Writing EPUB 3

(Can we start now?)

EPUB 3 :: EPUB 2
HTML5 :: XHTML 1.1

This is HTML5

```
<html>

<body>

<p>hello</p>

</body>

</html>
```

Backwards compatibility

- EPUB 3 compliant ereaders "should" support EPUB 2

- About EpubCheck 3 and EPUB2 and EPUB3

EPUB3 Tools

- InDesign CS6

- BBEdit (or other text editor)

- EpubCheck 3b3

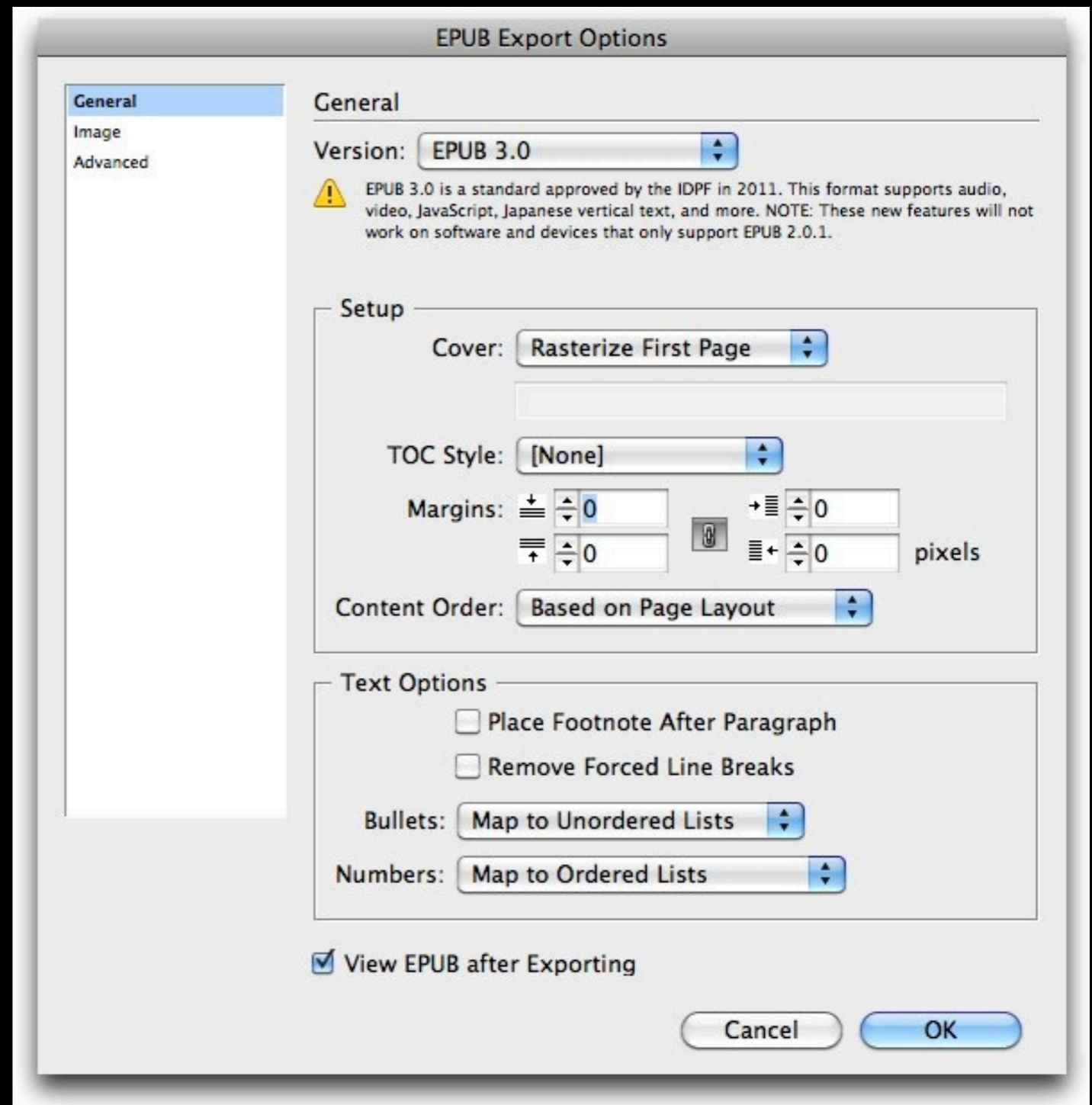- EPUB3 Readers: iBooks, Readium, Azardi
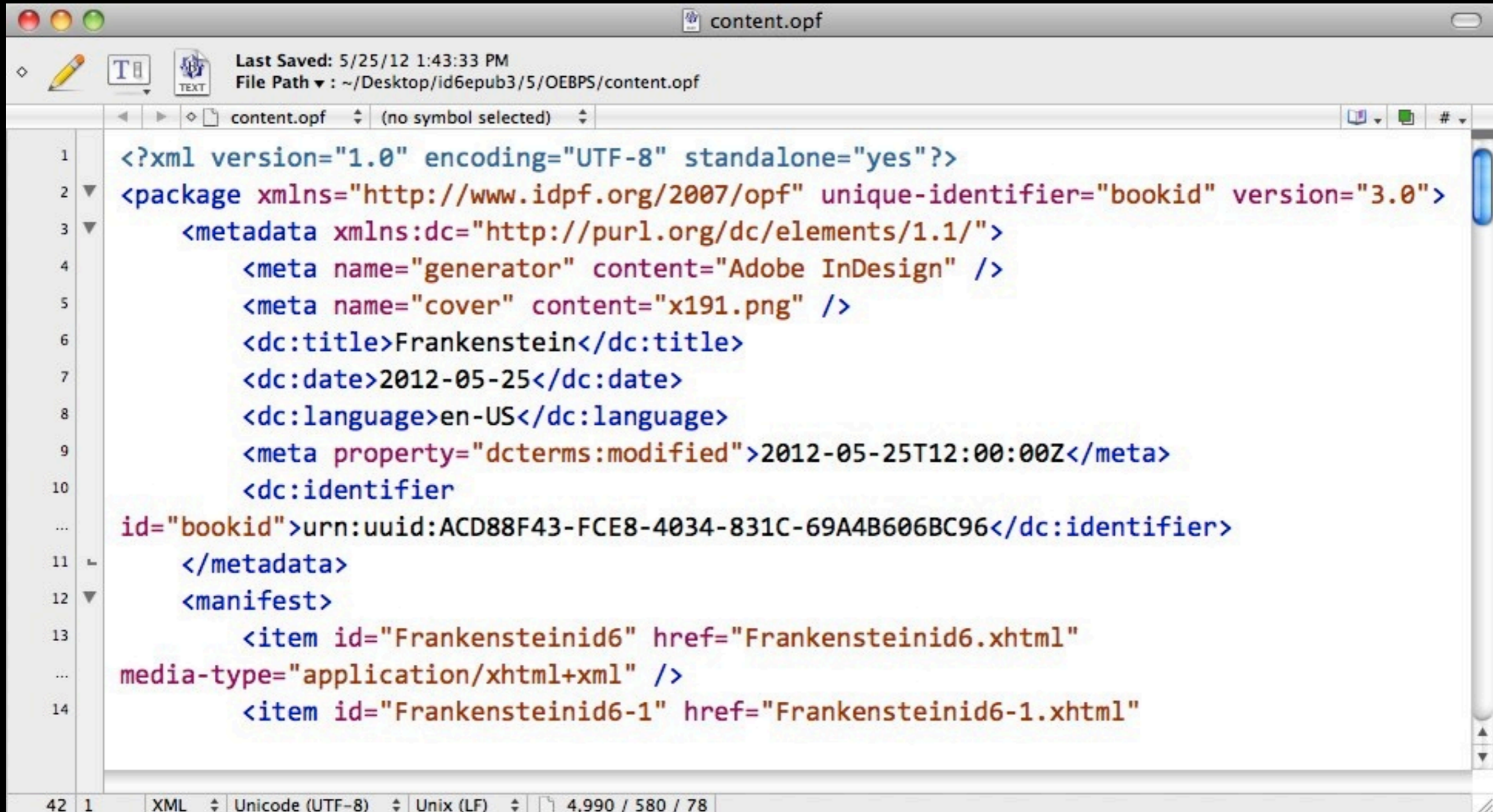
InDesign CS6

