

A Data Usability Company
ANTENNA HOUSE

Printing Should Be Invisible

Balisage 2024

Tony Graham
XML Division
Antenna House, Inc.
tgraham@antenna.co.jp
tony@antennahouse.com
@tgraham_antenna

Hello, I am Tony Graham from Antenna House.

“Printing Should Be Invisible”

- Aka “The Crystal Goblet”
- Speech by Beatrice Warde
- British Typographers’ Guild
- St Bride’s Institute, London
- October 7, 1930



Beatrice Warde is famous (in some circles) for “Printing Should Be Invisible,” also known as “The Crystal Goblet,” a speech that she delivered to the British Typographers’ Guild at St Bride’s Institute, London, on October 7, 1930.

Imagine that you have before you a flagon of wine. You may choose your own favorite vintage for this imaginary demonstration, so that it is a deep shimmering crimson in color. You have two goblets before you. One is of solid gold, wrought in the most exquisite patterns. The other is of crystal-clear glass, thin as a bubble, and as transparent. Pour and drink; and according to your choice of goblet, I shall know whether or not you are a connoisseur of wine. For if you have no feelings about wine one way or the other, you will want the sensation of drinking the stuff out of a vessel that may have cost ten thousand dollars; but if you are a member of that vanishing tribe, the amateurs of fine vintages, you will choose the crystal, because everything about it is calculated to *reveal* rather than hide the beautiful thing that it was meant to *contain*.

PRINTING SHOULD BE INVISIBLE

By Beatrice L. Ward

Imagine that you have before you a flagon of wine. You may choose your own favorite vintage for this imaginary demonstration, so that it be a deep shimmering crimson in color. You have two goblets before you. One is of solid gold, wrought in the most exquisite patterns. The other is of crystal-clear glass, thin as a bubble, and as transparent. Pour and drink; and according to your choice of goblet, I shall know whether or not you are a connoisseur of wine. For if you have no feelings about wine one way or the other, you will want the sensation of drinking the stuff out of a vessel that may have cost ten thousand dollars; but if you are a member of that vanishing tribe, the amateurs of fine vintages, you will choose the crystal, because everything about it is calculated to *reveal* rather than to hide the beautiful thing which it was meant to *contain*.

Bear with me in this long-winded and fragrant metaphor; for you will find that almost all the virtues of the perfect wineglass are parallel in typography. There is the long, thin stem that obviates fingerprints on the bowl. Why? Because no cloud must come between your eyes and the fiery heart of the

3

She likens good typography to drinking wine from a crystal goblet, in contrast to drinking from a goblet "of solid gold, wrought in the most exquisite patterns." The crystal goblet, she argues, is better because "everything about it is calculated to reveal rather than hide the beautiful thing that it was meant to contain."



Most of us already know that things can go badly for you if you choose the gold goblet...

Invisible?



but even before 1930, exceptions were made for war and peace.


These days, of course, people just do it.



The manuals and book that many of us work on these days are more prosaic than beautiful, and their typography can be anything but invisible. There's arbitrary mixes of fonts and font styles, sidebars and pull-quotes in different fonts, sprinklings of icons and sidenotes, reverse text, and extravagant use of color.



Sometimes the books that are least invisible are the design books that tell us how to do things.



A Data Usability Company
ANTENNA HOUSE

Printing Should
~~Be Invisible~~
NOT BE IRRITATING!
Balisage 2024

Tony Graham
XML Division
Antenna House, Inc.
tgraham@antenna.co.jp
tony@antennahouse.com
@tgraham_antenna

Since neither beauty nor invisibility seem achievable, and as I don't have the same turn of phrase as Beatrice Warde, I'm aiming for the lower bar that printing should not be irritating.

Printing Should Not Be Irritating

- Font selection
- Page layout
- Headers and footers
- Baseline grids
- Multi-column formatting
 - Line length and legibility
- Spreads
- Footnotes
- Table of Contents
- Indexes



As you can see here, aspects of typography that should not be irritating but which frequently are include:

- Font selection
- Page layout
- Headers and footers
- Baseline grids
- Multi-column formatting
 - Line length and legibility
- Spreads
- Footnotes
- Table of Contents
- Indexes

Language-specific glyphs

<code>lang="ru"</code>	<code>lang="bg"</code>
<code>font-family: veleka;</code>	
А Б В Г Д Е Ж З И Й К Л М Н О П Р С Т У Ф Х Ц Ч Ш Щ Ъ Ы Ю Я Й	А Б В Г Д Е Ж З И Й К Л М Н О П Р С Т У Ф Х Ц Ч Ш Щ Ъ Ы Ю Я Й
а б в г д е ж з и й к л м н о п р с т у ф х ц ч ш щ ъ ы ю я й	а б в г д е ж з и й к л м н о п р с т у ф х ц ч ш щ ъ ы ю я й
<code>font-family: "Times New Roman";</code>	
А Б В Г Д Е Ж З И Й К Л М Н О П Р С Т У Ф Х Ц Ч Ш Щ Ъ Ы Ю Я Й	А Б В Г Д Е Ж З И Й К Л М Н О П Р С Т У Ф Х Ц Ч Ш Щ Ъ Ы Ю Я Й
а б в г д е ж з и й к л м н о п р с т у ф х ц ч ш щ ъ ы ю я й	а б в г д е ж з и й к л м н о п р с т у ф х ц ч ш щ ъ ы ю я й

y Company
HOUSE

Font selection can easily be irritating. We previously saw pages from technical books that each used their own random assortment of fonts and font styles.

On a more basic level, it is irritating if you can't even get the correct glyphs for your language. This slide shows the difference between using a font that has glyphs for Bulgarian and one that doesn't. In fact, even though this was the best Bulgarian font that I could find, it doesn't have all of the Bulgarian glyphs that I had expected from my book on Cyrillic typography.

Dyslexia

- The “hidden disability”
- 4%–25% have some sort of reading disorder
 - Estimates vary a lot
 - Also varies by language/script/country
- Dyslexia-specific fonts help some but not others
- Designed by or in consultation with dyslexic readers
 - Other people with dyslexia dismiss them
 - Some proprietary or commercially available
 - Review of studies by Chuck Bigelow found limited benefit
- Colored background can help
 - Opinions differ

Even more fundamentally, some people can't read common fonts. Dyslexia, sometimes referred to as the “hidden disability,” is said to affect 4% to 25% of people. Different people have different definitions of what constitutes a reading disorder, so there's a big range there, but the proportion differs for different languages and scripts for reasons that I don't understand.

Dyslexia-specific fonts can help some people, whereas others with dyslexia will say that they make no difference. As you would expect, the fonts are designed by or in consultation with people with dyslexia. This is the free OpenDyslexic font, and there are other free and commercial fonts available.

Similarly to the fonts, some people find that a pale-colored background helps comprehension, but it doesn't help everybody, and those that it does help have differing color preferences.

Dyslexia effects

- Symptoms vary a lot
- Similar patterns of problems
- Wash-out effect

of design, font, type size, contrast and layout, are the focus. The colour of a font, such as light, regular, medium and bold create a certain contrast with the background. The challenge is to find the right contrast (character colour and paper colour) that complements the characters. This can be accomplished with the right weight of a typeface in combination with the right colour paper, avoiding the washout-effect.

Graphics © Natascha Frensch and Barbara Termorshuizen. Used by permission.

- Rivers
- Swirl

preferences regarding all readers, dyslexics in particular, centred can be used for headings or titles. Aligned right and justified causes problems, aligned right causes confusion with flowing to the nextline. Justified text creates non-consistency of word spacing, and this can lead to the river-effect distortion. Very important is the strong advice against hyphenation, the words split and there fore causes difficulty in comprehension. As an overall remark I'd like to emphasise not to provide a 'learn-ing-how-to-read' visual, but to focus on clarity, consistency and space, used in its

Read Regular is created without copying or mirroring shapes. Therefore the frequency of repeated shapes in a text is decreased. This results in a minimum chance of visual distortions (swirl-effect). The aim is to create interesting typography that will maintain the readers' interest and will prevent them from getting bored or frustrated. Diversity in text knows many variations. We must understand the fact that typography for a novel is different from a magazine or a publication for education. Even so a novel has the potential to be clear and interesting. This can be achieved in any level of creativity, thinking on type size, leading, the amount of words on a sentence and the character/paper combination.

Dyslexia is a single term for a wide ranging condition. Symptoms can vary a lot, but there are some common patterns of problems: some people report a wash-out effect; some are sensitive to rivers of white-space, particularly in justified text; and some experience a swirl effect.

British Dyslexia Association

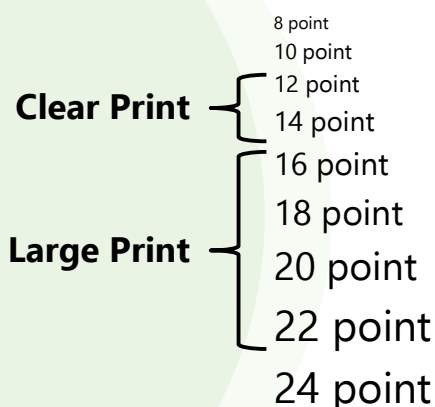
Style Guide (excerpt)

- Paper thick enough to prevent show-through
- Matt paper rather than glossy
- Cream or pastel color
 - Preferences vary.
- Plain, evenly spaced sans-serif font
 - Arial, Comic Sans, Verdana
- Avoid underlining and italic
- AVOID TEXT IN BLOCK CAPITALS
- Left-justified with ragged right edge
- Avoid narrow columns
- Line spacing of 1.5 is preferable
- Contents page at the beginning and an index at end of long documents
- Use bullet points and numbering



The British Dyslexia Association has produced a style guide with advice on how to produce documents that work better for people with dyslexia.

Clear Print and Large Print



- Users may have sight problems
- Clear Print
 - Minimum 12pt type
 - 14pt if possible
- Large Print
 - 16pt to 22pt type



While up to 25% of us may have a reading disorder, even more of us has or will have sight problems. The Royal National Institute of Blind People and the International Society of Typographic Designers have produced a best practice guide for using Clear and Large Print, where Clear Print is 12pt to 14pt type, and Large Print is 16pt to 22pt type.

A lot of their guidance is very much like the guidance from the British Dyslexia Association Style Guide, including: the advice on paper stock; avoiding italics, underlining and runs of text in block capitals; including a table of contents and index; avoiding justified text and rivers; and more.

Font should reflect text

What suits a nursery rhyme, financial report, or headline?

- | | |
|--------------------------|---------------------------------|
| • Jack and Jill went... | • Jack and Jill went... |
| • Profit for 2024 was... | • Profit for 2024 was... |
| • Man Bites Dog | • Man Bites Dog |
| • Jack and Jill went... | • Jack and Jill went... |
| • Profit for 2024 was... | • Profit for 2024 was... |
| • Man Bites Dog | • Man Bites Dog |



While you need to cover the essentials and make a document that is actually readable, you should also think about what the design says about the content.

Hopefully we can agree that different fonts are better suited to nursery rhymes than others, some to financial statements, and some to headlines. You get the idea.

I don't expect that we would all agree on which is the 'best' font for each use, but we can probably agree that some of these fonts are generally unsuitable for some of these applications.

