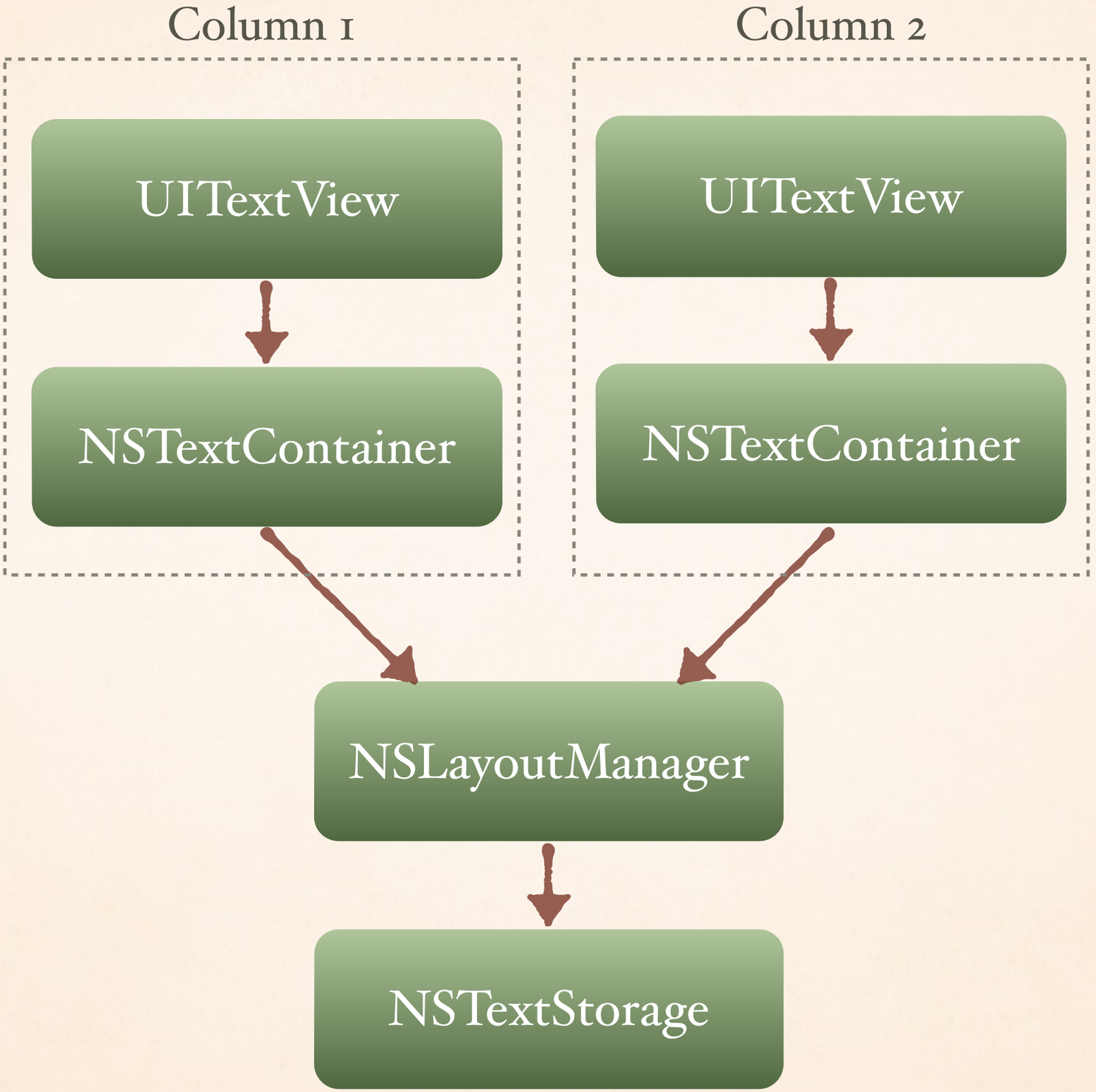
UITextView on iOS 7

