

# Using Microsoft Word (2002/2003) for Writing Technical Documents

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## ABSTRACT

This writing collects some non-trivial information about the preparation of technical documents in Microsoft Word (version 2002/2003). It's targeted mainly to people preparing scientific papers, dissertations, technical manuals and other documents of similar nature and complexity. MS Word isn't quite optimized for these tasks imposing mainly tools suitable for quick preparation of short documents while it also has various features for handling longer, structured documents containing lots of figures, formulas, cross-references, citations, etc. In thorough textbooks, the descriptions of those features are scattered over hundreds of pages and hidden within vast amount of other (mostly trivial) information.

The present document (as Word \*.doc file) can also serve as a template for certain tasks.

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# CHAPTER 1. INTRODUCTION

## 1.1. An overview of word processing and related topics

When using classical typewriter, the typist himself is responsible for imposing proper line and page breaks in the flow of text. In addition, he must employ multiple spaces and carriage returns to attain desired alignment and spacing of text. When using a word processor, however, the author is just expected to indicate how the text flow is structured (split into words, sentences, paragraphs, chapters, etc). The software is responsible for text wrapping and pagination, i.e. breaking the text flow into lines and pages. Furthermore, differently from a plain text editor (like Notepad) a text processor is usually capable of achieving a pleasing typesetting at full justification (like the current paragraph) by properly adjusting word spacing and finding proper hyphenation points. The author can influence the typesetting through the formatting rules but he should not be concerned about any particular line break.

Typesetting software comes in two flavors: it may be either WYSIWYG (What You See Is What You Get) or markup-based. In the former case the look of the editable document on the computer screen is nearly identical to the printout, i.e. the typesetting takes place in real time as the text is keyed in.\* In the latter case, however, the content is typed in a plain text editor (say, Notepad) and special textual codes are used to designate the structure and formatting of the document. This text file is then fed to a typesetting engine in order to actually typeset the document. Well-known markup languages are LaTeX and HTML. Under the hood, a WYSIWYG software must also utilize some markup but, thankfully, the user seldom needs to deal with that. The main problem with WYSIWYG text processing is that the software must sacrifice some quality for the speed. On the other hand, the markup-based systems are fairly inefficient (unproductive) in preparing short sophisticated layouts involving a high ratio of formatting (newspapers, magazines, posters, flyers, etc).

There are actually two greatly overlapping kinds of WYSIWYG software: word processors and desktop publishers. Traditionally, word processing software is primarily meant for *composing* documents (i.e. editing and formatting text) whereas desktop publishing software is intended to *finish* those documents (i.e. combining the text with accompanying graphics and performing professional typesetting). However, the distinction is getting increasingly more blurred. Yet, it is usually ill-advised to use a typical word processor for creating either short massively sophisticated layouts or extremely long, highly structured documents. Also, due to the lack of fine spacing and kerning capabilities a word processor is usually unable to produce the quality typesetting (at full justification) typical to desktop publishers (although for most people it might be hard to notice the difference [1]). Well-known word processors are MS Word and OpenOffice.org which though incorporate quite many features of desktop publishers. Examples of high-end desktop publishers are Adobe InDesign and Quark Xpress which are geared towards layout-intensive work. Finally, there are programs like Adobe FrameMaker and Corel Ventura which are suitable for creating long structured technical

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\* MS Word (and most other word processing programs) can switch between different *views* of the same document (check the View menu and the row of small buttons near the lower left corner of Word window). Only in the *Print Layout* view Word tries to achieve maximally WYSIWYG display whereas the simplified *Normal* view is suggested for routine editing of body text. Normal view does not display page borders, header/footer areas, floating graphics and other visuals possibly distracting attention of the author. Other than that there is probably no reason to prefer the Normal view as the computational overhead of the Print Layout view is insignificant for a typical PC nowadays.


documents but are a bit inconvenient for short and quick designs. MS Office suite includes also an entry-level desktop publishing application called MS Publisher.

If one is going to prepare a lengthy document containing *lots* of mathematics and *lots* of floating graphics, (s)he may need to consider LaTeX as an alternative to WYSIWYG systems [2]. However, unless a good template is provided (by a publisher, university, etc) the detailed control of the formatting of LaTeX-based documents requires a fair amount of technical information. There exist some more-or-less WYSIWYG front-ends for LaTeX (Scientific Word, LyX) but their effectiveness is arguable.

When a document has been composed and finished in a word processing or publishing software, it is then usually converted to a file format (such as PDF, PostScript or XPS) that is convenient for electronic distribution, printing, viewing on computer screen, or archiving. Such file format is just supposed to preserve the complete description of a fixed-layout document and is not meant for further editing (though minor changes and annotating/commenting might be possible). Those file formats have freeware viewers available for most platforms.