“Structure related to function”

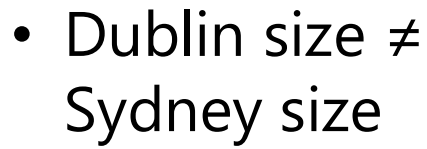
- Purpose influences size and layout



I don't remember much from my high school biology classes, but I do remember my teacher repeating the maxim “structure related to function.”

These are five documents related to my car that each serves a different function. The form letter from my insurance company is sent to every customer and is printed on standard A4 paper and came in a standard-sized envelope. The National Car Test report is also on standard A4 paper, as it was printed on the spot using a standard office printer. The Street Guide is larger than A4, presumably so the maps can be bigger, but it fits fine in the pocket behind the driver's seat. The Owner's Handbook, on the other hand, is just the right size to fit in the glove box of the car, just as you would expect. The last one is the manual, safety instructions, and warranty, all in multiple languages, for a compact battery for jumpstarting the car: it fits in the carrycase for the battery. It's the sort of thing that you read once, if at all, yet it's essential for the manufacturer to provide all that information.

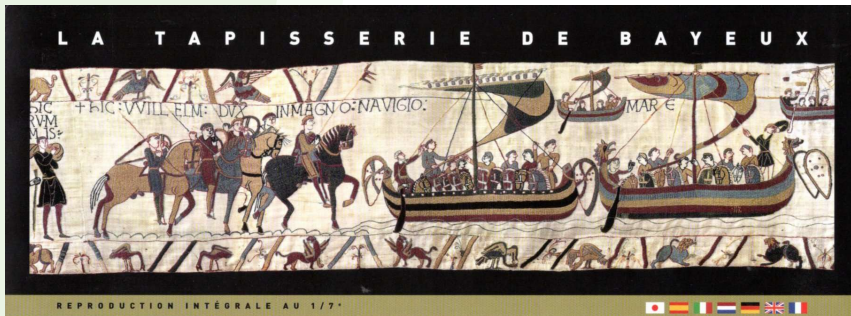
Each of those documents has a different function, and their format reflects their function. For example, none of the others would work nearly as well as they do if they were the size of the jumpstarter manual, and, similarly, you wouldn't want to keep the manual with the jumpstarter if the manual was the size of any of the other documents.



So there are more local conventions or regional differences than just remembering to use Letter-size paper in the USA and A4 elsewhere.

La Tapisserie de Bayeux

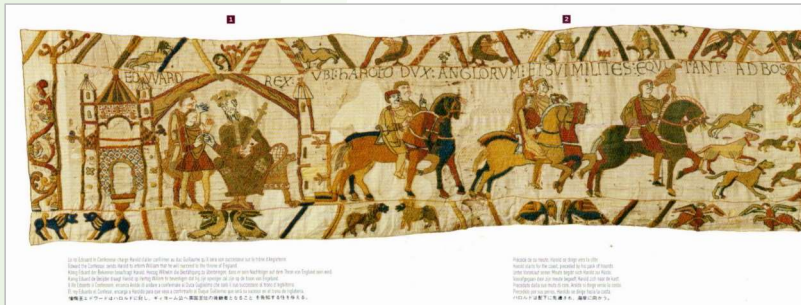
- Over 70m long, 50cm high
- Reproduced 1/7 scale
- Museum book reflects proportions



The Bayeux Tapestry is over 70m long but just 50cm high. Remember, structure relates to function, so this book on the Bayeux Tapestry, which reproduces the Tapestry at 1/7 scale, is therefore wide but not very

La Tapisserie de Bayeux

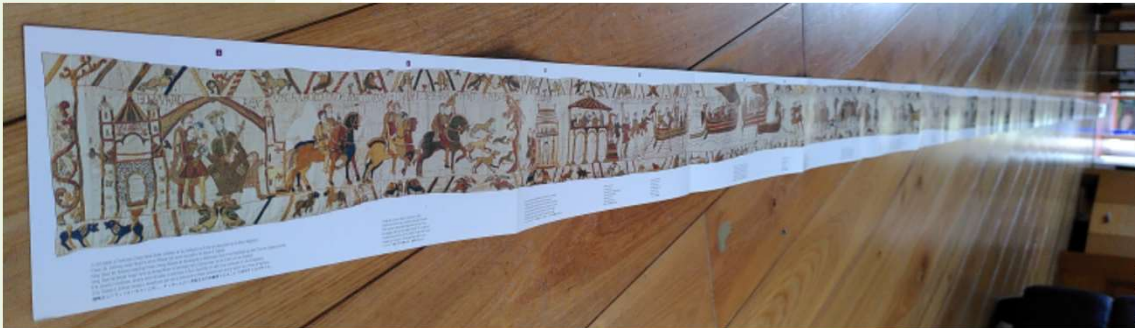
- Over 70m long, 50cm high
- Reproduced 1/7 scale
- Museum book reflects proportions



...because of what it shows.

La Tapisserie de Bayeux

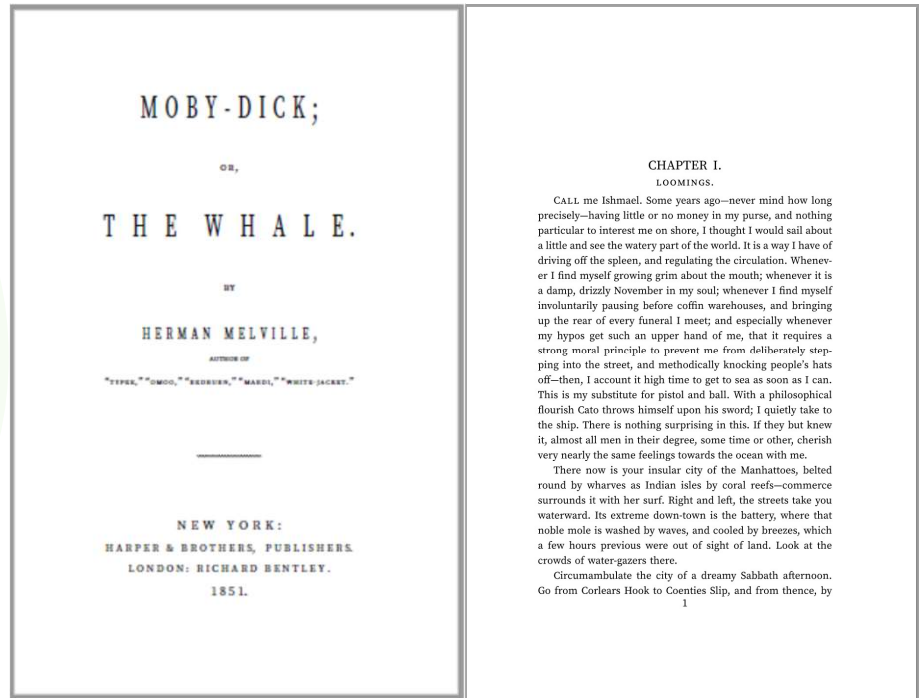
- Over 70m long, 50cm high
- Reproduced 1/7 scale
- Museum book reflects proportions



And, in a masterly piece of structure relating to function, the book opens out to show the full tapestry. The single 'page' is over 10m wide, and I had to lay it diagonally across two rooms and into a third to be able to take this photo.

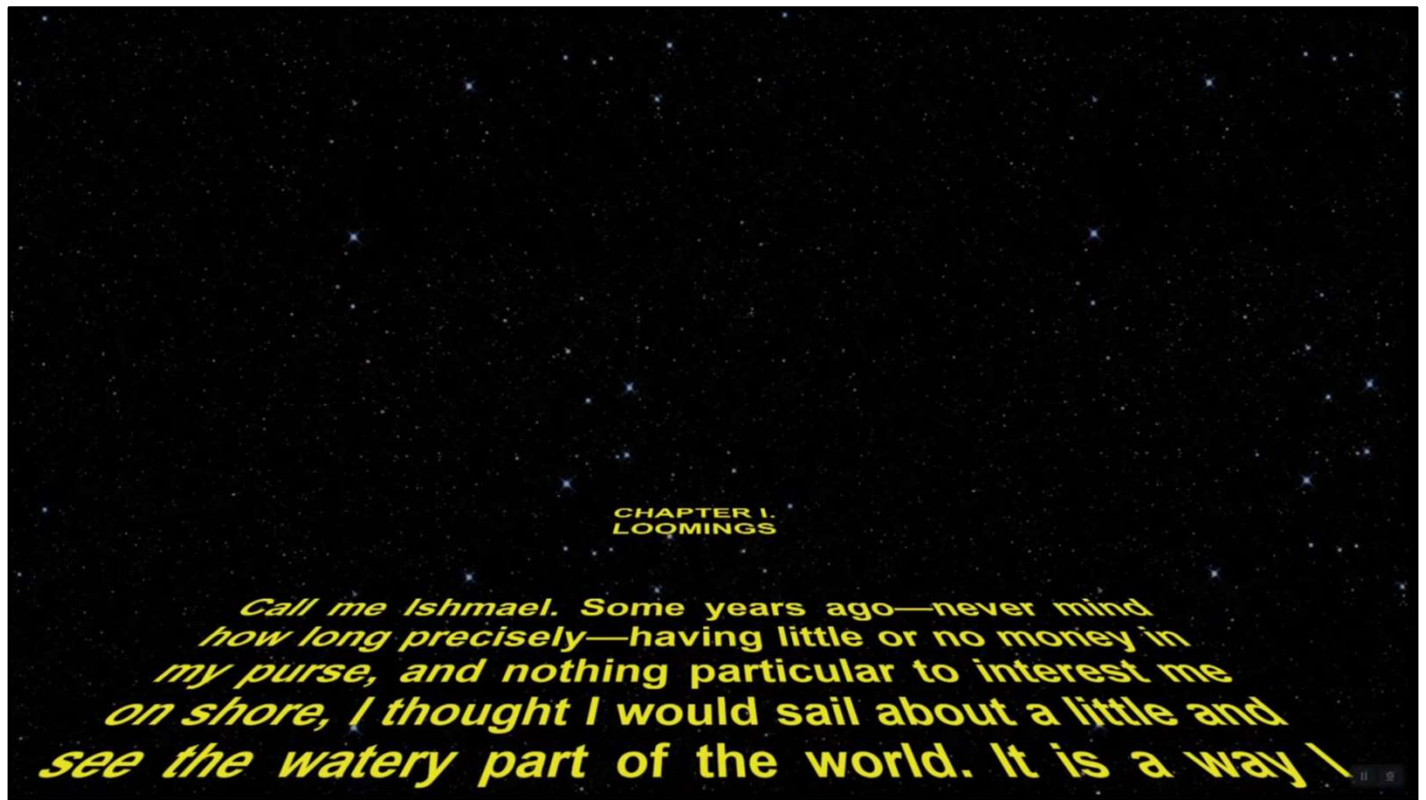
Consider history and origin

- Layout and font aligned with text
- Or not...



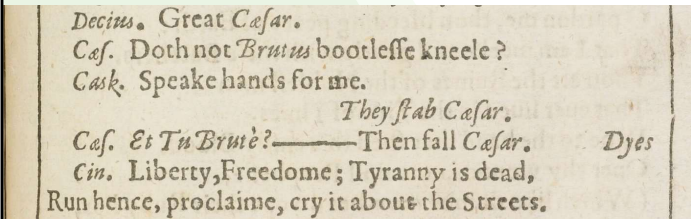
It can be irritating if the typography is at odds with the history and origin of the text. You don't always have to reproduce the original or recreate the typography of the period, as I did in this pastiche of 'Moby-Dick' that I talked about here at Balisage a few years ago, but it helps to be aware of where the document came from.