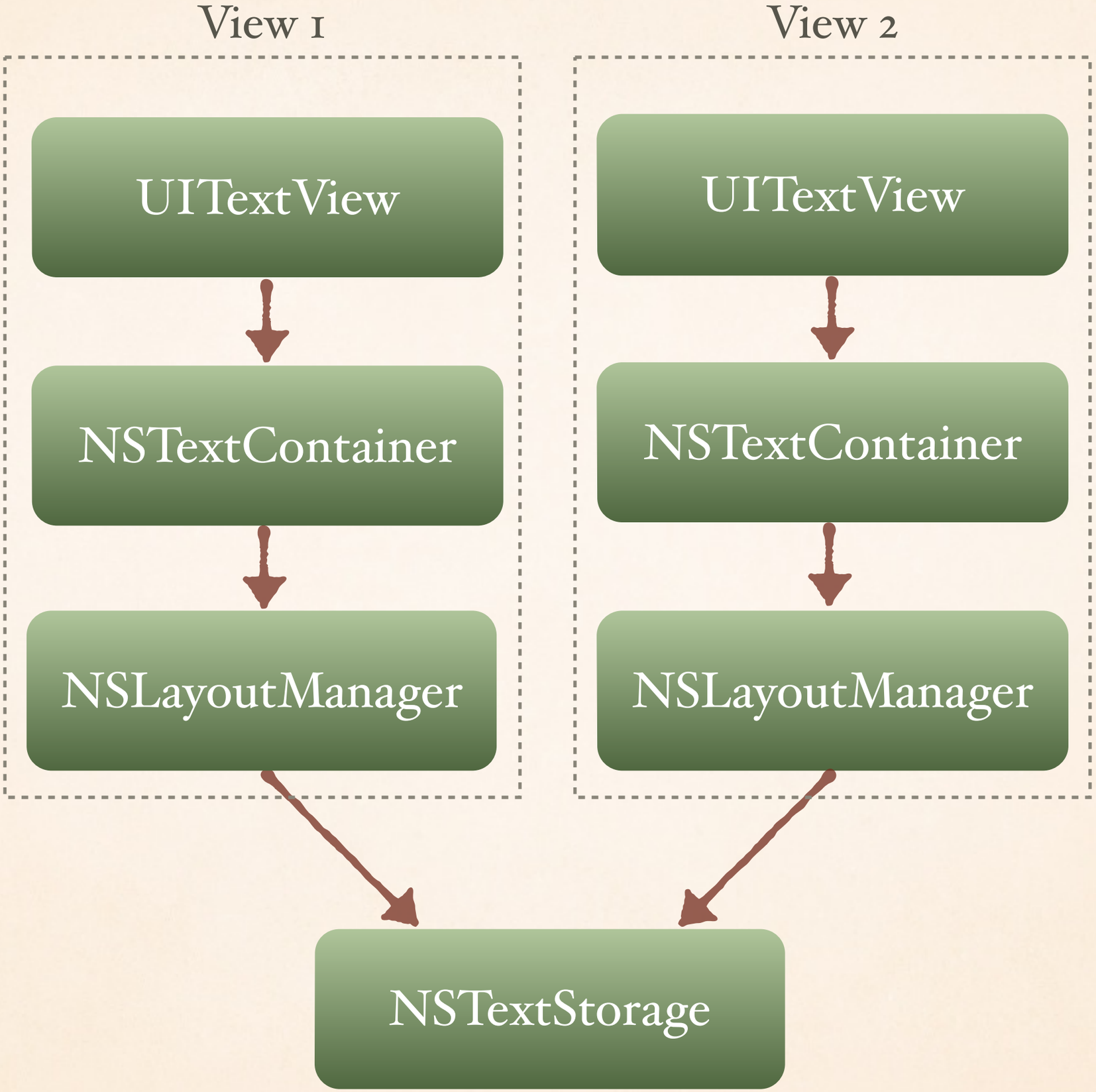
SO...THAT DOESN'T LOOK LIKE MUCH.

WHAT'S THE BIG DEAL?