Export to EPUB3

Validates*

CSS support is good

Creates NCX and
HTML TOC

Separates docs

EPUB Export Options

General
Image
Advanced

General

Version: EPUB 3.0

⚠ EPUB 3.0 is a standard approved by the IDPF in 2011. This format supports audio, video, JavaScript, Japanese vertical text, and more. NOTE: These new features will not work on software and devices that only support EPUB 2.0.1.

Setup

Cover: Rasterize First Page

TOC Style: [None]

Margins: 0   0

0   0   pixels

Content Order: Based on Page Layout

Text Options

☐ Place Footnote After Paragraph

☐ Remove Forced Line Breaks

Bullets: Map to Unordered Lists

Numbers: Map to Ordered Lists

☑ View EPUB after Exporting

Cancel   OK

BBEdit - Text Editor

content.opf

content.opf   (no symbol selected)

```
1    <?xml version="1.0" encoding="UTF-8" standalone="yes"?>
2 ▼  <package xmlns="http://www.idpf.org/2007/opf" unique-identifier="bookid" version="3.0">
3 ▼      <metadata xmlns:dc="http://purl.org/dc/elements/1.1/">
4            <meta name="generator" content="Adobe InDesign" />
5            <meta name="cover" content="x191.png" />
6            <dc:title>Frankenstein</dc:title>
7            <dc:date>2012-05-25</dc:date>
8            <dc:language>en-US</dc:language>
9            <meta property="dcterms:modified">2012-05-25T12:00:00Z</meta>
10           <dc:identifier
...  id="bookid">urn:uuid:ACD88F43-FCE8-4034-831C-69A4B606BC96</dc:identifier>
11       </metadata>
12 ▼     <manifest>
13           <item id="Frankensteinid6" href="Frankensteinid6.xhtml"
...  media-type="application/xhtml+xml" />
14           <item id="Frankensteinid6-1" href="Frankensteinid6-1.xhtml"
```

42 1   XML   Unicode (UTF-8)   Unix (LF)   4,990 / 580 / 78

EpubCheck 3b3

http://code.google.com/p/epubcheck/


```
lizxp-5:epubcheck3b3 lizx$ java -jar epubcheck3b3.jar Frankensteinid6.epub
Epubcheck Version 3.0b3

ERROR: Frankensteinid6.epub/OEBPS/css/Frankensteinid6.css: Font-face refer
ence OEBPS/font/GreymantleMVBto non-standard font type application/x-font-
type1

Check finished with warnings or errors!

lizxp-5:epubcheck3b3 lizx$
```

