

**Macoun' II**



# Das iOS-Text Who-is-Who

Max Seelmann

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# **Das tägliche iOS-Text WTF**

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# **Das tägliche iOS-Text WTF**

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**Welch Tolle Funktion!**

# Die tollen Funktionen

**NSString drawing**

**UILabel**

**UITextField**

**CoreText**

**UITextView**

**UITextInput**

**UIWebView**

**Core Graphics**

Aufgabe:

Plain Text darstellen

# UILabel



# UILabel

+ Schrift



# UILabel

+ Schrift

+ Farben



# UILabel

+ Schrift

+ Farben

+ Schatten



# UILabel

+ Schrift

+ Farben

+ Schatten

+ Truncation



# UILabel

- + Schrift
- + Farben
- + Schatten
- + Truncation
- + Schnell, Effizient



# UILabel

+ Schrift

+ Farben

+ Schatten

+ Truncation

+ Schnell, Effizient

- Nur Plain Text



# UILabel

- + Schrift
- + Farben
- + Schatten
- + Truncation
- + Schnell, Effizient



- Nur Plain Text
- Kein Edit

# UILabel

- + Schrift
- + Farben
- + Schatten
- + Truncation
- + Schnell, Effizient



- Nur Plain Text
- Kein Edit
- Kein Scrolling

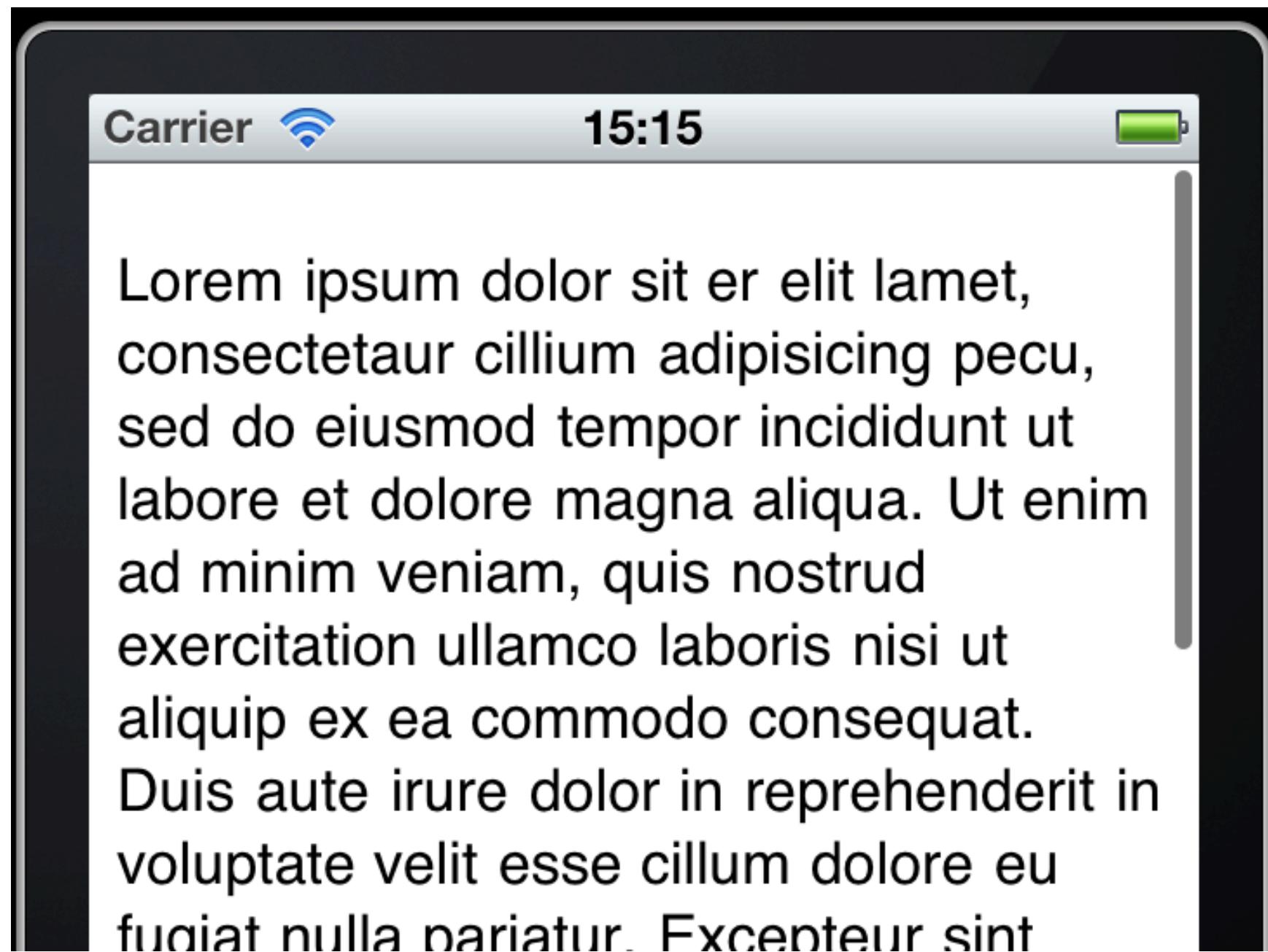
# UILabel

- + Schrift
- + Farben
- + Schatten
- + Truncation
- + Schnell, Effizient



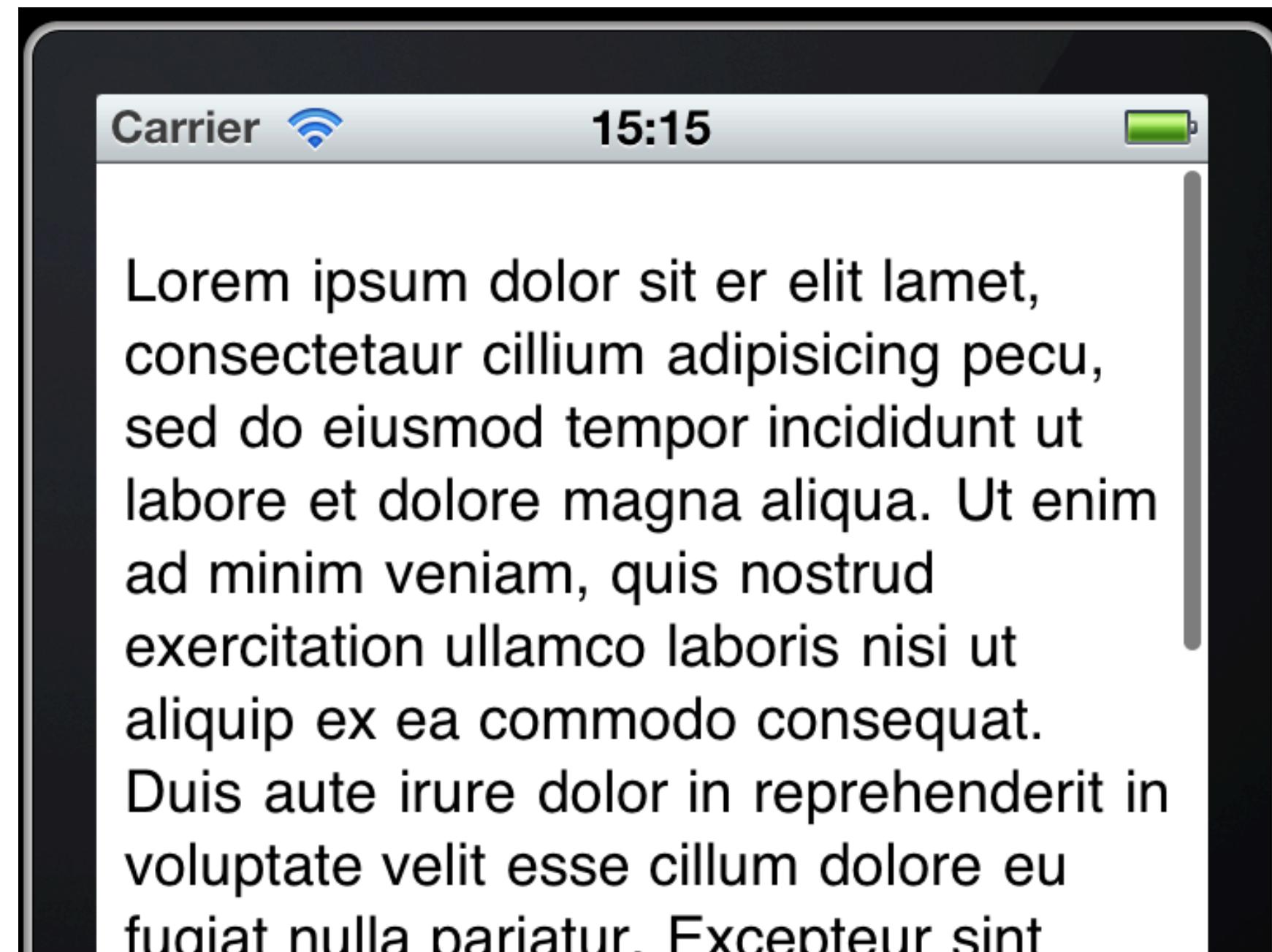
- Nur Plain Text
  - Kein Edit
  - Kein Scrolling
- UITextField