## 1.2. Essential rules of text editing in Word

- Pressing **ENTER** signifies a *paragraph break* in Word and is not meant for adding space between paragraphs. So press **ENTER** just once to start a new paragraph. The control of alignment and spacing of paragraphs is the matter of formatting (Format ► Paragraph). Special alignment of text is achieved by setting proper tab stops (Format ► Tabs) or using tables (possibly with non-visible borders).
- If it is necessary to insert new line *within a paragraph*, use *manual line break* (**SHIFT+ENTER**). For example, URLs and filenames tend to be so long that you may need to move them entirely to the next line.
- If it is necessary to eliminate the possibility of “soft” line break between words, use *non-breaking space* (**CTRL+SHIFT+SPACE**) instead of ordinary space to separate the words. For example, non-breaking space might be sensible when separating the numerical value and the unit of a quantity (say, 30.48 cm). Similarly, there is a *non-breaking hyphen* (**CTRL+¶**) that prevents breaking a line at the hyphen. For example, the word CD-ROM should never be broken.
- Do not use ordinary hyphen (-) to force custom hyphenation of words. Instead, the *optional hyphen* (**CTRL+¶**) hyphenates the word only if necessary while remaining invisible otherwise. Optional hyphens are also inserted during the manual hyphenation of document (Tools ► Language ► Hyphenation, click Manual).

As an aid for editing, you may sometimes want to switch on the display of non-visible (formatting) characters by pressing the button  on the toolbar. Each type of non-visible character has distinct display as shown in the table. The display of these characters is mainly useful for troubleshooting purposes, otherwise they are just distracting attention.


·	ordinary space
◦	non-breaking space
¶	paragraph break
↵	manual line break
¬	optional hyphen
→	tab

## CHAPTER 2. STYLES

### 2.1. The idea of styles

A *style* is a named set of formatting attributes that can be linked to a paragraph (*paragraph style*) or individual characters (*character style*). Styles accommodate font, indents, spacing, pagination, language used for spell-checking and hyphenation, bullets & numbering, tab stops, borders & shading. The main benefits of using styles follow from the fact that a style is stored separately from the formatted text so that whenever the style is modified, all linked paragraphs or characters update their look accordingly. Therefore, styles provide a way to separate the content of a document from the formatting (look), so that the author can just concentrate on writing, and control the formatting of the whole document centrally as needed. In addition, the use of styles imposes a discipline in structuring the document (i.e. dividing the document into chapters and other logical subdivisions down to individual paragraphs of body text). For example, one possible route of starting the preparation of a new lengthy document is to first set up the hierarchical structure of the document (using the heading styles) and thereafter fill in the content. Setting up and restructuring the document is convenient in the outline view (View ► Outline).

Thus, all repeating elements of similar formatting (headings, body text paragraphs, figure captions, displayed equations, etc) should be linked to common style, and thereafter, all formatting of these text elements should be carried out through the modification of the style (i.e. by avoiding direct formatting options from the Formatting toolbar or Format menu). For example, in this document all figure captions are linked to a special paragraph style whereas all menu commands and shortcut keys adhere to a special character style making it easy to centrally manage their look. On the other hand, there is little point in using styles for formatting the title page, which appears just once in the document.

Clicking the icon  on the formatting toolbar (or selecting Format ► Styles and Formatting) displays the Styles and Formatting task pane (Fig. 2-1) which is the central place to apply and manage styles in MS Word.

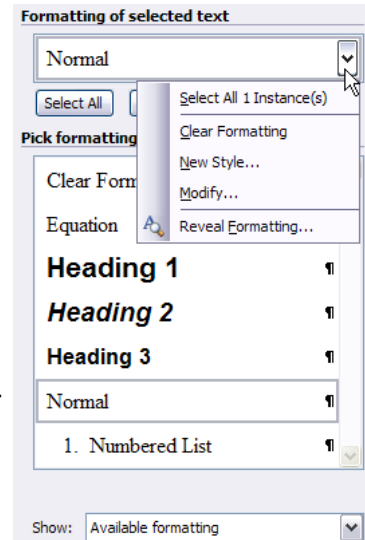


Figure 2-1: The Styles and Formatting task pane.