EPUB3 Readers
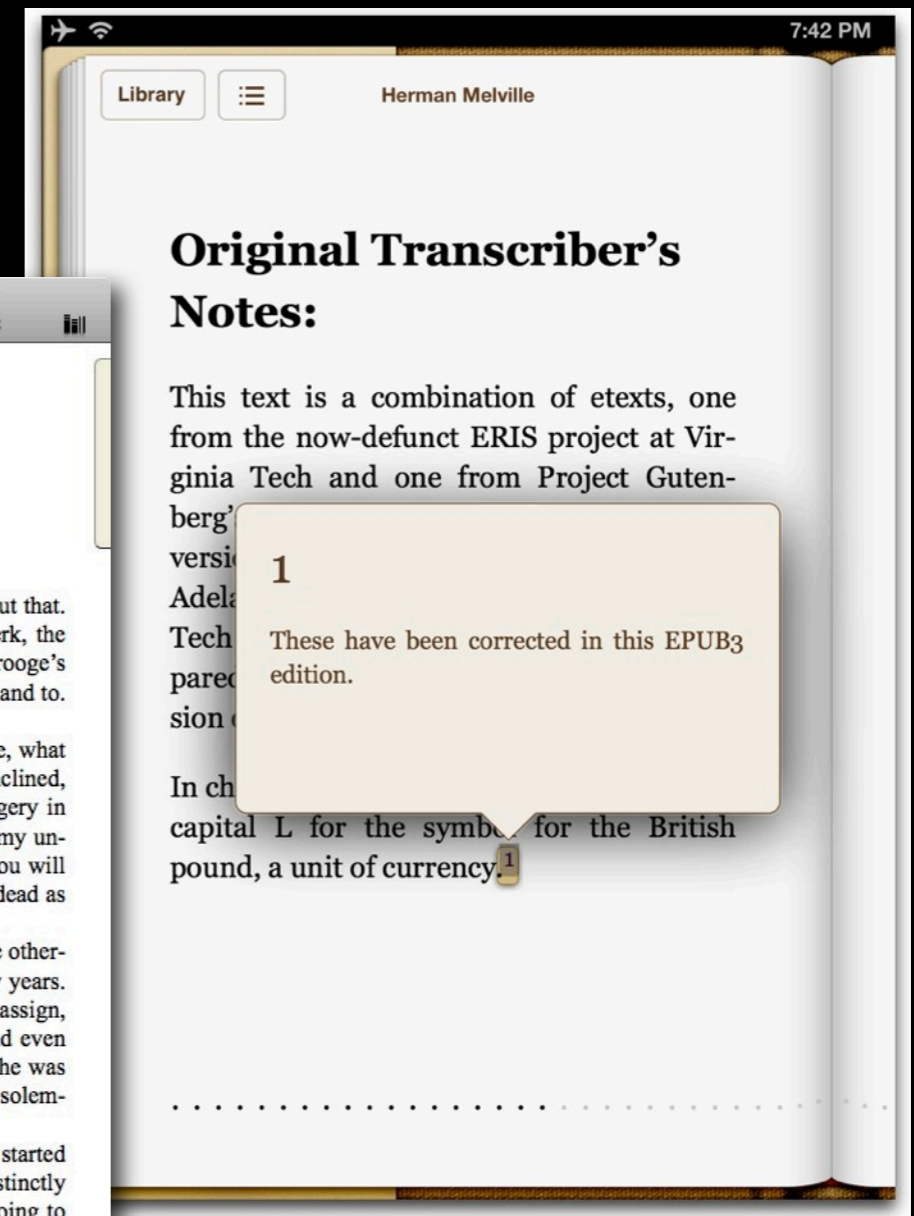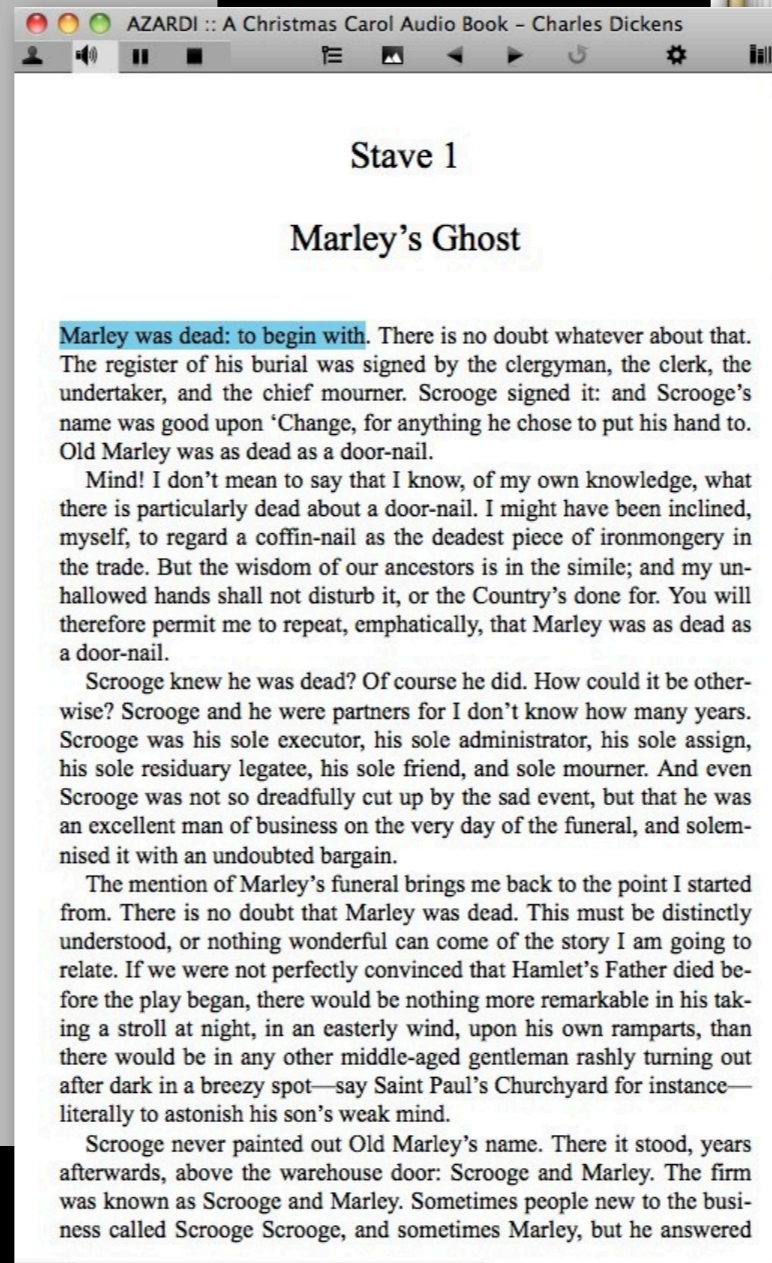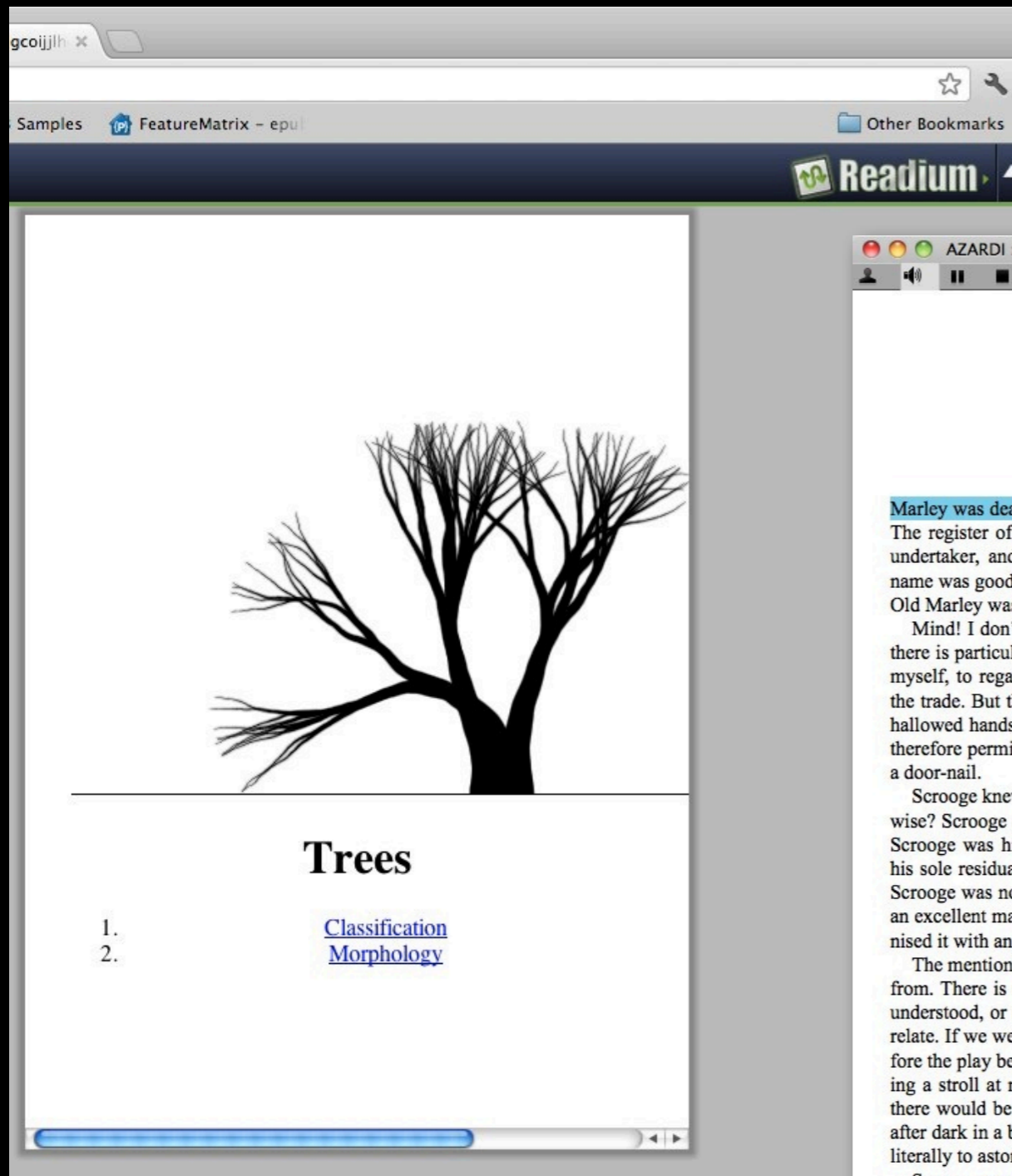
What's different in "true" EPUB 3?