# UITextView



# UITextView

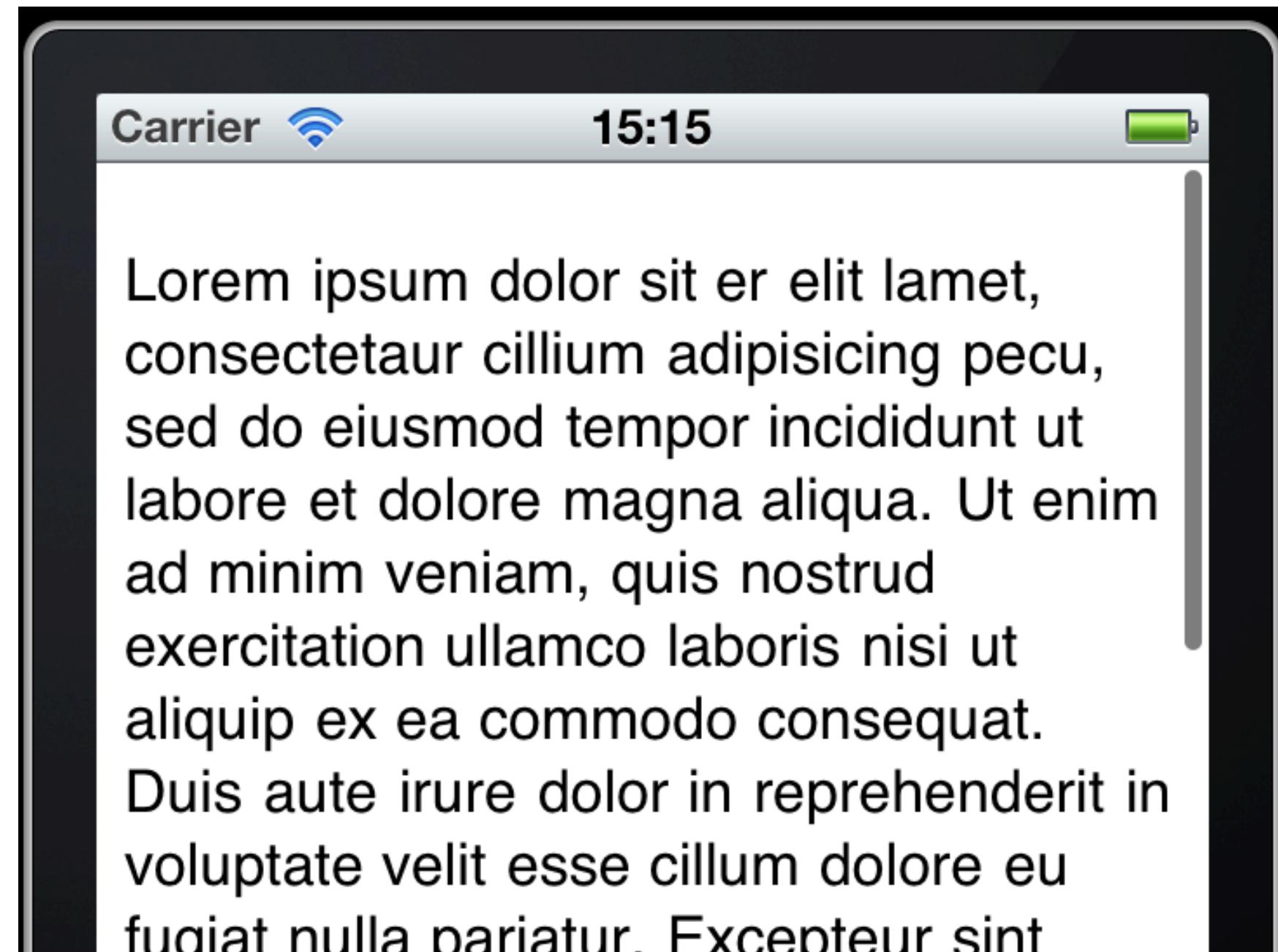
+ Bearbeiten



# UITextView

+ Bearbeiten

+ Mehrzeilig

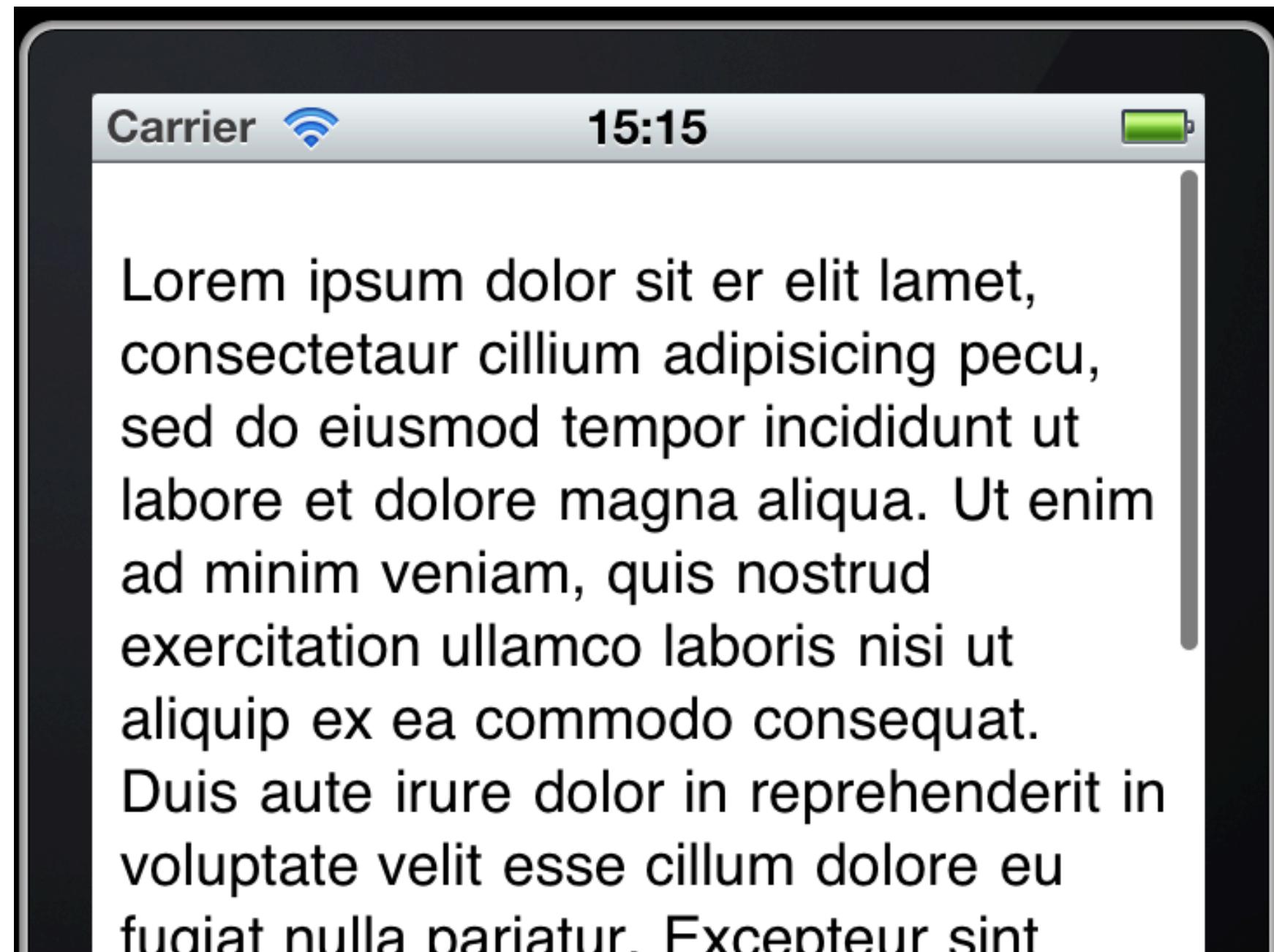


# UITextView

+ Bearbeiten

+ Mehrzeilig

+ Scrolling



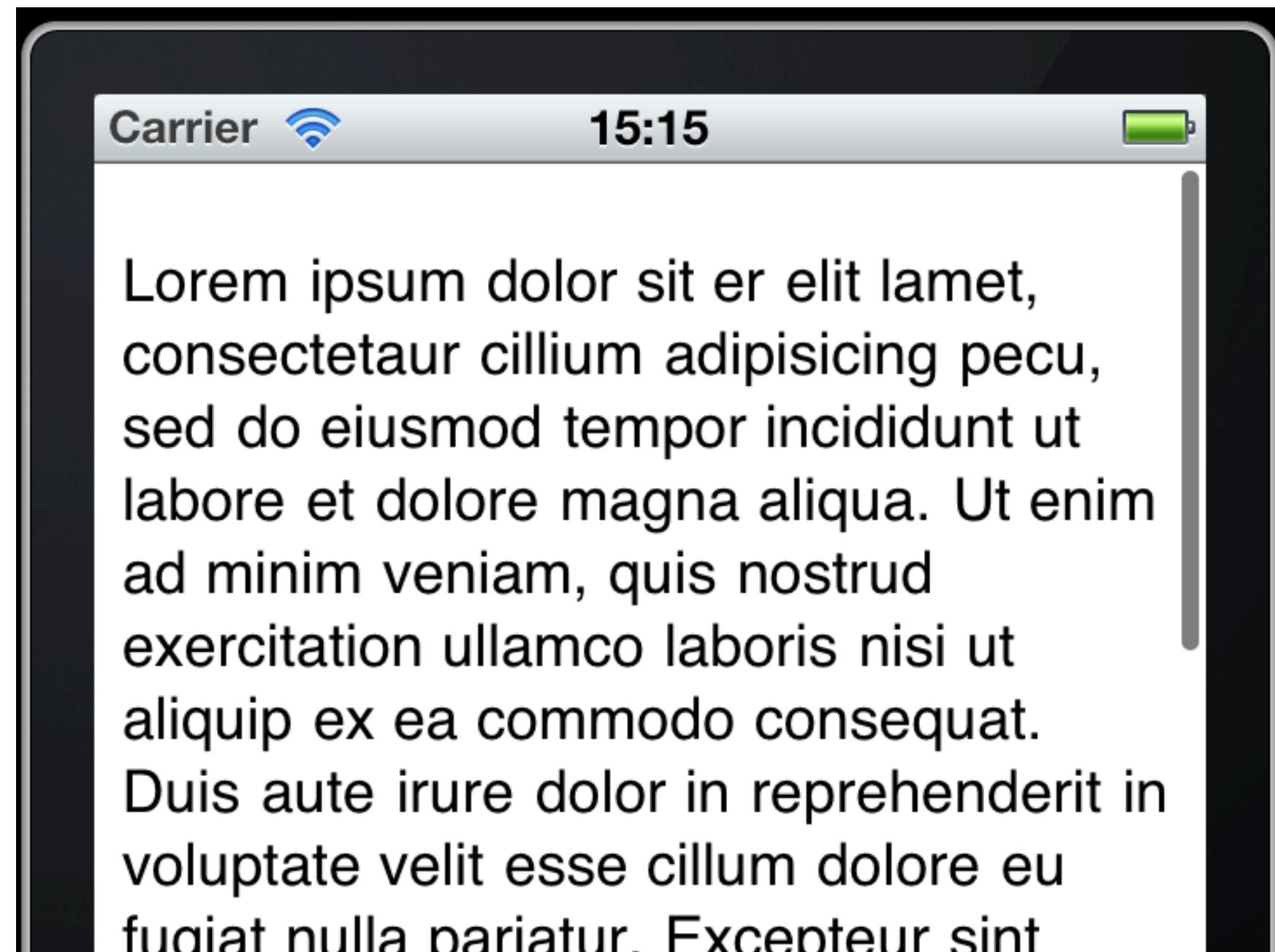
# UITextView

+ Bearbeiten

+ Mehrzeilig

+ Scrolling

- Nur Plain Text

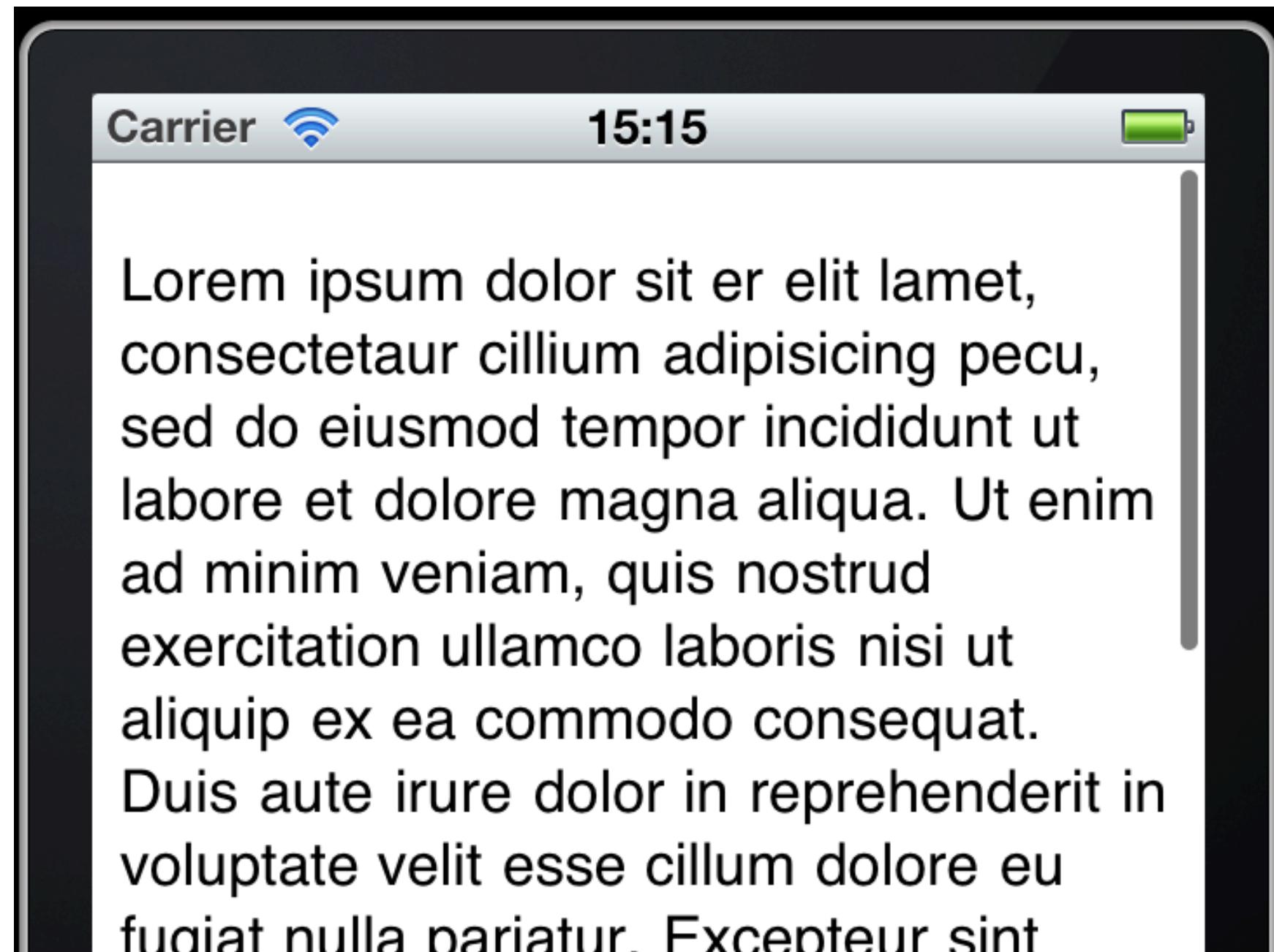


# UITextView

+ Bearbeiten

+ Mehrzeilig

+ Scrolling



- Nur Plain Text

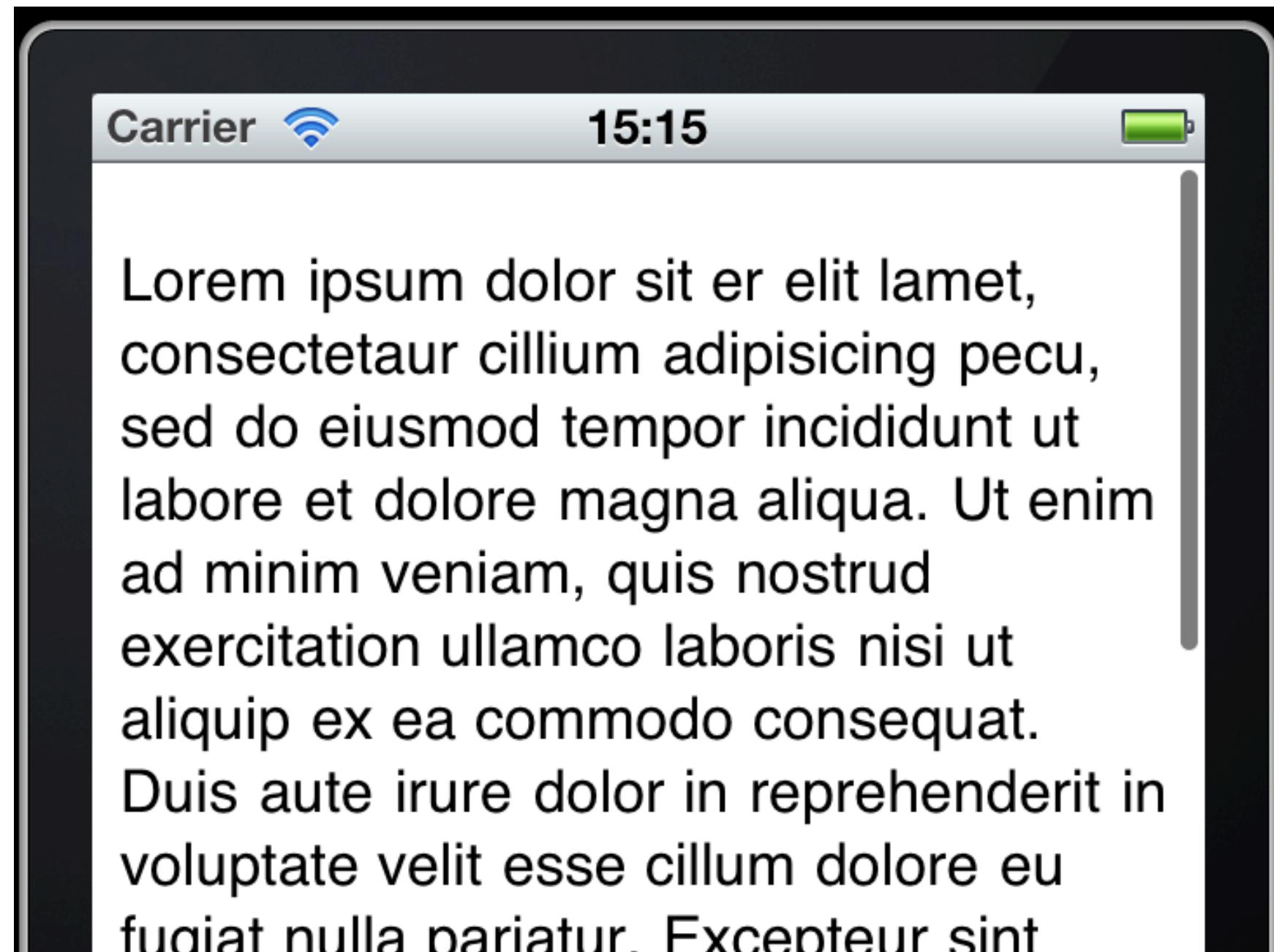
- Keine Anpassung

# UITextView

+ Bearbeiten

+ Mehrzeilig

+ Scrolling

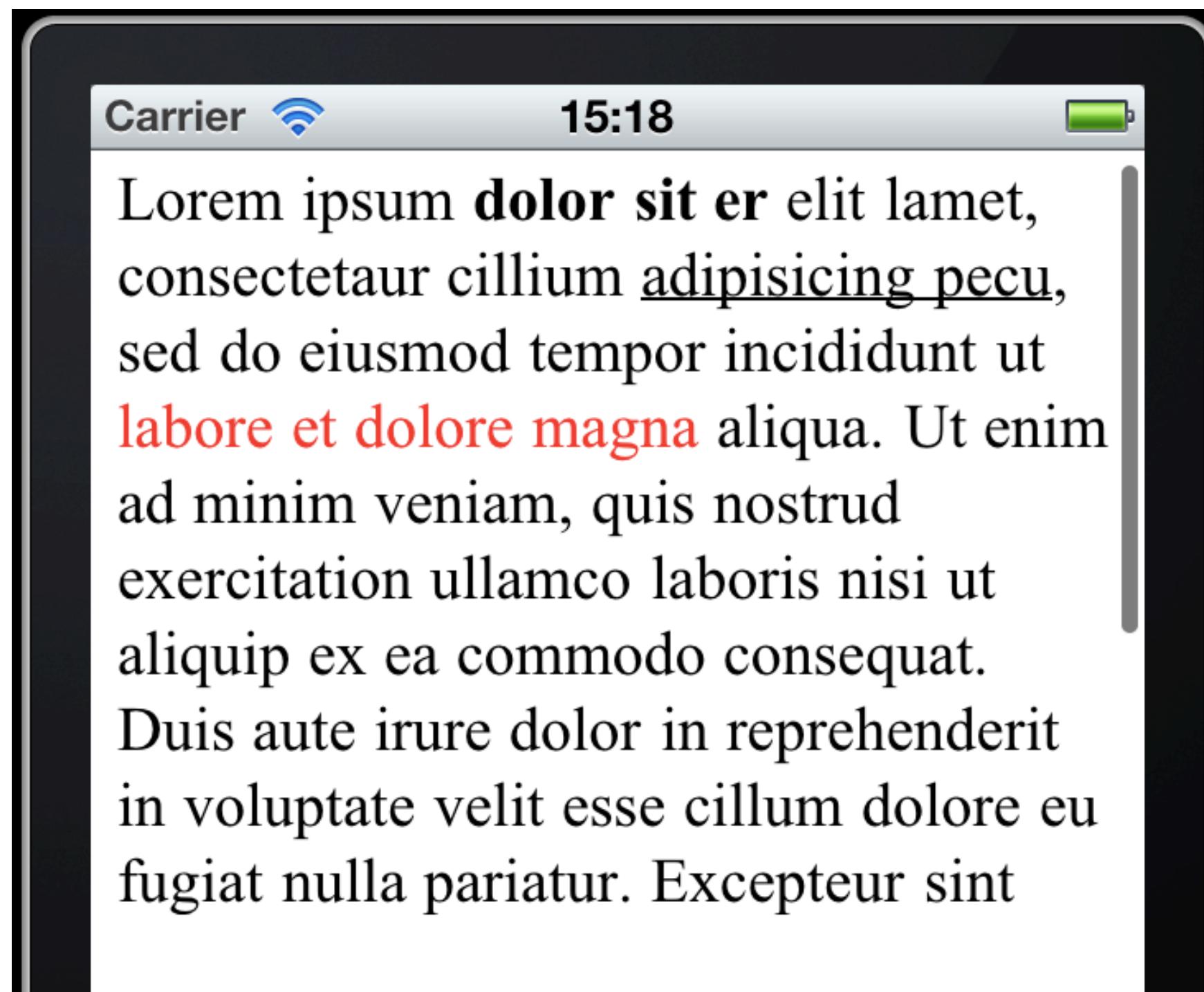


- Nur Plain Text

- Keine Anpassung

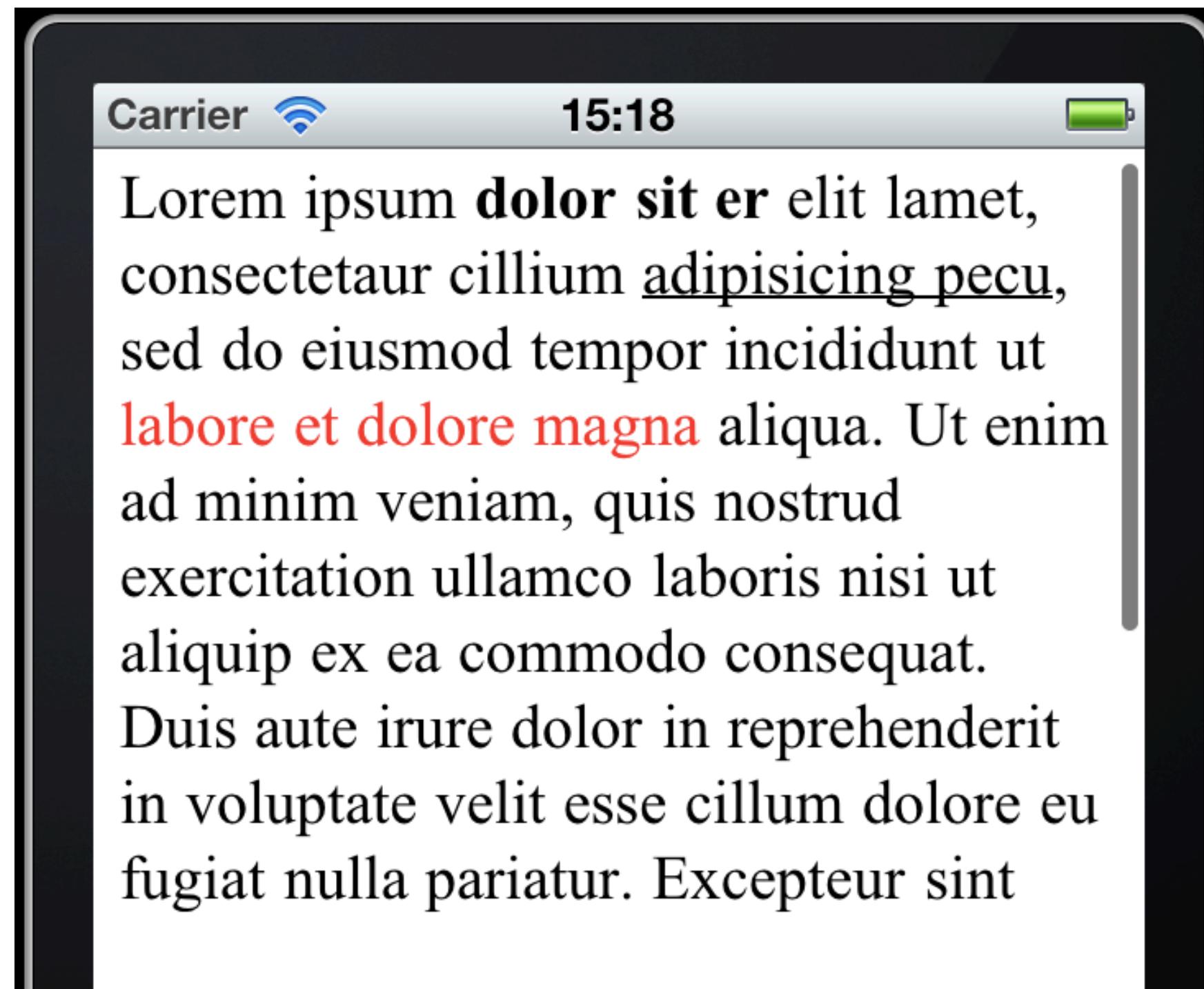
– Keine  
Wiederverwendung

# UIWebView



# UIWebView

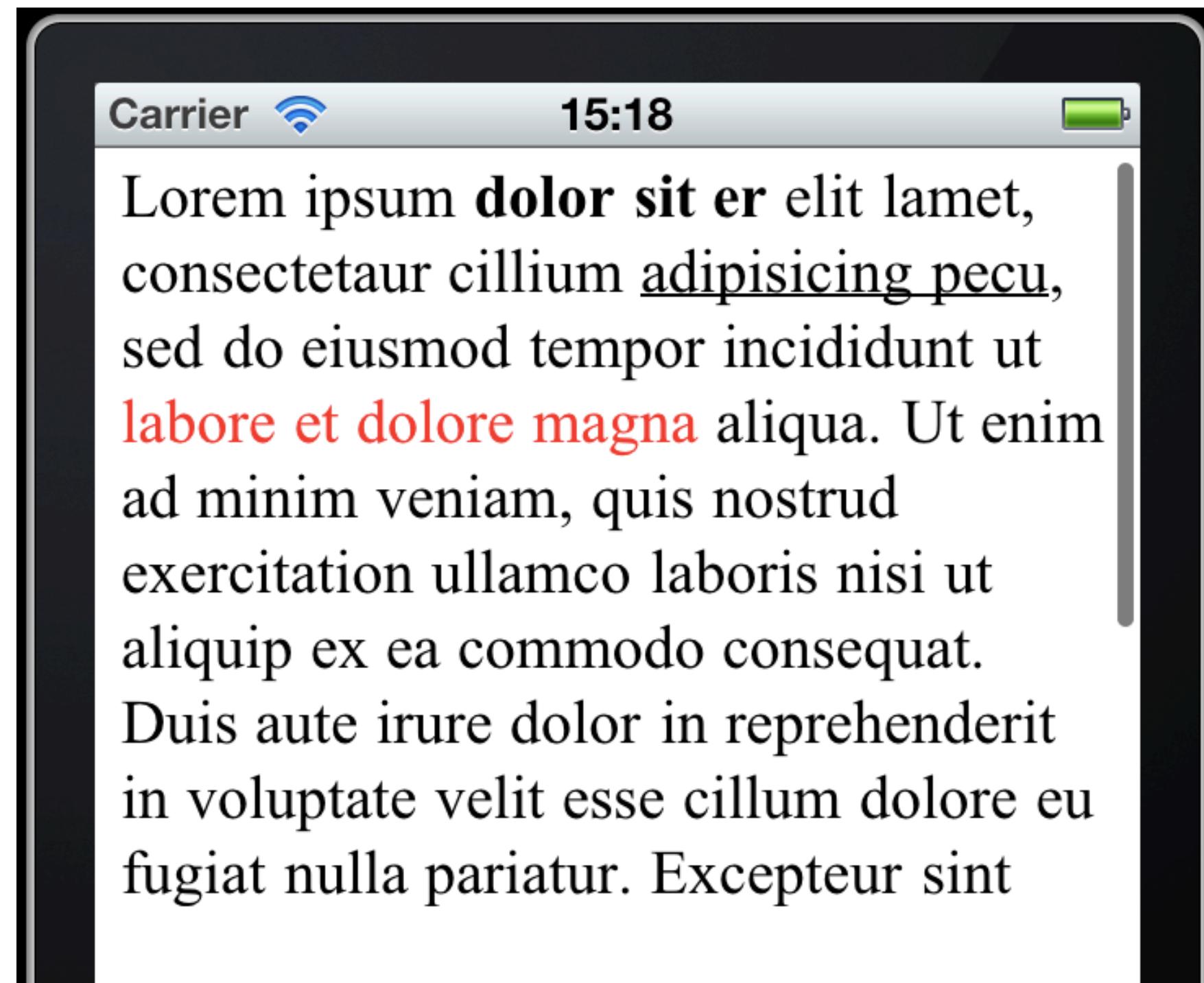
+ “Rich Text”



# UIWebView

+ “Rich Text”

+ Schrift

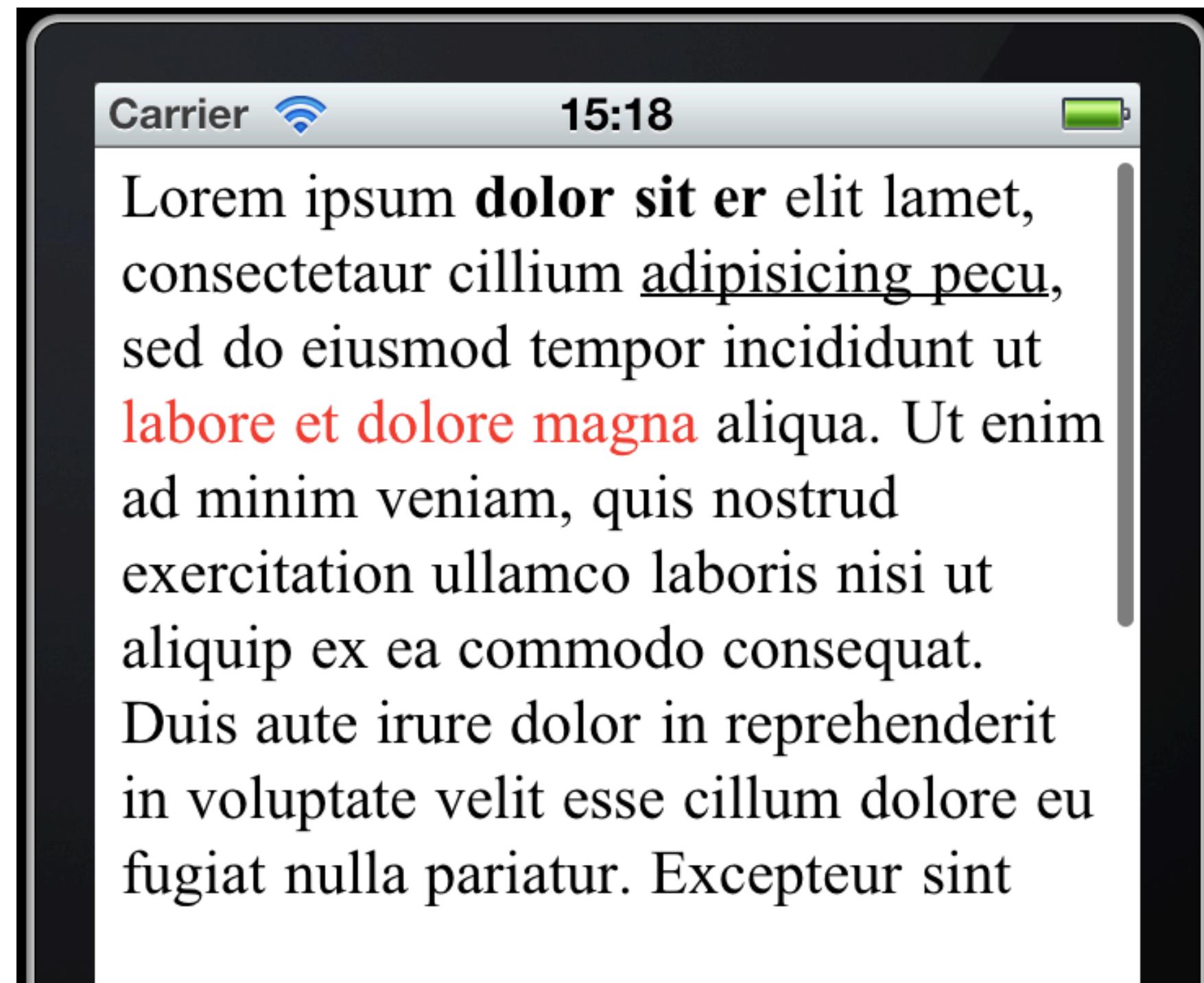


# UIWebView

+ “Rich Text”

+ Schrift

+ Farben



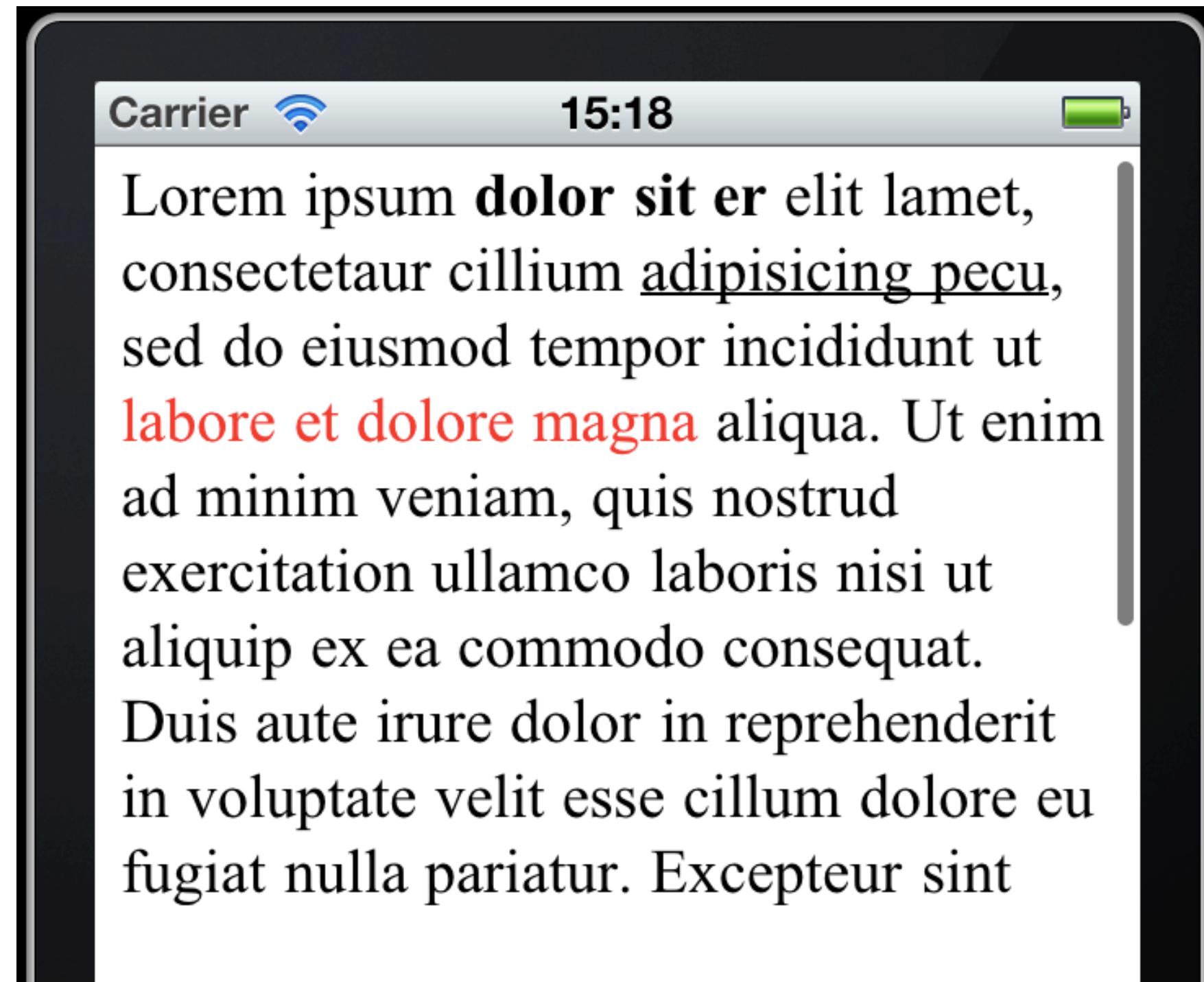
# UIWebView

+ “Rich Text”

+ Schrift

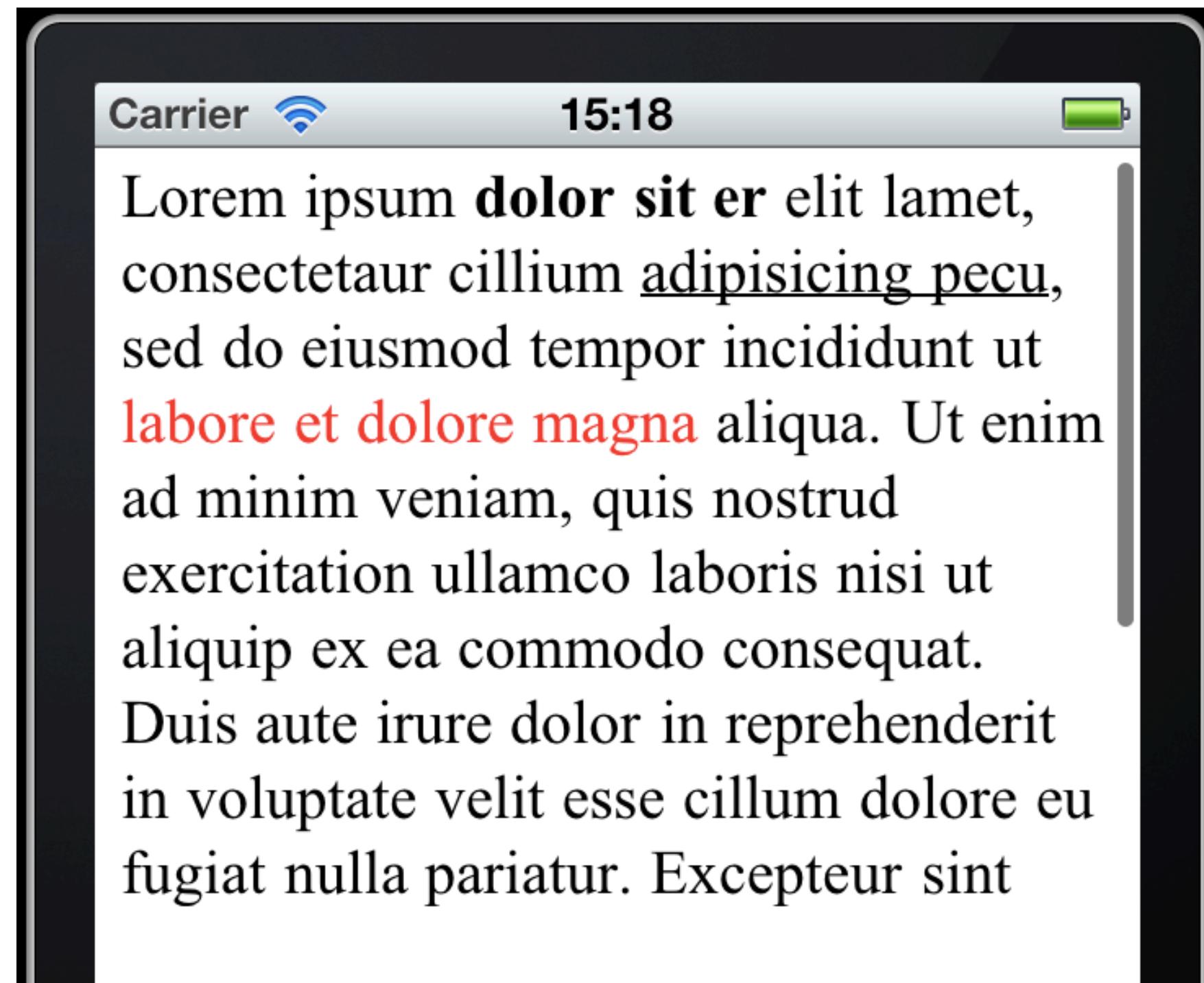
+ Farben

+ Mehrzeilig



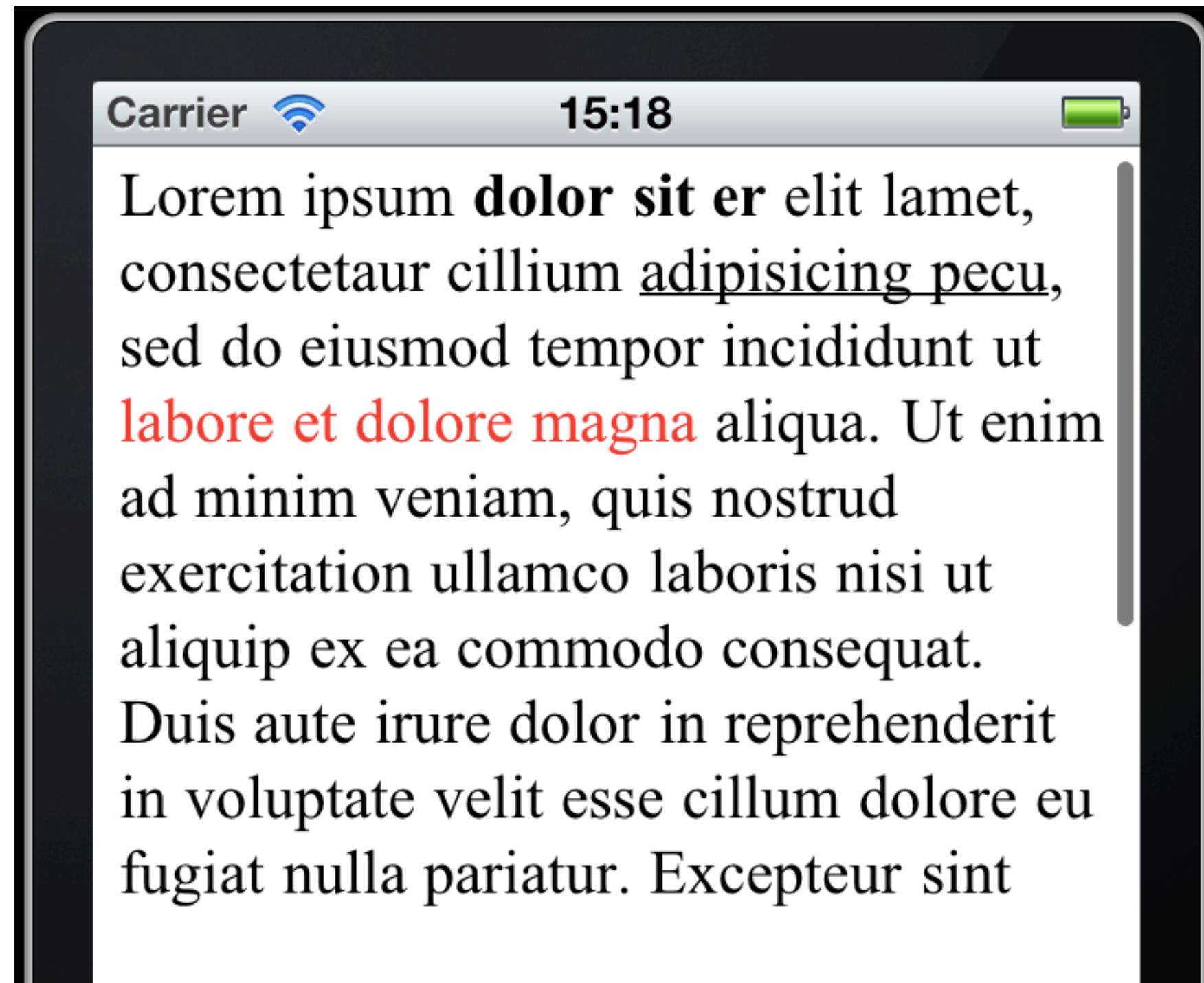
# UIWebView

- + “Rich Text”
- + Schrift
- + Farben
- + Mehrzeilig
- + Scrolling



# UIWebView

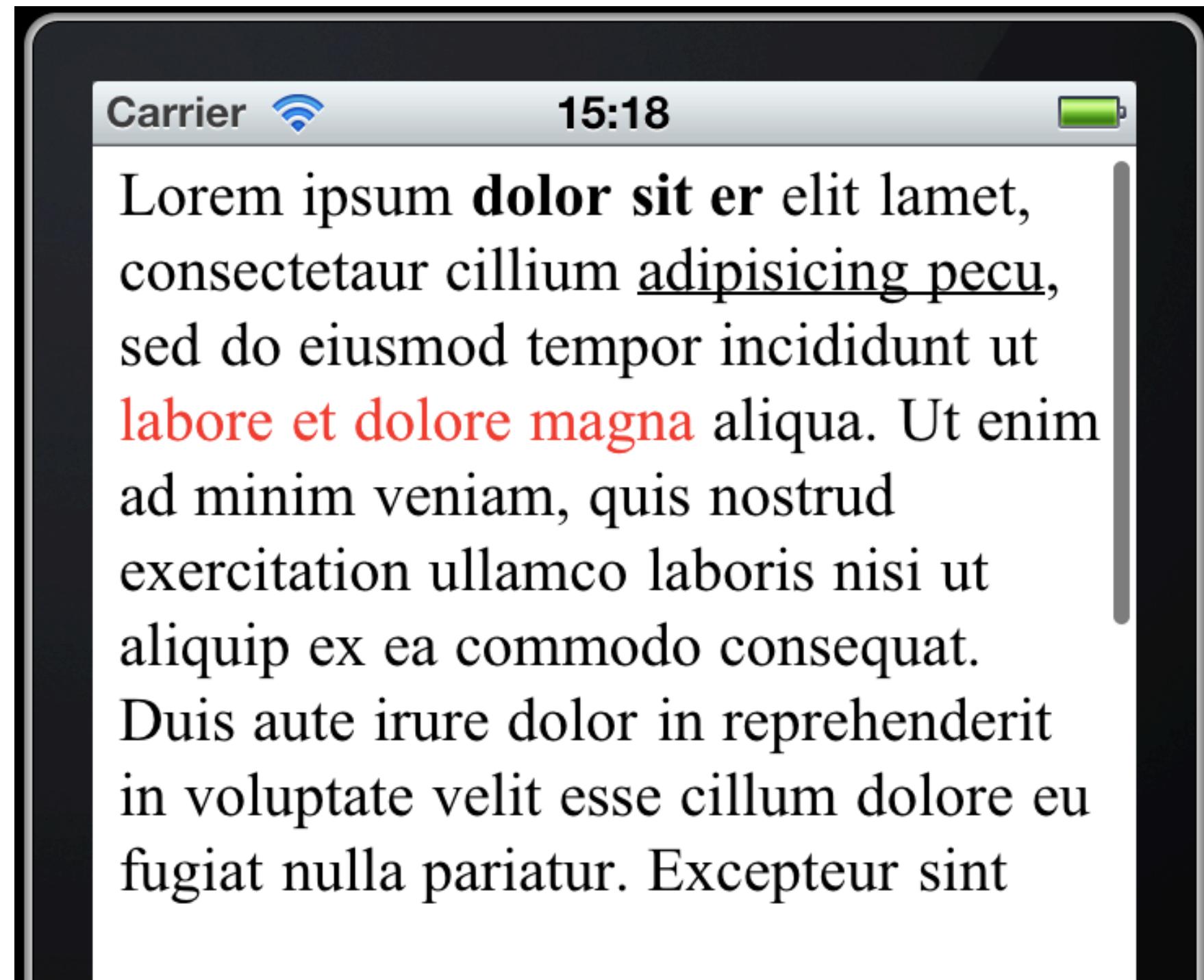
- + “Rich Text”
- + Schrift
- + Farben
- + Mehrzeilig
- + Scrolling