That said, you don't always have to match the original...



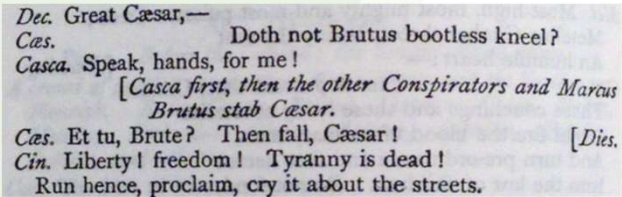
...and there is more than one way to make a pastiche.

Authenticity should not be irritating



Et Tu Brute?

1908



ET TU BRUTE?

2024

DECIUS, ^{↑ kneeling ↑}
Great Caesar—
CAESAR Doth not Brutus bootless kneel?
CASCA Speak, hands, for me!
^{↑ As Casca strikes, the others rise up and ↑ stab Caesar.}
CAESAR Et tu, Brute?—Then fall, Caesar. 85
^{↑ He ↑ dies.}
CINNA
Liberty! Freedom! Tyranny is dead!
Run hence, proclaim, cry it about the streets.

Of course, there is also such a thing as too much authenticity. If you were formatting Shakespeare’s ‘Julius Caesar’, making it look like the First Folio text would irritate your readers (unless you were aiming for a facsimile or pastiche, that is). If you went full-Roman for some reason and made it look like a Roman inscription, it would be even more irritating. Sometimes, yes, you do just want a legible font that doesn’t detract or distract from the words themselves, although what counts as legible or accessible text has varied over time.

Headers and footers *SHOULD NOT BE IRRITATING!*

- Navigation aid
 - Document
 - Position within document
- Easier in XSL-FO than CSS
 - CSS: complete running element
 - XSL-FO: markers for parts

PRINTING SHOULD BE INVISIBLE

By Beatrice L. Warde

Imagine that you have before you a flagon of wine. You may choose your own favorite vintage for this imaginary demonstration, so that it be a deep shimmering crimson in color. You have two goblets before you. One is of solid gold, wrought in the most exquisite patterns. The other is of crystal-clear glass, thin as a bubble, and as transparent. Pour and drink; and according to your choice of goblet, I shall know whether or not you are a connoisseur of wine. For if you have no feelings about wine one way or the other, you will want the sensation of drinking the stuff out of a vessel that may have cost ten thousand dollars; but if you are a member of that vanishing tribe, the amateurs of fine vintages, you will choose the crystal, because everything about it is calculated to *reveal* rather than to hide the beautiful thing which it was meant to *contain*.

Bear with me in this long-winded and fragrant metaphor; for you will find that almost all the virtues of the perfect wineglass are parallel in typography. There is the long, thin stem that obviates fingerprints on the bowl. Why? Because no cloud must come between your eyes and the fiery heart of the

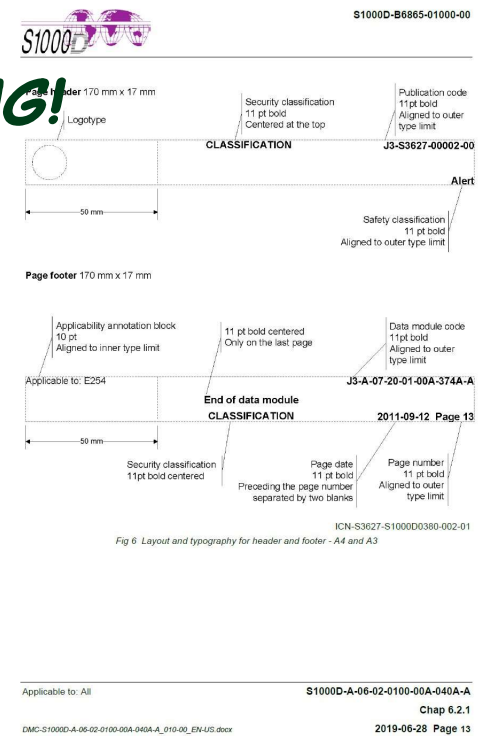
3

Headers and footers are usually used as a navigation aid to identify the document and your position in the document.

Like so many other things, structure relates to function. For example, what you want or need to put in the headers and footers for 'Printing Should Be Invisible' is very different...

Headers and footers *SHOULD NOT BE IRRITATING!*

- Navigation aid
 - Document
 - Position within document
- Easier in XSL-FO than CSS
 - CSS: complete running element
 - XSL-FO: markers for parts

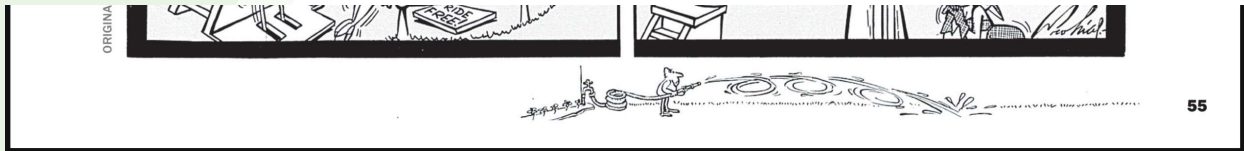
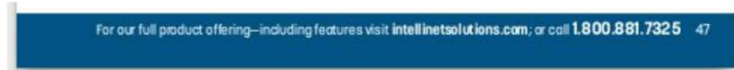


...what you need for an S1000D manual. Putting an S1000D footer in a copy of 'Printing Should Be Invisible' would be overkill, and putting the barely-visible 'Printing Should Be Invisible' page number footer in an S1000D manual would be inadequate.

Populating the headers and footers can be easier in XSL-FO than in CSS: for a complex header or footer in CSS, you need to put copies of the full header or footer as running elements in the body of the document, whereas in XSL-FO, you can often put the bulk of the header or footer in an fo:static-content and pull in arbitrary changeable parts using markers.

Headers and footers

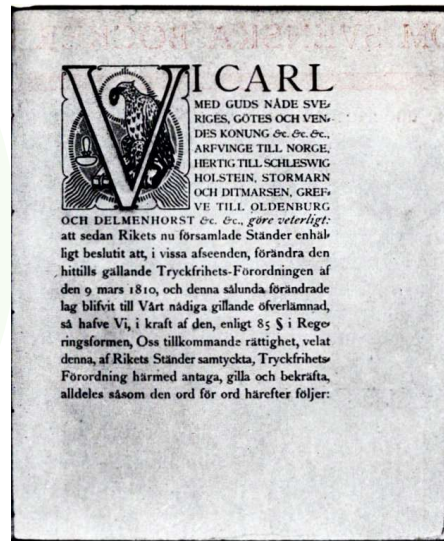
- Decoration
- Boilerplate
- Entertainment!



Headers and footers can irritating, or they can literally fade into the background.

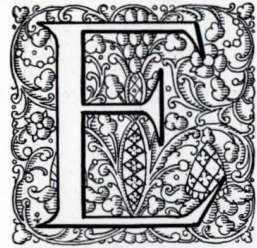
They can be used for decoration, for boilerplate text, or even for entertainment, such as in the Marginals by Sergio Aragones.

Initial letters



We need to talk about initial letters....

Initial letters



TT ÖVERBLICK
kande av svunna ti
ders svenska tryck
alster skall givetvis
kunna ge en bild av
svensk bokkonst,
sådan den gestaltat
sig under olika ti
der, och ge en bild
av den *stil*, som på detta område varit rådande
under olika perioder. I svenska tryck finnes
visserligen ingenting, som påtagligt kan sägas

på trycken, men också olikartat genomförande
av typerna i användningen, såsom samman
ställning av olikartade typsnitt eller enhetligt
genomförande av ett och samma typsnitt, ger
olikartad och ofta säregen karaktär åt trycken.

Under 1400-talet var svensk bokkonst
i alla sina uttryck – överförd som den var
från Tyskland – alltigenom *götisk* såväl vad
typens form och dess användning som vad de
korationer och illustrationer beträffar. Illustrat
tionen var, som i allmänhet i tysk inkunabel

They are anything but invisible, yet we seldom find them irritating.

Blame Gutenberg?



Antenna House
Antenna House

Can we blame Gutenberg for this blind spot over initial letters? Illuminated letters, such as this 'T' from the beginning of Genesis in a 13th century Bible, were a feature of medieval manuscripts. Are initial letters grandfathered in because Gutenberg used them?

Gutenberg knew his market, so he left spaces for illuminated letters to be added by hand. A bit like buying accessories for your new car, it is presumed that the differing levels of decoration in different Bibles depended on what each customer could or would pay. Some copies were never decorated, though, like cars, there might even have been an aftermarket for decorations, as some of the bibles printed in Germany were decorated as far away as London.

Initial letter styles

Raised initial letter

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Fusce sit amet risus ut sapien vehicula aliquam molestie vitae lacus.

Change indent only for first line

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Fusce sit amet risus ut sapien vehicula aliquam molestie vitae lacus. In aliquam sem quis suscipit iaculis. In vitae nibh volutpat, blandit mi at, cursus ipsum.

Language-specific letter selection

IJzel zorgt voor zeer gevaarlijke omstandigheden op de weg. IJzel zorgt voor zeer gevaarlijke omstandigheden op de weg.
Black ice creates very dangerous conditions on the road. Black ice creates very dangerous conditions on the road.

Combination with small-capitals

LOREM IPSUM dolor sit amet, consectetur adipiscing elit. Fusce sit amet risus ut sapien vehicula aliquam molestie vitae lacus. In aliquam sem quis suscipit iaculis. In vitae nibh volutpat, blandit mi at, cursus ipsum.

Individual color

Zorem ipsum dolor sit amet, consectetur adipiscing elit. Fusce sit amet risus ut sapien vehicula aliquam molestie vitae lacus.

