

Fonts

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Notes for CS 594 – Fall 2004

Terminology

- ▶ Typeface: collection of size, weight, shape
- ▶ Font: single instance

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- ▶ Font: single instance
- ▶ Not much consistency these days

Millions of words, in thousands of newspapers and magazines, are printed and read daily. All over the world news is necessary to the everyday routine of many millions of people. The public appetite for news is enormous, and the man who never reads a newspaper is news himself.

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P B R S

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House of Representatives
Pictures of the week
Manual of modern advertising
Brunswick Map Printers

JOHNSTON

This broadsheet is set in Johnston type. Edward Johnston (1872-1944) was one of the followers of William Morris (1834-1896) who took a leading part in reviving an interest in good lettering after the decadence of the late-Victorian fashions. In 1916 Johnston was commissioned by Frank Pick (1878-1941) to design a special fount for the exclusive use of London's Underground and its associated companies. The resulting Johnston sans-serif type was the forerunner of many sans-serif founts both in England and abroad, including that of Eric Gill (1882-1940) who was Johnston's friend and pupil in this specialised field of design. Johnston is the standard type used for all official signs and notices throughout the London Transport system, and it is also used, where appropriate, for much of London Transport's general typographical publicity.


* MEETING **TF** FEDERATION OF MASTER PRINTERS

ANNUAL



BLACKPOOL

PUBLICITY AND SELLING CONGRESS

 on Monday, 21st May, 1928
at the *Imperial Hydro Hotel*
at 2.30 p.m.

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz

*ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz 1234567*

Inks for Quality Printing
Italian Architecture
Famous Painters of Italy
Horse Race at Ascot

White space is not a
mere residue. It is an
active force. It is vital
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Fonts do not contain characters

- ▶ Abstract character: 'Roman lowercase a'
- ▶ Glyphs: rendering

Character	Sample Glyphs					
a						

Abstract character



- ▶ Definition:

abstract character: a unit of information used for the organization, control, or representation of textual data.

- ▶ Consequence: no simple one-to-one mapping between character and glyph

Ligatures



- ▶ Ligature as 'prettyfying' text: 'fi' instead of 'fi'

Character Sequence	Sample Glyph
	

- ▶ One glyph for two characters

Ligatures




- ▶ Ligature as 'prettyfying' text: 'fi' instead of 'fi'

Character Sequence	Sample Glyph
	

- ▶ One glyph for two characters
- ▶ In Danish, 'æ' is a single character

Split characters




- In Tamil:

Character	Split Glyphs
	 

to be placed around other characters

Split characters

- ▶ In Tamil:

















Character	Split Glyphs
	 

to be placed around other characters

- ▶ Now allow for ligatures. . .

Accents and diacritics

- Is an accented letter one character? One glyph?

Character Sequence	Possible Glyph Sequences
	     
  	     

Scaling vs design

- ▶ With lead, scaling is not possible: different design at different sizes

Ten point type is different from magnified five-point type.

- ▶ Adobe Multiple Masters & Optical Masters, Apple TrueType GX & Apple Advanced Typography

Halogen	Halogen
<small>Display</small>	<small>Subhead</small>
Halogen	Halogen
<small>Text</small>	<small>Caption</small>

All samples shown at 56pt.

Font technologies

Type 1 essentials

- ▶ Developed by Adobe
- ▶ Adopted by Apple: Laserwriter
- ▶ Two files: outline and font information (hinting)
- ▶ (often three files: separate bitmaps for screen display)
- ▶ Hinting is patented
- ▶ Limit of 256 (active) characters

TrueType essentials

- ▶ Developed by Apple and Microsoft
- ▶ Quadratic splines instead of cubic
- ▶ Large number of characters (Chinese, Japanese)
- ▶ also patented hinting

FreeType

- ▶ Open Source

FreeType

- ▶ Open Source
- ▶ \Rightarrow can not use hinting

FreeType

- ▶ Open Source
- ▶ \Rightarrow can not use hinting
- ▶ \Rightarrow automatic hinting

OpenType

- ▶ Adobe and Microsoft
- ▶ Single file, cross-platform
- ▶ Optical Masters

Fonts in T_EX / L^AT_EX

Tfm files

- ▶ T_EX processor only needs metric information
- ▶ tfm: 'T_EX font metrics'
- ▶ contains spacing information, character metrics, ligature and kerning

Font dimensions

- ▶ `\fontdimen1\tenrm=5pt` et cetera
- ▶ Natural space, stretch / shrink
- ▶ Quad (width of 'M'), x-height
- ▶ Slant per point

Character metrics

- ▶ Height, depth, width of each character

Character metrics

- ▶ Height, depth, width of each character
- ▶ Italic correction

‘T_EX has...’ versus ‘T_EX has...

Ligatures and kerning

- ▶ Ligature:

‘fi’ or ‘fl’ versus ‘fi’ or ‘fl’

- ▶ Kerning

‘Von’ versus ‘Von’

L^AT_EX font selection

- ▶ Load fonts with `\usepackage[times]`
- ▶ can be combination of typefaces: Times, and Helvetica for sans serif

Orthogonal combinations

- ▶ Families: roman, sans serif, typewriter type
- ▶ Font series: medium weight, bold
- ▶ Shape: upright, slanted/italic, small caps