- Recht teuer

# UIWebView

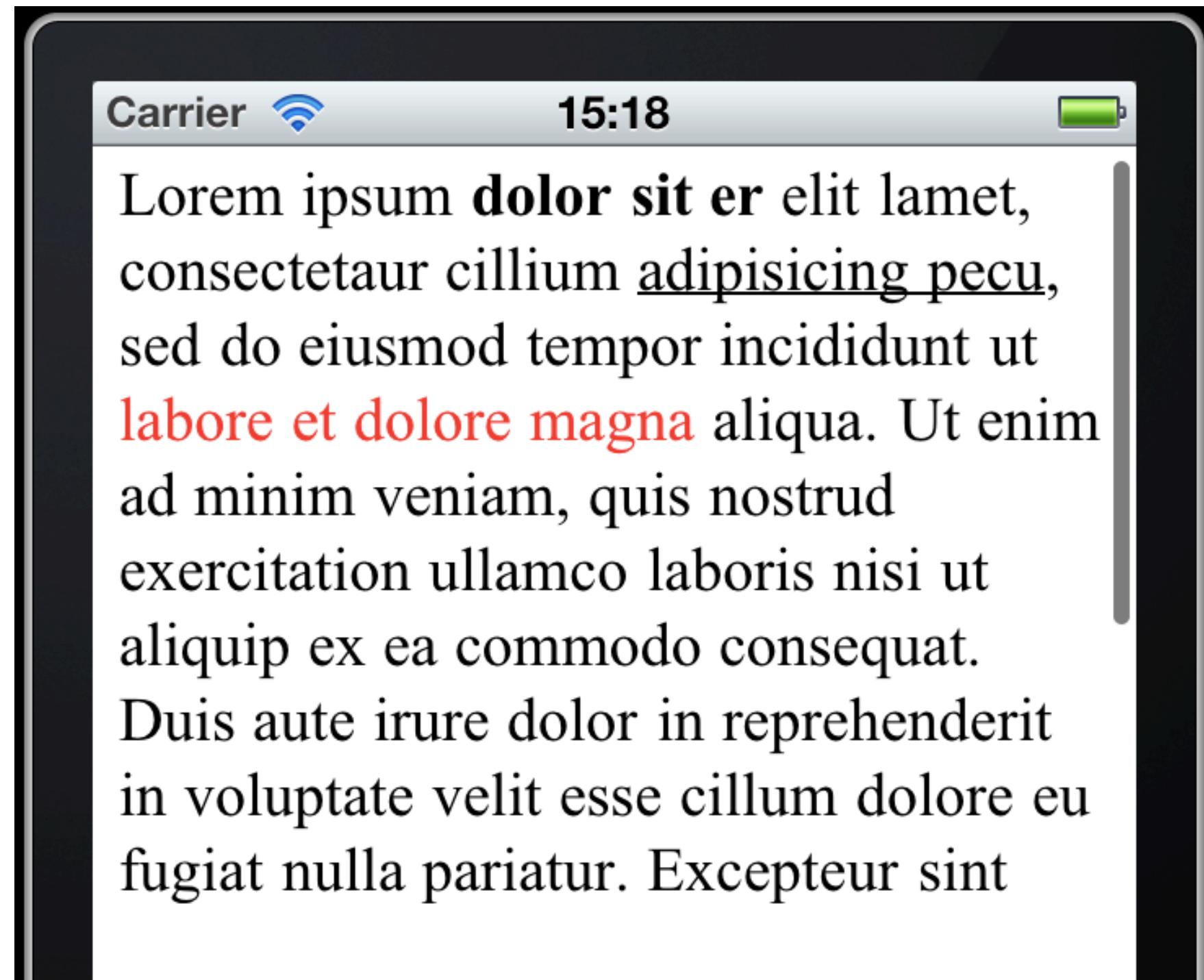
- + “Rich Text”
- + Schrift
- + Farben
- + Mehrzeilig
- + Scrolling



- Recht teuer
- Keine Anpassung

# UIWebView

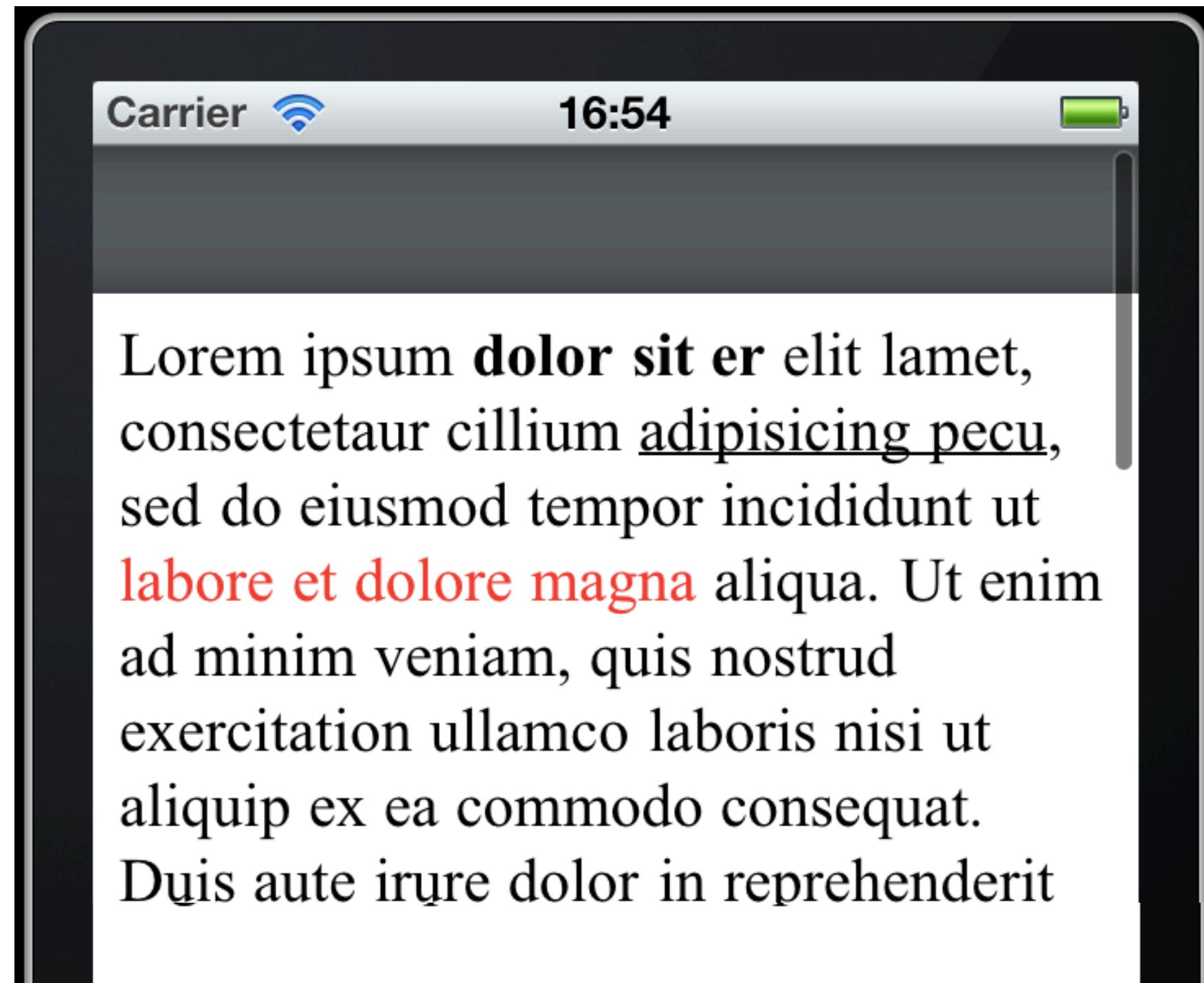
- + “Rich Text”
- + Schrift
- + Farben
- + Mehrzeilig
- + Scrolling



- Recht teuer
- Keine Anpassung
- Keine Wiederverwendung

# UIWebView

- + “Rich Text”
- + Schrift
- + Farben
- + Mehrzeilig
- + Scrolling



- Recht teuer
- Keine Anpassung
- Keine Wiederverwendung

# NSStringDrawing

```
- (CGSize)drawAtPoint:(CGPoint)point  
    forWidth:(CGFloat)width  
    withFont:(UIFont *)font  
    minFontSize:(CGFloat)minFontSize  
actualFontSize:(CGFloat *)actualFontSize  
    lineBreakMode:(UILineBreakMode)lineBreakMode  
baselineAdjustment:(UIBaselineAdjustment)baselineAdjustment
```

# NSStringDrawing

```
- (CGSize)drawAtPoint:(CGPoint)point  
    forWidth:(CGFloat)width  
    withFont:(UIFont *)font  
    minFontSize:(CGFloat)minFontSize  
actualFontSize:(CGFloat *)actualFontSize  
    lineBreakMode:(UILineBreakMode)lineBreakMode  
baselineAdjustment:(UIBaselineAdjustment)baselineAdjustment
```

+ Schrift

# NSStringDrawing

```
- (CGSize)drawAtPoint:(CGPoint)point  
    forWidth:(CGFloat)width  
    withFont:(UIFont *)font  
    minFontSize:(CGFloat)minFontSize  
actualFontSize:(CGFloat *)actualFontSize  
    lineBreakMode:(UILineBreakMode)lineBreakMode  
baselineAdjustment:(UIBaselineAdjustment)baselineAdjustment
```

+ Schrift + Größe berechnen

# NSStringDrawing

- `(CGSize)drawAtPoint:(CGPoint)point  
forWidth:(CGFloat)width  
withFont:(UIFont *)font  
minFontSize:(CGFloat)minFontSize  
actualFontSize:(CGFloat *)actualFontSize  
lineBreakMode:(UILineBreakMode)lineBreakMode  
baselineAdjustment:(UIBaselineAdjustment)baselineAdjustment`

- + Schrift + Größe berechnen

- + Truncation (einzeilig)

# NSStringDrawing

- `(CGSize)drawAtPoint:(CGPoint)point  
forWidth:(CGFloat)width  
withFont:(UIFont *)font  
minFontSize:(CGFloat)minFontSize  
actualFontSize:(CGFloat *)actualFontSize  
lineBreakMode:(UILineBreakMode)lineBreakMode  
baselineAdjustment:(UIBaselineAdjustment)baselineAdjustment`

- + Schrift
- + Größe berechnen
- + Truncation (einzeilig)
- + Mehrzeilige Variante

# NSStringDrawing

- `(CGSize)drawAtPoint:(CGPoint)point  
forWidth:(CGFloat)width  
withFont:(UIFont *)font  
minFontSize:(CGFloat)minFontSize  
actualFontSize:(CGFloat *)actualFontSize  
lineBreakMode:(UILineBreakMode)lineBreakMode  
baselineAdjustment:(UIBaselineAdjustment)baselineAdjustment`

+ Schrift + Größe berechnen

+ Truncation (einzeilig)

- Nur Plain Text

+ Mehrzeilige Variante

# NSStringDrawing

```
- (CGSize)drawAtPoint:(CGPoint)point  
    forWidth:(CGFloat)width  
    withFont:(UIFont *)font  
    minFontSize:(CGFloat)minFontSize  
    actualFontSize:(CGFloat *)actualFontSize  
    lineBreakMode:(UILineBreakMode)lineBreakMode  
    baselineAdjustment:(UIBaselineAdjustment)baselineAdjustment
```

- + Schrift
- + Größe berechnen
- + Truncation (einzeilig)
- + Mehrzeilige Variante

- Kein Edit
- Nur Plain Text

# NSStringDrawing

```
- (CGSize)drawAtPoint:(CGPoint)point  
    forWidth:(CGFloat)width  
    withFont:(UIFont *)font  
    minFontSize:(CGFloat)minFontSize  
    actualFontSize:(CGFloat *)actualFontSize  
    lineBreakMode:(UILineBreakMode)lineBreakMode  
    baselineAdjustment:(UIBaselineAdjustment)baselineAdjustment
```

- + Schrift
- + Größe berechnen
- + Truncation (einzeilig)
- + Mehrzeilige Variante

- Kein Edit
- Recht langsam
- Nur Plain Text

# CoreGraphics String Drawing

```
void CGContextShowTextAtPoint (  
    CGContextRef c,  
    CGFloat x, CGFloat y,  
    const char *string, size_t length  
) ;
```

# CoreGraphics String Drawing

```
void CGContextShowTextAtPoint (  
    CGContextRef c,  
    CGFloat x, CGFloat y,  
    const char *string, size_t length  
) ;
```

+ Extrem Effizient

# CoreGraphics String Drawing

```
void CGContextShowTextAtPoint (  
    CGContextRef c,  
    CGFloat x, CGFloat y,  
    const char *string, size_t length  
) ;
```

- + Extrem Efficient
- + Simple API

# CoreGraphics String Drawing

```
void CGContextShowTextAtPoint (  
    CGContextRef c,  
    CGFloat x, CGFloat y,  
    const char *string, size_t length  
) ;
```

- + Extrem Effizient
- + Simple API

– Extrem Elementar

# CoreGraphics String Drawing

```
void CGContextShowTextAtPoint (  
    CGContextRef c,  
    CGFloat x, CGFloat y,  
    const char *string, size_t length  
) ;
```

- + Extrem Effizient
- + Simple API

- Extrem Elementar
- Keine Schrift-Substitutionen

# CoreGraphics String Drawing

```
void CGContextShowTextAtPoint (  
    CGContextRef c,  
    CGFloat x, CGFloat y,  
    const char *string, size_t length  
) ;
```

- + Extrem Effizient
- + Simple API

- Extrem Elementar
- Keine Schrift-Substitutionen
- Truncation

# CoreGraphics String Drawing

```
void CGContextShowTextAtPoint (  
    CGContextRef c,  
    CGFloat x, CGFloat y,  
    const char *string, size_t length  
) ;
```

- + Extrem Effizient
- + Simple API

- Ausrichtung
- Keine Schrift-Substitutionen
- Truncation
- Extrem Elementar

# CoreGraphics String Drawing

```
void CGContextShowTextAtPoint (  
    CGContextRef c,  
    CGFloat x, CGFloat y,  
    const char *string, size_t length  
) ;
```

+ Extrem Effizient

+ Simple API

– Extrem Elementar

– Ausrichtung

– Größe berechnen

– Truncation

– Keine Schrift-Substitutionen

# CoreGraphics String Drawing

```
void CGContextShowTextAtPoint (  
    CGContextRef c,  
    CGFloat x, CGFloat y,  
    const char *string, size_t length  
) ;
```

+ Extrem Effizient

+ Simple API

– Extrem Elementar

– Ausrichtung

– Größe berechnen

– Truncation

– Keine Schrift-Substitutionen

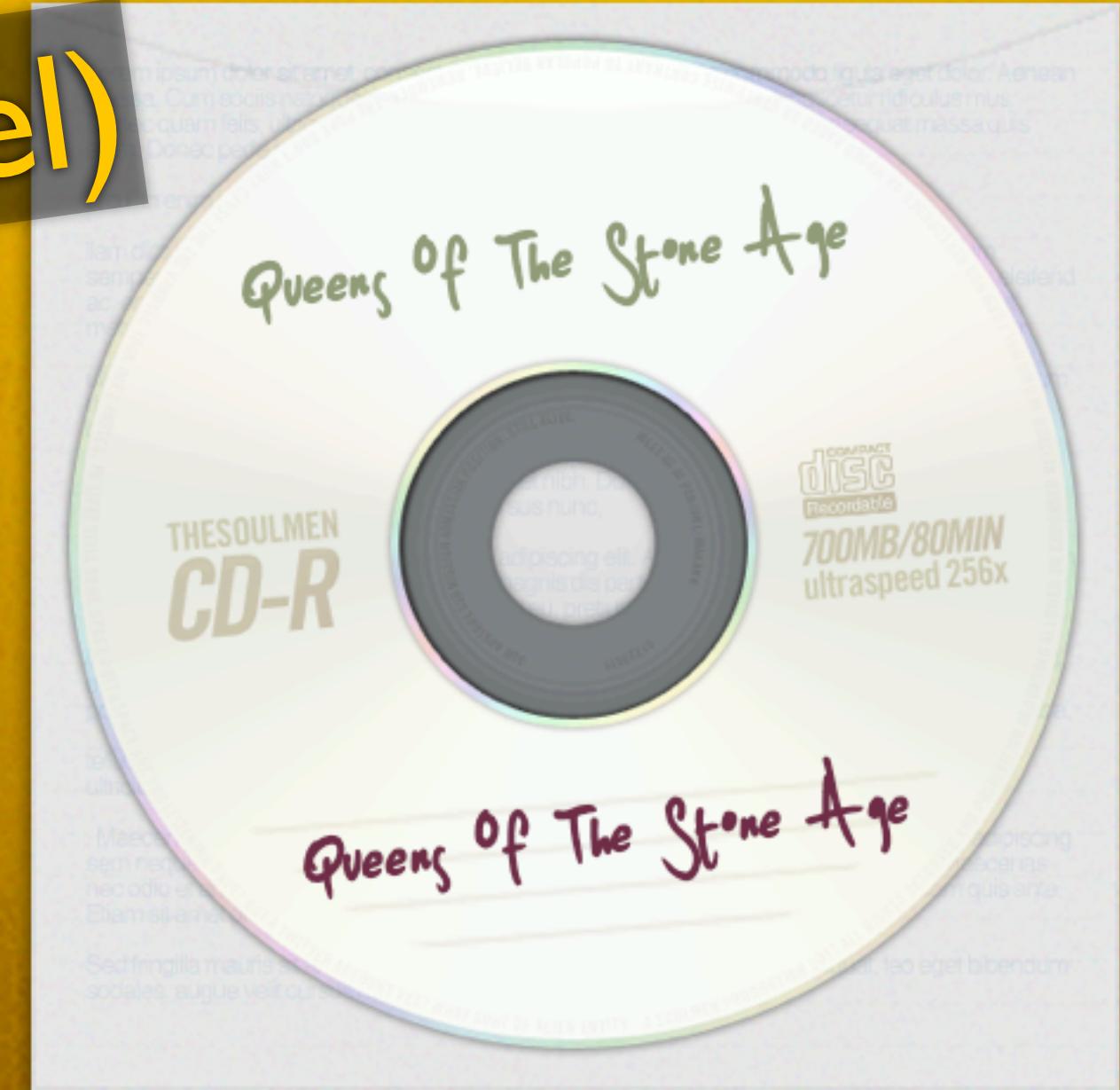
– Kein Edit

Aufgabe:

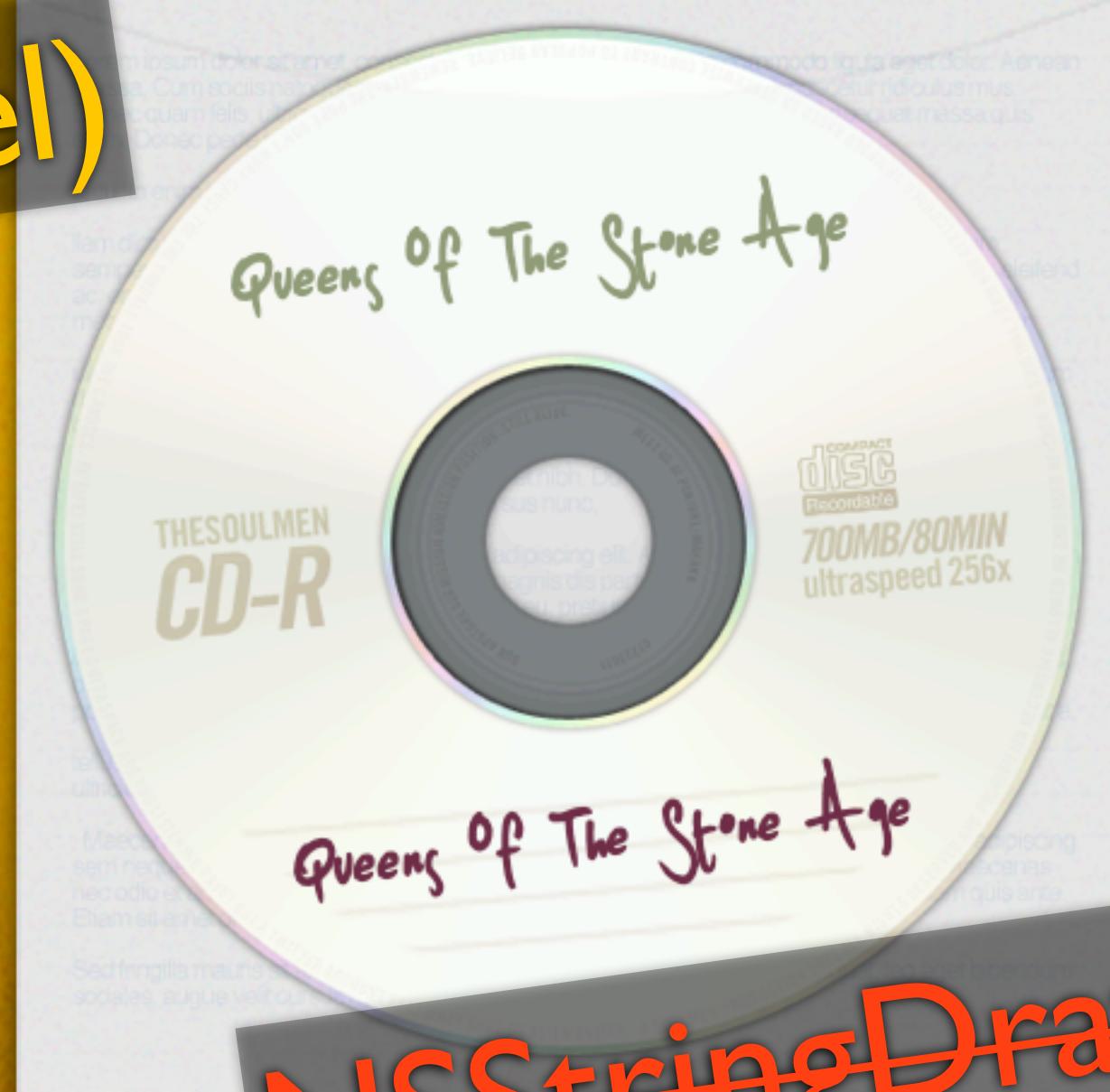
Plain Text rotiert darstellen



(UILabel)



(UILabel)