UITextView
UITextInput
CoreText


UITextView
UITextInput
NSTextContainer
NSLayoutManager
CoreText
NSTextStorage
NSAttributedString
Text Kit
= New in iOS 7


Column 1
Column 2
UITextView
UITextView
NSTextContainer
NSTextContainer
NSLayoutManager
NSTextStorage


View 1
UITextView
NSTextContainer
NSLayoutManager
View 2
UITextView
NSTextContainer
NSLayoutManager
NSTextStorage

UITextView

- Shows pretty text
- Mostly unchanged from iOS 6
- New accessors for manipulating the other Text Kit objects
- Two small niceties added:

```
@property (nonatomic, assign) UIEdgeInsets *textContainerInset;
@property (nonatomic, getter=isSelectable) BOOL selectable;
```

- New Designated Initializer:

```
- (instancetype)initWithFrame:(CGRect)frame
                 textContainer:(NSTextContainer *)textContainer
```

NSTextContainer

- Defines an area within which text will be laid out
- Don't need to subclass for non-rect shaped areas:

```
@property(copy, nonatomic) NSArray *exclusionPaths
```

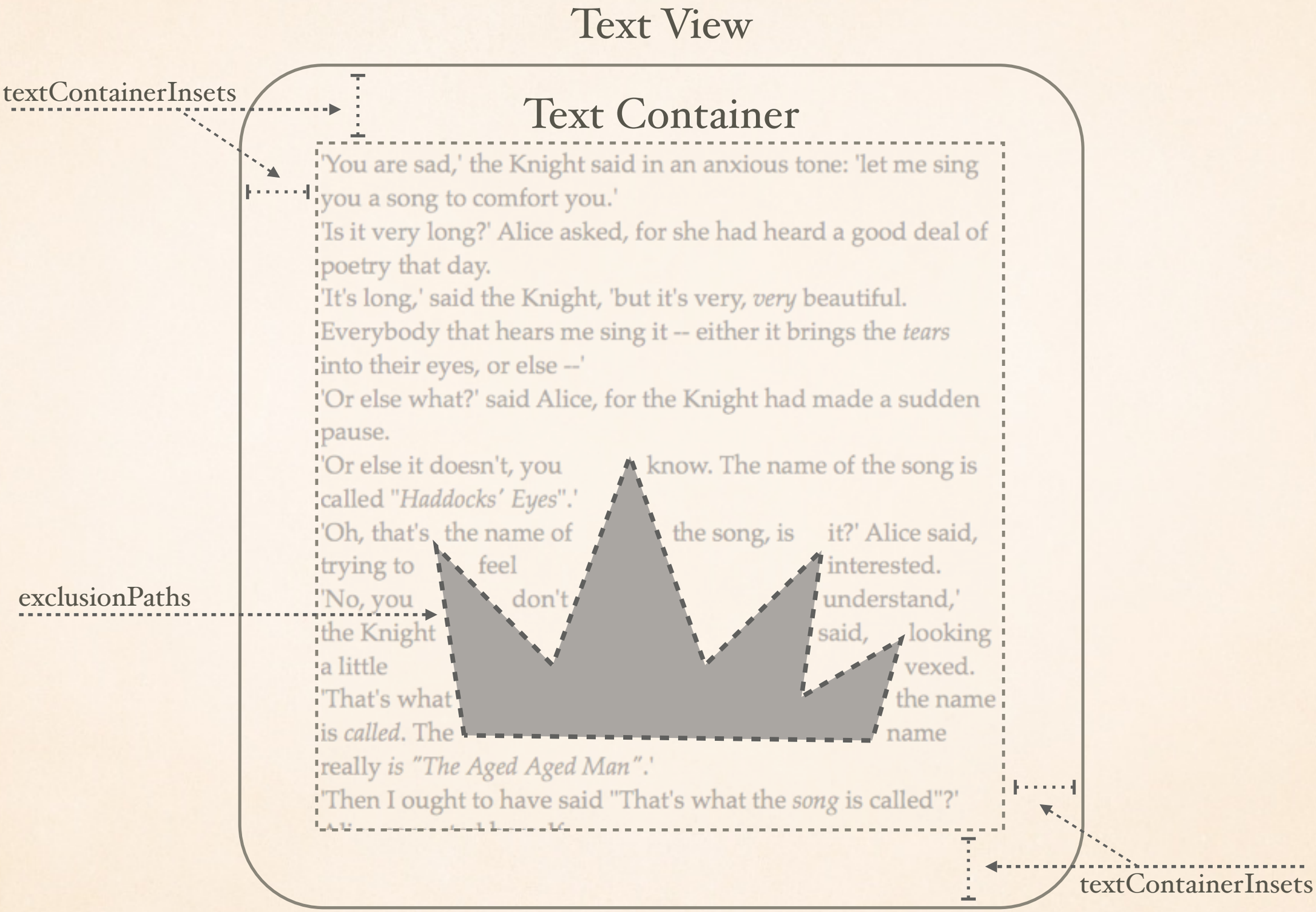
← UIBezierPaths

- Can track the size of it's UITextView:

```
@property(nonatomic) BOOL heightTracksTextView
@property(nonatomic) BOOL widthTracksTextView
```

