

Typographic Spaces – Why and How ?

These notes are intended for those WordPerfect users who produce self-published documents, or prepare them as camera-ready copy, or for generating PDF files. See the CAUTIONARY NOTES section for other uses.

[Recommended viewing at 115 percent]

IN PRE-COMPUTER DAYS, working in metal, the typographer or compositor worked with a series of fixed spaces.

These spaces served two purposes.

First and foremost, they were used to space out the metal type to achieve a fit to the text block. This was necessary for both ragged and justified text.

The second use was to provide a series of spatial cues that assisted the reader.

WHAT ARE TYPOGRAPHIC SPACES?

Typographic spaces have a fixed width proportional to the type size. The base unit is the em space which has a horizontal width equal to the type size: in 12 point type, an em space is 12 points wide; in 18 point type, the em space is 18 points wide.

The usual range of spaces in metal type were one em (M/1), half em or en (M/2), M/3 (usually the default size for a word space), M/4 and M/5 or M/6 (sometimes both). Thus M/3 for an 18pt font provides a 6pt space; M/4 for an 8pt font provides a 2pt space, and M/6 for 12pt also provides a 2pt space.

COMPUTER SPACES

Spacing options in most word processing programs are limited to the word space and its cousin the hard (fixed size) word space, although bundled equation editors include a capacity for making other spacing adjustments. Desktop publishing (DTP) programs include three fixed or hard spaces — an em, an en, and a thin space (M/5 or M/6).

With computer-justified text, the word space itself is varied to achieve an equal space between each word in each line. Succeeding lines characteristically may have differing word spacing. Without hyphenation, this can lead to some very unsightly gaps. With hyphenation, and a careful selection of font, size, and line length, the variations in succeeding lines are minimized.

While computer-generated text does away with the need to space out justified lines, the other uses of the different spaces have either fallen by the wayside or been implemented by one of several work-arounds.

WHY USE TYPOGRAPHIC SPACES IN COMPUTER-GENERATED TEXT ?

With both justified and right-ragged text, there are a number of circumstances in which different sized fixed (hard) spaces, proportional to the font size being used, are a desirable adjunct to the visual presentation of extended text material.

While there is some debate amongst typographers about when space is required, and how much, all agree that there is a need for a variety of spaces if the reader is to be able to scan and comprehend text with the minimum effort.

- Fixed spaces provide a visual separation between the numerical values and the unit symbols (abbreviations) of measure. ISO standards specify a thin space for this purpose.

While the practice might not occur very frequently in non-technical text, it is extremely desirable in all texts where unit symbols are routinely used, such as scientific, technical and professional journals, reports and publications.

This practice is particularly helpful where the numeral(s) are followed by a unit symbol commencing with an ascender, such as 17km in ranging numerals, or when old style numerals are used and the numerals and symbols might be confused, such as 27.1in or 380cwt. They are particularly desirable with sans serif type.

<i>With</i>	17kg	11lb	29qrt	380cwt
<i>Without</i>	17kg	11lb	29qrt	380cwt
<i>With</i>	17kg	11lb	29qrt	380cwt
<i>Without</i>	17kg	11lb	29qrt	380cwt

The M/6 space is commonly used for this purpose, and for consistency's sake, the space is used with all occurrences of numerals followed by symbols.

- 'One of the most common uses for a thin space is the separator between thousands in numbers of five or more digits'. While the comma is still used as a thousands separator in some countries, a clear trend is discernable to both the Continental and ISO standard of a thin space. Thus the M/6 space should be used in all text intended for an international audience.
- M/5 or M/6 spaces generally correspond to the width of the point (full stop), comma, colon and semicolon. The M/3 space usually corresponds to the width of numerals and of many non-alphabetic (analphabetic) symbols such as the money symbols (\$, £, ¥, ., f, i). The sizes need to be checked for each font for both spaces.
- Many typographers recommend that a thin space (M5 or M6) should be used before and after an em or en dash. This provides a slight visual separation of these punctuation marks that helps to emphasise the reason for their use. Where the en dash is used to indicate a range of values or a

period of time as a substitution for 'to' the inclusion of thin spaces either side aids the recognition of the values.

<i>With</i>	benefits—helping the reader	1984–84
<i>Without</i>	benefits—helping the reader	1984–84

► When one- or two-line tabular display, with numerals, is required in what would otherwise be continuous extended text, a combination of tabs and fixed spaces can be the simplest and quickest way to align the numerical values. This may obviate the need to use a formal table structure.