Queens Of The Stone Age

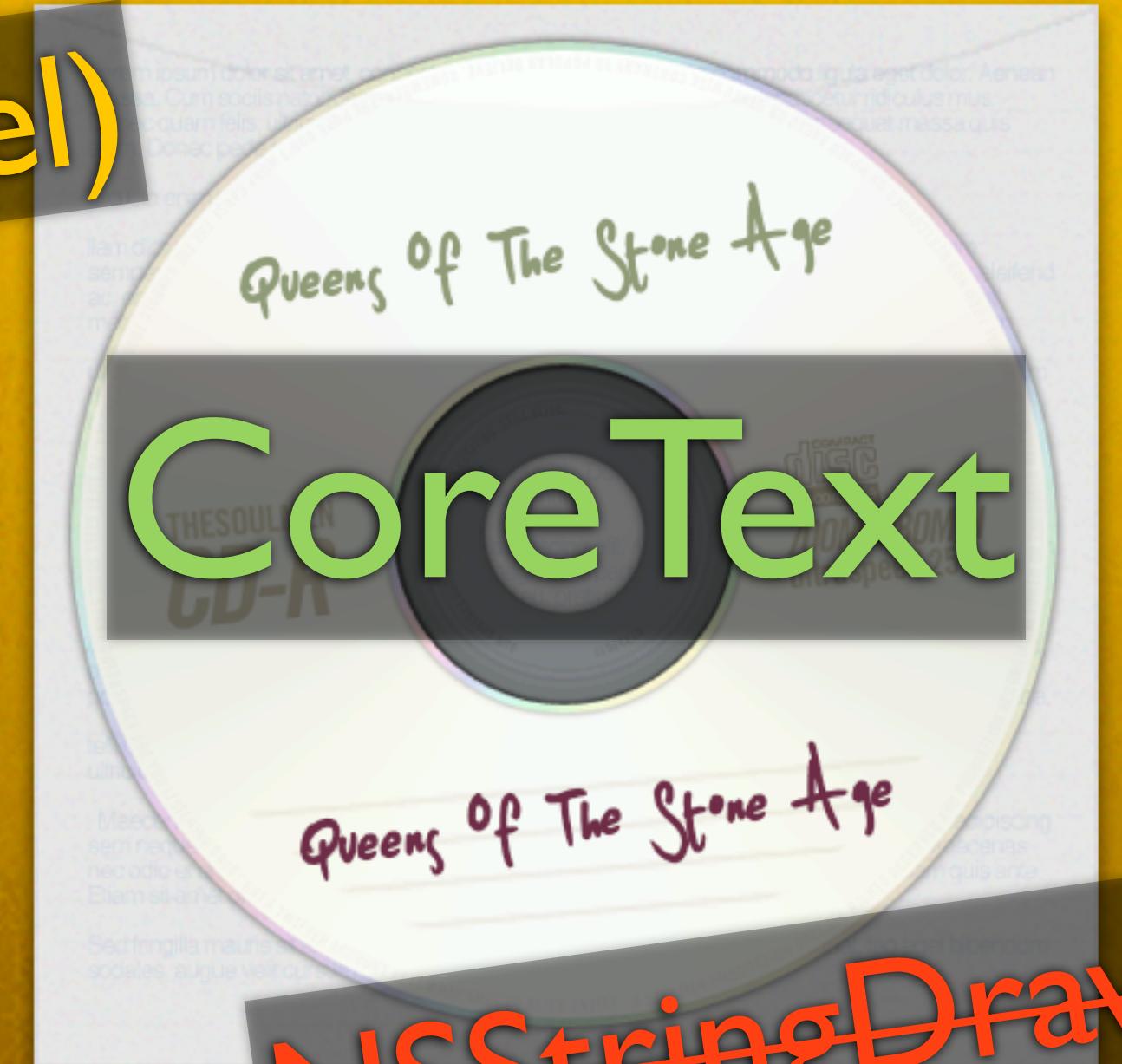
THESOULMEN  
**CD-R**

COMPACT  
disc  
Recordable  
700MB/80MIN  
ultraspeed 256x

Queens Of The Stone Age

**NSMutableStringDrawing**

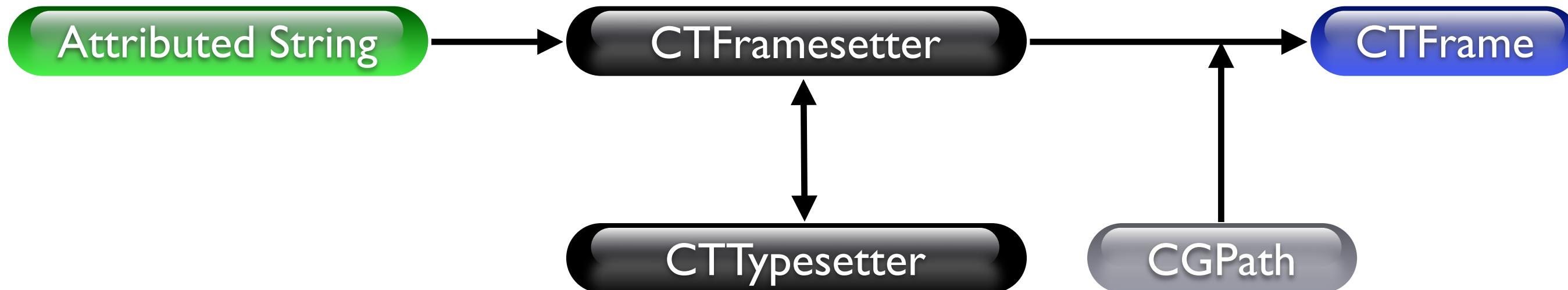
(UILabel)



NSStringDrawing

# Core Text

- Text Layout und Rendering
  - + Mächtig
  - Aufwändig
- + Effizient
- Aufwändig



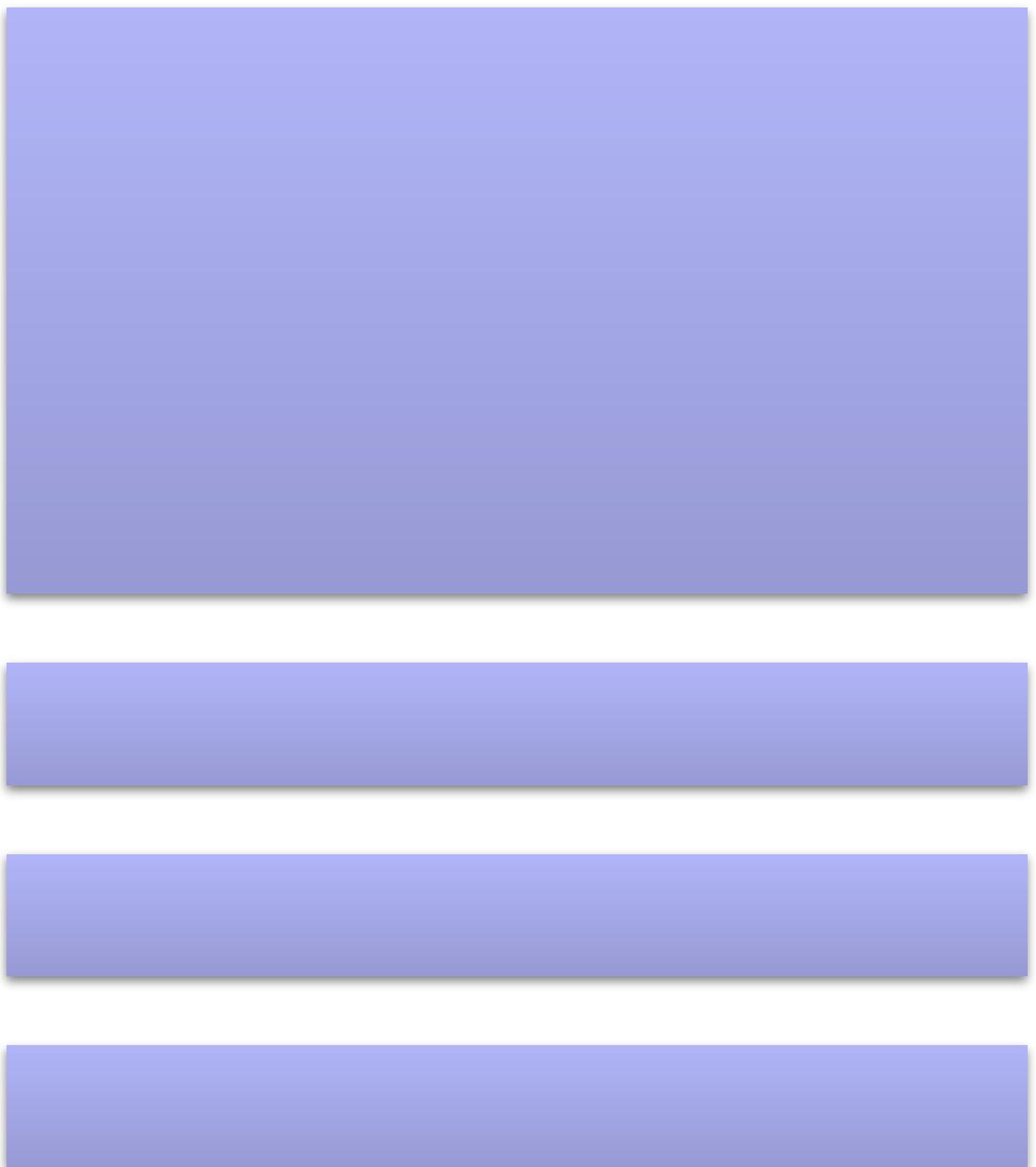
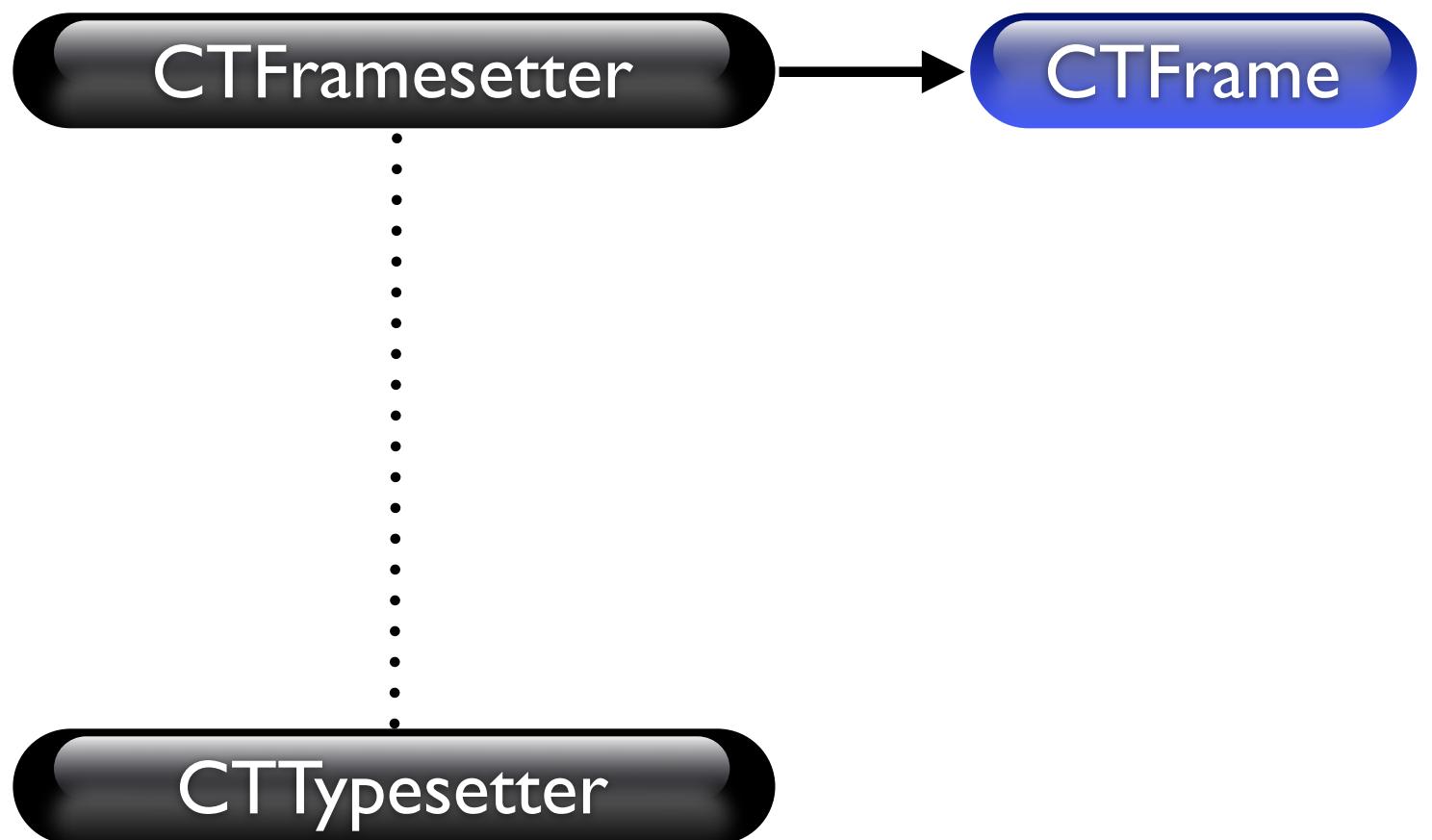
# Core Text

# CTFramesetter

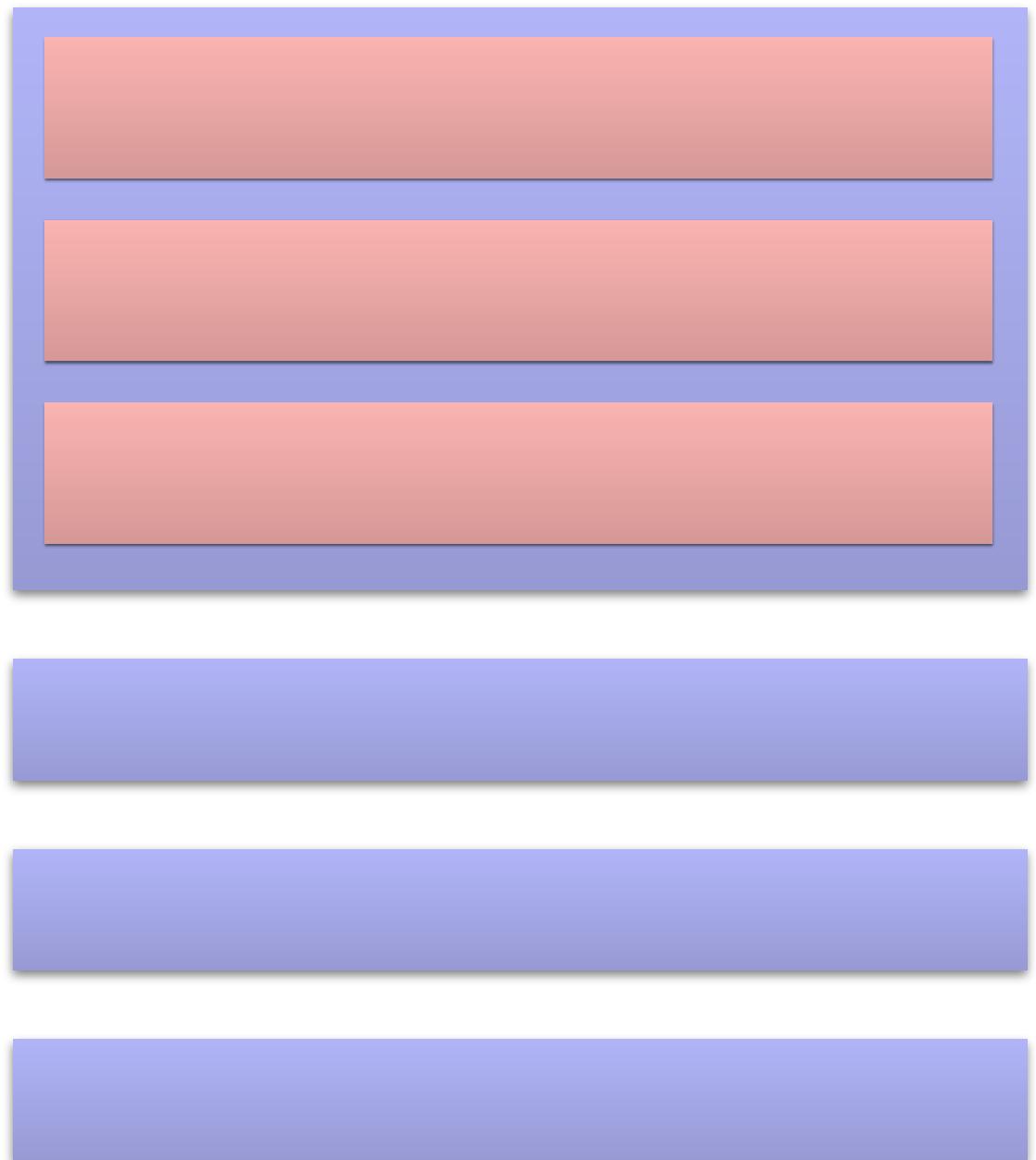
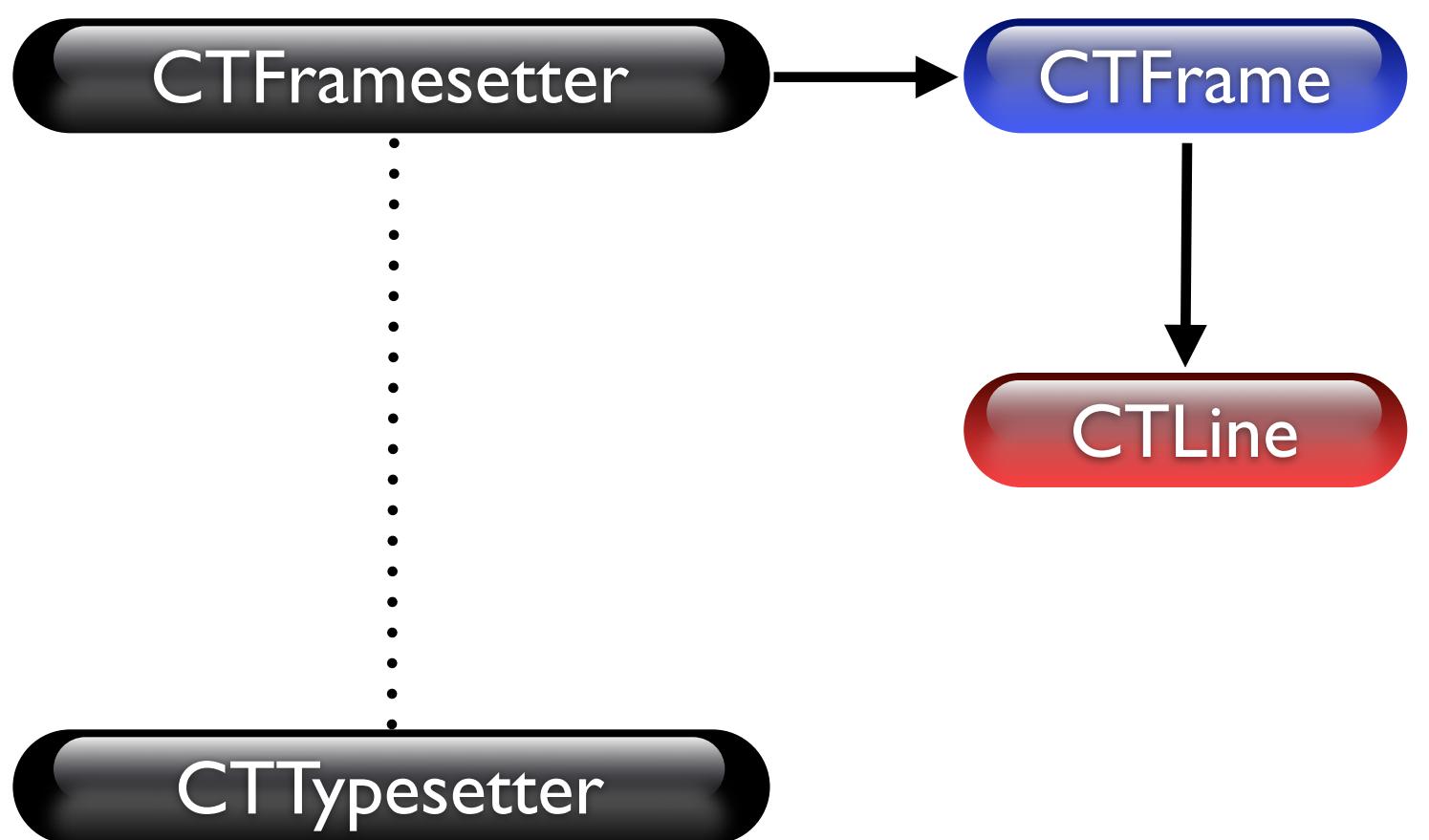
● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ●

# CTTypesetter

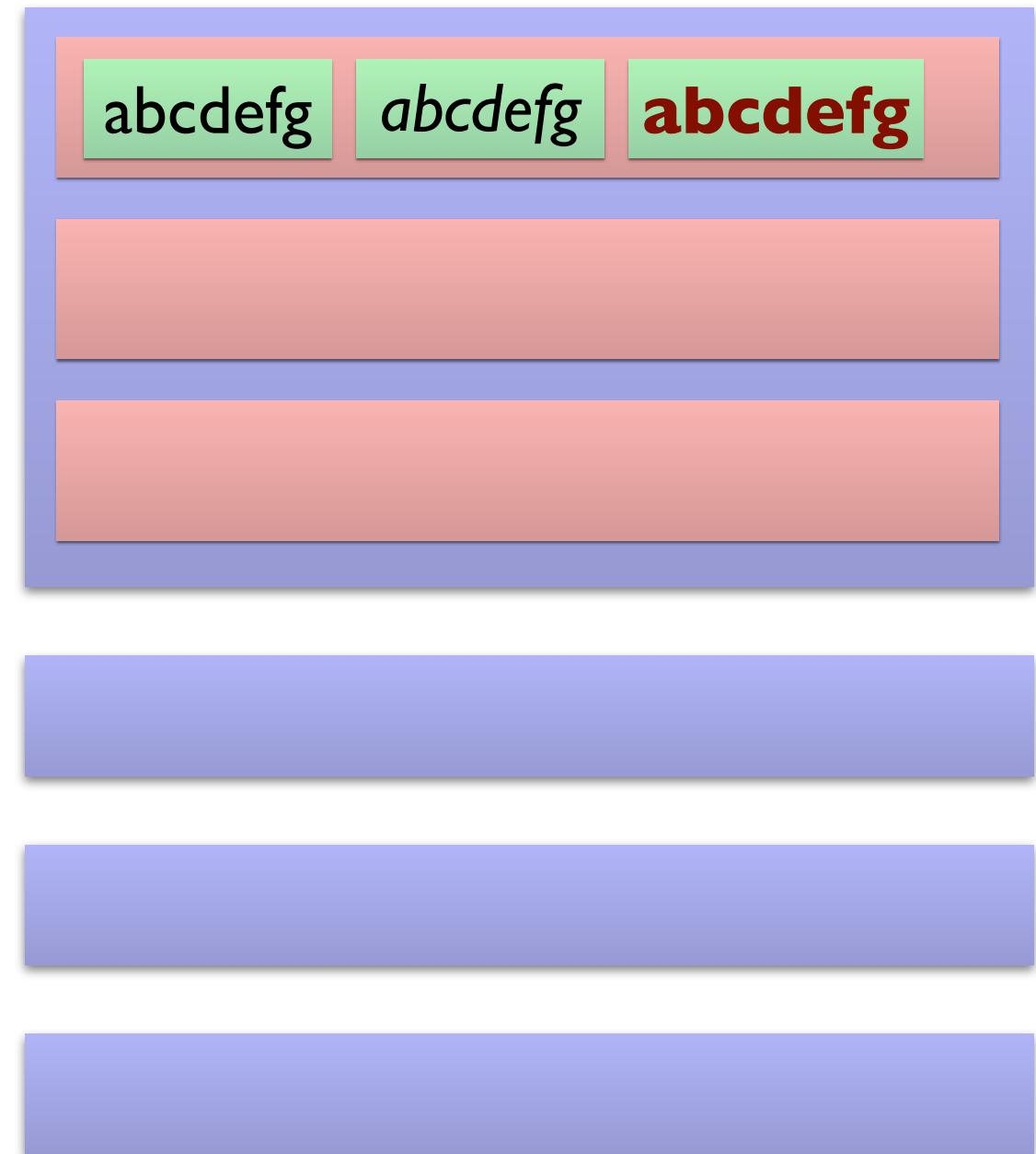
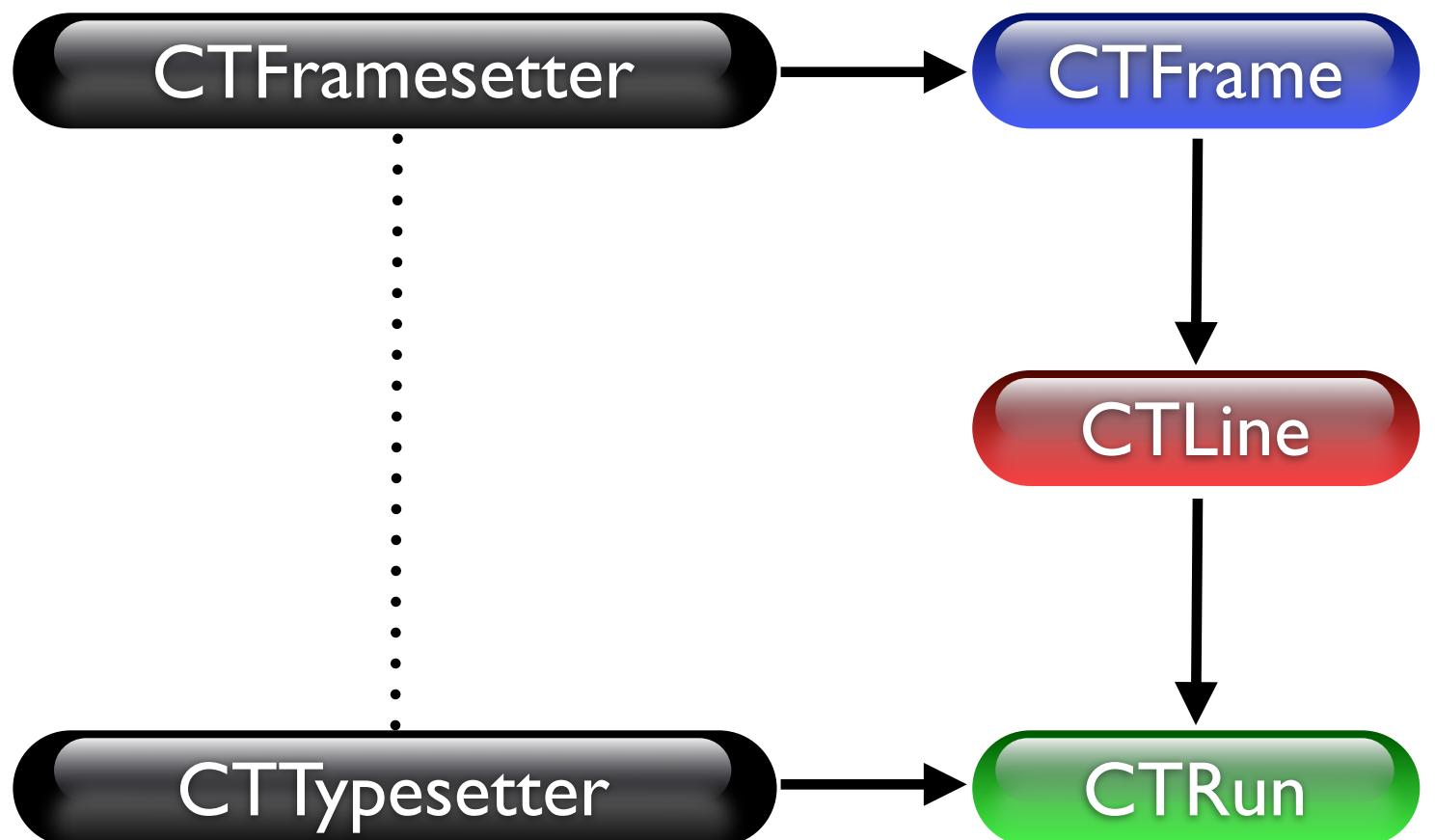
# Core Text



# Core Text



# Core Text



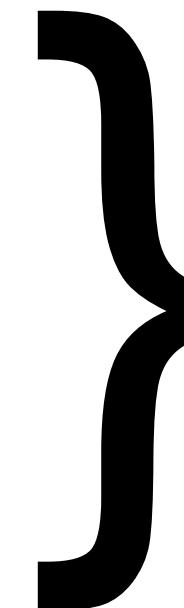
# Kontext Rotieren

```
CGContextSaveGState(ctx);
```

```
CGContextTranslateCTM(ctx, size.width / 2, size.height / 2);
```

```
CGContextRotateCTM(ctx, grad/180.*M_PI);
```

```
CGContextTranslateCTM(ctx, - size.width / 2, - size.height / 2);
```