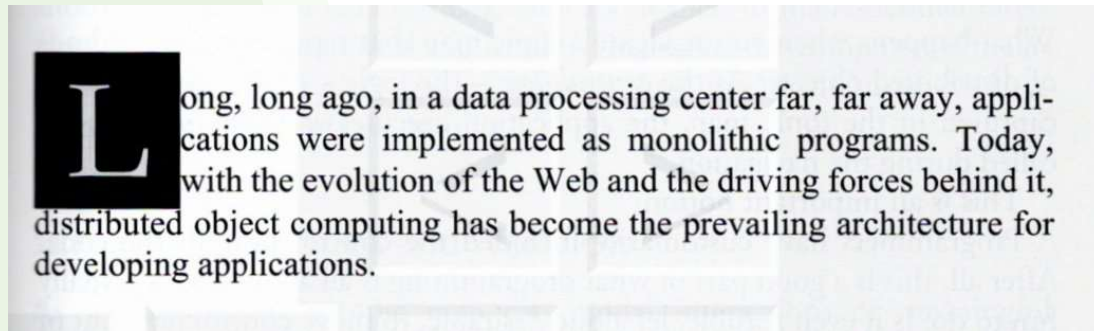
Partially raised

gazing on that which seems to dim thy sight? What seest thou there? King Henry's diadem, encased with all the honour of the world? If so, gaze on, and grovel on thy face, until thy head be curled with the same.

company
HOUSE

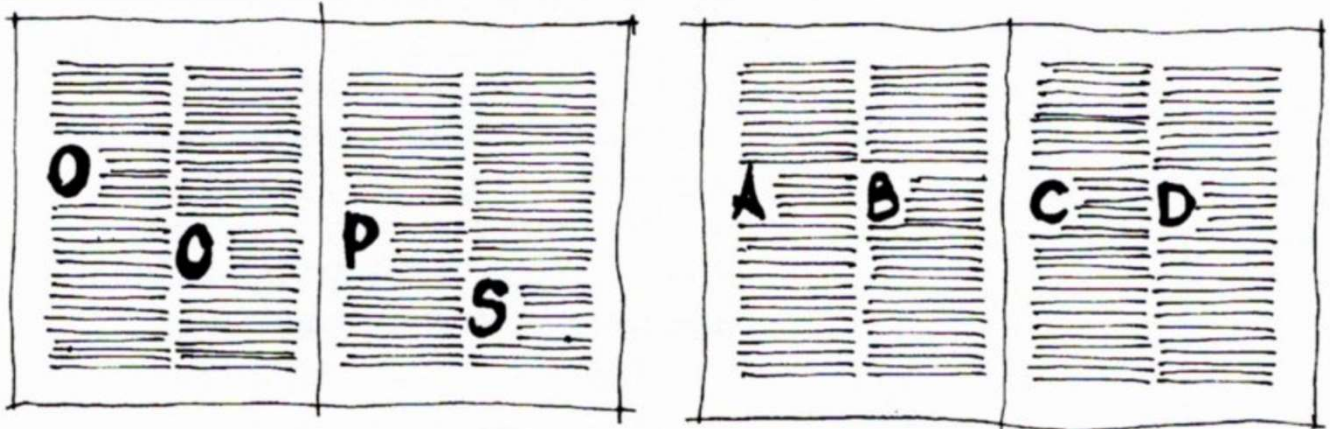
There are many different ways to style initial letters.

Initial letters can be irritating



Initial letters can still be irritating, such as: when they are formatted badly...

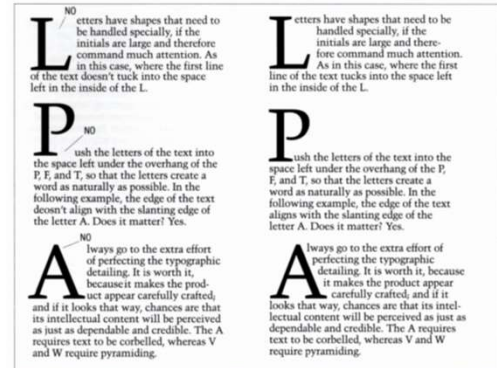
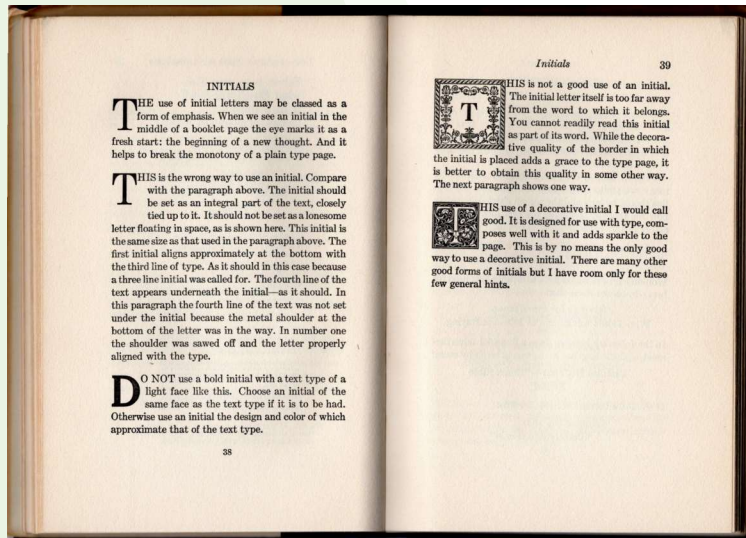
Initial letters can be irritating



 ANTENNA HOUSE

...when they accidentally spell a word or line up across the page

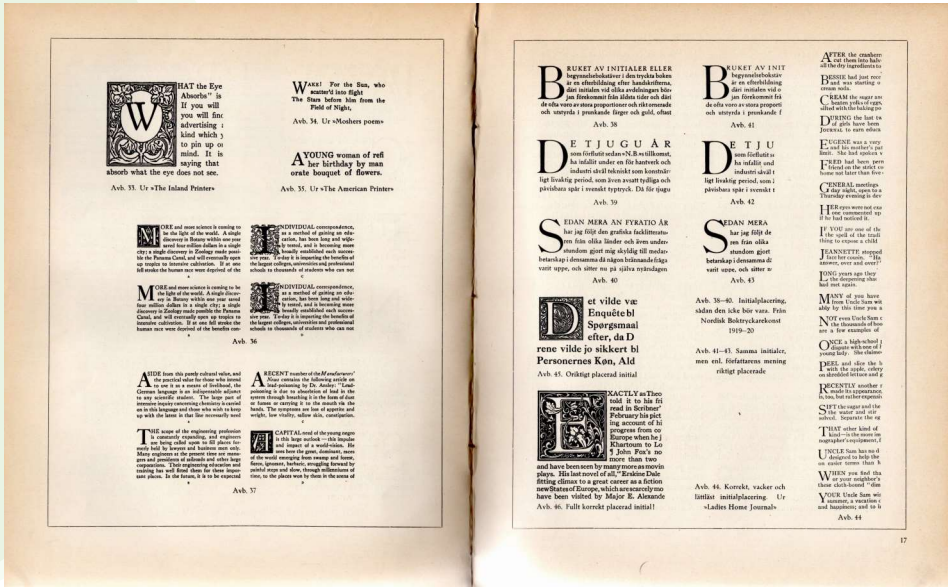
Initial letters can be irritating



...or when there's too many on one page.

Typography books show ways to use initial letters well and badly.

Initial letters can be irritating



This last example is from a Norwegian typography journal from 1920: I bought it hoping to find a Nordic approach to doing initial letters, but the examples down the righthand side are all from the American "Ladies Home Journal" of 1919, and the 'B', 'D', and 'S' examples seem to be the current author disagreeing with how initial letters were done in a previous journal edition, something that he found irritating.

Show-through

- *Not* invisible
- Definitely irritating
- Use a baseline grid

Introduction to CSS for Paged Media

Using CSS in paged media design for XML and HTML is not yet common but its use is expected to increase as the development of CSS 3 progresses. This document aims to make CSS for Paged Media easy to understand.

Introduction to CSS for Paged Media

Using CSS in paged media design for XML and HTML is not yet common but its use is expected to increase as the development of CSS 3 progresses. This document aims to make CSS for Paged Media easy to understand.

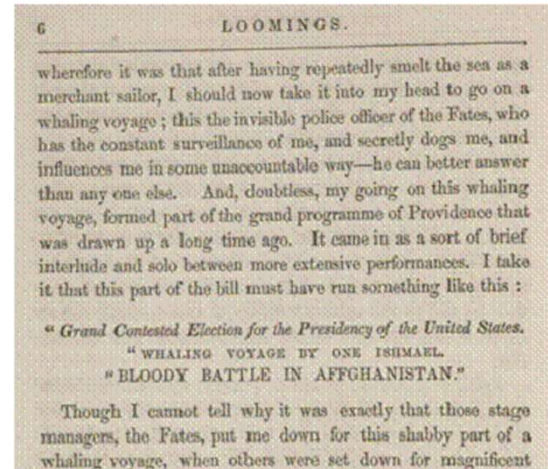


Show-through of the text on the other side of a sheet of paper is an aspect of printing that should be invisible. When it isn't is when it becomes irritating.

Show-through can obviously be avoided by using a thicker or more opaque paper, but when that is not an option, one way of reducing show-through is to use a baseline grid so that the text on this side of the page obscures the show-through text.

Baseline grid

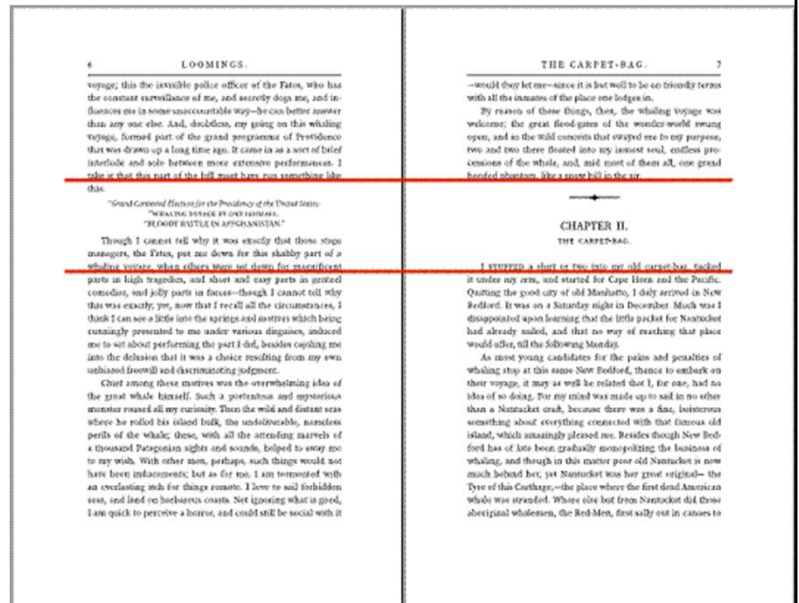
- “Show-through” reduces legibility
- Align lines on front and back
- Resume after irregular lines, titles, etc.



Keeping lines aligned front-and-back is straightforward when all of the text is the same font size and has the same line height. It becomes harder when the text includes titles, etc., that have different font sizes, line heights, and space before and after. It is often possible to style a title such that the space before the title, the line height of the title, and the space after the title add up to a multiple of the base line height. However, this will fail if some titles extend over two lines and the line height of the title is not a multiple of the base line height.

axf:baseline-grid

- Set common grid
- Blocks can set own grid or no grid at all



Using axf:baseline-grid, you can set a common grid for all text, and individual blocks can set their own grid or set no grid at all.

In these pages from 'Moby-Dick', lines in the paragraphs at the tops of the pages are aligned to the root baseline grid. The quotes and the chapter opener both set their own grids, then the following paragraphs resume on the root baseline grid.

Common and specific grids

fo:page-sequence

```
<xsl:template match="body">
  <fo:page-sequence
    master-reference="PageMaster"
    initial-page-number="1"
    axf:baseline-grid="root">
    <xsl:call-template
      name="static-content" />
    <fo:flow
      flow-name="xsl-region-body"
      hyphenate="true"
      text-align="justify">
      <xsl:apply-templates />
    </fo:flow>
  </fo:page-sequence>
</xsl:template>
```

fo:block

```
<xsl:template match="body//q">
  <fo:block
    text-align="center"
    text-indent="0"
    space-before="0.251h"
    font-size="7pt"
    line-height="9pt"
    axf:baseline-block-snap=
      "before margin-box"
    axf:baseline-grid="new">
    <xsl:apply-templates />
  </fo:block>
</xsl:template>
```



The 'body' template on the left generates an fo:page-sequence, where 'axf:baseline-grid="root"' specifies to use the root baseline grid established on the fo:root.