content.opf

Version = "3.0" in package element


```
content.opf    (no symbol selected)
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<package xmlns="http://www.idpf.org/2007/opf" unique-identifier="bookid"
version="3.0">
    <metadata xmlns:dc="http://purl.org/dc/elements/1.1/">
        <meta name="generator" content="Adobe InDesign" />
        <meta name="cover" content="x203.png" />
        <dc:title>Frankenstein</dc:title>
```

content.opf

New meta element that specifies when the content was last modified.

```
<dc:date>2012-05-03</dc:date>
<dc:rights>This work is in the public domain.</dc:rights>
<dc:language>en-US</dc:language>
<meta property="dcterms:modified">2012-05-03T12:00:00Z</meta>
<dc:identifier
id="bookid">urn:uuid:C24249D1-D4E3-469E-A46B-734EF498AEF7</dc:identifier>
</metadata>
```

Table of contents

NCX file no longer required (still supported)

New nav element with HTML TOC required

```xml
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<html xmlns="http://www.w3.org/1999/xhtml">
    <head>
        <title>Frankenstein</title>
    </head>
    <body>
        <nav xmlns:epub="http://www.idpf.org/2007/ops" id="toc" epub:type="toc">
            <ol>
                <li>
                    <a href="frankenstein2-1.xhtml#toc_marker-1">Letter 1</a>
                </li>
                <li>
                    <a href="frankenstein2-2.xhtml#toc_marker-2">Letter 2</a>
                </li>
                <li>
                    <a href="frankenstein2-3.xhtml#toc_marker-3">Letter 3</a>
                </li>
```

Table of contents

In HTML, create nav element:

```
<nav xmlns:epub="http://www.idpf.org/2007/ops" id="toc" epub:type="toc">
...ordered list...
</nav>
```

Table of contents

```
<ol>
  <li>Chapter 1</li>
   <ol>
     <li>Subheader A</li>
     <li>Subheader B</li>

     ...
   </ol>
  <li>Chapter 2</li>

  ...
```