Zeichnen mit CoreText

```
CGContextRestoreGState(ctx);
```

# Attributed String erstellen

# Attributed String erstellen

```
CTParagraphStyleSetting pSettings[ ] = {
```

# Attributed String erstellen

```
CTParagraphStyleSetting pSettings[ ] = {  
    {kCTParagraphStyleSpecifierLineBreakMode, sizeof(CTLineBreakMode), &lineBreakMode},
```

# Attributed String erstellen

```
CTParagraphStyleSetting pSettings[ ] = {  
    {kCTParagraphStyleSpecifierLineBreakMode, sizeof(CTLineBreakMode), &lineBreakMode},  
    {kCTParagraphStyleSpecifierAlignment, sizeof(CTTextAlignment), &textAlign},
```

# Attributed String erstellen

```
CTParagraphStyleSetting pSettings[] = {  
    {kCTParagraphStyleSpecifierLineBreakMode, sizeof(CTLineBreakMode), &lineBreakMode},  
    {kCTParagraphStyleSpecifierAlignment, sizeof(CTTextAlignment), &textAlign},  
    {kCTParagraphStyleSpecifierLineHeightMultiple, sizeof(CGFloat), &lineHeightMultiple}};
```

# Attributed String erstellen

```
CTParagraphStyleSetting pSettings[ ] = {  
    {kCTParagraphStyleSpecifierLineBreakMode, sizeof(CTLineBreakMode), &lineBreakMode},  
    {kCTParagraphStyleSpecifierAlignment, sizeof(CTTextAlignment), &textAlign},  
    {kCTParagraphStyleSpecifierLineHeightMultiple, sizeof(CGFloat), &lineHeightMultiple}};  
CTParagraphStyleRef pStyle = CTParagraphStyleCreate(pSettings, 3);
```

# Attributed String erstellen

```
CTParagraphStyleSetting pSettings[ ] = {
    {kCTParagraphStyleSpecifierLineBreakMode, sizeof(CTLineBreakMode), &lineBreakMode},
    {kCTParagraphStyleSpecifierAlignment, sizeof(CTTextAlignment), &textAlign},
    {kCTParagraphStyleSpecifierLineHeightMultiple, sizeof(CGFloat), &lineHeightMultiple}};
CTParagraphStyleRef pStyle = CTParagraphStyleCreate(pSettings, 3);

CTFontRef ctFont = CTFontCreateWithName(fontName, fontSize, NULL);
```

# Attributed String erstellen

```
CTParagraphStyleSetting pSettings[ ] = {  
    {kCTParagraphStyleSpecifierLineBreakMode, sizeof(CTLineBreakMode), &lineBreakMode},  
    {kCTParagraphStyleSpecifierAlignment, sizeof(CTTextAlignment), &textAlign},  
    {kCTParagraphStyleSpecifierLineHeightMultiple, sizeof(CGFloat), &lineHeightMultiple}};  
CTParagraphStyleRef pStyle = CTParagraphStyleCreate(pSettings, 3);
```

```
CTFontRef ctFont = CTFontCreateWithName(fontName, fontSize, NULL);
```

```
CFMutableAttributedStringRef string = CFAttributedStringCreateMutable(NULL, 0);
```

# Attributed String erstellen

```
CTParagraphStyleSetting pSettings[ ] = {
    {kCTParagraphStyleSpecifierLineBreakMode, sizeof(CTLineBreakMode), &lineBreakMode},
    {kCTParagraphStyleSpecifierAlignment, sizeof(CTTextAlignment), &textAlign},
    {kCTParagraphStyleSpecifierLineHeightMultiple, sizeof(CGFloat), &lineHeightMultiple}};
CTParagraphStyleRef pStyle = CTParagraphStyleCreate(pSettings, 3);

CTFontRef ctFont = CTFontCreateWithName(fontName, fontSize, NULL);

CFMutableAttributedStringRef string = CFAttributedStringCreateMutable(NULL, 0);
CFAttributedStringReplaceString(string, CFRangeMake(0, 0), (CFStringRef)@"text");
```

# Attributed String erstellen

```
CTParagraphStyleSetting pSettings[ ] = {
    {kCTParagraphStyleSpecifierLineBreakMode, sizeof(CTLineBreakMode), &lineBreakMode},
    {kCTParagraphStyleSpecifierAlignment, sizeof(CTTextAlignment), &textAlign},
    {kCTParagraphStyleSpecifierLineHeightMultiple, sizeof(CGFloat), &lineHeightMultiple}};
CTParagraphStyleRef pStyle = CTParagraphStyleCreate(pSettings, 3);

CTFontRef ctFont = CTFontCreateWithName(fontName, fontSize, NULL);

CFMutableAttributedStringRef string = CFAttributedStringCreateMutable(NULL, 0);
CFAttributedStringReplaceString(string, CFRangeMake(0, 0), (CFStringRef)@"text");

CFAttributedStringSetAttribute(string, ..., kCTFontAttributeName, ctFont);
```

# Attributed String erstellen

```
CTParagraphStyleSetting pSettings[ ] = {
    {kCTParagraphStyleSpecifierLineBreakMode, sizeof(CTLineBreakMode), &lineBreakMode},
    {kCTParagraphStyleSpecifierAlignment, sizeof(CTTextAlignment), &textAlign},
    {kCTParagraphStyleSpecifierLineHeightMultiple, sizeof(CGFloat), &lineHeightMultiple}};
CTParagraphStyleRef pStyle = CTParagraphStyleCreate(pSettings, 3);

CTFontRef ctFont = CTFontCreateWithName(fontName, fontSize, NULL);

CFMutableAttributedStringRef string = CFAttributedStringCreateMutable(NULL, 0);
CFAttributedStringReplaceString(string, CFRangeMake(0, 0), (CFStringRef)@"text");

CFAttributedStringSetAttribute(string, ..., kCTFontAttributeName, ctFont);
CFAttributedStringSetAttribute(string, ..., kCTParagraphStyleAttributeName, pStyle);
```

# Attributed String erstellen

```
CTParagraphStyleSetting pSettings[ ] = {
    {kCTParagraphStyleSpecifierLineBreakMode, sizeof(CTLineBreakMode), &lineBreakMode},
    {kCTParagraphStyleSpecifierAlignment, sizeof(CTTextAlignment), &textAlign},
    {kCTParagraphStyleSpecifierLineHeightMultiple, sizeof(CGFloat), &lineHeightMultiple}};
CTParagraphStyleRef pStyle = CTParagraphStyleCreate(pSettings, 3);

CTFontRef ctFont = CTFontCreateWithName(fontName, fontSize, NULL);

CFMutableAttributedStringRef string = CFAttributedStringCreateMutable(NULL, 0);
CFAttributedStringReplaceString(string, CFRangeMake(0, 0), (CFStringRef)@"text");

CFAttributedStringSetAttribute(string, ..., kCTFontAttributeName, ctFont);
CFAttributedStringSetAttribute(string, ..., kCTParagraphStyleAttributeName, pStyle);
CFAttributedStringSetAttribute(string, ..., kCTForegroundColorAttributeName, color);
```

# Attributed String erstellen

```
CTParagraphStyleSetting pSettings[] = {
    {kCTParagraphStyleSpecifierLineBreakMode, sizeof(CTLineBreakMode), &lineBreakMode},
    {kCTParagraphStyleSpecifierAlignment, sizeof(CTTextAlignment), &textAlign},
    {kCTParagraphStyleSpecifierLineHeightMultiple, sizeof(CGFloat), &lineHeightMultiple}};
CTParagraphStyleRef pStyle = CTParagraphStyleCreate(pSettings, 3);

CTFontRef ctFont = CTFontCreateWithName(fontName, fontSize, NULL);

CFMutableAttributedStringRef string = CFAttributedStringCreateMutable(NULL, 0);
CFAttributedStringReplaceString(string, CFRangeMake(0, 0), (CFStringRef)@"text");

CFAttributedStringSetAttribute(string, ..., kCTFontAttributeName, ctFont);
CFAttributedStringSetAttribute(string, ..., kCTParagraphStyleAttributeName, pStyle);
CFAttributedStringSetAttribute(string, ..., kCTForegroundColorAttributeName, color);

CFRelease(ctFont);
```

# Attributed String erstellen

```
CTParagraphStyleSetting pSettings[ ] = {
    {kCTParagraphStyleSpecifierLineBreakMode, sizeof(CTLineBreakMode), &lineBreakMode},
    {kCTParagraphStyleSpecifierAlignment, sizeof(CTTextAlignment), &textAlign},
    {kCTParagraphStyleSpecifierLineHeightMultiple, sizeof(CGFloat), &lineHeightMultiple}};
CTParagraphStyleRef pStyle = CTParagraphStyleCreate(pSettings, 3);

CTFontRef ctFont = CTFontCreateWithName(fontName, fontSize, NULL);

CFMutableAttributedStringRef string = CFAttributedStringCreateMutable(NULL, 0);
CFAttributedStringReplaceString(string, CFRangeMake(0, 0), (CFStringRef)@"text");

CFAttributedStringSetAttribute(string, ..., kCTFontAttributeName, ctFont);
CFAttributedStringSetAttribute(string, ..., kCTParagraphStyleAttributeName, pStyle);
CFAttributedStringSetAttribute(string, ..., kCTForegroundColorAttributeName, color);

CFRelease(ctFont);
CFRelease(pStyle);
```



# Pfad mit dem Bereich erstellen

```
CGMutablePathRef path = CGPathCreateMutable();  
CGPathAddRect(path, NULL, rect);
```

# Pfad mit dem Bereich erstellen

```
CGMutablePathRef path = CGPathCreateMutable();  
CGPathAddRect(path, NULL, rect);
```

## Typesetting

```
CTFramesetterRef framesetter = CTFramesetterCreateWithAttributedString(string);  
CTFrameRef frame = CTFramesetterCreateFrame(framesetter, ..., path, NULL);  
CFRelease(framesetter);  
CFRelease(path);
```

# Pfad mit dem Bereich erstellen

```
CGMutablePathRef path = CGPathCreateMutable();  
CGPathAddRect(path, NULL, rect);
```

## Typesetting

```
CTFramesetterRef framesetter = CTFramesetterCreateWithAttributedString(string);  
CTFrameRef frame = CTFramesetterCreateFrame(framesetter, ..., path, NULL);  
CFRelease(framesetter);  
CFRelease(path);
```

## Kontext Vertikal spiegeln

```
CGContextSaveGState(context);  
CGContextSetTextPosition(context, 0, 0);  
  
CGContextTranslateCTM(context, 0, 2 * CGRectGetMidY(rect));  
CGContextScaleCTM(context, 1, -1);
```



# Text Vertikal zentrieren

# Text Vertikal zentrieren

```
CGPoint lastLineOrigin, firstLineOrigin;
```

# Text Vertikal zentrieren

```
CGPoint lastLineOrigin, firstLineOrigin;  
  
CTFrameGetLineOrigins(frame, CFRangeMake(0, 1), &firstLineOrigin);
```

# Text Vertikal zentrieren

```
CGPoint lastLineOrigin, firstLineOrigin;  
  
CTFrameGetLineOrigins(frame, CFRangeMake(0, 1), &firstLineOrigin);  
CTFrameGetLineOrigins(frame, CFRangeMake(lineCount-1, 1), &lastLineOrigin);
```

# Text Vertikal zentrieren

```
CGPoint lastLineOrigin, firstLineOrigin;  
  
CTFrameGetLineOrigins(frame, CFRangeMake(0, 1), &firstLineOrigin);  
CTFrameGetLineOrigins(frame, CFRangeMake(lineCount-1, 1), &lastLineOrigin);  
  
CGRect firstLineRect = CTLineGetImageBounds(CFArrayGetValueAtIndex(lines, 0), context);
```

# Text Vertikal zentrieren

```
CGPoint lastLineOrigin, firstLineOrigin;  
  
CTFrameGetLineOrigins(frame, CFRangeMake(0, 1), &firstLineOrigin);  
CTFrameGetLineOrigins(frame, CFRangeMake(lineCount-1, 1), &lastLineOrigin);  
  
CGRect firstLineRect = CTLineGetImageBounds(CFArrayGetValueAtIndex(lines, 0), context);  
  
CGFloat vOffset = (CGRectGetHeight(rect) - firstLineOrigin.y)
```

# Text Vertikal zentrieren

```
CGPoint lastLineOrigin, firstLineOrigin;  
  
CTFrameGetLineOrigins(frame, CFRangeMake(0, 1), &firstLineOrigin);  
CTFrameGetLineOrigins(frame, CFRangeMake(lineCount-1, 1), &lastLineOrigin);  
  
CGRect firstLineRect = CTLineGetImageBounds(CFArrayGetValueAtIndex(lines, 0), context);  
  
CGFloat vOffset = (CGRectGetHeight(rect) - firstLineOrigin.y  
                  - firstLineRect.size.height) - (lastLineOrigin.y);
```

# Text Vertikal zentrieren

```
CGPoint lastLineOrigin, firstLineOrigin;  
  
CTFrameGetLineOrigins(frame, CFRangeMake(0, 1), &firstLineOrigin);  
CTFrameGetLineOrigins(frame, CFRangeMake(lineCount-1, 1), &lastLineOrigin);  
  
CGRect firstLineRect = CTLineGetImageBounds(CFArrayGetValueAtIndex(lines, 0), context);  
  
CGFloat vOffset = (CGRectGetHeight(rect) - firstLineOrigin.y  
                  - firstLineRect.size.height) - (lastLineOrigin.y);  
CGContextTranslateCTM(context, 0, vOffset);
```

# Text Vertikal zentrieren

```
CGPoint lastLineOrigin, firstLineOrigin;  
  
CTFrameGetLineOrigins(frame, CFRangeMake(0, 1), &firstLineOrigin);  
CTFrameGetLineOrigins(frame, CFRangeMake(lineCount-1, 1), &lastLineOrigin);  
  
CGRect firstLineRect = CTLineGetImageBounds(CFArrayGetValueAtIndex(lines, 0), context);  
  
CGFloat vOffset = (CGRectGetHeight(rect) - firstLineOrigin.y  
                  - firstLineRect.size.height) - (lastLineOrigin.y);  
CGContextTranslateCTM(context, 0, vOffset);
```

## Text zeichnen

# Text Vertikal zentrieren

```
CGPoint lastLineOrigin, firstLineOrigin;  
  
CTFrameGetLineOrigins(frame, CFRangeMake(0, 1), &firstLineOrigin);  
CTFrameGetLineOrigins(frame, CFRangeMake(lineCount-1, 1), &lastLineOrigin);  
  
CGRect firstLineRect = CTLineGetImageBounds(CFArrayGetValueAtIndex(lines, 0), context);  
  
CGFloat vOffset = (CGRectGetHeight(rect) - firstLineOrigin.y  
                  - firstLineRect.size.height) - (lastLineOrigin.y);  
CGContextTranslateCTM(context, 0, vOffset);
```

Text zeichnen

CTFrameDraw(frame, context);



**WTF**



Aufgabe:

VIEL Text darstellen

**The End**

yes I think he made them a bit firmer sucking them like that so long he made me thirsty titties he calls them I had to laugh yes this one anyhow stiff the nipple gets for the least thing Ill get him to keep that up and Ill take those eggs beaten up with marsala fatten them out for him what are all those veins and things curious the way its made a the same in case of twins theyre supposed to represent beauty placed up there like those statues in the museum one of them pretending to hide it with her hand are they so beautiful of course compared with what a man looks like with his two bags full and his other thing hanging down out of him or sticking up at you like a hatrack no wonder they hide it with a cabbageleaf that disgusting Cameron highlander behind the meat market or that other wretch with the red head behind the tree where the statue of the fish used to be when I was passing pretending he was passing standing out for me to see it with his babyclothes up to one side the Queens own they were a nice lot its well the Surreys relieved them theyre always trying to show it to you every time nearly I passed outside the mens greenhouse near the Harcourt street station just to try some fellow or other trying to catch my eye as if it was I of the 7 wonders of the world O and the stink of those rotten places the night coming home with Poldy after the Comerfords party oranges and lemonade to make you feel nice and watery I went into 1 of them it was so biting cold I couldnt keep it when was that 93 the canal was frozen yes it was a few months after a pity a couple of the Camerons werent there to see me squatting in the mens place meadero I tried to draw a picture of it before I tore it up like a sausage or something I wonder theyre not afraid going about of getting a kick or a bang of something there the woman is beauty of course thats admitted when he said I could pose for a picture naked to some rich fellow in Holles street when he lost the job in Helys and I was selling the clothes and strumming in the coffee palace would I be like that bath of the nymph with my hair down yes only shes younger or Im a little like that dirty bitch in that Spanish photo he has nymphs used they go about like that I asked him about her and that wurd met something with hoses in it and he came out with some jawbreakers about the incarnation he never can explain a thing simply the way a body can understand then he goes and burns the bottom out of the pan all for his Kidsey this one not so much theres the mark of his teeth still where he tried to bite the nipple I had to scream out arent they fearful trying to hurt you I had a great breast of milk with Milly enough for two what was the reason of that he said I could have got a pound a week as a wet nurse all swelled out the morning that delicate looking student that stopped in no 28 with the Citrons Penrose nearly caught me washing through the window only for I snapped up the towel to my face that was his studenting hurt me they used to weansing her till he got doctor Brady to give me the belladonna prescription I had to get him to suck them they were so hard he said it was sweeter and thicker than cows then he wanted to milk me into the tea well hes beyond everything I declare somebody ought to put him in the budget if I only could remember the 1 half of the things and write a book out of it the works of Master Poldy yes and its so much smoother the skin much an hour he was at them Im sure by the clock like some kind of a big infant I had at me they want everything in their mouth all the pleasure those men get out of a woman I can feel his mouth O Lord I must stretch myself I wished he was here or somebody to let myself go with and come again like that I feel all fire inside me or if I could dream it when he made me spend the 2nd time tickling me behind with his finger I was

**Ulysses Cpt. No. 11**

STATLEY, PLUM! BUCK WILLIGAN CAME FROM THE STAFFORDSHIRE! bearings a load of bacon on which a mire and excreta lay covered. A yellow drowsiness, suspended, was sustained gently by himself by the solid nursing air. He held the load aloft and inhaled.

-OMENORO AD ALTARE DEI.

Habat, as perindeas the dark winding stairs and galleries. -Come up, kind! Come up, you hateful pair!

Solemnly he came forward and mounted the round pierce. He held aloft and blearily gazed at the tower, the surrounding land and the encircling mountains. Then, catching sight of Stephen Dedalus, he bent towards him and stuck rapid stabs in the air, grasping at his throat and shaking his head. Stephen Dedalus, dishevelled and sleepy, blearily awoke on the top of the staircase and looked curiously at the shadowy gorging face that bashed him, aghast in its length, and at the tight unbuttoned blouse, grained and bound like pine ribs.

Stuck Mulligan popular as instant underclothes and then covered the broad smooths.

-Bads to barack! he said merrily.

He rolled in a preacher's tone:

-For this, O deathly beloved, is the genuine Christian body and soul and blood and bones. Show me, please, that your eyes, papa. One measure. A little trouble about them white serpines. Shove, all.

He passed sideways up and gave a long slow whistle of call, then passed

over his right shoulder, his even white teeth gleaming here and there white gold points. Chrysanthemums. Two among shell violets measured through his sleeves.

-Thats, old chap, he said kindly. That will definitely branch off the current, will you?

He stepped off the granite and landed gracelessly at his window, gathering about his legs the loose folds of his gown. The plump shadowed face and ruddy and rosyred a peacock, picture of art in the middle age. A plangent smile broke quickly over his lips.

-The mockery of it! he said gaily. Your short name, an entire Greek!

He pinched his finger in sharply and sent some to the parson, laughing to himself. Stephen Dedalus straightened his shoulders and sat down on the edge of the granite, watching him until he creased his brows on the project, dipped his hands in the broad and bunched shorts and socks.

Stuck Mulligan's gay voice would not.

-Idly name a absentminded Mulligan, too drowsy. But it has a Hollie, nay, hasn't it? Slipping and sliding like the bush himself. Shy now to Athos. Will you come if I can get the note to fetch out money, quid?

He laid his broad aside and, laughing with delight, cried:

-Will he come? The joyous possif.

Crossing his legs to share with care,

-Till us, Mulligan, Stephen said quietly.

-Yea, very love!

-How long is Blazes going to stay in this house?

Stuck Mulligan doffed a dozen docks over his right shoulder.

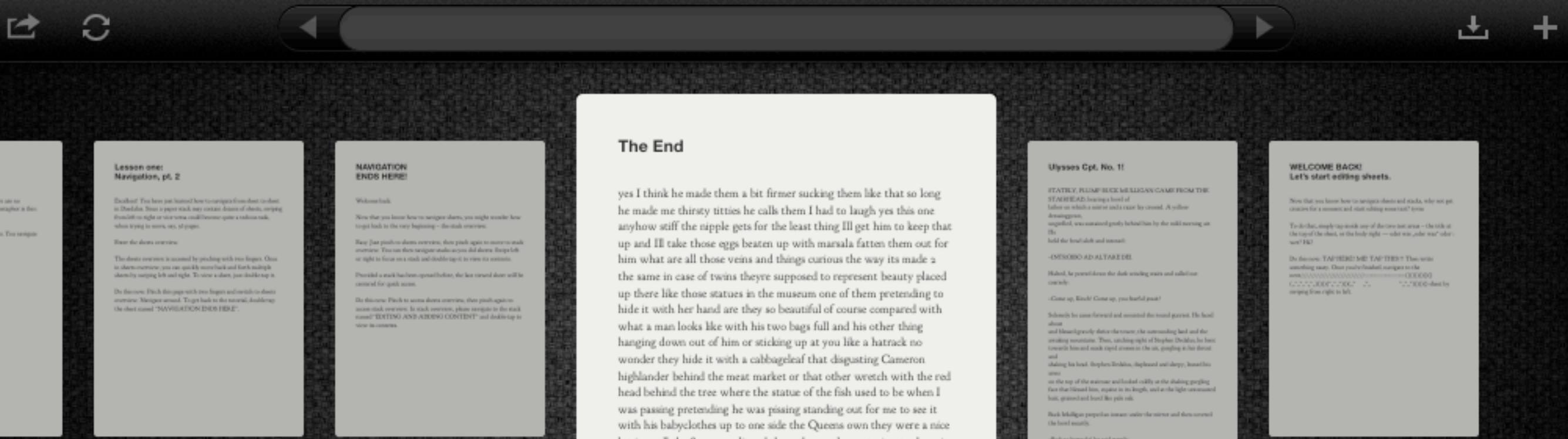
-Gosh, can't he stand it! As cool friendly. A puritanus fass. He thinks you're not a problem. Gosh, their bloody English! Burning with money and indulgence. Because he comes from Oxford. You know, Dedalus, you have the real Oxford manner. He can't make you out. O, my name for you is the best. Kind, the toothblacks.

He doffed warily over his chin.

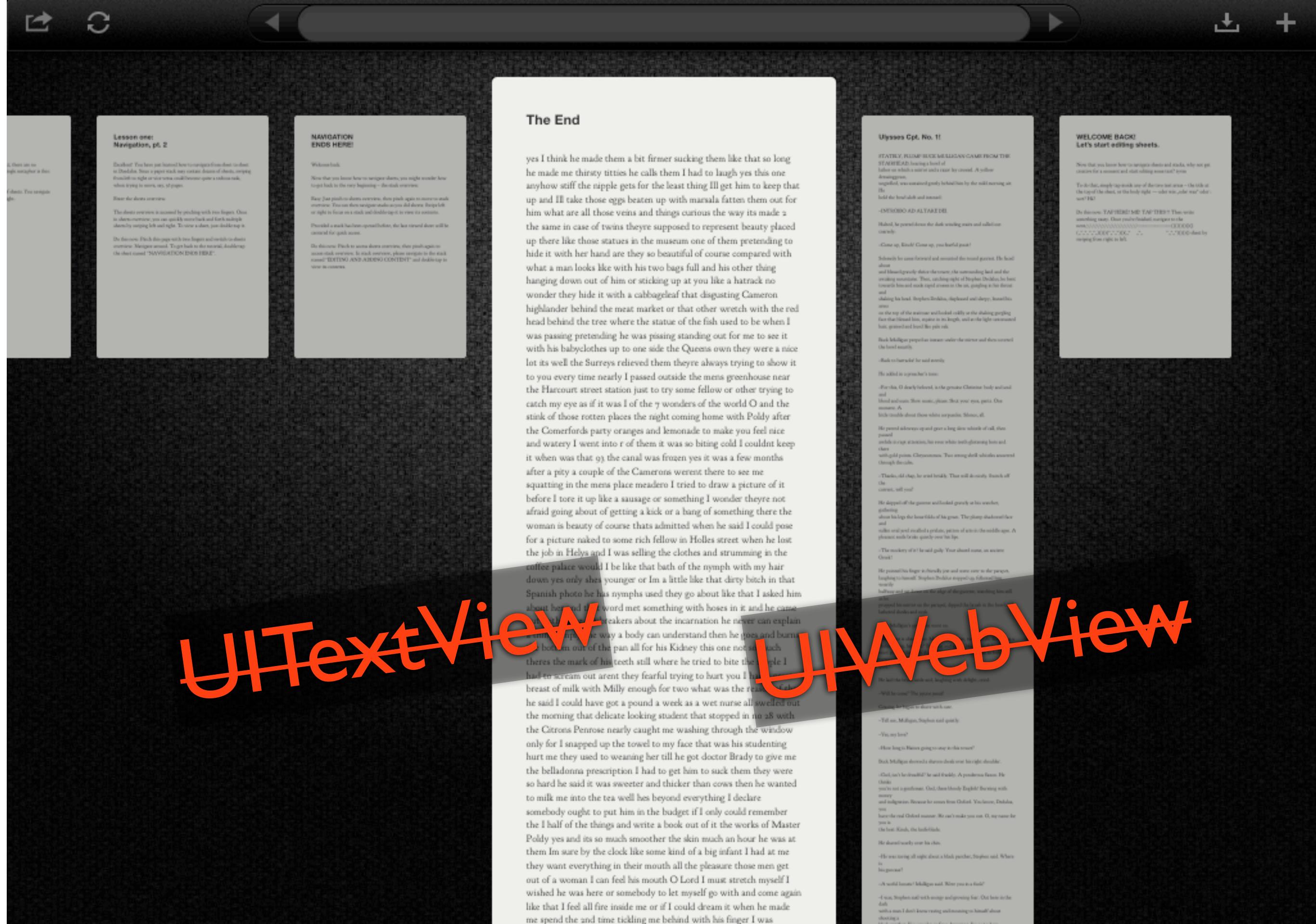
-He was toing all right about a mad parrot, Stephen said. When is his general?