### 2.2. Further possibilities to utilize the styles

- Never use blank lines to control spacing between successive paragraphs. This is the matter of paragraph formatting which is defined as a part of the paragraph style. In particular, the spacing after heading should be determined by the heading style.
- For the same reason never press **TAB** to indent the first line of body text paragraph. The paragraph style should control the indent of the first line. In the future you may want to modify the amount of the indentation or disable it altogether in favor of an additional spacing between successive paragraphs. Modifying the style will fix the problem throughout the document at once.
- You don't need using **SHIFT** or **CAPS LOCK** to type, for example, chapter title in capital letters. This behavior should be the property of style (check All caps in style's font settings)

as you'll never know when you might want to reconsider this decision. Similar caution is appropriate for other possible transformations of the font, like SMALL CAPS, shadow, color, etc.

- Quite commonly, the author wishes to *emphasize* some terms or phrases in his/her document. However, it may not be clear in advance whether the italic, bold or underline formatting (or some more exotic decoration) will be the most delicate way to catch the attention of the reader. Therefore, a dedicated character style is necessary. You can employ built-in styles EMPHASIS or STRONG (they default to italic and bold).
- Instead of defining your own styles from scratch when starting a new document it's most efficient and reliable to employ the built-in BODY TEXT style for body text\* and the built-in heading styles (HEADING 1, HEADING 2, etc) for headings. There are a bunch of good reasons to stick to the built-in heading styles [3]. By default, they are already properly included in the table of contents and have convenient shortcut keys assigned. They are also needed for implementing certain numbering schemes as mentioned in section 5.3.
- In addition to the Normal and Print Layout views, Word has the *Outline* view displaying the collapsible and rearrangeable document structure based on the applied heading styles. This feature comes handy during the designing and restructuring of a long document.
- Styles can be hierarchical (cascading), i.e. a new style can be based on an existing style. If you do not override a property of the new style it's inherited from the base style. For example, when you create a style for a list, it should be based on NORMAL since it usually has the same font as the ordinary text differing only in the advanced settings for bullets & numbering (see Chapter 3).
- You don't need a manual page break to start every chapter on a new page. The heading style (HEADING 1 or whatever you're using for top-level titles) can accommodate this behavior. You can also find a number of other useful settings for controlling the pagination of paragraph (see Fig. 2-2). For instance, heading styles usually have Keep with next checked preventing them remaining at the end of page alone.
- If a paragraph has incidentally lost its style-specified indents, spacing, alignment, etc, move the cursor into the paragraph and reset the paragraph (CTRL+Q). If you have applied direct formatting to a piece of text (for example, a character style) you can restore the formatting in accordance to its paragraph style by selecting the text and resetting the characters (CTRL+SPACE).

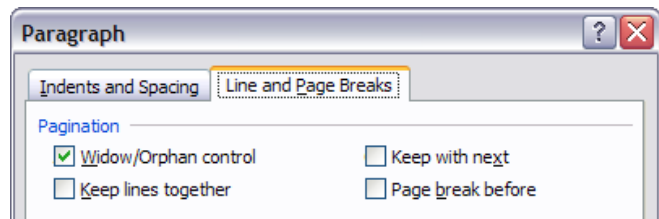


Figure 2-2. Pagination properties of paragraph.

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\* Note that NORMAL is active by default when starting a new document and is therefore frequently employed for the body text. This is usually fine except that it won't let modifying the body text without possibly affecting other styles since the NORMAL style is meant to serve as the base of all styles [4].

## CHAPTER 3. FIELDS

### 3.1. The idea of fields

A *field* is a placeholder that contains special instructions for working out the content to display. A field is used to display a piece of text that might change from time to time and needs to be automatically updated. Word itself uses fields for displaying and updating the page numbers, the table of contents, etc. As an additional example, the date the document was last saved as shown on the title page of this document is produced by a special field. In order to create a field you may use either the Insert ► Field command to browse the list of all available field types (Fig. 3-1) or just insert a blank field placeholder (**CTRL+F9**)

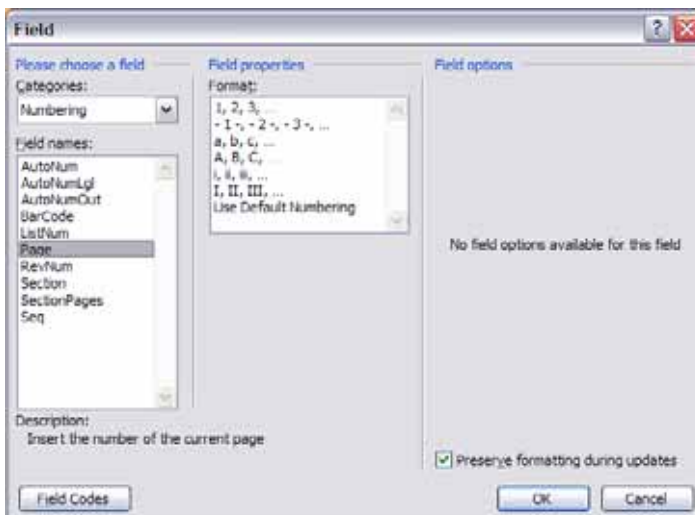


Figure 3-1: Field insertion/editing dialog.