Table of contents

In content.opf, declare item, with properties="nav":

```
<item id="toc" href="toc.xhtml" media-
type="application/xhtml+xml"
properties="nav" />
```

Table of contents

Frankenstein

CONTENTS | BOOKMARKS | NOTES

HTML5

DOCTYPE should be omitted from HTML docs

```
fcla-xml-2.30li17.html     (no symbol selected)

<?xml version="1.0" encoding="utf-8"?>
<html xml:lang="en-us" lang="en-us" xmlns="http://www.w3.org/1999/xhtml">
    <head>
        <meta charset="utf-8"/>
        <link rel="stylesheet" type="text/css" href="../css/commonltr.css"/>
        <title>Section SSLE  Solving Systems of Linear Equations</title>
        <link type="text/css" rel="stylesheet" href="../css/epub.css"/>
```

HTML5

Filename should end with .xhtml extension

HTML5

With "XHTML syntax"

quoted attributes, closing tags, lowercase element and attribute names, attribute values required, etc.

```
<body id="frankenstein2" xml:lang="en-US">
    <div class="Basic-Text-Frame">
        <p cla    ="Basic-Paragraph para-style-override-1">Frankenstein,</p>
        <p class=Basic-Paragraph>or the Modern Prometheus</p>
        <p class="Basic-Paragraph para-style-override-2"><span
class="char-style-override-1"> </span><span class="char-style-override-2">by</span></p>
```

HTML5

New HTML5 features: audio/video, canvas, local storage, javascript, MathML, Asian language support (Ruby, language direction, etc.), etc.

CSS

CSS 2.1 except no fixed positioning, or language direction directives

some properties from CSS3 Speech, CSS3 Fonts, CSS3 Text (hypens, line breaks, word breaks, CSS3 Writing modes, Media queries, Namespaces, Ruby, Multi-column, footers and headers
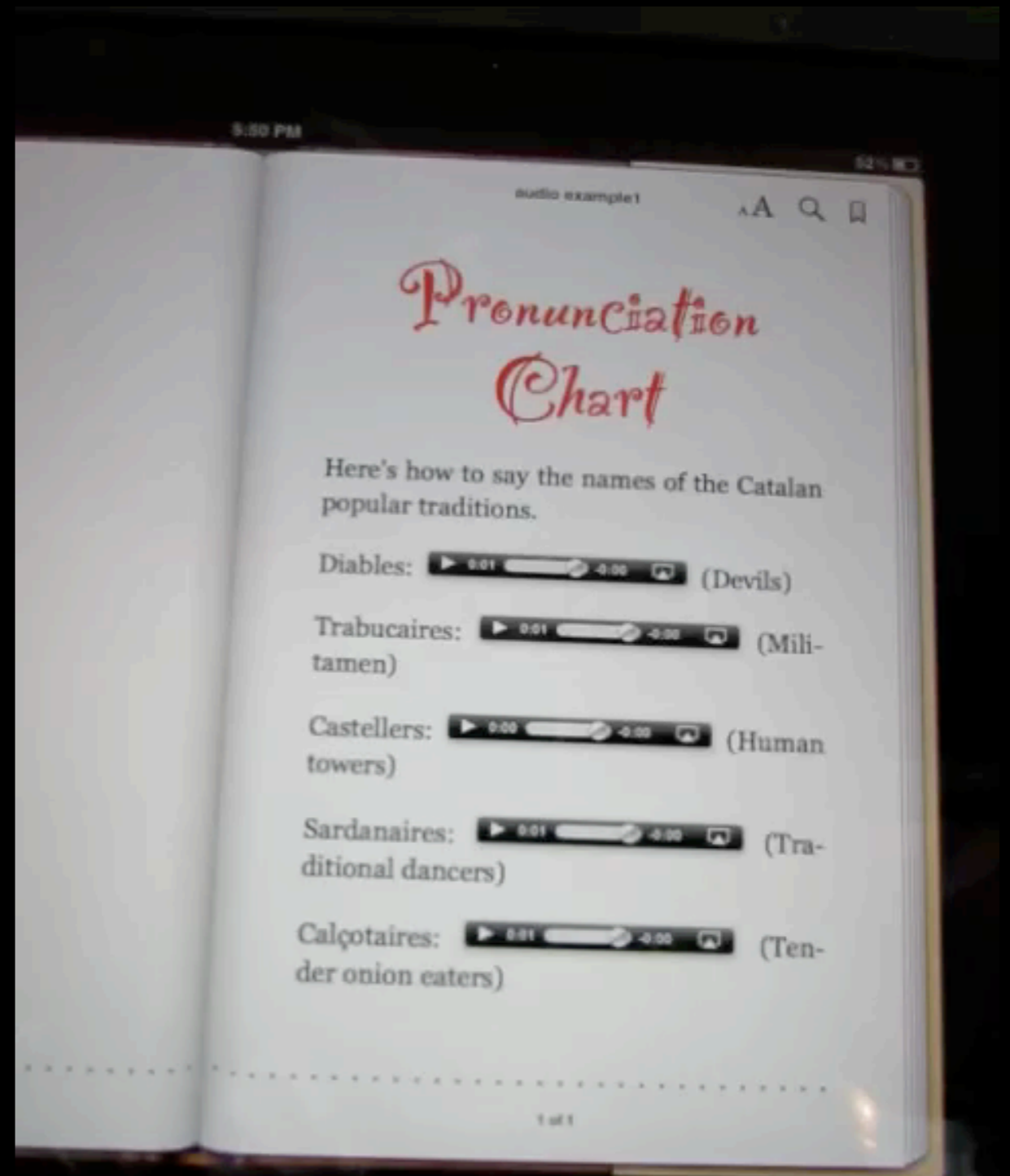
but syntax same as it ever was