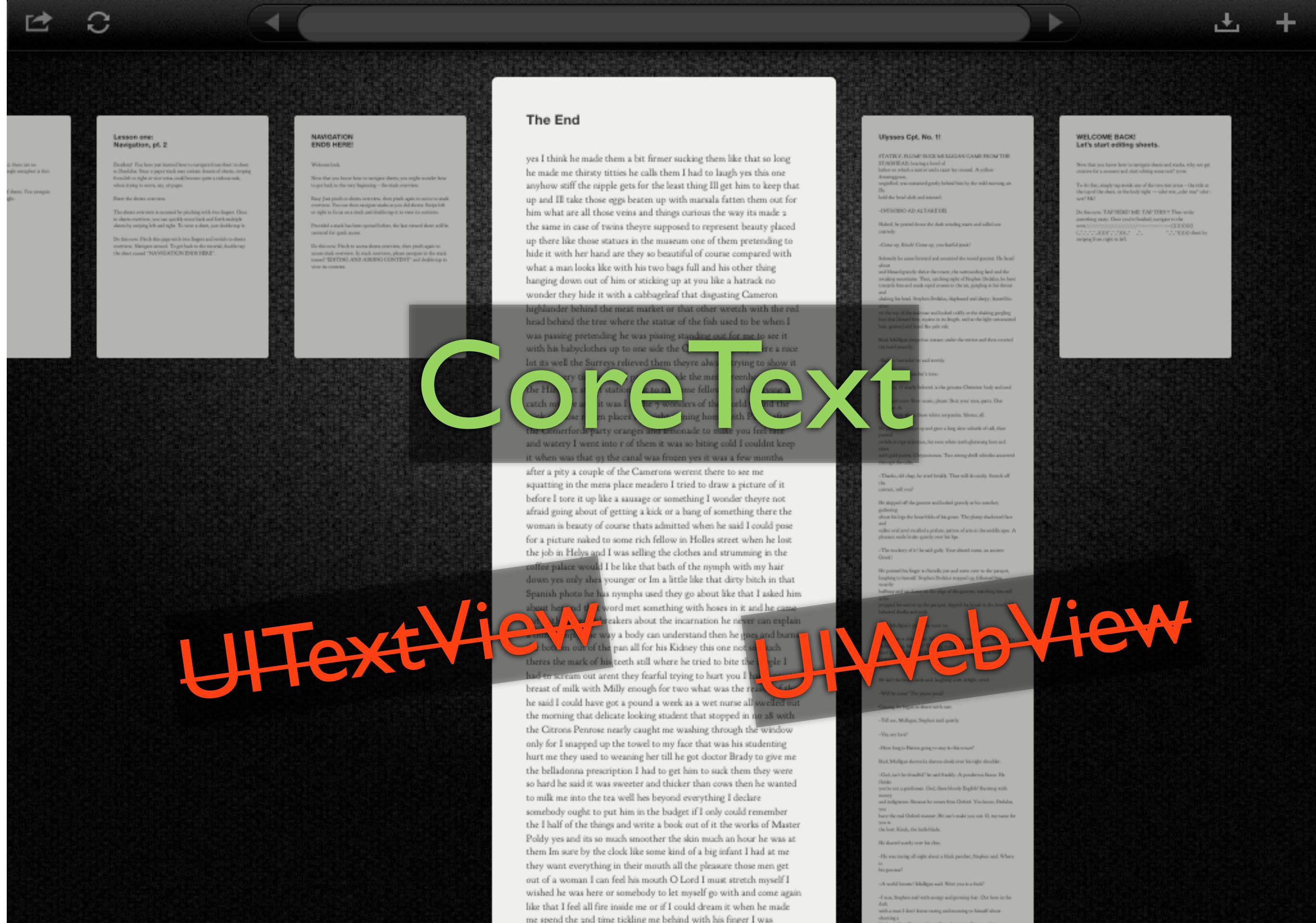
-A world famous! Mulligan said. What you a fool?

-I am, Stephen said with mope and growing fat. Out here in the dark witha man I don't know eveng and knowinign myself about shakin' a hand. It's a secret, the American. He's a secret.



