Technical English, Lecture 9:

Typography and tools

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Typography

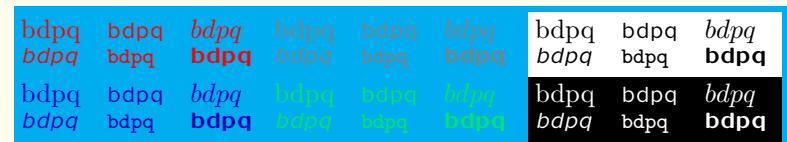Typography is the *art* and *technique* of setting written subject matter in type using a combination of

- typefaces,

- point size,

- line length,

- leading (line spacing), and

- letter spacing.

Readability

How easy can you read? It is affected by

- line length (45 to 75 characters is the optimal range),

- l e tt er s p a ci ng,

- word spacing, and

- line spacing.

Lower case letters are better for readability than upper case letters.

Legibility

How easy and quickly can you recognize a letter or word? It is affected by

- ink,

- paper,

- colors, and

- the font design.

To *print* running text, the best are the straight serifed fonts.

Fonts

- Fonts do not scale linearly in all directions. Smaller sizes are wider than a linearly scaled down version.

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

- Fonts have ligatures: ff, fi, fl, ffl, and ffi versus ff, fi, fl, ffl, and ffi.

- A good combination of fonts and typesetting software allow for automatic kerning.

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- A font has a *color* (how gray is the page) and a *weight* (how thin or thick are the vertical strokes).

Simple traditional rules

- The 'best' line length is one where the eye will not have to move at all while reading it. (One fixation.)

  – A poster is read from a distance and you must use a font scaled correctly for that effect. (Ten-point type is different from magnified five-point type.)

- The best line spacing depends heavily on the difference between the x-height and the lowest point (the descenders) in the upper line.

- The gray color of the page should not exceed 30% of the black at a distance of 40 cm.

Numerals

Look at the difference between

His address is: 46 street 153, just next to the school.

and

His address is: 46 street 153, just next to the school.

Oldstyle numerals (minuscule or mediaeval numbers) are used in mixed text.

- They do not look like a distinction while capital numbers are.

- They do not take attention and disturb the reading flow where there is no demand for that.

0123456789. 0123456789. 0123456789.

Special effects

If you know how to use your tool properly it is possible to produce various special effects, as shown here with this circular insertion. However, please remember: 1) these effects should be seldom used in long running texts as in your thesis or a published paper, 2) they are useful in posters and presentations, and 3) I did not choose the line breaking locations or the hyphenations produced here. They were automatically generated. It takes time (probably years) and patience to learn. If you like typography and put some effort to learn your tools you will soon become a master producing the finest quality material. Just time and effort!

The area of a circle is a mean proportional between any two regular and similar polygons of which one circumscribes it and the other is isoperimetric with it. In addition, the area of the circle is less than that of any circumscribed polygon and greater than that of any isoperimetric polygon. And further, of these circumscribed polygons, the one that has the greater number of sides has a smaller area than the one that has a lesser number; but, on the other hand, the isoperimetric polygon that has the greater number of sides is the larger. [Galileo, 1638]

You should define your goal and use the appropriate tool.

- Layout tools such as InDesign or QuarkXPress are great to produce magazines.

- Adobe Photoshop is a good tool for posters.

- FrameMaker is used for many technical documents.

- TEX (and LATEX) are the best for long scientific documents.

TEX has many points to its advantage in the scientific domain.

Output quality: It is the best tool for typesetting mathematical formulas. It has many rules of typesetting coded in it.

Strength: It is fast, stable, flexible, and reliable. It accepts plain text and produces various output formats.

Free: It has been available in source form for anybody to use (and learn from it) for over 25 years now.

Popularity: It is a standard.

On the negative side, it has a steep learning curve. However, once you use TEX, it is hard to use anything else.