The 'body//q' template on the right generates an fo:block, where 'axf:baseline-grid="new"' specifies to use a separate baseline grid for the fo:block based on the font size and line height of the block.

Single and multiple columns

Normal <fo:block-container>

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Aliquam bibendum tincidunt pharetra. Aenean ultricies molestie ante, sit amet ultricies nunc mollis id. Integer ut porttitor felis, vel tincidunt velit. Duis volutpat, quam quis aliquet tristique, nulla dui malesuada velit, et consectetur tellus ipsum et arcu. Ut tincidunt lorem erat, at elementum nibh varius consectetur. Sed viverra metus quis nibh pulvinar, at dignissim nibh adipiscing.

Duis sit amet ipsum non elit tincidunt sagittis ac non tortor. Mauris commodo, elit a imperdiet interdum, nulla velit viverra elit, at scelerisque urna est eget lacus. Integer eu lobortis neque. Donec malesuada sed arcu vitae fringilla. Quisque imperdiet tortor iaculis, pulvinar neque sit amet, aliquet massa. Sed sed auctor purus. Vivamus nec turpis elementum, iaculis lorem in, pellentesque metus. Ut blandit tortor mi, ac bibendum felis varius vitae.



Long lines of text can be irritating because they are hard to read. RNIB recommends between 60 and 70 characters, including spaces, per line.

Single and multiple columns

Three-column segment with a 8pt-column-gap using `axf:column-count="3"`, `axf:column-gap="8pt"`

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Aliquam bibendum tincidunt pharetra. Aenean ultricies molestie ante, sit amet ultricies nunc mollis id. Integer ut porttitor felis, vel tincidunt velit. Duis volutpat, quam quis aliquet tristique, nulla dui malesuada velit, et consectetur tellus ipsum et arcu. Ut tincidunt lorem erat, at elementum nibh varius consectetur.	Sed viverra metus quis nibh pulvinar, at dignissim nibh adipiscing. Duis sit amet ipsum non elit tincidunt sagittis ac non tortor. Mauris commodo, elit a imperdiet interdum, nulla velit viverra elit, at scelerisque urna est eget lacus. Integer eu lobortis neque. Donec malesuada sed arcu vitae fringilla. Quisque imperdiet tortor iaculis, pulvinar neque sit amet, aliquet massa. Sed sed auctor purus. Vivamus nec turpis elementum, iaculis lorem in, pellentesque metus. Ut blandit tortor mi, ac bibendum felis varius vitae.
--	--



Using multiple columns obviously reduces the line length...

Single and multiple columns

Three-column segment with column rules using `axf:column-rule-style="solid"`, `axf:column-rule-width="1.5pt"`, `axf:column-rule-color="#AAAAFF"`, `axf:column-rule-length="100%"` and `axf:column-rule-align="center"`.

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Aliquam bibendum tincidunt pharetra. Aenean ultricies molestie ante, sit amet ultricies nunc mollis id. Integer ut porttitor felis, vel tincidunt velit. Duis volutpat, quam quis aliquet tristique, nulla dui malesuada	velit, et consectetur tellus ipsum et arcu. Ut tincidunt lorem erat, at elementum nibh varius consectetur. Duis sit amet ipsum non elit tincidunt sagittis ac non tortor. Mauris commodo, elit a imperdiet interdum, nulla velit viverra elit, at	scelerisque urna est eget lacus. Integer eu lobortis neque. Donec malesuada sed arcu vitae fringilla. Quisque imperdiet tortor iaculis, pulvinar neque sit amet, aliquet massa. Sed sed auctor purus. Vivamus nec turpis elementum, iaculis lorem in, pellentesque metus.
---	---	---



...but, as we know, making narrow columns of justified text is more likely to create rivers.

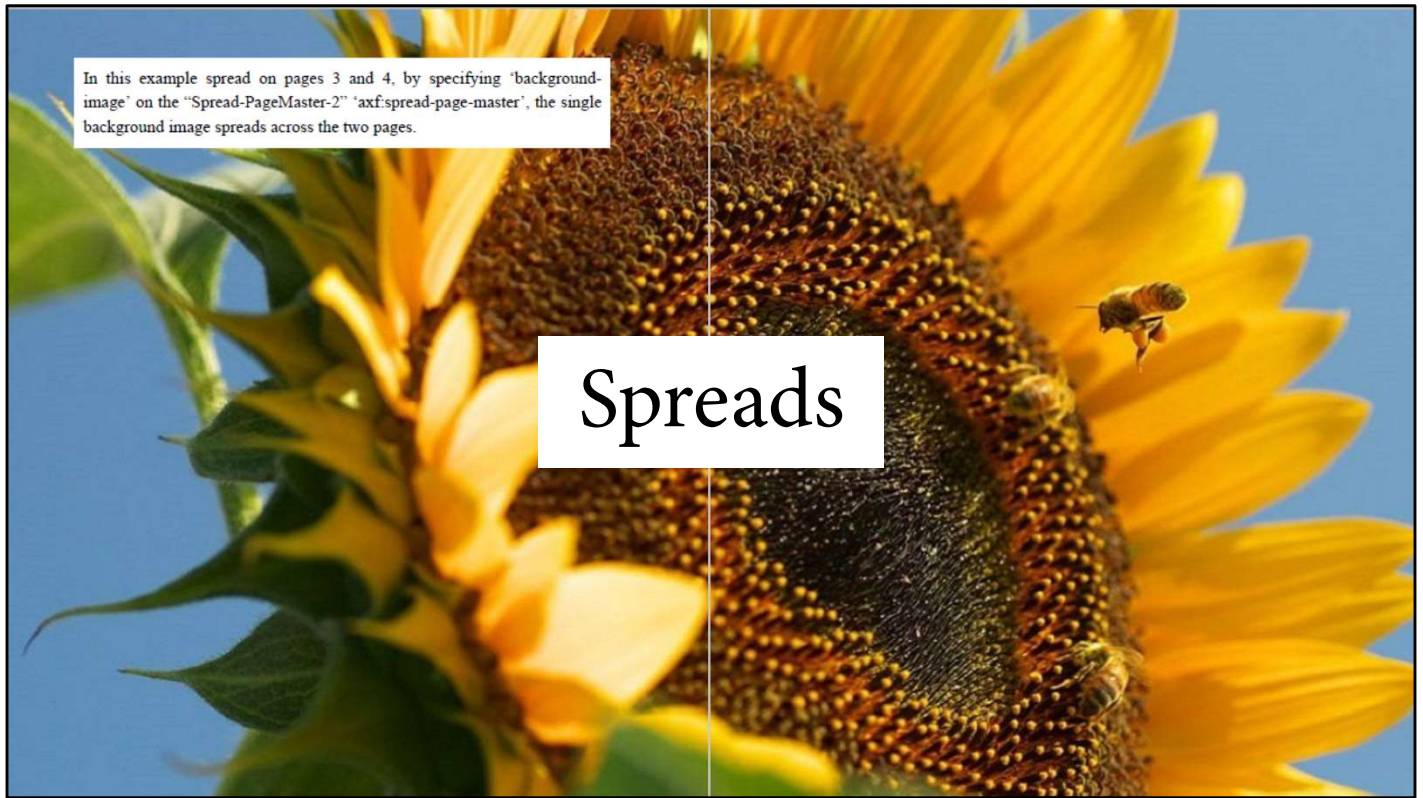
Single and multiple columns

Three-column segment with column rules using `axf:column-rule-style="solid"`, `axf:column-rule-width="1.5pt"`, `axf:column-rule-color="#AAAAFF"`, `axf:column-rule-length="100%"` and `axf:column-rule-align="center"`.

Lorem ipsum dolor sit amet, con- sectetur adipiscing elit. Aliquam bibendum tincidunt pharetra. Ae- nean ultricies molestie ante, sit amet ultricies nunc mollis id. Inte- ger ut porttitor felis, vel tincidunt velit. Duis volutpat, quam quis ali- quet tristique, nulla dui malesuada	velit, et consectetur tellus ipsum et arcu. Ut tincidunt lorem erat, at el- ementum nibh varius consectetur. Duis sit amet ipsum non elit tin- cidunt sagittis ac non tortor. Mau- ris commodo, elit a imperdiet in- terdum, nulla velit viverra elit, at	scelerisque urna est eget lacus. Integer eu lobortis neque. Donec malesuada sed arcu vitae fringilla. Quisque imperdiet tortor iaculis, pulvinar neque sit amet, aliquet massa. Sed sed auctor purus. Viva- mus nec turpis elementum, iaculis lorem in, pellentesque metus.
--	---	--



Both RNIB and the British Dyslexia Association recommend left-justified text, and RNIB also recommends column rules between columns.



Two facing pages are referred to as a spread. Ideally, spreads can be used to make documents interesting rather than irritating.

Spreads



It can be useful, and can reduce irritation, to work with two facing pages as a whole, even when you are not going to print.

The Markup UK proceedings are meant for online viewing. Each paper starts on a lefthand page, and the PDF opens to show two pages at a time, so that the proceedings work well with today's wide monitors.

Spreads

Spanning across gutter

The table can span from one page to the other across the gutter. If the document will be printed, 'axf:bleed' should be used to minimize possible problems from misregistration when printing.

Parameter	Default	Functions
-s		If Antenna House Formatter V7.1 has already been invoked, the formatting will be executed with the already running Antenna House Formatter V7.1 . If this parameter is not specified, another Antenna House Formatter V7.1 will run.
-d Document		Specifies the URI of the source XML/FO/HTML document. The GUI window is displayed.
-t Stylesheet		Specifies the URI of the XSL/CSS stylesheet that is used for formatting. Must be used in combination with the -d, -p or -pt parameter.
-i Option-Setting-File		Specifies the path of "Option Setting File" which defines Antenna House Formatter V7.1 options in XML format. Any number of these parameters can be specified. If any content of this file is specified later, it will overwrite the previous contents. The default AHFSettings.xml is always read before this parameter.
-p Document		Antenna House Formatter V7.1 prints the document by displaying the Print Dialog without also displaying the GUI window. Cannot be used in combination with the -s parameter.
-pt Document Printer-Name		Antenna House Formatter V7.1 prints the document without displaying either the GUI screen or the Print Dialog. If Printer-Name is omitted, the default printer is used. Cannot be used in combination with the -s parameter.
-pts Document Printer-Name		Same as the -pt parameter, but prints the document without displaying the stop dialog box while printing. If Printer-Name is omitted, the default printer is used. Cannot be used in combination with the -s parameter.
-ps Printer-Setting-File		Specifies the path name of the Printer Setting file. See "How to create a Printer Setting file". When the XML document is specified by -d, please print the document by displaying the Print Dialog.

Isability Company
NNA HOUSE

By treating two pages as one, this spread has a table that extends across the gutter between the two pages to maximize the text on the page.

Spreads

Empty cell across gutter

Every <fo-table-row> contains an empty <fo-table-cell> that is the width of the gutter so that the visible parts of the table match the margins of an

Parameter	Default
-s	
-d Document	
-t Stylesheet	
-i Option-Setting-File	
-p Document	
-pt Document Printer-Name	

ordinary page.

Functions

If **Antenna House Formatter V7.1** has already been invoked, the formatting will be executed with the already running **Antenna House Formatter V7.1**. If this parameter is not specified, another **Antenna House Formatter V7.1** will run.