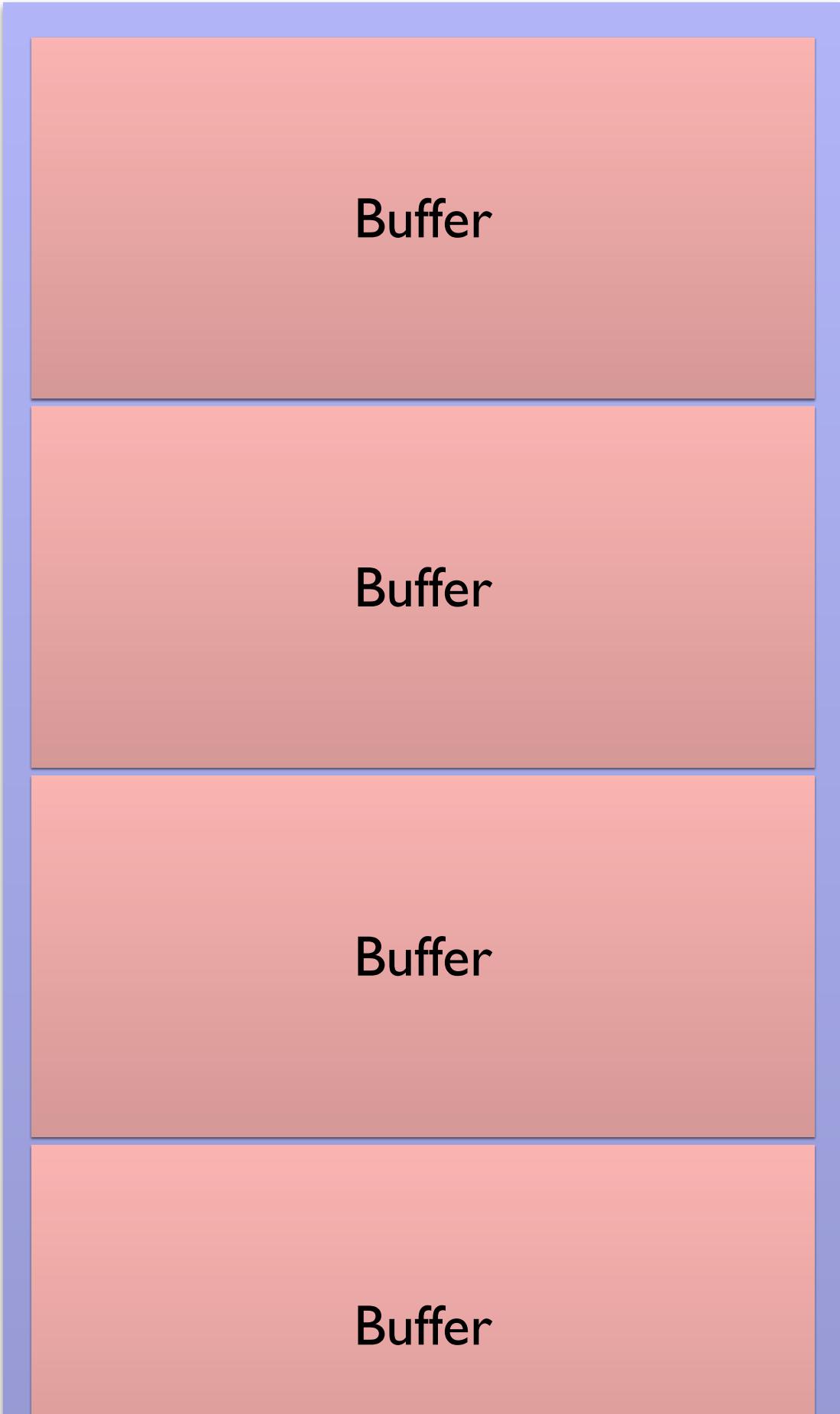
UITextView



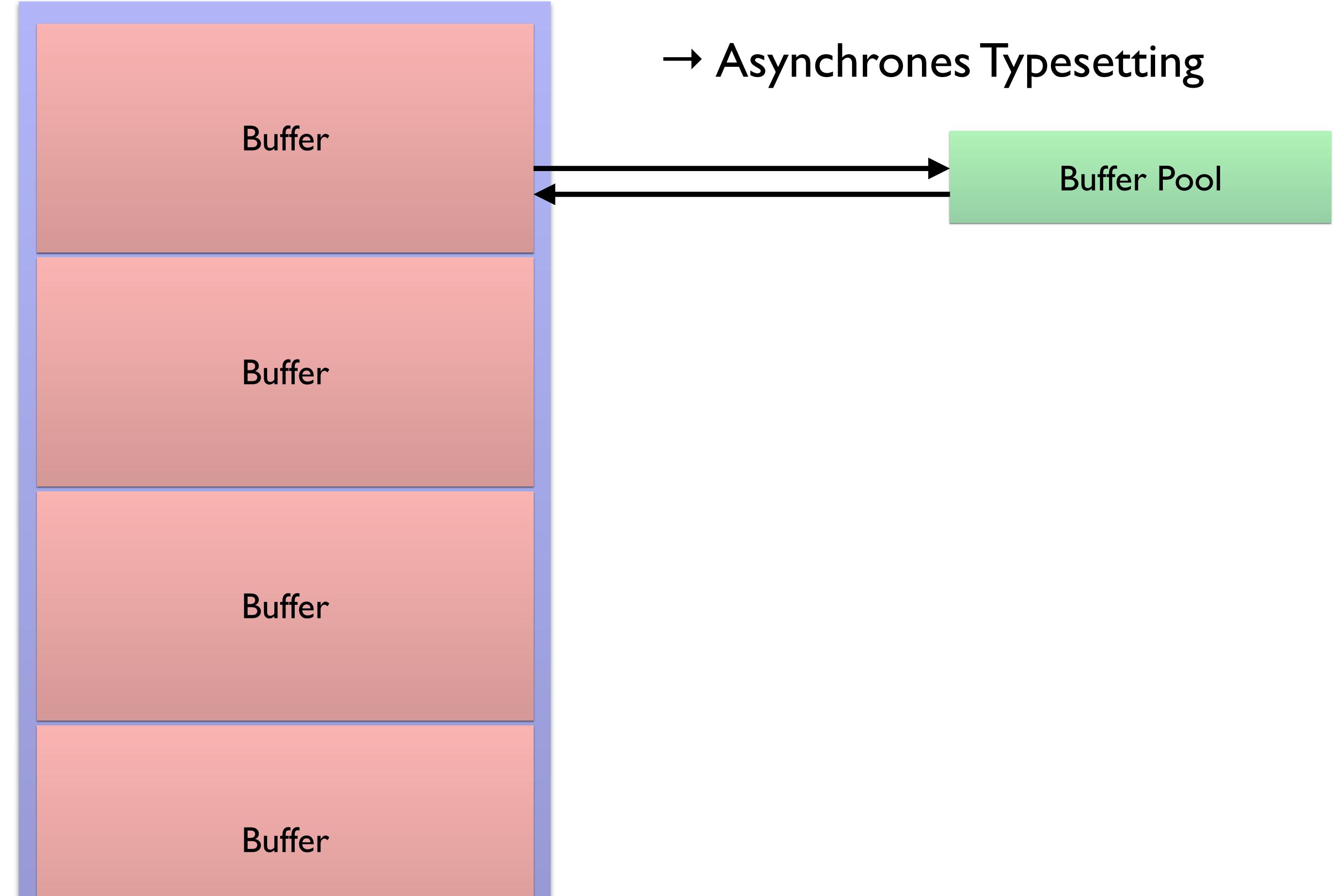


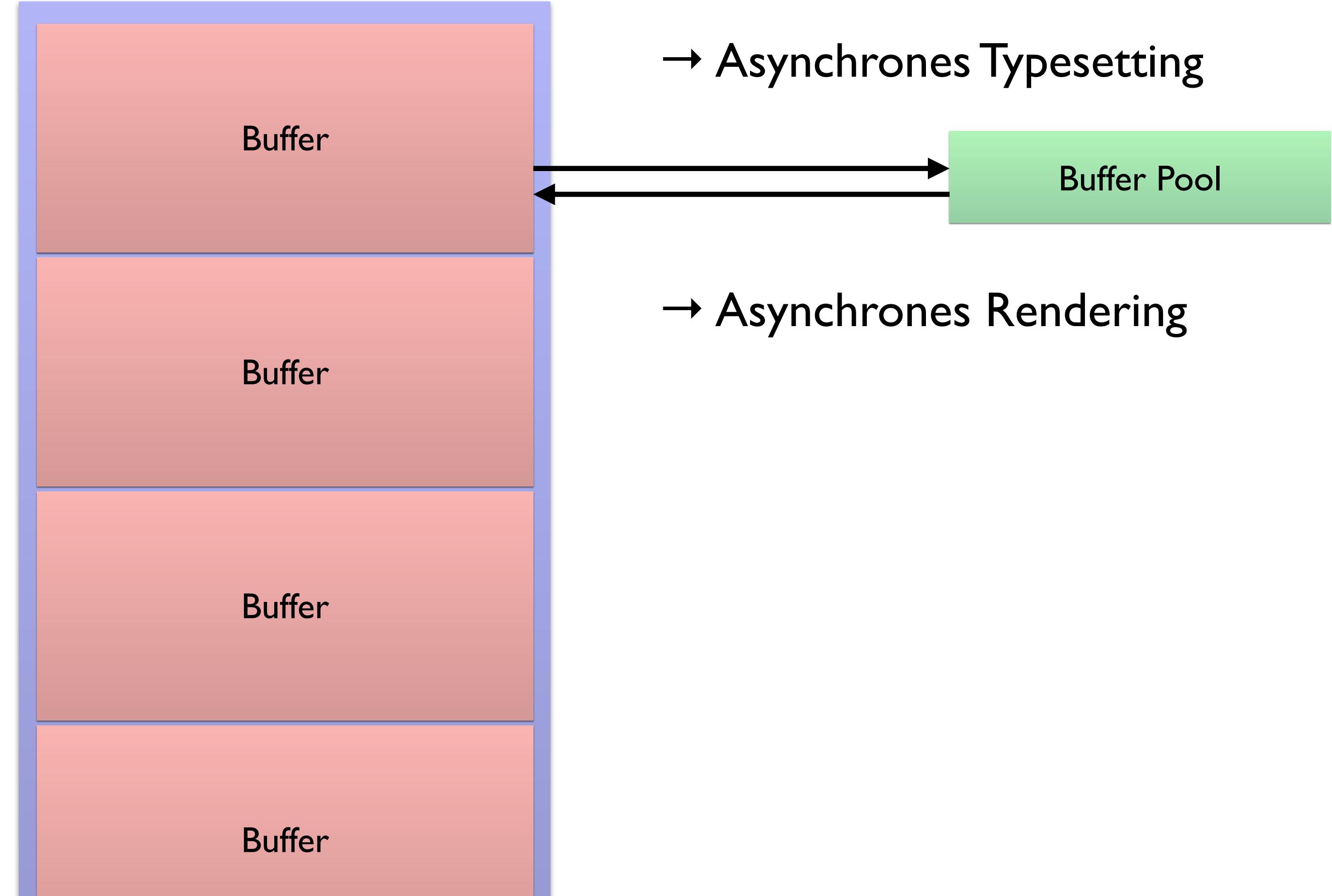


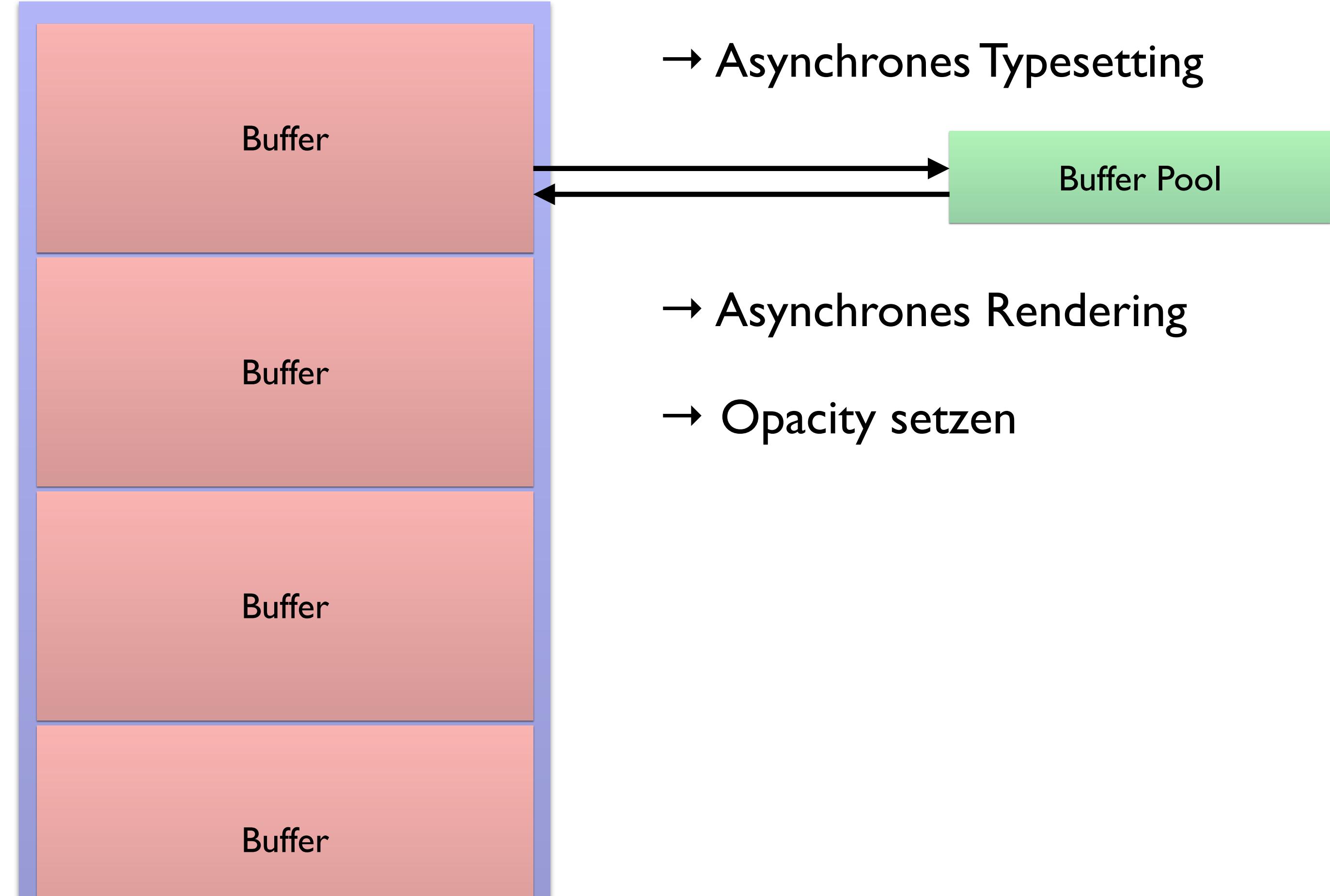
→ Asynchrones Typesetting

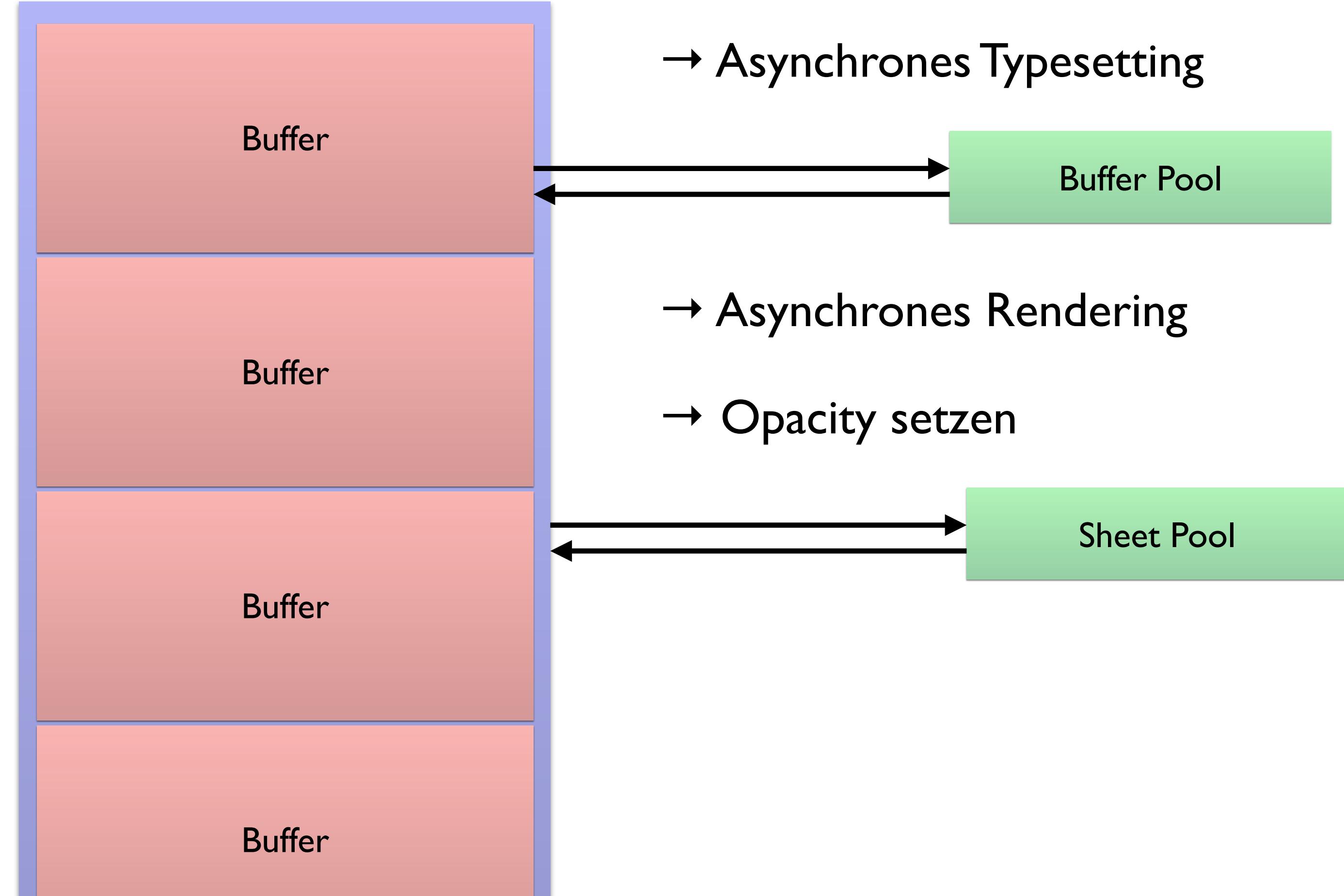


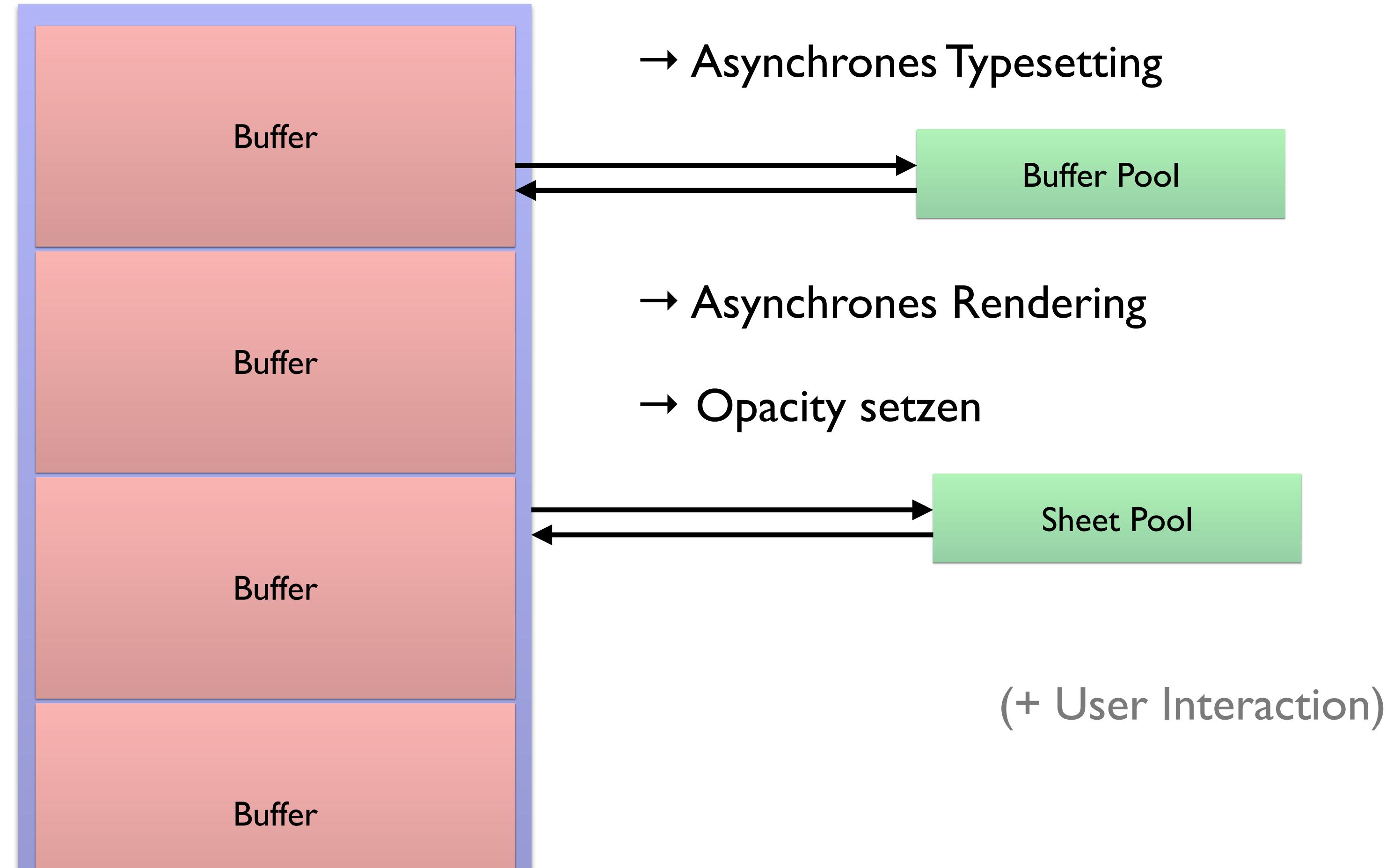
→ Asynchrones Typesetting

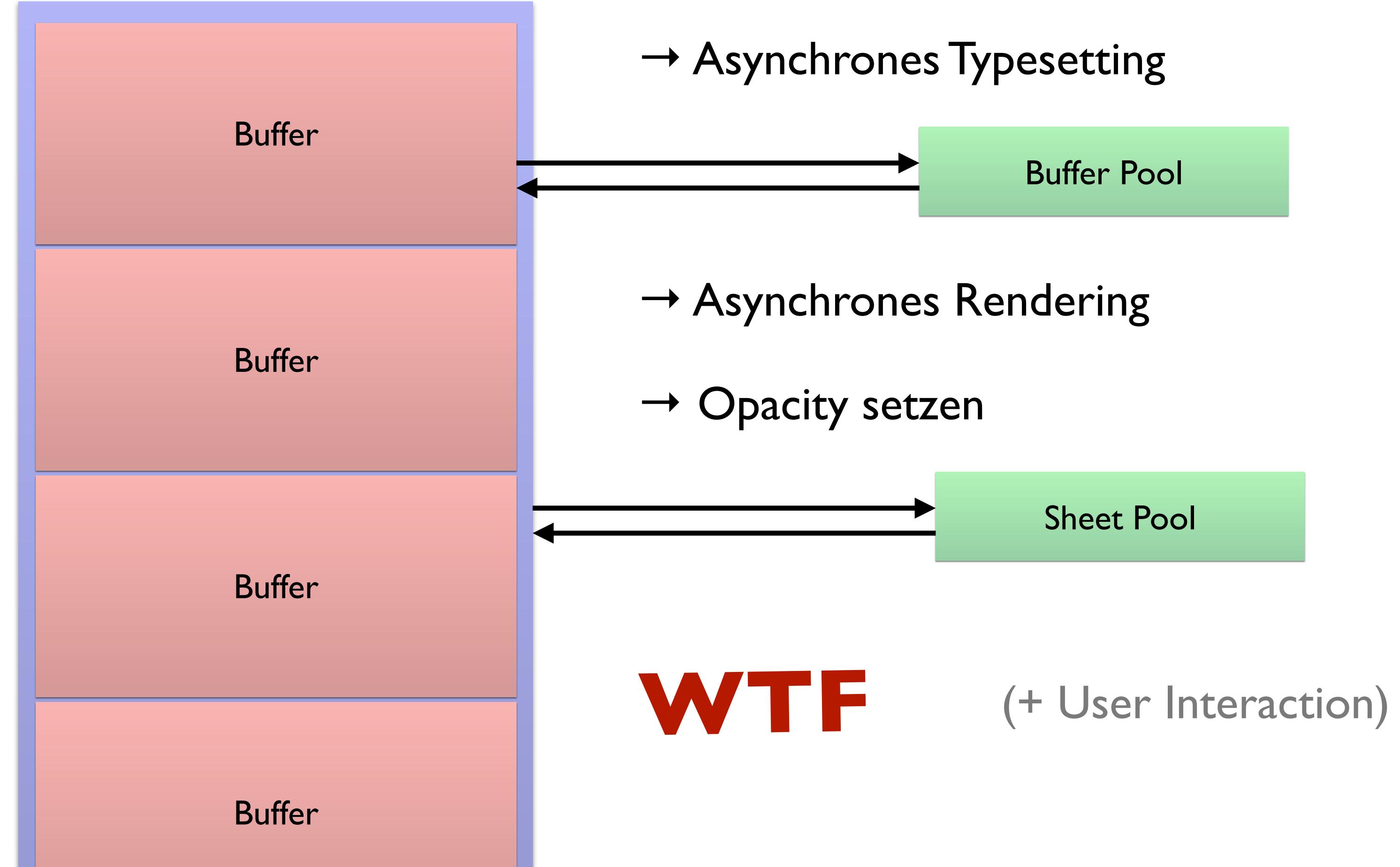


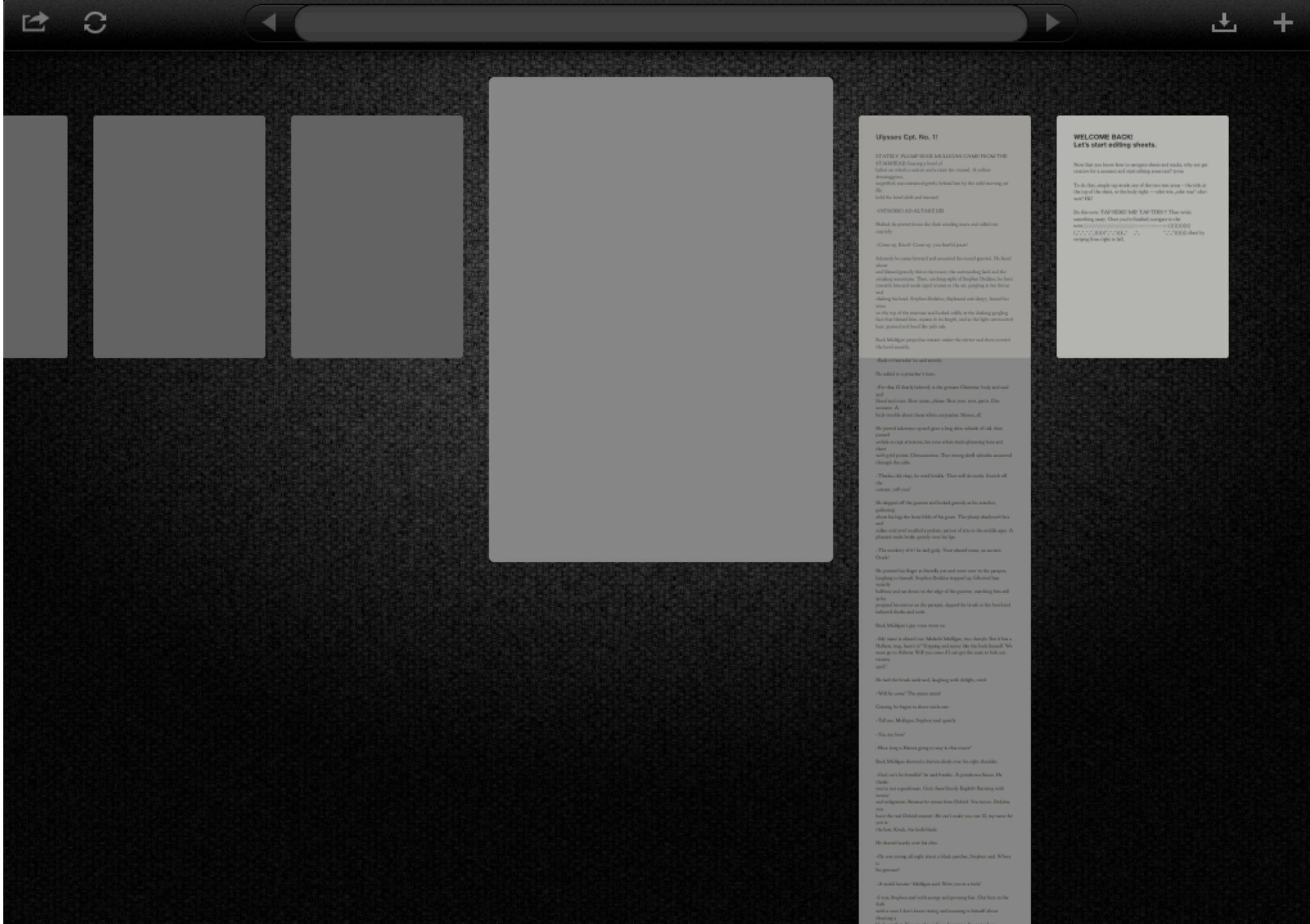












**Lesson one:**  
Navigation, pt. 2

**NAVIGATION  
ENDS HERE!**

Welcome back.

Now that you know how to navigate from sheet to sheet in Deadalus. Since a paper stack may contain dozen of sheets, swiping from left to right or vice versa could become quite a tedious task, when trying to move, say, 10 pages.

Here are some tips:

The sheets navigation is intended by swiping with two fingers. Once in sheets-navigation, you can quickly move back and forth, simply swiping left and right. To view a sheet, just double tap it.

Or otherwise: Pinch the page with two fingers and swipe to sheets-navigation. Then tap on the sheet you want to view. Double tap to return to sheets-navigation. Tap again to return to the next sheet.

Or otherwise: Pinch to scroll down or up, then pinch again to zoom in or out. You can then navigate through the sheet by swiping left or right to focus on a section and double-tap to view its contents.

Provided a sheet has been opened before, the last viewed sheet will be opened for quick access.

Or otherwise: Pinch to scroll down or up, then pinch again to zoom in or out. You can then navigate through the sheet by swiping left or right to focus on a section and double-tap to view its contents.

**Ulysses Cpt. No. 11**

STATLEY, PLUM! BUCK WILLIGAN CAME FROM THE STAFFEHEAD; bearing a load of fables on which a mire and a crat he crossed. A yellow drowsiness, suspended gaudy bethelion by the solid morning air (he held the load aloft and inhaled).

-MESOBBO AD ALTARE DEI.

Malachi, as per usual, the dark winding stairs and galleries, coming.

-Come up, kind! Come up, you hateful pout!

Solemnly he came (swear) and mounted the round pierce. He held aloft and blared/gaudy statu the roses, the surrounding land and the swaying minstrels. Thus, catching sight of Stephen Dedalus, he bent towards him and mock rapid strokes in the air, grasping in his breast and shaking his head. Stephen Dedalus, displaced and sleepy, bawled him on the top of the staircase and looked coldly at the shadowy gorging face that faced him, aghast in its length, and at the tight uncurved hand, grained and broad, like pine ribs.

Malachi Mulligan popular as instant under-the-mirror and then turned the hand round.

-Bads to barack! he said merrily.

He rolled in a jester's tone:

-For this, O deadly beldam, is the genuine Clonmel body and soul and blood and bones. Show me, please, that your eyes, para. One measure. A little trouble about them white serpines. Shamus, all.

He passed sideways and gave a long slow whistle of call, then passed, and in a spate of motion, his even white teeth-gnashing hand and clear white gold prime. Chrysanthemum. Two strong shell vehicles measured through his hands.

-Taddeus, old chap, he said kindly. That will decidedly branch off the current, will you?

He stepped off the stairs and looked gaudily at his shadow, gathering about his legs the loose folds of his gown. The plump shadow/figure and skin and reddish a peacock, picture of which the middle age. A plump; each broke quickly over his lips.

-The mockery of it! he said gaily. Your shadow name, an entire Greek?

He pinched his finger in sharply and sent some to the parson, laughing to himself. Stephen Dedalus stepped up following him, went up the half-side and sat down on the edge of the stairs, watching him still as he crept his bairns on the project, dipped his hands in the bowl and bathed his hands and nose.

Malachi Mulligan's gay voice would sing.

-Idy same a abominable Malachi Mulligan, rascally blarney! It has a Hollie, reg, hasn't it? Swiping and snarling like the hool hool! Why come up to Athos. Will you come if I can get the note to fetch out money, quid?

He laid his hands aside and, laughing with delight, cried:

-Will he come? The joyous possif.

Crossing his legs to share with care,

-Tell me, Malachi, Stephen said quietly.

-Yea, very love?

-How long is Blasus going to stay in this house?

Malachi Mulligan doffed a dozen dools over his right shoulder.

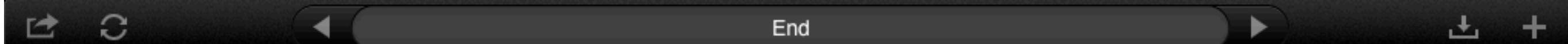
-God, can't he be stolid! An old tramp! A panderer fass. He thinks you're not a problem. God, their bloody English! Busting with money and indulgence. Because he comes from Oxford. You know, Dedalus, you have the real Oxford manner. He can't make you out. O, my name for you is the best. Kind, the tramp/tramps.

He doffed/saidly over his chest.

-He was tiring all right about a mad parrot, Stephen said. When is his general?

-A world famous! Mulligan said. What you a fool?

-I am, Stephen said with mopey and growing fat. Out here in the dark with man I don't know what's amiss in myself about shooting a gun.



End



**Lesson one:  
Navigation, p6. 2**

**NAVIGATION  
ENDS HERE!**

Welcome back.

Note that you have been navigating sheets, you might wonder how to get back to the very beginning - the start screen.

Once you finish a sheet review, then pinch again to return and overview. You can then navigate through the stack from left or right to focus on a sheet and double-tap to view its contents.

Please note a mark has been placed below the last viewed sheet will be carried for quick access.

On this screen Pinch to access sheet overview, then pinch again to return and overview. Double-tap to the top of the sheet named "NAVIGATION ENDS HERE".

## The End

yes I think he made them a bit firmer sucking them like that so long he made me thirsty titties he calls them I had to laugh yes this one anyhow stiff the nipple gets for the least thing Ill get him to keep that up and Ill take those eggs beaten up with marsala fatten them out for him what are all those veins and things curious the way its made a the same in case of twins theyre supposed to represent beauty placed up there like those statues in the museum one of them pretending to hide it with her hand are they so beautiful of course compared with what a man looks like with his two bags full and his other thing hanging down out of him or sticking up at you like a hatrack no wonder they hide it with a cabbageleaf that disgusting Cameron highlander behind the meat market or that other wretch with the red head behind the tree where the statue of the fish used to be when I was passing pretending he was passing standing out for me to see it with his babyclothes up to one side the Queens own they were a nice lot its well the Surreys relieved them theyre always trying to show it to you every time nearly I passed outside the mens greenhouse near the Hartcourt street station just to try some fellow or other trying to catch my eye as if it was I of the 7 wonders of the world O and the stink of those rotten places the night coming home with Poldy after the Comerfords party oranges and lemonade to make you feel nice and watery I went into r of them it was so biting cold I couldnt keep it when was that 93 the canal was frozen yes it was a few months after a pity a couple of the Camerons werent there to see me squatting in the mens place meadero I tried to draw a picture of it before I tore it up like a sausage or something I wonder theyre not afraid going about of getting a kick or a bang of something there the woman is beauty of course thats admitted when he said I could pose for a picture naked to some rich fellow in Holles street when he lost the job in Helys and I was selling the clothes and strumming in the coffee palace would I be like that bath of the nymph with my hair down yes only shes younger or Im a little like that dirty bitch in that Spanish photo he has nymphs used they go about like that I asked him about her and that word mes something with hoses in it and he came out with some jawbreakers about the incarnation he never can explain a thing simply the way a body can understand then he goes and burns the bottom out of the pan all for his Kidsey this one not so much theres the mark of his teeth still where he tried to bite the nipple I had to scream out arent they fearful trying to hurt you I had a great breast of milk with Milly enough for two what was the reason of that he said I could have got a pound a week as a wet nurse all swelled out the mooring that delicate looking student that stopped in no 28 with the Catrons Penrose nearly caught me washing through the window only for I snapped up the towel to my face that was his studenting hurt me they used to weasing her till he got doctor Brady to give me the belladonna prescription I had to get him to suck them they were so hard he said it was sweeter and thicker than cows then he wanted to milk me into the tea well hes beyond everything I declare somebody ought to put him in the budget if I only could remember the 1 half of the things and write a book out of it the works of Master Poldy yes and its so much smoother the skin much an hour he was at them Im sure by the clock like some kind of a big infant I had at me they want everything in their mouth all the pleasure those men get out of a woman I can feel his mouth O Lord I must stretch myself I wished he was here or somebody to let myself go with and come again like that I feel all fire inside me or if I could dream it when he made me spend the and time tickling me behind with his finger I was

## Ulysses Opt. No. 11

STATILY PLUM-BLACK MULIGGAN CAME FROM THE STAIRHEAD; bearing a board of bacon on which a sort of unda exult lay crooked. A yellow drowsiness, unassisted greatly behind him by the milk nursing an the hold the head-shit and innail.

-AMERORBO AD ALTARE DEI.

Mahal, he presented the dark wrinkled ears and saluted once.

-Come up, Rinch! Come up, you fearful goat!

Solemnly he came forward and mounted the round peasant. He held about and blunderously slung the bacon the surrounding land and the evening moonlight. Then, catching sight of Stephen Dedalus, he bent towards him and stuck rapid strokes at the air, gurgling in his throat and shaking his head. Stephen Dedalus, dishevelled and sleepy, looked him over on the top of the staircase and looked really at the shaking gurgling face that blared him, up in its length, and at the light unresumed hair, grizzled and lined the pink rolls.

Black Muligan propped an instant under the master and then snarled the head snarly.

-Bash tubercular he said snarly.

He added in a grumbler's tone:

-Forsh, O deachy beloved, is the greave Cleopatra body softend and blood redness. More music, please. Shut your eyes, pretty. One measure. A little trouble about them white orange panies. Silence, all.

He passed sideways over a long slow whale of oil, then passed aside in cap attention, his even white tooth-gnawing hair and clear sun-gold panies. Cleopatra. Two among shell whistles answered through thresholds.

-Thack, old chap, he said brusky. That will distract. Branch off the current, will you?

He dappled off the granite wall-lodged grizzly at his shoulder, gathering about his legs the loose folds of his gown. The plump shadowed face and sunken oval-jowl muffled a prostate, patois of action the middle-age. A phrenic node broke quickly over his lip.

-The mystery of it? he said gaily. Your shand name, an actinic Greek?

He pinched his finger in his hand and went east to the parson, laughing tremendous. Stephen Dedalus happening following him to the hallways and sat down on the edge of the staircase, watching him until he propped his master on the parson, dipped the broads in the bowl and followed shades and scuds.

Black Muligan's grey voice went on.

-My name is oblongious Muloch Muligan, twice drolly. But it has a Hollies ring, hasn't it? It's piping and tuney like the bush himself! She's more go-to Athens. Well you come if I can get the man to both end scuds?

He laid the broad scuds out, laughing with delight, croak.

-Will he come? The parson puffed.

Gawing, he began to draw such care.

-Tell me, Muligan, Stephen said quietly.

-You, my love?

-How long is Blaser going to stay in this house?

Black Muligan doffed a broad scud over his right shoulder.

-Glad isn't he! I should! he said trembly. A panderous fellow. He thinks you're not a professor. One, then bloody English! Partying with money and indulgence. Because for comes from Oxford. You know, Dedalus, you have the real Oxford manner. No can't make you out. O, my name for you is the best. Kind, the last-blades.

He doffed trembly over his chin.

-He was saying all right about a black parrot, Stephen said. Where is his parrot?

-A wild boar! Muligan said. Wiser you is a field!

-I seen, Stephen said with smug and pressing fear. Out here in the dark with a man I don't know and unmentioning himself about shooting a black parrot. You need man from dressing. I'm not a hero, however. If he was gone here I am off.

**WELCOME BACK!  
Let's start editing sheets.**

Note that you have been navigating sheets and stacks, why not practice for a moment and start editing some text form.

To do this, simply tap-and-drag any of the text instances – the title of the top of the sheet, or the body right – either with “edit” (that’s not “edit”)?

-Come up, Rinch! Come up, you fearful goat!

Solemnly he came forward and mounted the round peasant. He held about and blunderously slung the bacon the surrounding land and the evening moonlight. Then, catching sight of Stephen Dedalus, he bent towards him and stuck rapid strokes at the air, gurgling in his throat and shaking his head. Stephen Dedalus, dishevelled and sleepy, looked him over on the top of the staircase and looked really at the shaking gurgling face that blared him, up in its length, and at the light unresumed hair, grizzled and lined the pink rolls.

Black Muligan propped an instant under the master and then snarled the head snarly.

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He pinched his finger in his hand and went east to the parson, laughing tremendous. Stephen Dedalus happening following him to the hallways and sat down on the edge of the staircase, watching him until he propped his master on the parson, dipped the broads in the bowl and followed shades and scuds.

Black Muligan's grey voice went on.

-My name is oblongious Muloch Muligan, twice drolly. But it has a Hollies ring, hasn't it? It's piping and tuney like the bush himself! She's more go-to Athens. Well you come if I can get the man to both end scuds?

He laid the broad scuds out, laughing with delight, croak.

-Will he come? The parson puffed.

Gawing, he began to draw such care.

-Tell me, Muligan, Stephen said quietly.

-You, my love?

-How long is Blaser going to stay in this house?

Black Muligan doffed a broad scud over his right shoulder.

-Glad isn't he! I should! he said trembly. A panderous fellow. He thinks you're not a professor. One, then bloody English! Partying with money and indulgence. Because for comes from Oxford. You know, Dedalus, you have the real Oxford manner. No can't make you out. O, my name for you is the best. Kind, the last-blades.

He doffed trembly over his chin.

-He was saying all right about a black parrot, Stephen said. Where is his parrot?

-A wild boar! Muligan said. Wiser you is a field!

-I seen, Stephen said with smug and pressing fear. Out here in the dark with a man I don't know and unmentioning himself about shooting a black parrot. You need man from dressing. I'm not a hero, however. If he was gone here I am off.

## The End

yes I think he made them a bit firmer sucking them like that so long he made me thirsty titties he calls them I had to laugh yes this one anyhow stiff the nipple gets for the least thing Ill get him to keep that up and Ill take those eggs beaten up with marsala fatten them out for him what are all those veins and things curious the way its made 2 the same in case of twins theyre supposed to represent beauty placed up there like those statues in the museum one of them pretending to hide it with her hand are they so beautiful of course compared with what a man looks like with his two bags full and his other thing hanging down out of him or sticking up at you like a hattrack no wonder they hide it with a cabbageleaf that disgusting Cameron highlander behind the meat market or that other wretch with the red head behind the tree where the statue of the fish used to be when I was passing pretending he was pissing standing out for me to see it with his babyclothes up to one side the Queens own they were a nice lot its well the Surreys relieved them theyre always trying to show it to you every time nearly I passed outside the mens greenhouse near the Harcourt street station just to try some fellow or other trying to catch my eye as if it was I of the 7 wonders of the world O and the stink of those rotten places the night coming home with Poldy after the Comerfords party oranges and

Aufgabe:

Highlights im PlainText



AA



End

79.309 C  
16.051 W

## The End

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79.309 C  
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AA



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79.309 C  
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ASSStringDrawing



AA



End

79.309 C  
16.051 W

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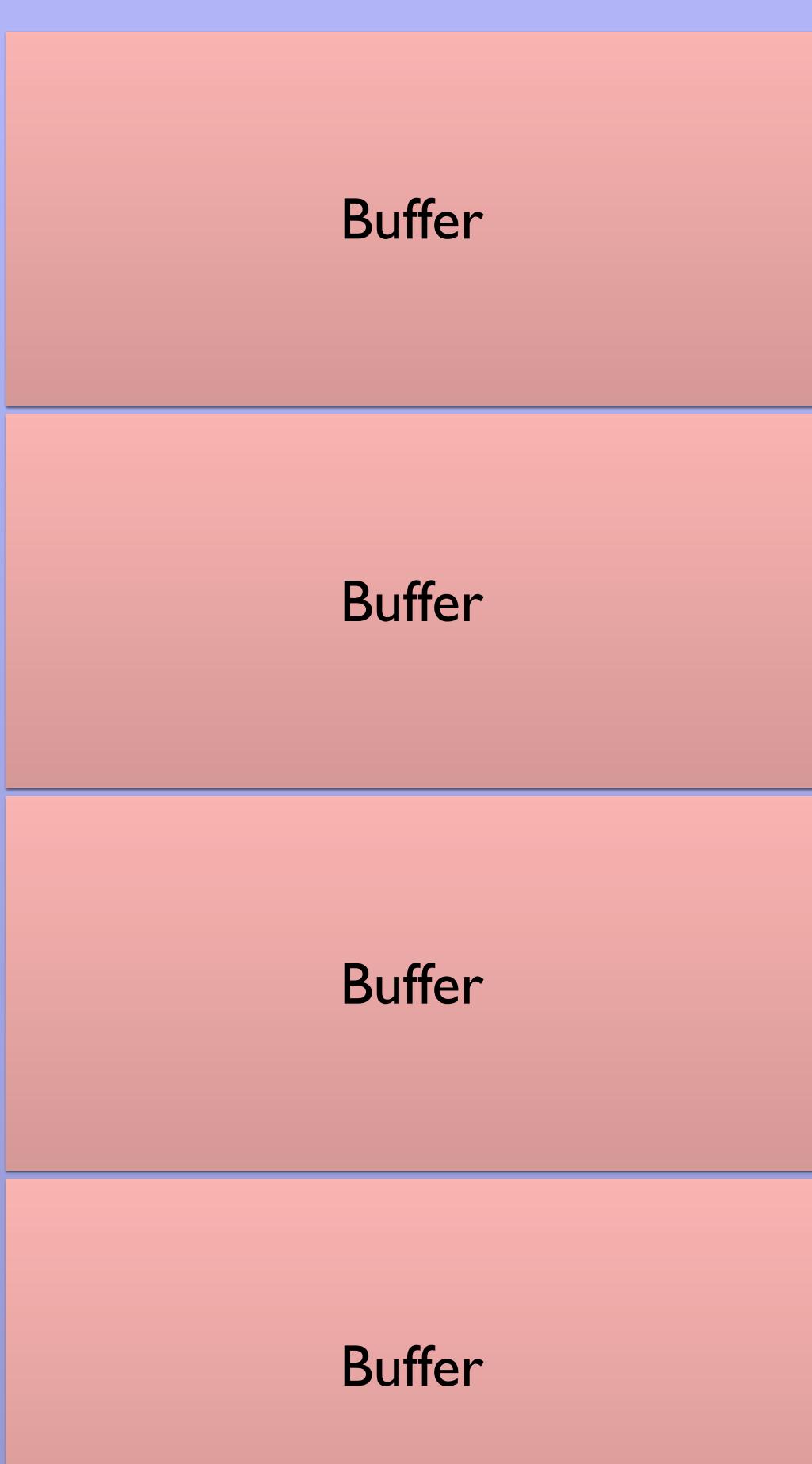
# CoreText?