Audio

- <audio> is official part of HTML5 and thus EPUB3

- .mp3 support required, .mp4 support recommended

Audio

```
<audio src="audio/
diables.mp3"
controls="controls">
</audio>
```

Video

- <video> element is part of HTML5 and thus EPUB3

- Which codec? H.264 or VP8 (but neither is required)

- .mp4 format

Video

Monarch-av11

Monarch
Butterflies

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Fusce facilisis ipsum ut nunc ultrices ultrices. Ut at diam nisl, a ornare nunc. Vivamus laoreet metus at sem congue sed ullamcorper ante sodales. Cras quis porttitor leo. Aenean vehicula egestas nibh, sit amet ullamcorper turpis auctor at. Praesent non erat et sapien auctor blandit. Mauris quis arcu sed urna commodo viverra at a metus. Maecenas malesuada elit turpis. Praesent quam massa, pellentesque non congue at, tempor in augue.

```
<video src="video/caterp.mp4"
controls="controls"
poster="images/caterp.jpg">
</video>
```

MathML

- Supported to varying degrees in Readium, Azardi, iBooks

- Only presentational MathML; no extra code required. Convert equations to MathML with conversion tools.

MathML

```xml
<math mode="display" xmlns="http://www.w3.org/1998/Math/MathML">
  <mrow>
    <mi>x</mi>
    <mo>=</mo>
    <mfrac>
      <mrow>
        <mo form="prefix">&#x2212;<!-- - --></mo>
        <mi>b</mi>
        <mo>&#x00B1;<!-- &PlusMinus; --></mo>
        <msqrt>
          <msup>
            <mi>b</mi>
            <mn>2</mn>
          </msup>
          <mo>&#x2212;<!-- - --></mo>
          <mn>4</mn>
          <mo>&#x2062;<!-- &InvisibleTimes; --></mo>
          <mi>a</mi>
          <mo>&#x2062;<!-- &InvisibleTimes; --></mo>
          <mi>c</mi>
        </msqrt>
      </mrow>
      <mrow>
        <mn>2</mn>
        <mo>&#x2062;<!-- &InvisibleTimes; --></mo>
        <mi>a</mi>
      </mrow>
    </mfrac>
  </mrow>
</math>
```

Simple Math

Here's the Quadratic Formula.

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Simple Math

Here's the Quadratic Formula.

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Footnotes

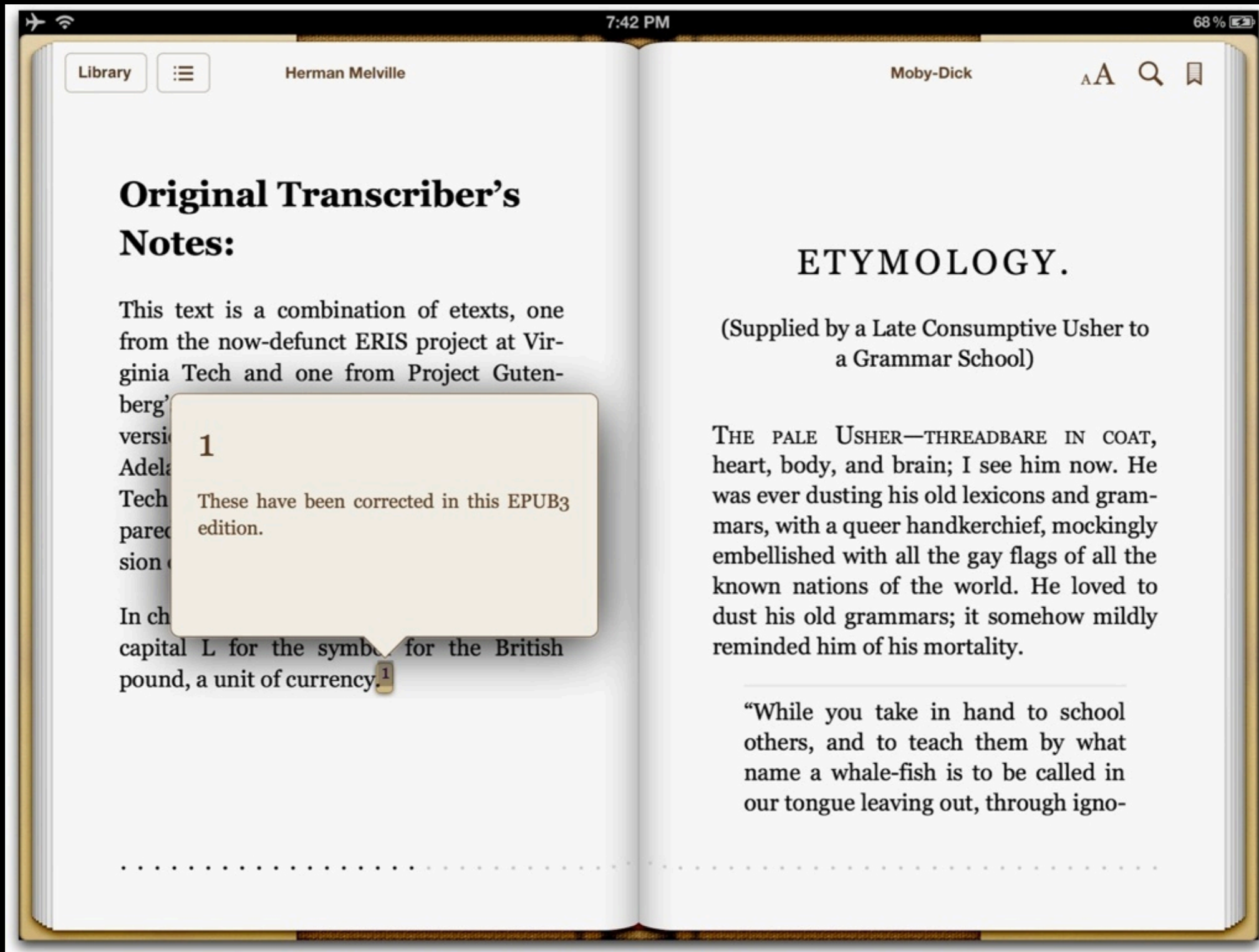- Symantically code footnotes

- Ereaders (like iBooks) can "associate specialized behavior"