Lions	\$1400.00	\$1150.00
Goldfish	\$.50	\$.40

► A small fixed space can be used before alphabetic characters such as question and exclamation marks, ampersands, percent symbol and the like where the alphabetic character of any font appears to be running into the preceding word or character. The same space can be used after money symbols before succeeding values.

<i>With</i>	Nonsensical! Questions?	E&OE 18%
<i>Without</i>	Nonsensical! Questions?	E&OE 18%

With some frequently used alphabet characters, it may be expedient to create a macro that inserts the space before the character and patch it to the keyboard, saving the need to invoke the space macro repeatedly. This will usually be simpler than attempting to amend the relevant kerning pair.

Similarly, if the em and en dash are to be used frequently, macros patched to key combinations will simplify their insertion with spaces.

► Small spaces can be used between the initials and a full word space before the family name when displaying an individual's name; similarly, a small space may be placed between the 'P' and 'O' and a word space before the 'Box' of postal box numbers in letterheads or visiting card.

<i>With</i>	LJ Rollo PO Box 2721
<i>Without</i>	LJ Rollo PO Box 2721

► When text paragraphs start with a number, and particularly with multi-part numbers (e.g. 3.2.1), using a larger fixed space provides a consistent visual separation of number and text. If a tab is used, the space will vary between the earlier, shorter, values in the numbering series and the later, longer, values. A combination of two or more spaces may be desirable.

<i>With</i>	<i>Without</i>
3 Text starts. . . paragraph text continues. . .	3 Text starts. . . paragraph text continues. . .
3. 1 Text starts. . . paragraph text continues. . .	3. 1 Text starts. . . paragraph text continues. . .
3. 1. 1 Text starts. . . paragraph text continues. . .	3. 1. 1 Text starts. . . paragraph text continues. . .

- ▶ When text paragraphs start with a subheading, such as an italicised phrase or subject, using fixed hard spaces provides a consistent visual separation of the heading from the text. If a tab is used, the space will vary according to the length of the heading and the position of the next tab setting.

Indenting paragraphs Indenting paragraphs in extended text . . .

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In the upper two lines the subheading is separated from the succeeding text by hard spaces; the lower two lines show a typical potential variation in spacing when tabs are used.

- ▶ A fixed space can be used to give a visual separation between superscript numerals and the text of foot/end notes in place of default word processor settings.
- ▶ Fixed spaces, of varying sizes, can sometimes be used in both word- and letter-spacing title lines when kerned character combinations are not readily available. Differing sized spaces may well be needed in the same line to achieve visual consistency rather than the default physical uniformity.

SPACING OPTIONS IN WORD PROCESSING AND DTP

SPACING OPTIONS IN WORD PROCESSING AND DTP

The spacing in the upper line is enhanced by using M/3 spaces, while the lower line has regular word spaces.

- ▶ Some very bad line breaks can be resolved by substituting larger or smaller spaces for the default word space within the line or adjacent lines.
- ▶ Certain disciplines have presentation conventions that may be helped with special spaces. For example, in some law reports, judges are identified by their family name followed by 'J' (Smith J). The inclusion of a fixed M/4 or M/5 space links the 'J' identification with the name, and is not affected by any subsequent variation in default word spacing.
- ▶ Typographic spaces should be used in any other circumstance where the addition of a fixed space will aid the reader in speedily comprehending the text or reduce the need for peering to determine the context or content.

CAUTIONARY NOTES

These notes are intended for those WordPerfect users who produce self-published documents, or prepare them either as camera-ready copy or for generating PDF files.

If documents are destined for subsequent processing by DTP programs or for publishing as HTML files, the special spaces should not be used.

While HTML protocols can provide differential spacing, it is not easy and authors and HTML publishers must decide whether or not regular spaces should, or should not, be used in these documents.

Where special spacing is required in DTP-generated documents, consultation with the DTP operator should identify appropriate 'signal' character entries that can be processed by the DTP program's Find and Replace (F&R) routines to substitute any of the standard three spaces these programs provide, and particularly for the hard thin space. For example, using '↓' as a signal character in 17↓kg allows a F&R routine to replace the signal with a fixed hard space. The signal character needs to equate the space width, if critical formatting and pagination are to be preserved.

Space.ttf works with MSWord but users of this program will need to write their own macros and determine it's effect in styles, font substitutions, etc.

See also the comment in PDF FILES below about issues in displaying items from the WPWIN character sets, and the use of advance codes.

WORK-AROUNDS

Various work-arounds have been devised to provide fixed spaces for text material. These commonly induce other problems, such as disrupting consistent word wrapping or spacing adjustments in the hyphenation zones when text was added or deleted elsewhere in the line or paragraph. The work-arounds have included using horizontal advance codes, or inserting one or more analphabet characters to achieve the required space and then marking the character(s) to be printed 'white'. These methods required either or both styles and macros to achieve the desired result.