ASStringDrawing



# Text Editing mit CoreText

# Text Editing mit CoreText

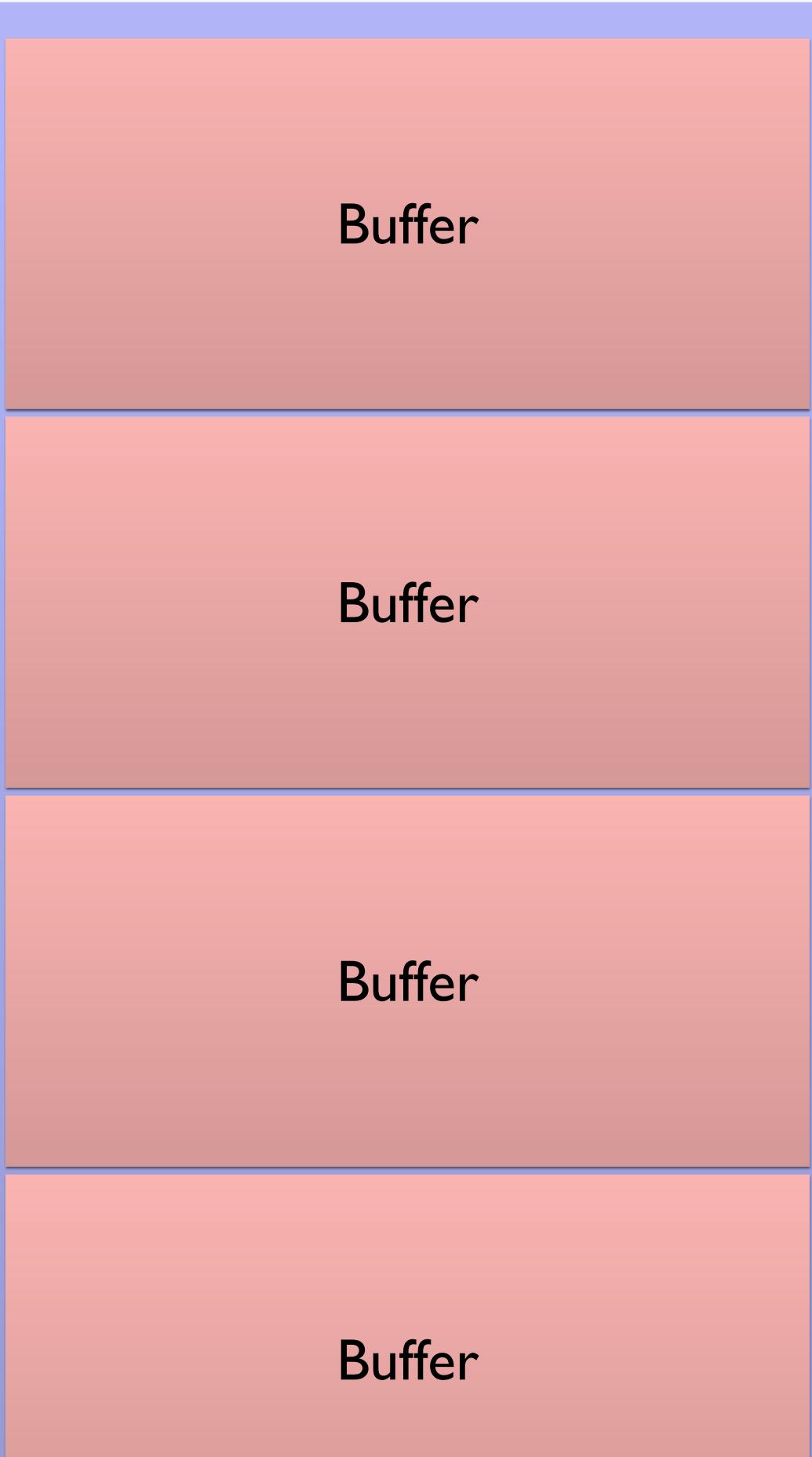


Buffer

Buffer

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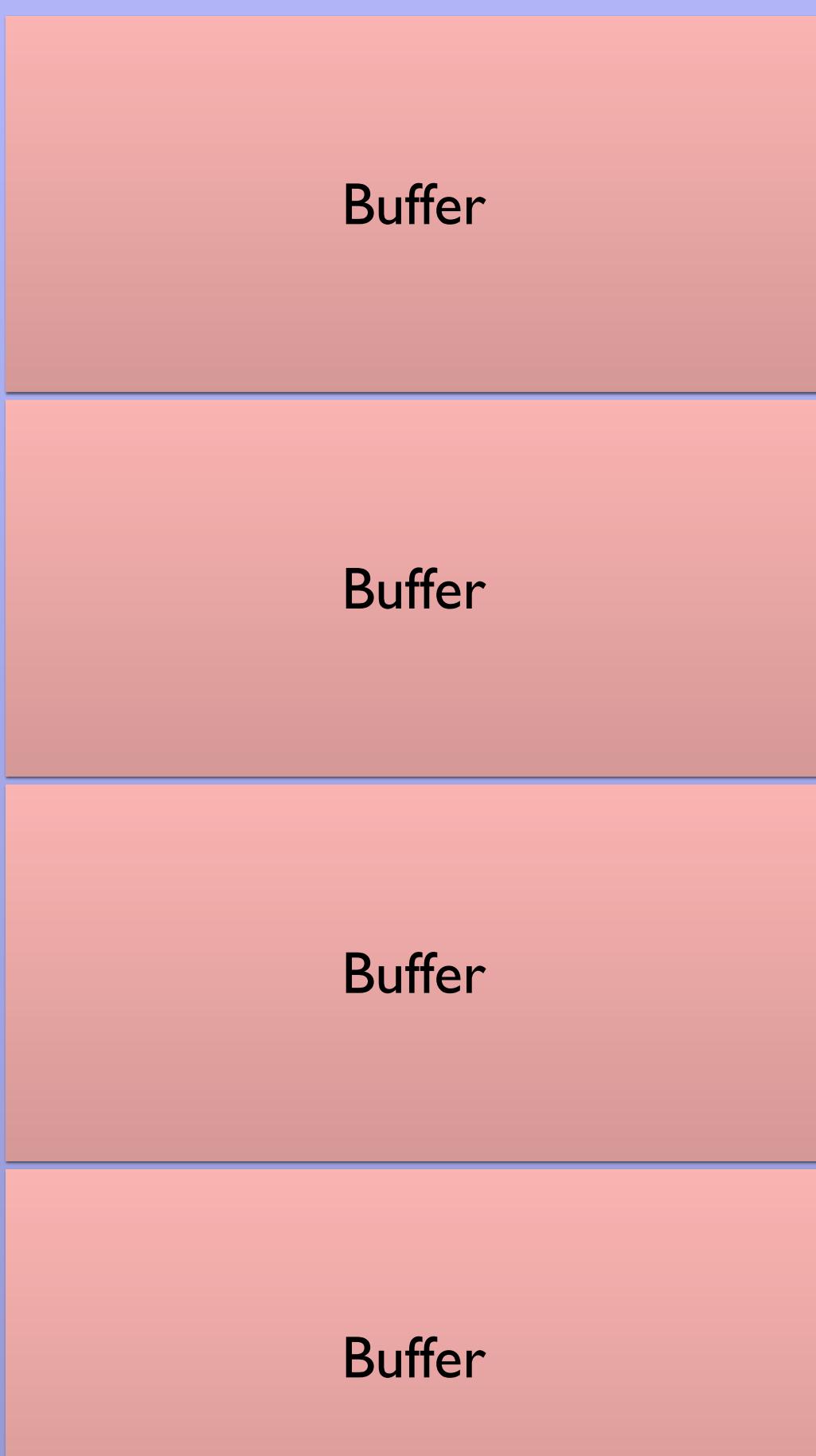


# Text Editing mit CoreText

→ Selbes Verhalten wie Darstellung

# Text Editing mit CoreText

- Selbes Verhalten wie Darstellung
  - CTFrame ist immutable



Buffer

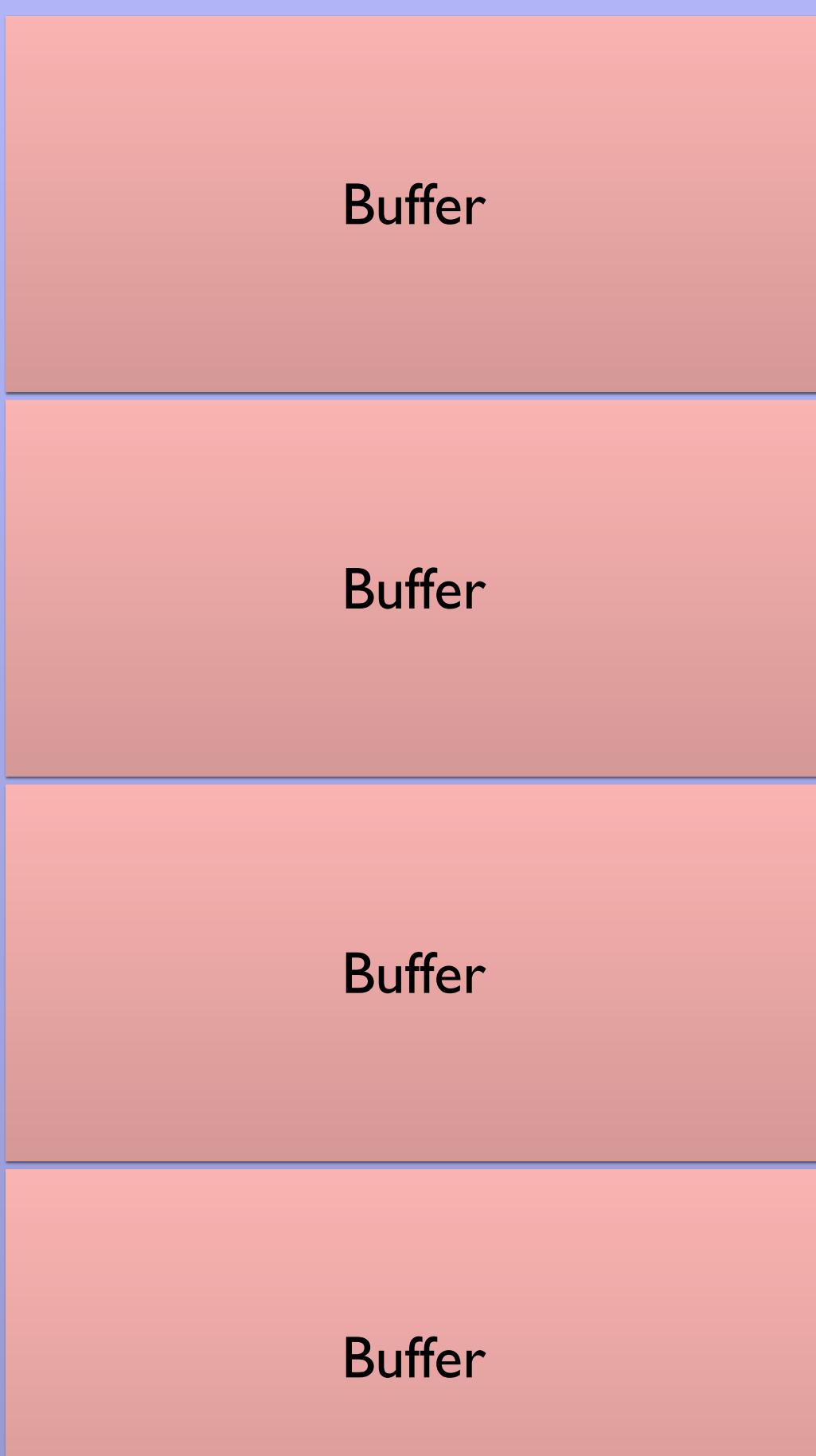
Buffer

Buffer

Buffer

# Text Editing mit CoreText

- Selbes Verhalten wie Darstellung
  - CTFrame ist immutable
    - Manuelles Typesetting



Buffer

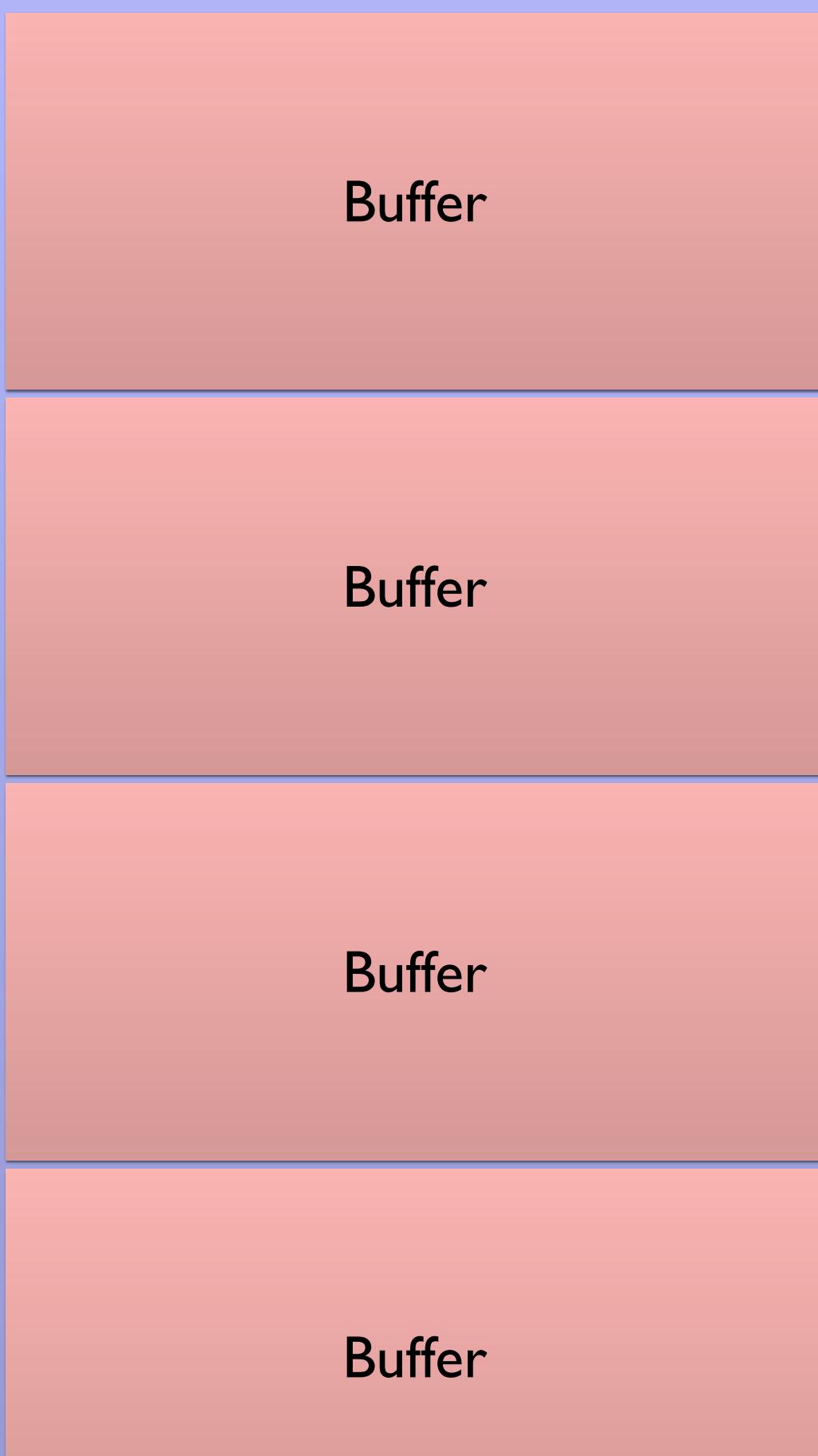
Buffer

Buffer

Buffer

# Text Editing mit CoreText

- Selbes Verhalten wie Darstellung
  - CTFrame ist immutable
    - Manuelles Typesetting
    - Intelligent Buffer neu zeichnen



Buffer

Buffer

Buffer

Buffer

# Text Editing mit CoreText

- Selbes Verhalten wie Darstellung
  - CTFrame ist immutable
    - Manuelles Typesetting
    - Intelligent Buffer neu zeichnen
  - Core Text kann nur Rendering

Buffer

Buffer

Buffer

Buffer

# Text Editing mit CoreText

- Selbes Verhalten wie Darstellung
  - CTFrame ist immutable
    - Manuelles Typesetting
    - Intelligent Buffer neu zeichnen
  - Core Text kann nur Rendering
    - UITextField implementieren

Buffer

Buffer

Buffer

Buffer

# Text Editing mit CoreText

- Selbes Verhalten wie Darstellung
  - CTFrame ist immutable
    - Manuelles Typesetting
    - Intelligent Buffer neu zeichnen
  - Core Text kann nur Rendering
    - UITextField implementieren
    - User-Interaction (Selektion)

Buffer

Buffer

Buffer

Buffer

# Text Editing mit CoreText

- Selbes Verhalten wie Darstellung
  - CTFrame ist immutable
    - Manuelles Typesetting
    - Intelligent Buffer neu zeichnen
  - Core Text kann nur Rendering
    - UITextField implementieren
    - User-Interaction (Selektion) → Text Loupe

Buffer

Buffer

Buffer

Buffer

# Text Editing mit CoreText

- Selbes Verhalten wie Darstellung
  - CTFrame ist immutable
    - Manuelles Typesetting
    - Intelligent Buffer neu zeichnen
  - Core Text kann nur Rendering
    - UITextField implementieren
    - User-Interaction (Selektion) → Text Loupe
    - Rechtschreibung

Buffer

Buffer

Buffer

Buffer

# Text Editing mit CoreText

- Selbes Verhalten wie Darstellung
  - CTFrame ist immutable
    - Manuelles Typesetting
    - Intelligent Buffer neu zeichnen
  - Core Text kann nur Rendering
    - UITextField implementieren
    - User-Interaction (Selektion) → Text Loupe
    - Rechtschreibung → Copy&Paste, ...

Buffer

Buffer

Buffer

Buffer

# Text Editing mit CoreText

- Selbes Verhalten wie Darstellung
  - CTFrame ist immutable
    - Manuelles Typesetting
    - Intelligent Buffer neu zeichnen
  - Core Text kann nur Rendering
    - UITextField implementieren
    - User-Interaction (Selektion) → Text Loupe
    - Rechtschreibung → Copy&Paste, ...
    - (+ Optimierung)

Buffer

Buffer

Buffer

Buffer

# Text Editing mit CoreText

- Selbes Verhalten wie Darstellung
- CTFrame ist immutable
  - Manuelles Typesetting
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- Core Text kann nur Rendering
  - UITextField implementieren
  - User-Interaction (Selektion) → Text Loupe
  - Rechtschreibung → Copy&Paste, ...
  - (+ Optimierung)

**WTF**

Buffer

Buffer

Buffer

Buffer



AA



End

79.309 C  
16.051 W

## The End

yes I think he made them a bit firmer sucking them like that so long he made me thirsty titties he calls them I had to laugh yes this one anyhow stiff the nipple gets for the least thing Ill get him to keep that up and Ill take those eggs beaten up with marsala fatten them out for him what are all those veins and things curious the way its made 2 the same in case of twins theyre supposed to represent beauty placed up there like those statues in the museum one of them pretending to hide it with her hand are they so beautiful of course compared with what a man looks like with his two bags full and his other thing hanging down out of him or sticking up at you like a hatrack no wonder they hide it with a cabbageleaf that disgusting Cameron highlander behind the meat market or that other wretch with the red head behind the tree where the statue of the fish used to be when I was passing pretending he was pissing standing out for me to see it with his babyclothes up to one side the Queens own they were a nice lot its well the Surreys relieved them theyre always trying to show it to you every time nearly I passed outside the mens greenhouse near the Harcourt street station just to try some fellow or other trying to catch my eye as if it was I of the 7 wonders of the world O and the stink of those rotten places the night coming home with Poldy after the Comerfords party oranges and



AA



End

79.309 C  
16.051 W

## The End

yes I think he made them a bit firmer sucking them like that so long he  
made me thirsty titties he calls them ~~the ladies~~ this one  
anyhow stiff the nipple gets for the least thing ill get ~~the~~ ~~the~~  
up and Ill take those eggs beaten up with marsala fatten them out to  
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night coming home with Poldy after the Comerfords party oranges and

~~coreText~~



AA



End

79.309 C  
16.051 W

## The End

# UITextView

yes I think he made them a bit firmer sucking them like that so long he  
made me thirsty titties he calls them ~~the ladies~~ this one  
anyhow stiff the nipple gets for the least thing ill get ~~the~~ ~~the~~  
up and Ill take those eggs beaten up with marsala fatten them out to  
him what are all those veins and things curious the way its made 2 the  
same in case of twin theyre supposed to represent beauty placed up  
there like those statues in the mus ~~the~~ one of them pretending to hide  
it with her hand are they beautiful of course compared with what a  
man looks like with his two bags full and his other thing hanging down  
out of him or sticking up at you like a hatrack no wonder they hide it  
with a cabbageleaf that disgusting Cameron highlander behind the  
meat market or that other wretch with the red head behind the tree  
where the statue of the fish used to be when I was passing pretending  
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~~CoreText~~



AA



End

79.309 C  
16.051 W

## The End

UITextView

UIWebView

yes I think he made them a bit firmer sucking them like that so long he  
made me thirsty titties he calls them ~~the ladies~~ this one  
anyhow stiff the nipple gets for the least thing ill let him know what  
up and Ill take those eggs beaten up with marsala fatten them out to  
him what are all those veins and things curious the way its made 2 the  
same in case of twin theyre supposed to represent beauty placed up  
there like those statues in the musum one of them pretending to hide  
it with her hand are they beautiful of course compared with what a  
man looks like with his two bags full and his other thing hanging down  
out of him or sticking up at you like a hatrack no wonder they hide it  
with a cabbageleaf that disgusts me ~~the highlander behind the~~  
meat market or that other wretch with the ~~wife~~ behind the tree  
where the statue of the fish used to be when I was passing pretending  
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CoreText

# UIWebView

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# UITextView

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# UIWebView

# Viewing

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# UITextView

# Editing

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# UIWebView

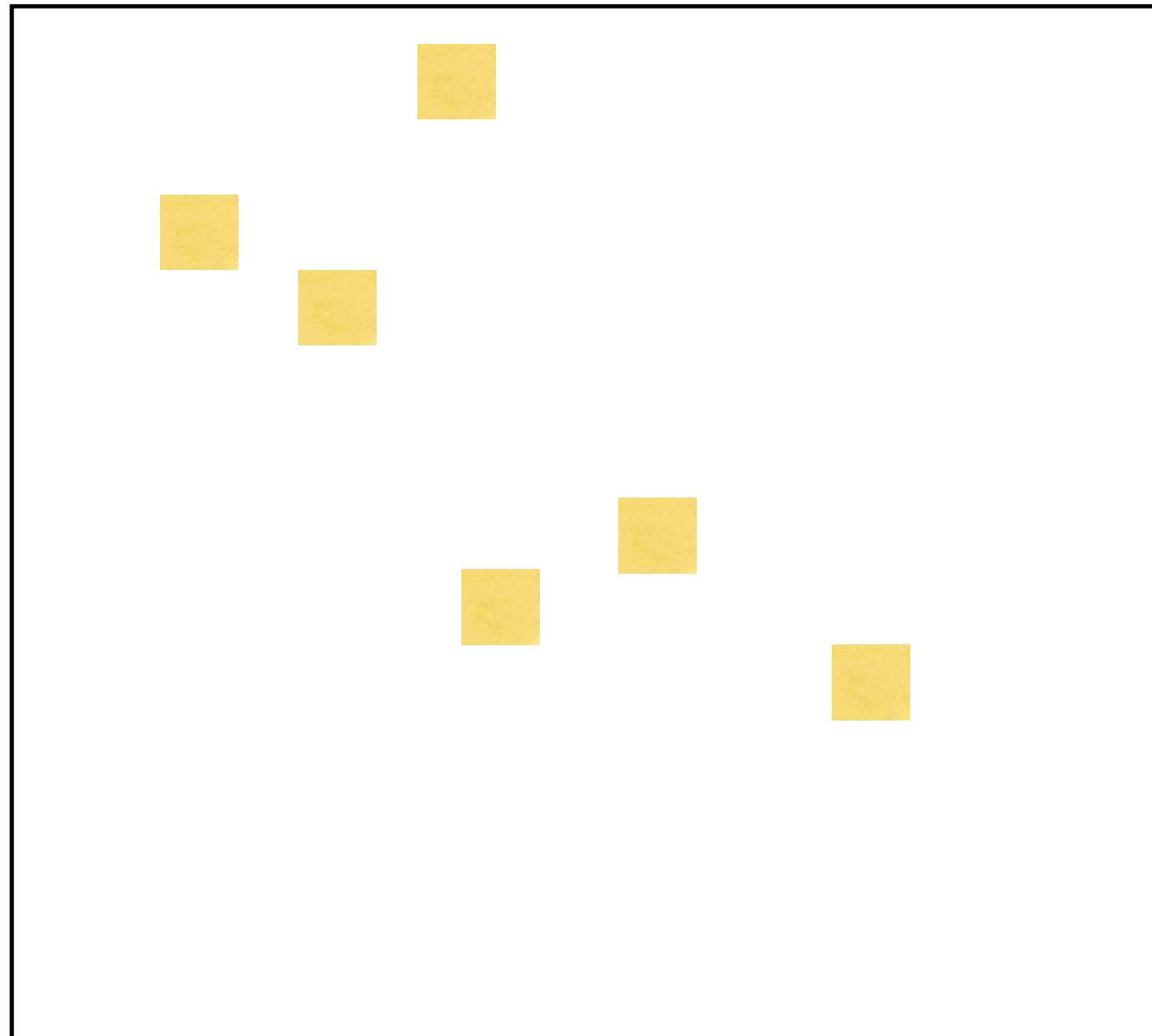
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# UITextView

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# UIWebView



# UITextView

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# UIWebView

# UITextView

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AA



End

79.309 C  
16.051 W

## The End

yes I think he made them a bit firmer sucking them like that so long he  
made me thirsty titties he calls them I had to laugh yes this one  
anyhow stiff the nipple gets for the least thing Ill get him to keep that  
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there like those statues in the museum one of them pretending to hide  
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out of him or sticking up at you like a satrap no wonder they hide it  
with a cabbageleaf that disgusting Cameron highlander behind the  
meat market or that other wretch with the red head behind the tree  
where the statue of the fish used to be when I was passing pretending  
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night coming home with Poldy after the Comerfords party oranges and

UITextView UIWebView



AA



End

79.309 C  
16.051 W**The End****WTF**

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night coming home with Poldy after the Comerfords party oranges and

**UITextView****UIWebView**

Letzte Aufgabe:  
Transition

End

79.309 C  
16.051 W

End

them a bit firmer sucking them like that so long he ties he calls them I had to laugh yes this one apple gets for the least thing Ill get him to keep that eggs beaten up with marsala fatten them out for those veins and things curious the way its made 2 the ns theyre supposed to represent beauty placed up tues in the museum one of them pretending to hide they so beautiful of course compared with what a his two bags full and his other thing hanging down up at you like a hatrack no wonder they hide it that disgusting Cameron highlander behind the t other wretch with the red head behind the tree of the fish used to be when I was passing pretending ding out for me to see it with his babyclothes up to s own they were a nice lot its well the Surreys always trying to show it to you every time nearly the mens greenhouse near the Harcourt street station now or other trying to catch my eye as if it was I of the world O and the stink of those rotten places the with Poldy after the Comerfords party oranges and

The screenshot shows a mobile application interface. At the top, there are navigation icons: a play button, a plus sign, a left arrow, a right arrow, a refresh symbol, and a back arrow. Below these are two main sections. The left section is titled "Lesson one: Navigation, pt. 2" and contains text about pinch-to-zoom gestures. The right section is titled "NAVIGATION ENDS HERE!" and contains a "Welcome back" message and some instructions. The overall background is dark.

The End

yes I think he made them a bit firmer sucking them like that so long he made me thirsty titties he calls them I had to laugh yes this one anyhow stiff the nipple gets for the least thing Ill get him to keep that up and Ill take those eggs beaten up with marsala fatten them out for him what are all those veins and things curious the way its made 2 the same in case of twins theyre supposed to represent beauty placed up there like those statues in the museum one of them pretending to hide it with her hand are they so beautiful of course compared with what a man looks like with his two bags full and his other thing hanging down out of him or sticking up at you like a hatrack no wonder they hide it with a cabbageleaf that disgusting Cameron highlander behind the meat market or that other wretch with the red head behind the tree where the statue of the fish used to be when I was passing pretending he was pissing standing out for me to see it with his babyclothes up to one side the Queens own they were a nice lot its well the Surreys relieved them theyre always trying to show it to you every time nearly I passed outside the mens greenhouse near the Harcourt street station just to try some fellow or other trying to catch my eye as if it was I of the 7 wonders of the world O and the stink of those rotten places the night coming home with Poldy after the Comerfords party oranges and lemonade to make you feel nice and watery I went into r of them it was so biting cold I couldnt get it when was that 93 the canal was frozen yes it was a few months after a pity a couple of the Camerons werent there to see me squatting in the mens place meadero I tried to draw a picture of it before I tore it up like a sausage or something I wonder theyre not afraid going about of getting a kick or a bang of something there the woman is beauty of course thats admitted when he said I could pose for a picture naked to some rich fellow in Holles street when he lost the job in Helys and I was selling the clothes and strumming in the coffee palace would I be like that bath of the nymph with my hair down yes only shes younger or Im a little like that dirty bitch in that Spanish photo he has nymphs used they go about like that I asked him about her and that word met something with hoses in it and he came out with some jawbreakers about the incarnation he never can explain a thing simply the way a body can understand then he goes and burns the bottom out of the pan all for his Kidney this one not so much theres the mark of his teeth still where he tried to bite the nipple I had to scream out arent they fearful trying to hurt you I had a great breast of milk with Milly enough for two what was the reason of that he said I could have got a pound a week as a wet nurse all swelled out the morning that delicate looking student that stopped in no 28 with the Citrons Penrose nearly caught me washing through the window only for I snapped up the towel to my face that was his studenting hurt me they used to weaning her till he got doctor Brady to give me the belladonna prescription I had to get him to suck them they were so hard he said it was sweeter and thicker than cows then he wanted to milk me into the tea well hes beyond everything I declare somebody ought to put him in the budget if I only could remember the I half of the things and write a book out of it the works of Master Poldy yes and its so much smoother the skin much an hour he was at them Im sure by the clock like some kind of a big infant I had at me they want everything in their mouth all the pleasure those men get out of a woman I can feel his mouth O Lord I must stretch myself I wished he was here or somebody to let myself go with and come again like that I feel all fire inside me or if I could dream it when he made me spend the 2nd time tickling me behind with his finger I was

```
+ (CGFloat)kerningForFontWithName:(NSString *)fontName(ofSize:(CGFloat)size
{
    // Classic theme
    if ([fontName hasPrefix: @"Helvetica"]) {
        if (size > 13)
            return 0;
        else
            return 0.1;
    }
    if ([fontName hasPrefix: @"GoudyBookletter"])
        return 0.03;

    // Modern theme
    if ([fontName hasPrefix: @"Ubuntu"]) {
        if (size > 8 && size < 9)
            return 0.02;
        else
            return 0.01;
    }

    // Mono theme
    if ([fontName hasPrefix: @"Inconsolata"]) {
        if (size > 9 && size < 10)
            return -0.03;
    }
}
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```

**WTF**

# Demo?

Fragen?

# Ein Bild oder Foto



**Vielen Dank**