- Has one main method to override:

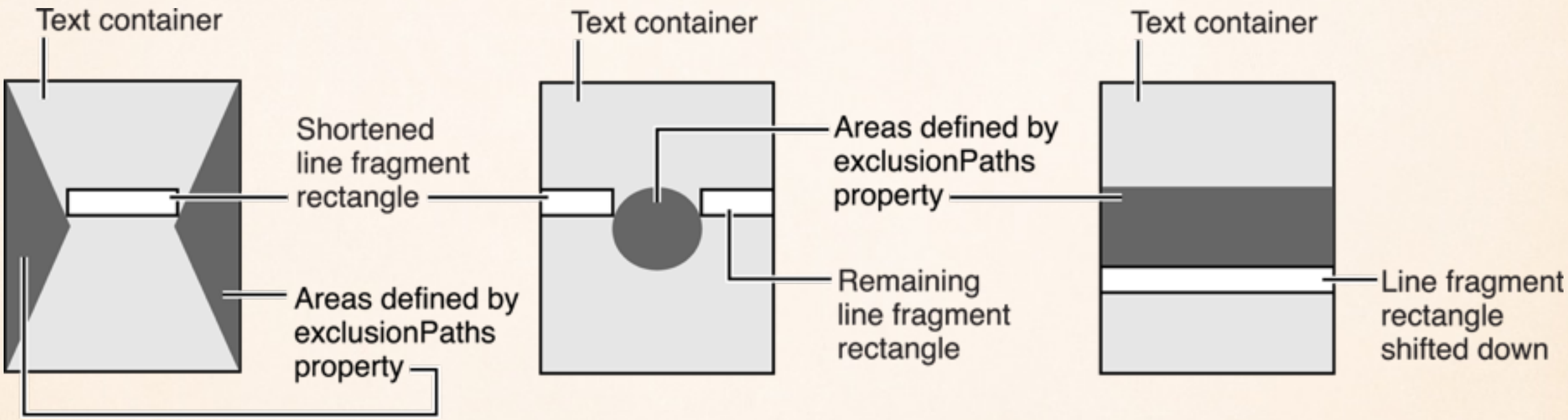
```
- (CGRect)lineFragmentRectForProposedRect:(CGRect)proposedRect
                                  atIndex:(NSUInteger)characterIndex
                         writingDirection:(NSWritingDirection)baseWritingDirection
                            remainingRect:(CGRect *)remainingRect
```


Text View
textContainerInsets
Text Container
'You are sad,' the Knight said in an anxious tone: 'let me sing you a song to comfort you.'
'Is it very long?' Alice asked, for she had heard a good deal of poetry that day.
'It's long,' said the Knight, 'but it's very, very beautiful. Everybody that hears me sing it -- either it brings the tears into their eyes, or else --'
'Or else what?' said Alice, for the Knight had made a sudden pause.
'Or else it doesn't, you know. The name of the song is called "Haddocks' Eyes".'
'Oh, that's the name of the song, is it?' Alice said, trying to feel interested.
'No, you don't understand,' the Knight said, looking a little vexed.
'That's what the name is called. The name is really is "The Aged Aged Man".'
'Then I ought to have said "That's what the song is called"?'
exclusionPaths
textContainerInsets

NSLayoutManager

- This is where the magic happens.
- Lays out line fragments, generates glyphs, draws glyphs, draws backgrounds/~~strikethroughs~~/underlines, manages glyph and layout invalidation, coordinates with NSTextStorage and NSTextContainer.