If these spaces had to be amended, or removed (before conversion from printed to HTML documents for example), these work-arounds often required compound F&R macros to be written if more than a few spaces were to be amended or deleted.

SPECIAL FONT SOLUTION

One alternative is to use a font that allows hard spaces to be created equivalent to the traditional spacing sizes.

Space.ttf has been created for this purpose.

This font consists of a single entity: the space character changed to have the width of an em.

Macros then capture the font size at the insertion point and create a temporary font size equivalent to the fixed space required.

The macro to produce an en (M/2) space reads:

```
1      Application (WordPerfect; "WordPerfect"; Default!; "EN")
2      vAFS:= ?FontSize ()    //AFS= active font size
3      HardSpace ()
4      SelectMode (State: On!)
5      PosCharPrevious ()
```

```

6      Font (Name: "Space")
7      FontSize (FontSize: vAFS/2)
8      SelectMode (State: Off!)
9      PosCharNext ()
10     PosCharNext ()
11     PosCharNext ()
12     PosCharNext ()
13     PosCharNext ()

```

The divisor in line 7 would be 3 (vAFS/3) to create a 1/3rd space, and so on.

The hard space is necessary in the thin (M/6) space to ensure that values and symbols are treated as an entity for word wrap. In long display lines it may be preferable to use a regular word space.

While this method generates about the same number of codes as other work-arounds when used in the default body text size, it has the advantage that F&R routines are straight forward. Note that WPWIN inserts additional font codes in display lines and changes to these lines may require individual treatment. [see [FOOTNOTE](#) below for enhanced macros]

EXECUTION

If one or more spaces are being used regularly, the relevant macros can be patched to a keyboard combination.

I find it convenient to patch them to the number keypad positions Control/1–6 and use the NumLock key to toggle access to the macros.

Use the standard macro play routine for occasional uses.

DELETION AND SUBSTITUTION

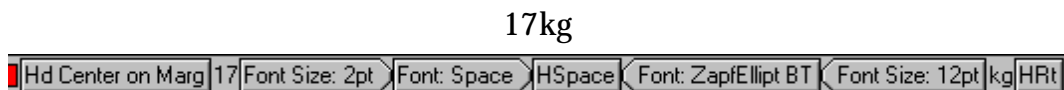


Fig. 1: A typical M/6 space entry as seen with Reveal Codes

All the spaces of the same size in a body text size can be deleted with a simple macro F & R routine. Search for the Font: Space, then back space or delete to remove the hard space, Space.ttf code and the Font Size codes. Insert a regular space, or omit a space, as required. If one space is to be substituted for another, the standard F & R macro routine applies—looking for the existing space, deleting all its related codes, and then replacing it with the required space by having the search macro play the substitute space macro.

AUTOMATIC FONT CHANGES

So long as Space.ttf is installed in the Windows/Fonts folder there should be no difficulties induced by WordPerfect's automatic font substitution features.

STYLES

The space macros can be used to insert spaces into styles.

However, once a macro is played in a style, the space code created is fixed for the font size invoked when the style was created. This is not a disadvantage for the main body of the text.

Separate styles should be created for display headings, for quoted material if it is being displayed in a different size to default text font size, and for footnotes.

PDF FILES

Any spaces inserted with Space.ttf into WPWIN 8 files are preserved when the document is printed with Acrobat's PDFWriter 3.0. It has yet to be tested with files generated with PDF publishing feature bundled with WP9.

PDF does not translate WPWIN 'Advance' codes correctly. In this document differential spacing in styles has been achieved with hard carriage returns (HRt) preceded by changes in font size to the point size of the additional space required, followed by restoring the default size after the HRt code.

Using PDF with embedded fonts for delivery of some documents will circumvent the risk of altered format and presentation with WP7 and WP8 files being opened by users with differing printers and/or differing default active fonts.

It should be noted that WordPerfect 'ships with a number of TrueType fonts. Those with file names WP*.TTF have real font names such as "WP MultinationalAHelv", "WP MathA", etc. These fonts were generated with a protection field that indicates "NO Embedding" as opposed to allowing embedding for printing or editing or even installation on some other system. Corel has issued revised fonts that now allow embedding. They can be downloaded from:

<ftp://ftp.corel.com/pub/WordPerfect/wpwin/9/wpfonts.exe>

In contrast, fonts shipped by Microsoft (with Office), Lotus (with SmartSuite), and Adobe (Web Type package) for similar purposes explicitly allow embedding at least for purposes of "preview and print."