Footnotes

- Link: `<a epub:type="noteref" href="#n1">1</a>`

- Footnote: `<aside epub:type="footnote" id="n1">`
  `<p>This is the footnote.</p>`
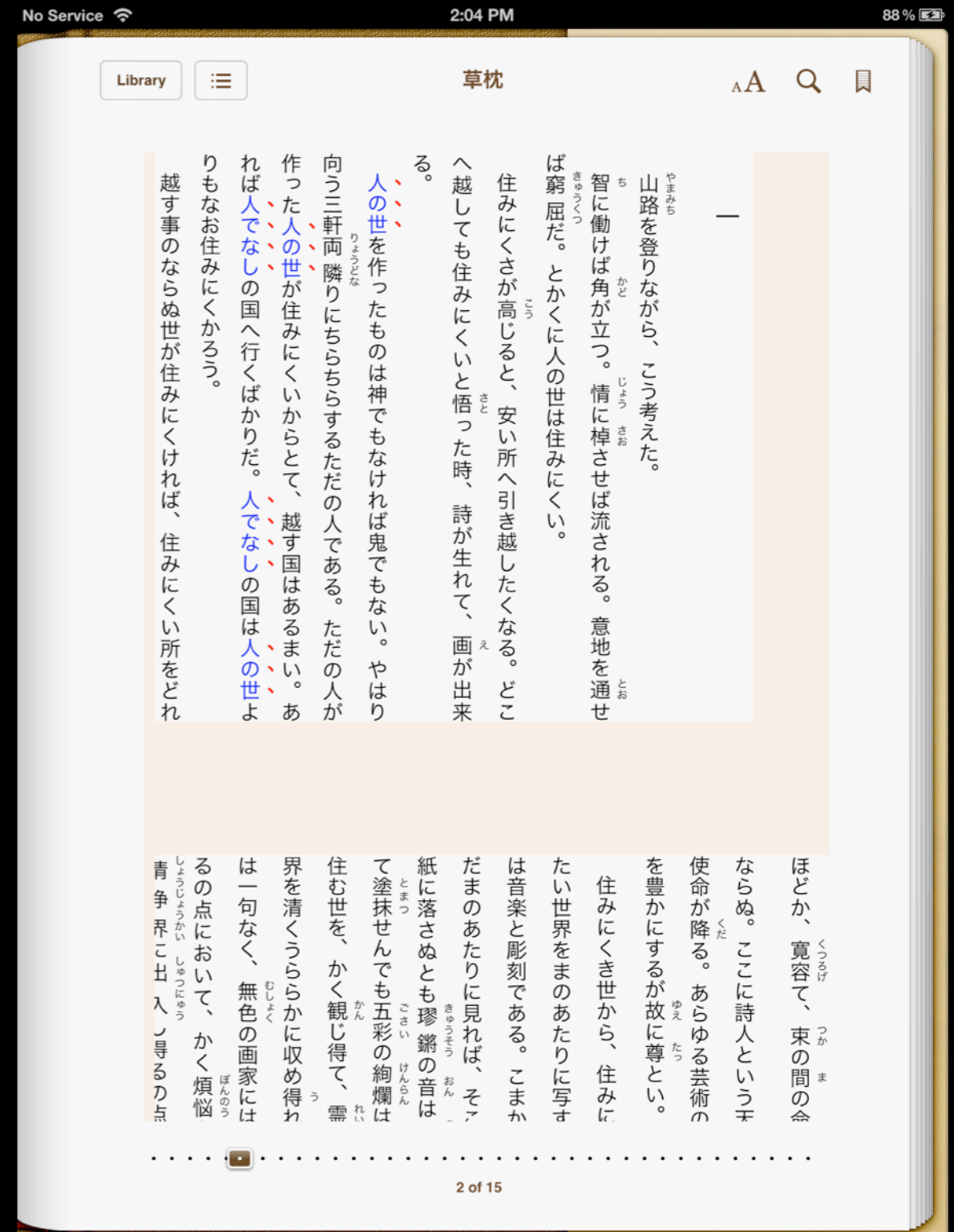 `</aside>`

Footnotes

Canvas

- Allows for dynamic drawing pad in HTML5 (and thus EPUB3)

Canvas

- <canvas> element, plus Canvas API plus Javascript

Asian Language support

- Vertical writing
- Ruby
- Right to left pagination

Multiple columns

other tissues external to the vascular cambium. Trees may be grouped into exogenous and endogenous trees according to the way in which their stem diameter increases. Exogenous trees, which comprise the great majority of trees (all conifers, and almost all broadleaf trees), grow by the addition of new wood outwards, immediately under the bark. Endogenous trees, mainly in the monocotyledons (e.g., aloes and dragon trees), grow by addition of new material as discrete bundles within the existing trunk tissue.

Trees can be identified to genus or species by a combination of the tree's

few tropical trees can be accurately dated in this manner. Age determination in this manner is also impossible in endogenous trees.

The roots of a tree are generally embedded in earth, providing anchorage for the above-ground biomass and absorbing water and nutrients from the soil. However, while ground nutrients are essential to a tree's growth the majority of its biomass – over 90 percent – comes from carbon dioxide absorbed from the atmosphere (see photosynthesis). Above ground, the trunk gives height to the leaf-bearing branches, aiding in competition with other plant species for sunlight. In many trees, the

Multiple columns

(xylem and phloem). Wood consists of xylem cells, and bark is made of phloem and other tissues external to the vascular cambium. Trees may be grouped into exogenous and endogenous trees according to the way in which their stem diameter increases. Exogenous trees, which comprise the great majority of trees (all conifers, and almost all broadleaf trees), grow by the addition of new wood outwards, immediately under the bark. Endogenous trees, mainly in the monocotyledons

wood taken from trees in the past, a practice known as the science of dendrochronology. Very few tropical trees can be accurately dated in this manner. Age determination in this manner is also impossible in endogenous trees.