LINE FRAGMENTS



https://developer.apple.com/library/ios/documentation/StringsTextFonts/Conceptual/TextAndWebiPhoneOS/CustomTextProcessing/CustomTextProcessing.html

NSTextStorage

- Stores Text
- Subclass of NSAttributedString
- Great place to do character manipulation, validation & coercion (esp. attribute coercion).
- Supports a delegate for catching changes to the underlying text during editing.
- Rarely customized

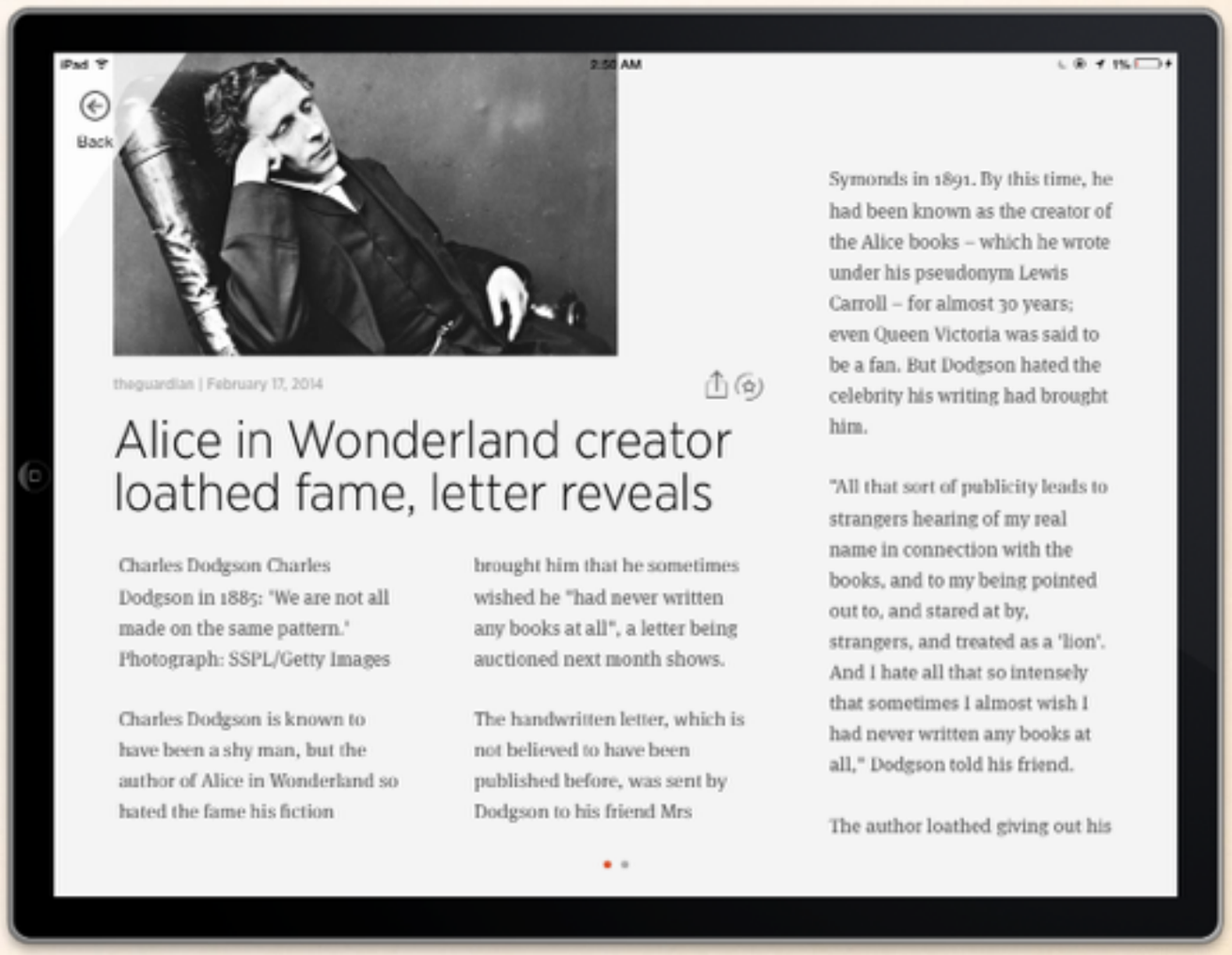
DEMO

(Setting up custom Text Kit objects)

SOME THINGS YOU MIGHT WANT TO DO WITH ☆ TEXT KIT ☆

1. COLUMNS

- Column used to be super hard with CoreText.
- Now you just create a few NSTextContainers and link them to a single NSLayoutManager
- Changing the number of columns can be done independent of the text flow.