It seems that Acrobat assumes that all documents will be written in one of the so-called default fonts such as Times New Roman or Arial.

With some fonts chosen for their excellence for screen display Acrobat PDFWriter does not recognise some items from the WPWIN character sets, and blank spaces appear in the generated PDF file. The work around used in this PDF file was to select the missing characters in the original WPWIN file, and apply the Times New Roman font to these characters. If a sans serif font is used in the original document, then Arial should be used. This problem has largely been overcome with the re-issued WPWIN character fonts. I cannot comment on the Macintosh counterpart fonts.

REQUEST

Suggestions of other categories of potential uses for typographic spaces would be welcomed, as are suggestions for improving this text.

APPEAL

None of the work-arounds or the Space.ttf font method to provide fixed spaces for typographic or text purposes would be necessary if Corel (or the licensor of the appropriate character set) could be persuaded to add hard spaces to the Typographic Symbols character set; or alternatively to the Math/Scientific Extended character sets.

Inclusion as standard items in a character set would eliminate both the need for work-arounds and Space.ttf. Equally important, it would reduce code clutter in documents and it would simplify F & R action when any space needed to be changed, or deleted.

While the re-issued fonts allow special characters required for technical and scientific documents now allow embedding by the PDFWriter, the problem of 'Advance' codes not being recognised by PDFWriter has still to be resolved.

Despite enquires to Corel as to who created these character sets, I have had no reply. Anyone who supports the inclusion of typographic spaces is encouraged to send a message to Corel product feedback at:

<http://venus.corel.com/nasapps/FeedBack/index.html>

ADDITIONAL INFORMATION

Robert Bringhurst's *The elements of typographic style* includes a number of recommendations on spacing matters. Indeed, this book can be recommended as a masterly discussion of all typographic issues, and has the advantage of recognising issues and problems with electronically-generated texts.[Hartley & Marks, Vancouver 1996 2nd ed.]

Geoffrey Dowding's *Finer points in the spacing and arrangement of type* deals with spacing issues in some detail. [re-issued by Hartley & Marks, Vancouver, 1998]

Paul Merrell has provided an interesting backgrounder on spacing and the influence of the succession of equipment used in the development of word processing and DTP resources. It can be found at:

<http://listserv.acsu.buffalo.edu/cgi-bin/wa?A2=ind9810e&L=wpwin-l&F=&S=&P=9078>

Sections 5.17 of the Karen Gibson's WP8 FAQ give information on en and em dashes and spaces located at

<http://w3.one.net/~kgibson/wp8faq.htm>.

ACKNOWLEDGMENTS

A number of contributors to the WPWIN-L newslst have made suggestions that have solved problems or contributed to development of the concepts incorporated into this document; others have read drafts of this paper and offered comments, suggestions and corrections. I wish particularly to thank Tony Bray, Tony Fitchett, Mark Jordon, Tony Pritchard, Joanne Scott, Ben Taylor and Moira Thompson. Maia Ferguson, Joop Jagers, and Elaine

Dawson have helped with macro issues, and Paul Merrill has offered encouragement and suggestions about packaging the font and text files.

All are absolved from any errors or omissions that remain.

FOOTNOTE

Barry MacDonnell has written six sophisticated macros that provide for two situations.

If each macro is used as text is created, it inserts the preferred hard space. When editing existing text with standard (regular) word spaces already inserted, it deletes the word space and substitutes the preferred hard space when played at the cursor location. These macros are packaged with this document with his permission, or may be found as Spacers.exe at <http://ourworld.compuserve.com/homepages/macdonnell/OtherAuthors.html>

Note that some users may need to modify the first line of macro code ("..."EN") according to their country and if they work in WP7, to change "EN" to "US" in the U.S. version of WP7.

Barry has also provide a menu to play the six macros, which is packaged as SPACER_M.WCM

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ASSOCIATED FILES

Space.ttf; License.pdf

Spacers.exe; Spacers_M.exe (by Barry MacDonnell)

ADDENDUM

Marc-Andre.Roberge@mus.ulaval.ca has drawn attention to the following French language rules.

A hard word space is used before colons and after opening double quotation marks, and before closing double quotation marks. A thin hard space is used before semicolons, question and exclamation marks, as well as between numbers and currency or units signs or symbols.[see first example on p.2]

He draws notes the unfortunate consequence of using standard word spaces, rather than hard spaces, with opening and closing quotation marks with the possibility of quotation marks appearing alone at the end of a line with the quoted text starting on the following line.

He supports the provision of hard typographical spaces for use with French texts.