The roots of a tree are generally embedded in earth, providing anchorage for the above-ground biomass and absorbing water and nutrients from the soil. However, while ground nutrients are essential to a tree's growth the majority of its biomass – over 90 percent –

Multiple Columns

```
.mcol {
  -webkit-column-count: 2;
  column-count: 2;
  -webkit-column-gap: 1em;
  column-gap: 1em;
  -webkit-column-rule: thin solid black;
  column-rule: thin solid black;
  -webkit-column-fill: balance;
  column-fill: balance;
}
```

Fixed Layout

Currently: Apple FXL for Apple and Kobo

NOOK FXL for NOOK

Amazon FXL for Kindle Fire

IDPF FXL could be for all

Fixed Layout

As always, the goal is a single file for each book.

Fixed Layout

Add prefix to package at top of opf:

<package xmlns="http://www.idpf.org/2007/opf" version="3.0" xml:lang="en" unique-identifier="uid" prefix="rendition: http://www.idpf.org/vocab/rendition/# cc: http://creativecommons.org/ns#">

Fixed Layout

Add rendition options:

layout, orientation, spread

```
<!-- FIXED-LAYOUT METADATA -->
    <meta property="rendition:layout">pre-paginated</meta>
    <meta property="rendition:orientation">auto</meta>
    <meta property="rendition:spread">both</meta>
```

Fixed Layout

In content: viewport is required

```html
<head>
    <meta name="viewport" content="width=934,height=1400"></meta>
    <meta content="text/html; charset=UTF-8"></meta>
    <title>Barcelona Beyond Gaudí</title>
```

Fixed Layout

Add .com file so it'll work in iBooks

Fixed Layout

IDPF FXL file works in Readium on desktop:
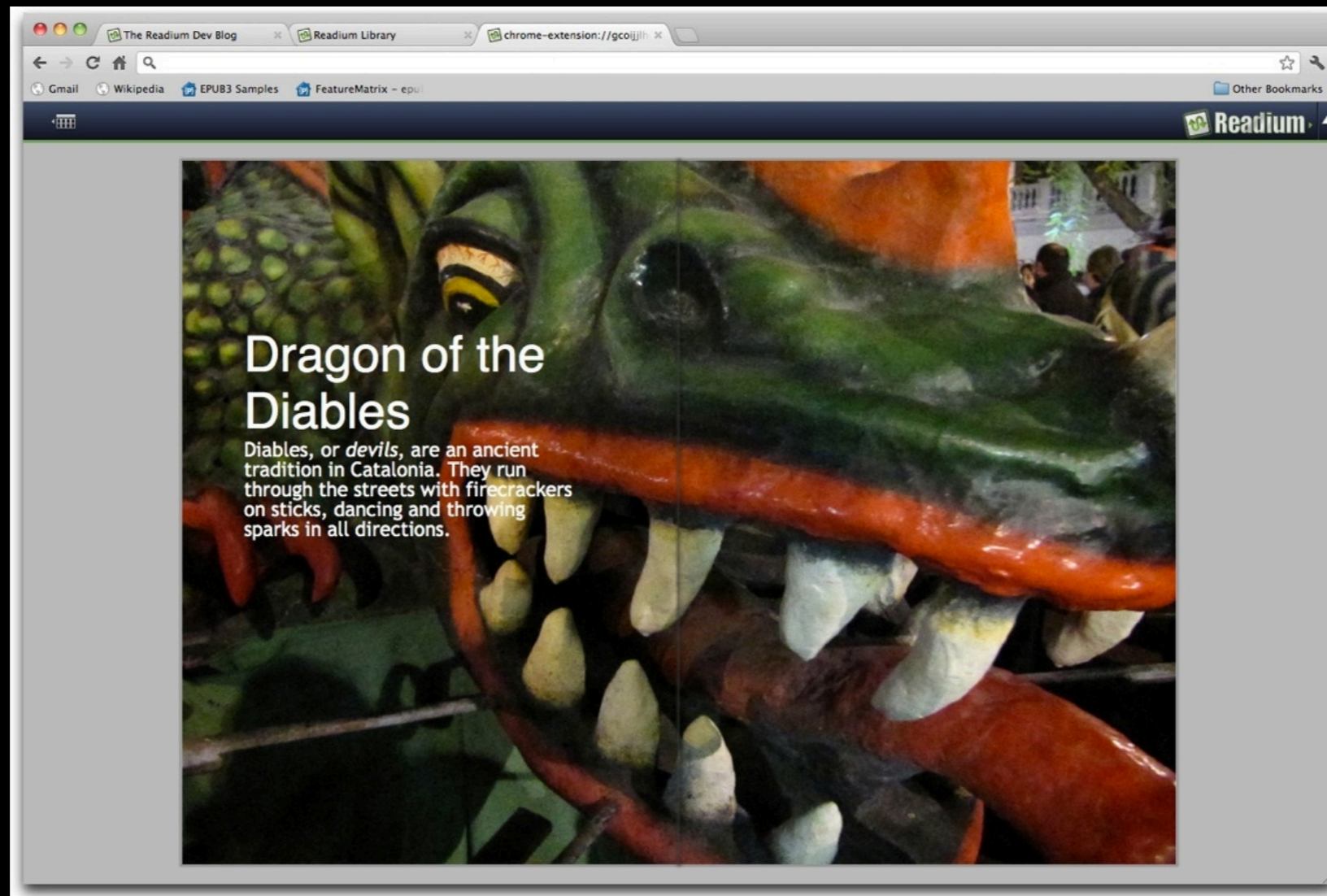
Fixed Layout

...and in iBooks too:

Liz Castro

- *EPUB Straight to the Point* (and other EPUB miniguides) www.elizabethcastro.com/epub

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