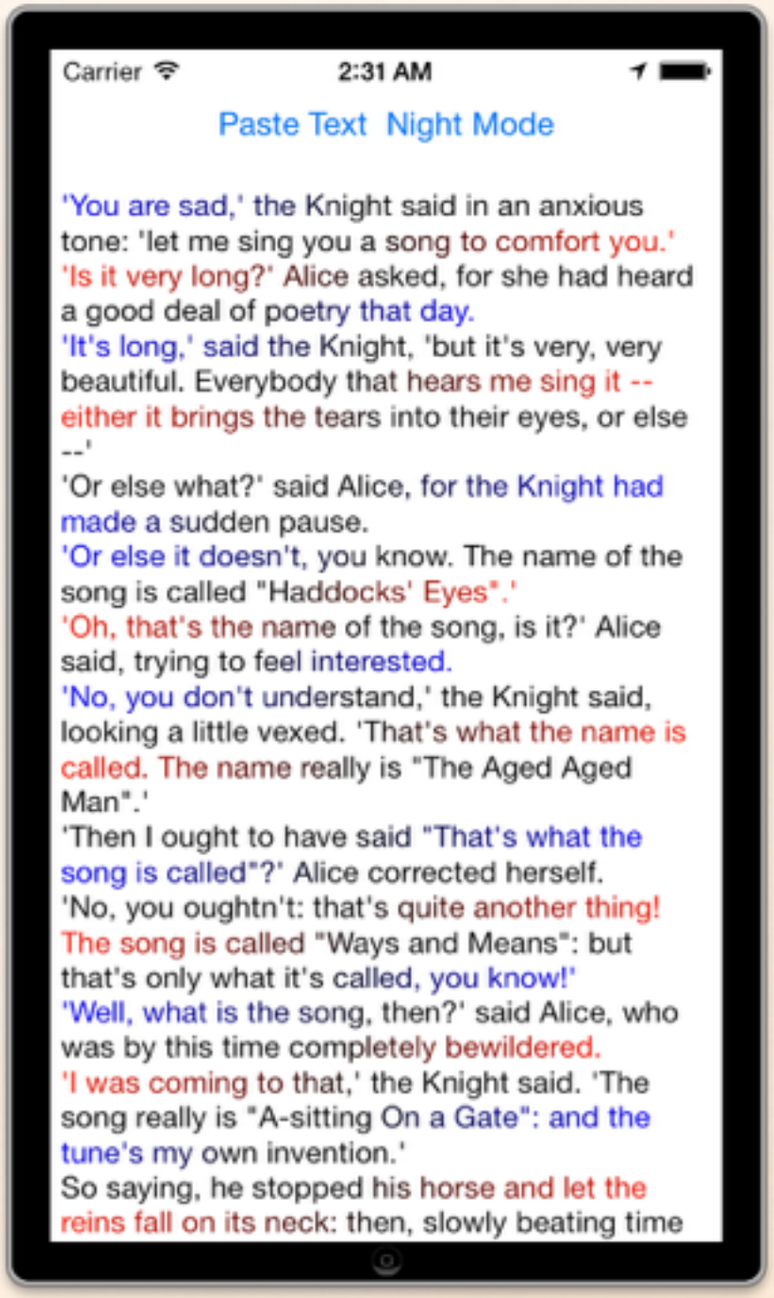


2. TEXT WRAPPING

- Wrapping text around media or other elements integrates them into the page or document
- Add a `UIBezierPath` that describes the outline of the wrapped object to `exclusionPaths`
- It just looks nice

3. DYNAMIC COLORING

- Coloring for dyslexic readers to improve reading speeds.
- Subclasses NSLayoutManager and does custom masking to leverage normal drawing.
- BeelineReader.com



DEMO

(COLUMNS & HTML)

CAVEATS

- It's new, so it does have bugs.
- Redrawing happens a *lot*.
- Doesn't always draw text the way you expect it to. Ex. kCGTextClip

Q & A

Slides + Sample Code available at
http://nicemohawk.com/talks/text-kit

THIS IS THE END OF THE LINE, FOLKS.

Slides + Sample Code available at
http://nicemohawk.com/talks/text-kit

Ben Lachman
@blach
ben@nicemohawk.com

Nice Mohawk Limited
@nicemohawk
nicemohawk.com