Specifies the URI of the source XML/FO/HTML document. The GUI window is displayed.

Specifies the URI of the XSL/CSS stylesheet that is used for formatting. Must be used in combination with the -d, -p or -pt parameter.

Specifies the path of "Option Setting File" which defines **Antenna House Formatter V7.1** options in XML format. Any number of these parameters can be specified. If any content of this file is specified later, it will overwrite the previous contents. The default AHFSettings.xml is always read before this parameter.

Antenna House Formatter V7.1 prints the document by displaying the Print Dialog without also displaying the GUI window. Cannot be used in combination with the -s parameter.

Antenna House Formatter V7.1 prints the document without displaying either the GUI screen or the Print Dialog. If Printer-Name is omitted, the default printer is

Isability Company
NNA HOUSE

If extending the text across the gutter is irritating, it's also possible to make the table with a column of empty cells.

Whale-size footnotes

<p>WHITENESS OF THE WHALE 209</p> <p>Iroquois, the midwinter sacrifice of the sacred White Dog was by far the holiest festival of their theology, that spotless, faithful creature being held the purest enjoy they could send to the Great Spirit with the annual tidings of their own fidelity; and though directly from the Latin word for white, all Christian priests derive the name of one part of their sacred vesture, the alb or tunic, worn beneath the cassock; and though among the holy pomps of the Romish faith, white is specially employed in the celebration of the Passion of our Lord, though in the Vision of St. John, white robes are given to the redeemed, and the four-and-twenty elders stand clothed in white before the great white throne, and the Holy One that sitteth there white like wool, yet for all these accumulated associations, with whatever is sweet, and honorable, and sublime, there yet lurks an elusive something in the innermost idea of this hue, which strikes more of panic to the soul than that redness which affrights in blood.</p> <p>This elusive quality it is, which causes the thought of whiteness, when divorced from mere kindly associations, and coupled with any object terrible in itself, to brighten that terror to the furthest bounds. Witness the white bear of the poles, and the white shark of the tropics; what but their smooth, flaky whiteness makes them the transcendent horrors they are? That ghastly whiteness it is which imparts such an abhorrent mildness, even more loathsome than terrific, to the dumb gloating of their aspect. So that not the fierce-fanged tiger in his heraldic coat can so stagger courage as the white-shrouded bear or shark.²</p> <p>² With reference to the Polar bear, it may possibly be urged by him who would fain go still deeper into this matter, that it is not the whiteness, separately regarded, which heightens the undesirable holiness of that brute; for, unlabeled, that brightened hideousness, it might be said, only arises from the circumstance, that the irresponsible ferociousness of the creature stands invested in the dress of celestial innocence and love; and hence, by bringing together two such opposite emotions in our minds, the Polar bear frightens us with an unnatural a</p>	<p>210 WHITENESS OF THE WHALE</p> <p>Bethink thee of the allstross, whence come those clouds of spiritual wonderment and pale dread, in which that white phantom sails in all imaginations? Not Coleridge first threw that spell; but God's great, unflattering laureate, Nature.³</p> <p>Most famous in our Western annals and Indian traditions is that of the White Steed of the Prairies; a magnificent contrast. But even assuming all this to be true; yet, were it not for the whiteness, you would not have that interested terror.</p> <p>As for the white shark, the white gliding glidingness of repose in that creature, when beheld in his ordinary moods, strangely tallies with the same quality in the Polar quadruped. This peculiarity is most readily hit by the French in the name they bestow upon that fish. The Romish mass for the dead begins with "Requiem, eternam" [eternal rest], whence Requiem denoting the mass itself, and any other funeral music; Nam, in allusion to the white, silent stillness of death in this shark, and the mild deadliness of his habits, the French call him <i>Requiem</i>.</p> <p>³ I remember the first allstross I ever saw. It was during a gale-lunged gale, in waters hard upon the Atlantic sea. From my forenoon watch below, I ascended to the overhauled deck; and there, dashed upon the main hatches, I saw a regal, dusky thing of unsupplied white; next, and with a hooked, Roman full midline. At intervals, it arched forth its vast arched wings, as if to embrace some holy ark. Shuddering flutterings and thrillings shook it. Though bodily unharmed, it uttered cries, as some king's ghost in supernatural distress. Through its unexpressable, strange eyes, methought I peeped to secrets which took hold of God. As Abraham before the angels, I bowed myself; the white thing was so white, its wings so wide, and in those for ever exiled waters, I had lost the marvellous mingling memories of traditions and old towns. Long I gazed at that prodigy of plumage. I cannot tell, can only hint, the things that darted through me then. But at last I awoke, and turning, asked a sailor what bird was that. A gony, he replied. Gony? I never had heard that name before; is it conceivable that this glorious thing is utterly unknown to men abhor? Never! But some time after, I learned that gony was some seaman's name for allstross. So that by no possibility could Coleridge's wild Rhyme have had ought to do with those mystical impressions which were mine, when I saw that bird upon our deck. For neither had I then read the Rhyme, nor have the bird to be an allstross. Yet, in saying this, I do but indirectly burlesque a little brighter the noble merit of the poem and the poet.</p> <p>I assert, then, that in the wonderous bodily whiteness of the bird, chiefly lurks the secret of the spell; a truth the more avowed in this, that by a selection of terms there are birds called grey allstrosses, and these I have frequently seen, but never with such emotions as when I beheld the Atlantic bird.</p> <p>But how had the mystic thing been caught? Whither it sat, and I will tell, with a treacherous hook and line, as the food floated on the sea. At last the Captain made a postman of it, tying a lettered, leatheren tally round its neck, with the ship's name and place, and then letting it escape. But I doubt not, that leatheren tally, meant for man, was taken off in Hissens, when the white bird flew to join the wing-filling, the smoking, and adoring chamber!</p>
--	--



Footnotes can be irritating: Noel Coward famously said, “Having to read footnotes resembles having to go downstairs to answer the door while in the midst of making love.”

One thing that can be hard to handle is whale-size footnotes don’t fit in the space available on the current page, such as in ‘Moby-Dick’.

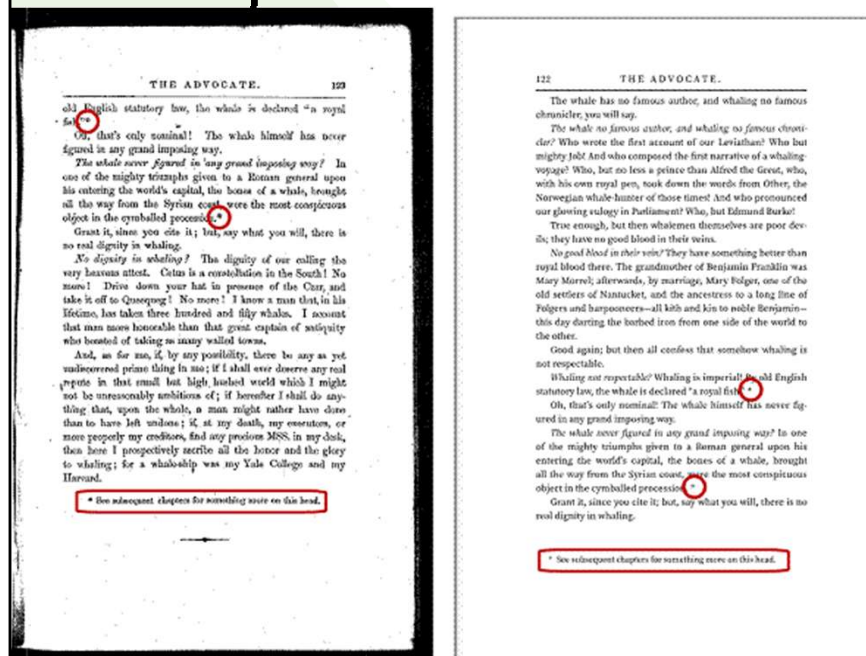
Whale-size footnotes

<div><div>WHITENESS OF THE WHALE209</div><div><p>Iroquois, the midwinter sacrifice of the sacred White Dog was by far the holiest festival of their theology, that spotless, faithful creature being held the purest enjoy they could send to the Great Spirit with the annual tidings of their own fidelity; and though directly from the Latin word for white, all Christian priests derive the name of one part of their sacred vesture, the alb or tunic, worn beneath the cassock; and though among the holy pomps of the Romish faith, white is specially employed in the celebration of the Passion of our Lord, though in the Vision of St. John, white robes are given to the redeemed, and the four-and-twenty elders stand clothed in white before the great white throne, and the Holy One that sitteth there white like wool, yet for all these accumulated associations, with whatever is sweet, and honorable, and sublime, there yet lurks an elusive something in the innermost idea of this hue, which strikes more of panic to the soul than that redness which affrights in blood.</p><p>This elusive quality it is, which causes the thought of whiteness, when divorced from more kindly associations, and coupled with any object terrible in itself, to brighten that terror to the furthest bounds. Witness the white bear of the poles, and the white shark of the tropics; what but their smooth, flaky whiteness makes them the transcendent horrors they are? That ghastly whiteness it is which imparts such an abhorrent mildness, even more loathsome than terrific, to the dumb gloating of their aspect. So that not the fierce-fanged tiger in his heraldic coat can so stagger courage as the white-shrouded bear or shark.⁴</p><p>⁴ With reference to the Polar bear, it may possibly be urged by him who would fain go still deeper into this matter, that it is not the whiteness, separately regarded, which heightens the undesirable hideousness of that brute; for, unlabeled, that brightened hideousness, it might be said, only arises from the circumstance, that the irresponsible ferociousness of the creature stands invested in the dress of celestial innocence and love; and hence, by bringing together two such opposite emotions in our minds, the Polar bear frightens us with an unnatural a</p></div></div> <div><div>210WHITENESS OF THE WHALE</div><div><p>Bethink thee of the allstross, whence come those clouds of spiritual wonderment and pale dread, in which that white phantom sails in all imaginations? Not Coleridge first threw that spell; but God's great, unflattering laureate, Nature.⁴</p><p>Most famous in our Western annals and Indian traditions is that of the White Steed of the Prairies; a magnificent contrast. But even assuming all this to be true; yet, were it not for the whiteness, you would not have that interested terror.</p><p>As for the white shark, the white gliding glimmerings of repose in that creature, when beheld in his ordinary moods, strangely tallies with the same quality in the Polar quadruped. This peculiarity is most readily hit by the French in the name they bestow upon that fish. The Romish mass for the dead begins with "Requiem eternam" eternal rest, whence Requiem denoting the mass itself, and any other funeral music; Nam, in allusion to the white, silent stillness of death in this shark, and the mild deadliness of his habits, the French call him Requiem.</p><p>⁴ I remember the first allstross I ever saw. It was during a gale-lunged gale, in waters hard upon the Atlantic's sea. From my forenoon watch below, I ascended to the overhauled deck; and there, dashed upon the main benches, I saw a regal, fiery thing of unsupplied white; next, and with a hooked, Roman full midline. At intervals, it arched forth its vast arched wings, as if to embrace some holy ark. Shrouded flutterings and thrummings shook it. Though bodily unharmed, it uttered cries, as some king's ghost in supernatural distress. Through its unspeakable, strange eyes, methought I peeped to secrets which took hold of God. As Abraham before the angels, I bowed myself; the white thing was so white, its wings so wide, and in those far ever ended waters, I had lost the memorable morning memories of traditions and old towns. Long I gazed at that prodigy of plumage. I cannot tell, can only hint, the things that darted through me then. But at last I awoke, and turning, asked a sailor what bird was that. A gony, he replied. Gony? I never had heard that name before; is it conceivable that this glorious thing is utterly unknown to men abhor? Never! But some time after, I learned that gony was some seaman's name for allstross. So that by no possibility could Coleridge's wild Rhyme have had ought to do with those mystical impressions which were mine, when I saw that bird upon our deck. For neither had I then read the Rhyme, nor knew the bird to be an allstross. Yet, in saying this, I do but indirectly burnish a little brighter the noble merit of the poem and the poet.</p><p>I assert, then, that in the wonderous bodily whiteness of the bird, chiefly lurks the secret of the spell, a truth the more avowed in this, that by a selection of terms there are birds called grey allstrosses, and these I have frequently seen, but never with such emotions as when I beheld the Atlantic bird.</p><p>But how had the mystic thing been caught? Whither it sat, and I will tell, with a treacherous hook and line, as the food floated on the sea. At last the Captain made a postman of it, tying a lettered, leatheren tally round its neck, with the ship's name and place, and then letting it escape. But I doubt not, that leatheren tally, meant for man, was taken off in Hissou, when the white bird flew to join the wing-filling, the smoking, and adoring chamber?</p></div></div>



Happily, Antenna House Formatter can continue footnotes on the following page and also has a property for limiting how much of the page can be used by footnotes.

