Fellow countrymen - Four score and seven years ago our fathers brought forth on this continent a new nation, conceived in liberty, and dedicated to the proposition that all men are created equal.

Now we are engaged in a great civil war, testing whether that nation, or any nation so conceived and so dedicated, can long endure. We are met on a great battlefield of that war. We have come to dedicate a portion of that field as a final resting-place for those who here gave their lives that that nation might live. It is altogether fit and proper that we should do this.

Now that all computer users work with proportionally spaced letters, they should follow suit in order to avoid unsightly 'holes' appearing in their text matter.

ANATOMY OF A PARAGRAPH
Paragraphs are the essential building blocks of running text. Without paragraph breaks, text would be very difficult to read, so it follows that we should pay special attention to how paragraphs are formed. The designer should question and make decisions about the following paragraph features before any setting takes place:
• Column width
• Font
• Size
• Weight
• Style (roman, italic)
• Case (uppercase, large and small caps or upper and lowercase)
• Line spacing (leading)
• Character spacing (tracking)
• Paragraph spacing
• Alignment (ranged left, ranged right, centred or justified)
• First-line indents or hanging indents
• Hanging punctuation
• Raised or dropped initial capitals
• Hyphenation

Quite a lot to think about! We cannot allow decisions on these matters to go by default for all aspects of paragraph design will have a profound effect on tone, texture, page colouring and overall effectiveness of our work.

F. D. R.
Gettysburg, 19 November 1863
Rendering type

Whether we work with type for print or for online publishing, the computer will be the medium on which we will compile our material and generate our designs and concepts. Whatever we compose on screen will be replicated by means of other processes and technology. Some knowledge of graphic screen display and graphic reproduction is needed if we are to be assured that the final output, as seen by our target audience, is exactly as we intended.

BITMAPS AND VECTORS

There are two distinct ways in which image information may be stored digitally: either in bitmap form or as vectors.

Bitmap

Whether on screen or in digital print, text is rendered by means of colouring a mosaic-like grid of dots, called pixels, to form the desired shape. This arrangement in grid form is a bitmap. Bitmaps can be very memory-intensive, since files must contain information about the colour and position on the page of every single pixel. If bitmap images need to be enlarged, the software can only multiply up the number of pixels, so that in effect the original pixels and all the jagged features of the original size are enlarged.

Vectors

Vectors describe a shape as an outline by means of straight and curved lines that connect strategic points. Straight lines and curves (the vectors) are recorded on file as mathematical formulae. The resulting shape is then filled with pixels. This allows for good-quality scaling. When a vector image is enlarged, the coordinates of the vector points are repositioned but the mathematical formulae controlling the straight lines and curves between those points remain constant; the new shape is then filled with pixels resulting in a smooth-edged, well-defined image. Vector image files are very much smaller than bitmap files.

Image shapes may be recorded as a bitmap or as vectors, and this applies equally to type. Drawing with vectors gives an economy of representation, since coordinates for each element are all that is needed to represent the drawn shapes. But, however it is stored, it has to be rendered on screen as a matrix of dots - in other words it has to be converted to a bitmap. Outline (vector) information must also be converted to a bitmap for printing; the difference being that the printed bitmap is of a much higher resolution.
Font designers take these anomalies into account when designing typefaces by building kerning tables that work in the background, taking fractions of space away or adding it appropriately as letters are combined, resulting in more pleasing character relationships, e.g. WA, WA, T, and so on (see the table opposite). It is important to note that, since kerning tables are built into the font metrics, any further manually applied kerning will be added or subtracted. For instance, when the cursor is placed between W and A, a kerning value of 2 (zero) will be shown in the relevant control palette. This really means that there is neither more nor less space than that already provided for by the kerning table in the font metrics, e.g. -7. If you then subtract 10 units of kerning, it will be in addition to this existing value, i.e. -17.

In the setting of large or small amounts of copy, why and when should we start to intervene and set our own values?

It is not advisable or practical to carry out any manual kerning to a body of text. The risk of missing similar kerned pairs is too great. In general, manual kerning is best applied only to display sizes.

As to altering kerning tables, I believe it takes a brave type user even to consider altering set values. Most type designers would be horrified at the thought of anyone tampering with elements of fine-tuning that had taken them months of hard work to perfect. There are, however, a few occasions when this might be forgiven. If the text contains a frequent occurrence of a particular pair, so that they appear more often than normal, modifying the values in the kerning table would allow a consistent solution if there was a problem in how the letters fit. For example, a frequently occurring trade name might contain a pair of characters that needs manual attention every time it is used. Fixing that pair by editing the kerning table will, however, alter the same pair in other words. It might also be that some plus or minus kerning in the kerning table does not match a very specific requirement, e.g. all numerals commonly have the same width (usually an en, or half an em) so that they will line up under each other in columns of figures. But if the number 11 or 111 appears in a flow of text, the numerals will seem too spaced out. If your document does not deal with numbers in columns, altering the kerning table of the 11 pair to a minus value will give a more satisfactory appearance. However, once this has been done in the kerning table, you will produce some strangely misaligned columns of figures.

MAJ (HYPHENATION AND JUSTIFICATION)
All the main typesetting and page-layout software packages offer methods by which the user may specify how and under what conditions automatic hyphenation will occur. They all, furthermore, offer the option of having no hyphenation at all, unless it is keyed in manually.

Justification means that text is set so that both left and right line-endings range up in a given paragraph or run of paragraphs.