Duplicate footnotes on same page



- XML repeats footnote text
- XSL 1.1 won't merge
- **axf:suppress-duplicate-footnote**



Another potential irritation is to repeat a footnote multiple times on the same page. 'Moby-Dick' has one page with a repeated footnote and only one copy of the footnote text, but they could do that because the pages were made up by hand.

When you have XML with two copies of the footnote text, it becomes a bit harder. XSL 1.1 has no provision for duplicate footnotes, so they won't be merged. Antenna House Formatter, however, has an `axf:suppress-duplicate-footnote` property that causes Antenna House Formatter to recognize and suppress duplicate copies of the same footnote on the same page. The result is like the 'Moby-Dick' page.

Table of Contents

もくじ

はしがき
もくじ / 凡例
本書の特長
本書の活用法

unit 1	8	unit 6	68
unit 2	20	unit 7	80
unit 3	32	unit 8	92
unit 4	44	unit 9	104
unit 5	56	unit 10	116
さくいん	127		

Everybody knows what a table-of contents looks like: it has ducks that move further to the right as you go down the column, with the title in a speech bubble spoken by the duck. Hardly invisible, but this is structure related to function, as this is from a children’s book that I saw in a bookshop in Japan.

Table of Contents

はしがき	2	君がため	15
上句さくいん	5	立ち別れ	16
下句さくいん	6	ちはやぶる	17
本書の特長と活用法	7	住の江の	18
百人一首／歌と解説		難波満	19
1 秋の田の 天智天皇	8	わびぬれば	20
2 春過ぎて 持統天皇	9	今来むと	21
3 あしびきの 柿本人麿	10	吹くからに	22
4 田子の浦に 山辺赤人	11	月見れば	23
5 奥山に 猿丸大夫	12	このたびは	24
6 かささぎの 中納言家持	13	名にしおは	25
7 天の原 安倍仲磨	14	小暮山	26
8 わが庵は 喜撰法師	15	みかの原	27
9 花の色は 小野小町	16	山里は	28
10 これやこの 蟬丸	17	心あてに	29
11 わたの原(八) 参議源	18	有明の 王	30
12 天つ風 僧正遍昭	19	朝ぼらけ(有)	31
13 筑波嶺の 陽成院	20	山川に 香	32
14 みちのくの 河原左大臣	21	ひさかたの	33
		誰をかも	34
		人はいさ	35
		夏の夜は	36

Isability Company
NNA HOUSE

Maybe your tables of contents has fewer ducks but the section titles are listed vertically from right to left...

Table of Contents

Introduction

18

The bean data analogy

3

A gentle technical introduction to XMP

9

XMP components

10

XMP framework

10

XMP schemas

12

XMP development kit

14

XMP extensibility


15

Summary and conclusion

16

Brief annotated bibliography

18



... maybe they drift to the left, with the page numbers inside a large capital letter.

Table of Contents



Markup UK

XProc as a command-line application engine 6
Erik Siegel.

Working with XML inside a web browser 14
Daniel Arthursson. Martin Nilsson.

Markup UK Proceedings as CSS 30
Tony Graham.


Enhancing Markup Quality Assurance with Automated Schema Visualization 34
Erik Siegel.

Closer to home, maybe your table of contents deemphasizes the page number because the document is meant to be read in a PDF viewer where you click on the title to go to a paper.

[illegible]

This index from a catalog of safety products does show the page numbers for where to find items, but it gives much more space to reproducing the color of the thumb-tabs for the sections containing those pages so you can quickly get to the relevant section and hone in on the page that you want.

Indexes



INDEX

Model #	Page #	Model #	Page #	Model #	Page #	Model #	Page #	Model #	Page #	Model #	Page #
162470.....	24	508742.....	21	591228.....	9	711050.....	36	720847.....	24	Cat6 UTP	
210591.....	44	508759.....	20	561235.....	5	711081.....	37	720861.....	24	Cables.....	38
210607.....	44	508766.....	20	561242.....	8	711715.....	34	720922.....	24		
210614.....	44	508827.....	11	561259.....	8	711777.....	34	721066.....	24	Cat6 U/UTP Slim	
210638.....	44	508834.....	11	561266.....	4	711845.....	34	721073.....	24	Patch Cables	39
210720.....	44	508919.....	12	561273.....	15	711869.....	34	721080.....	24		
210737.....	44	508940.....	4,12	561334.....	15	712019.....	34	771351.....	43	Cat6A S/FTP	
210775.....	44	508957.....	12	561341.....	9	712194.....	37	771986.....	44	Patch Cables	39
211048.....	26	508964.....	19	561365.....	12	712415.....	34,37	772280.....	44		



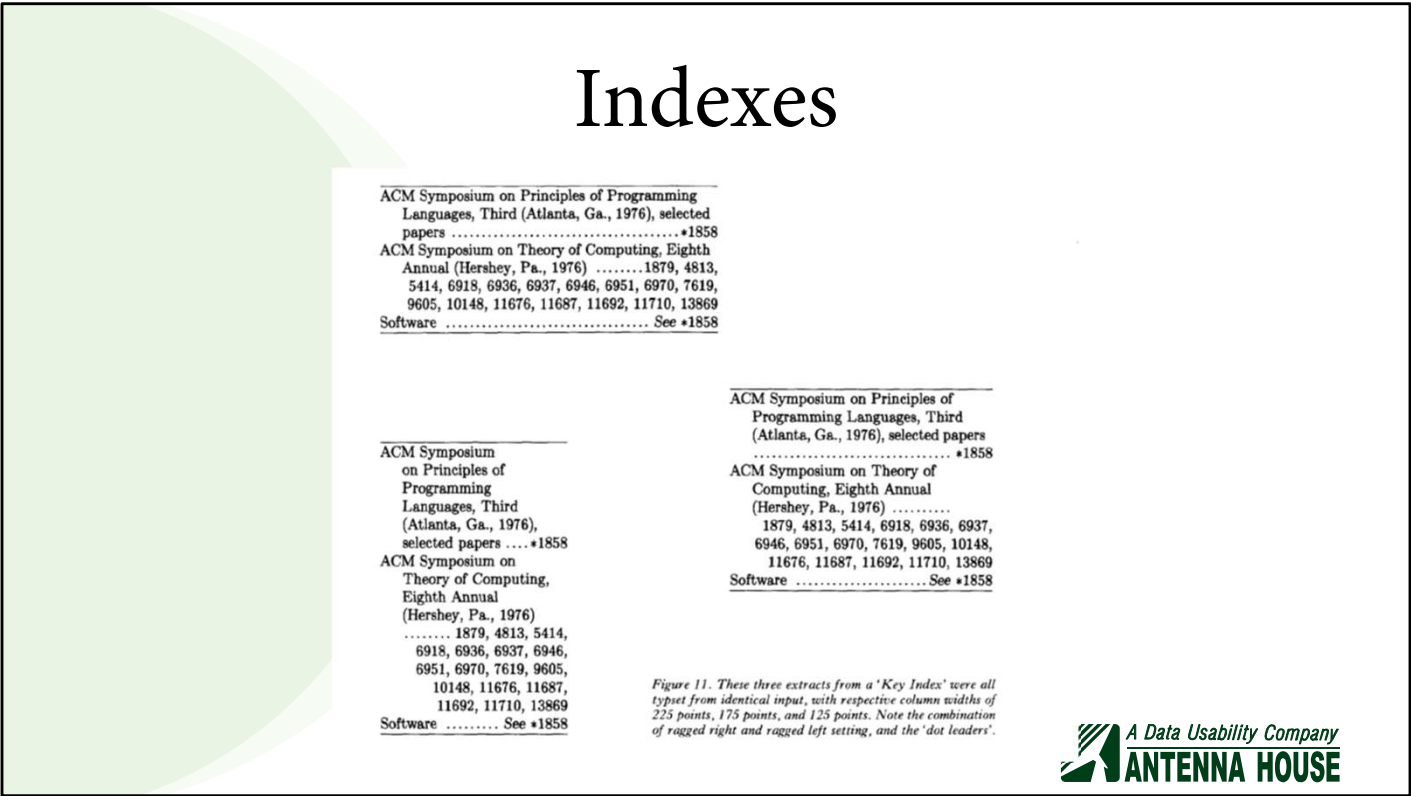
This index from a catalog of networking products mostly lists model numbers and where to find them, but then it breaks the pattern by simply listing categories for certain cables.

Indexes

INDEX

Model #	Page #	Model #	Page #	Model #	Page #	Model #	Page #	Model #	Page #	Model #	Page #
162470	24	508742	21	591228	9	71050	36	720847	24	Cat6 UTP	
210591	44	508759	20	561235	5	71081	37	720861	24	Cables	38
210607	44	508766	20	561242	8	710715	34	720922	24		
210614	44	508827	11	561259	8	710717	34	721066	24	Cat6 U/UTP Slim	
210638	44	508834	11	561266	4	710845	34	721073	24	Patch Cables39	
210720	44	508919	12	561273	15	710869	34	721080	24		
210737	44	508940	4,12	561334	15	712019	34	721351	43	Cat6A S/FTP	
210775	44	508957	12	561341	9	712194	37	721986	44	Patch Cables39	
211048	26	508964	19	561365	12	72415	34,37	722280	44		
211055	26	508971	19	561389	12	72507	35	722303	44	Cat6A U/UTP Slim	
211062	27	508988	19	561402	8	72514	35	722327	44	Patch Cables40	
351896	27	508995	11	561419	7	72675	36	722334	44		
351911	27	509084	12	561426	10	72767	36	722341	44	Cat 8 S/FTP	
402439	25	509091	13	561495	5,23	712774	36	722365	44	Patch Cables41	
402446	25	509107	12,16	561518	5	713658	37	722419	42		
502344	43	509213	16	561570	5	713825	34	722426	42	Fiber Optic	
504195	43	509220	6	561600	4	713849	34	722433	42	Cables	45,46
504898	43	510493	16	561617	4	713863	34	722440	42		
505130	43	510530	18	561624	8	713887	34	722457	42		
505147	43	510547	18	561648	4,23	714389	35	722464	42		
506502	17	513555	24	561679	8	714679	36	722488	42		
506519	17	515566	27	561686	6	714877	35	722495	42		
506724	21	519526	24	561693	4	714884	35	722501	42		
507356	17	520959	24	561723	14	714891	35	722518	42		
507332	17	522531	46	561730	14	715072	35	722525	42		
507349	18	523301	14	561747	14	715022	35	722532	42		
507462	20	523318	14	561754	14	715157	37	722549	42		
507479	20	523882	20	561761	7	715171	37	722556	42		
507486	21	524179	5	561778	5	715188	37	722563	42		
507509	21	530347	14	561785	5	715218	37	722570	42		
508179	20	530378	14	561792	6	716031	30	722587	42		
508193	16	545006	20	561808	8	716048	31	722594	42		
508216	16	545013	21	561815	15	716055	31	722600	42		

© 2024 Antenna House, Inc.



These example index entries from the Knuth/Plass “Breaking Paragraphs Into Lines” paper show examples of formatting left-aligned text, leaders, and right-aligned page numbers, a combination that they describe as “the most difficult one that has so far been encountered by the authors”.

Indexes

Short Label 10, 20, 30

Short Label ... 10, 20, 30, 40, 50, 60, 70, 80, 90, 100,
110, 120, 130, 140, 150

Very Looong Label ...
..... 10, 20, 30

Very Looong Label ...
..... 10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, 120,
130, 140, 150

Very Very Very Looong
Long Long Label 10, 20, 30

Very Very Very Looong
Long Long Label 10, 20, 30, 40, 50, 60, 70, 80, 90,
100, 110, 120, 130, 140, 150

```
<fo:block text-align="justify" text-align-last="right" axf:text-align-first="justify"
  axf:leader-expansion="force">
  Label
  <fo:leader leader-length.minimum="0pt" leader-pattern="dots"/><fo:leader leader-pattern="dots"/>
  Pages
</fo:block>
```



It isn't necessarily easy, but it's not that hard, either, if you are using XSL-FO, and even easier if you are using Antenna House Formatter.

FOs and properties for indexes

Index keys

- `fo:index-range-begin`
- `fo:index-range-end`
- `index-key`
- `index-class`

Building the index

- `fo:index-page-citation-list`
- `merge-sequential-page-numbers`
- `fo:index-key-reference`



XSL 1.1 provides multiple formatting objects for marking up index keys appearing in the body of your document, as well as other FOS and properties for collating and merging multiple index keys for the same term.

Merging page references in CSS

- Refer to IDs on pages
1, 3, 4, 4, 5, 6, 8, 8, 9

```
<p class="index-page-citation-list">
  <span class="index-item" href="#id1"/>,
  <span class="index-item" href="#id2"/>,
  <span class="index-item" href="#id3"/>,
  <span class="index-item" href="#id4"/>,
  <span class="index-item" href="#id5"/>,
  <span class="index-item" href="#id6"/>,
  <span class="index-item" href="#id7"/>,
  <span class="index-item" href="#id8"/>,
  <span class="index-item" href="#id9"/>
</p>
```

- ```
span.index-item {
 content: target-counter(attr(href), page);
}
```

1, 3, 4, 4, 5, 6, 8, 8, 9

- ```
p.index-page-citation-list {
  -ah-merge-sequential-page-numbers: merge;
}
span.index-item {
  content: target-counter(attr(href), page);
}
```

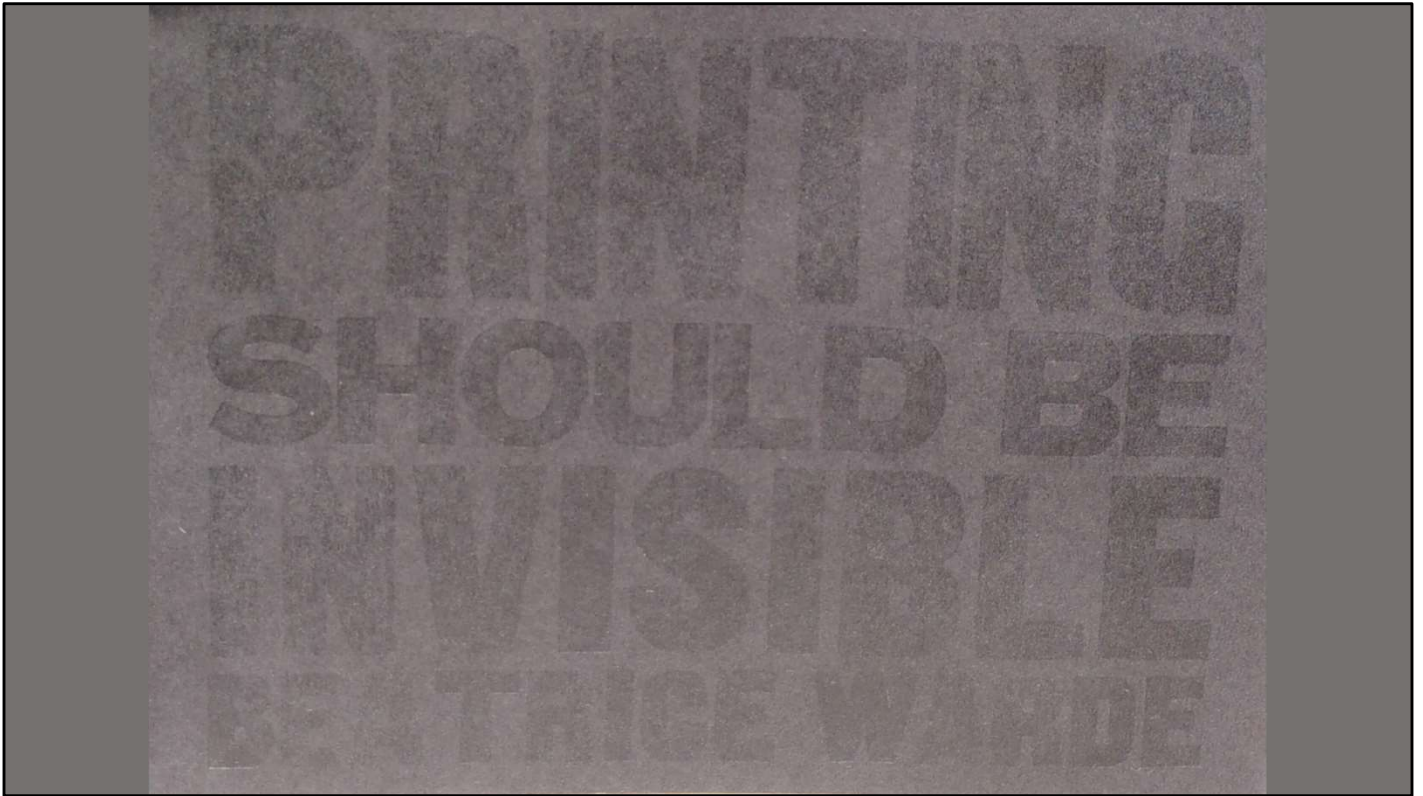
1, 3–6, 8, 9



Producing a satisfactory index is harder using CSS because it doesn't have either a way to markup index keys or a way to collate and merge the non-existent index keys.

The result is that your index has to have discreet references to IDs for points in the document where the index term is used, and you need a way to merge repeated page numbers resulting from those ID references.

If you are using Antenna House Formatter, you can use the '-ah-merge-sequential-page-numbers' property, which behaves like its XSL-FO equivalent, and automatically collapse not just repeated page numbers but also sequences of consecutive page numbers.



Since I have reached the back of the book, as it were, and also strayed into showing code, I'll end here.

Thank you for your time.

References

- [Printing Should Be Invisible](#)
 - Printing should be invisible, Beatrice Warde, 1937, The Marchbanks Press
- [Invisible?](#)
 - Just Do It: [https://en.wikipedia.org/wiki/Just_Do_It#/media/File:JUST_DO_IT._\(NIKE\).gif](https://en.wikipedia.org/wiki/Just_Do_It#/media/File:JUST_DO_IT._(NIKE).gif)
- [Language-specific glyphs](#)
 - After “Letterform differences in Russian and Bulgarian alphabets” in Cyrillize It! By Yana Vekshyna, ISBN 98-3-212-1018-7
 - Font Veleka: <https://github.com/StefanPeev/Veleka>
- [Dyslexia](#)
 - OpenDyslexic: <https://github.com/antijingoist/pendyslexic>
- [Dyslexia effects](#)
 - Read Regular font ‘Dyslexia’ page: <http://readregular.com/english/dyslexia.html>
- [Clear Print and Large Print](#)
 - Inclusive Design: Clear and Large Print Best Practice Guide for Designers, Royal National Institute of the Blind and International Society of Typographic Designers, ISBN 0-9240127-5-5



References

- [Authenticity should not be irritating](#)
 - <https://iiif.bodleian.ox.ac.uk/iiif/viewer/?iiif-content=https://iiif.bodleian.ox.ac.uk/iiif/manifest/390fd0e8-9eae-475d-9564-ed916ab9035c.json#c=0&m=0&s=0&cv=728&r=0&xywh=-663%2C2076%2C4705%2C2922>
 - <https://creativecommons.org/licenses/by-nc/4.0/>
 - <https://creativecommons.org/faq/#may-i-apply-a-creative-commons-license-to-a-work-in-the-public-domain>
 - Illinois Shakespeare Festival Font: <https://www.fontspace.com/ilshakefest-font-f9860>
 - Facsimile reproduction of an edition published in 1908 by J. M. Dent & Co., London
 - <https://www.folger.edu/explore/shakespeares-works/julius-caesar/read/3/1/>
- [Initial letters](#)
 - Nordisk Boktryckareskonst 1920
- [Blame Gutenberg?](#)
 - https://en.wikipedia.org/wiki/F%C3%A9camp_Bible#/media/File:FecampBibleFol4vInitialICreation.jpg
 - https://fr.vikidia.org/wiki/Fichier:Gutenberg_bible_Old_Testament_Epistle_of_St_Jerome.jpg

References

- [Initial letter styles](#)
 - <https://www.antennahouse.com/hubfs/xsl-fo-sample/character/axf-initial-letters-1.pdf> from XSL-FO Samples Collection: <https://www.antennahouse.com/xsl-fo-samples>
- [Whale-size footnotes](#)
 - Noel Coward: <https://www.azquotes.com/quote/391406?ref=footnotes>
- [Indexes](#)
 - <http://www.eprg.org/G53DOC/pdfs/knuth-plass-breaking.pdf>
- [Merging page references in CSS](#)
 - Antenna House Formatter XSL-FO/CSS Extensions
<https://www.antenna.co.jp/AHF/help/en/ahf-ext.html>
- [Merging page references in CSS](#)
 - Antenna House Formatter XSL-FO/CSS Extensions
<https://www.antenna.co.jp/AHF/help/en/ahf-ext.html>
- [Printing Should Be Invisible Beatrice Warde](#)
 - © 2019 Tony Graham, 'Printing Should be Invisible', transparent ink on black card