and type the proper field codes between the curly braces (then select Update field from context menu to evaluate the code). For example, the field code that produces the current page number (in header or footer) looks like `{ PAGE }`. The context menu of a field contains also command Toggle Field Codes to switch the placeholder between the evaluation result and the field definition code.

Field codes employ usually various *switches* to modify their behavior. These switches can be written directly as part of the field code or conveniently picked from the Insert ► Field dialog. Note that most fields accept `\* MERGEFORMAT` switch to preserve, during updates, any direct formatting that has been applied to the field result (the switch is represented by the Preserve formatting during updates checkbox in Fig. 3-1).

Note that most fields do not update automatically. In order to ensure that all fields in the document reflect the latest changes, select all text (**CTRL+A**) and press **F9**. In the case of table of contents (or table of figures, etc) Word asks if only the page numbers or the whole table needs an update. You may also want to check the Update fields option in the Print tab of Tools ► Options dialog to ensure automatic updating of all fields prior to printing.

If you're going to distribute or submit your Word document (to a publisher, for example) it might be advisable to remove all fields and replace them with the most recent evaluation results as static text by using the Unlink fields command (**CTRL+SHIFT+F9**). In order to distinguish fields from static text you may want to make a proper selection for Field shading in the View tab of Tools ► Options dialog.

### 3.2. List of some useful fields

Field code	The purpose
<code>{ PAGE }</code>	Displays the current page number. The field is created, for example, by the command Insert ► Page numbers.

{ NUMPAGES }	Displays the total number of pages in the document or current section. They can be used in combination with { PAGE } to implement “Page X of Y” style page numbering.
{ SECTIONPAGES }	
{ SEQ seqname }	Displays the next element of a numeric sequence labeled “seqname”. The sequence starts with number 1 and is incremented by 1 each time. For example, it can be used to automatically number figures, tables and equations as { SEQ Figure }, { SEQ Table }, { SEQ Equation }.
{ SAVEDATE }	Displays the date the document was last saved.
{ REF bookmark }	Inserts the text represented by the bookmark labeled “bookmark”. The Insert ► Reference ► Cross-reference command relies on this field.
{ STYLEREF "stylename" }	Displays a recent paragraph text or paragraph number which was formatted with the style “stylename”. It can be used to display running headings, etc.

## CHAPTER 4. OUTLINE NUMBERING

### 4.1. Creating outline numbered list

A technical document frequently contains *outline numbered lists* like the following:

1. Text processing software
  - 1.1. Microsoft Word
  - 1.2. Corel WordPerfect
  - 1.3. Sun StarOffice
  - 1.4. OpenOffice.org
2. Desktop publishing software
  - 2.1. Software for short sophisticated layouts
    - 2.1.1. Adobe InDesign
    - 2.1.2. Quark XPress
  - 2.2. Software for long structured documents
    - 2.2.1. Adobe FrameMaker
    - 2.2.2. Corel Ventura
    - 2.2.3. LaTeX

The trivial advantage of using numbered lists feature is the automatic numbering of list items (so it will be convenient to insert and delete items afterwards with automatic renumbering). Even more importantly, you can centrally manage the numbering scheme (arabic, alphabetic, roman, etc), the indentation of list levels, etc.

If special font formatting and paragraph spacing for different list levels is not required, it suffices to create just a single new style for such list (select the body text style as the base style so that whenever you change the formatting of body text the list will update as well). In the Modify Style dialog click Modify ► Numbering. From the list gallery dialog select a list template you like (and what is not in use already!). You may not be fully satisfied with the default numbering settings, therefore click Customize. A fairly sophisticated dialog is opened (be sure to click the More button on the dialog to see all settings as shown in Fig. 4-1). This dialog is used to define numbering schemes and alignment for each list level (selected from the Level list box near the top left corner). The numbering scheme is composed in the Number format text box. In addition to the counter values (selected with the two combos titled Number style and Previous level number) you are allowed to type custom text into the text box (you may want to include dashes, periods, brackets, etc in the level number). Also, for each sublevel tick the Restart numbering after check box near lower right corner and ensure that the corresponding combo box displays the correct parent level.

The settings in the Number position group determine the distance of the left edge,

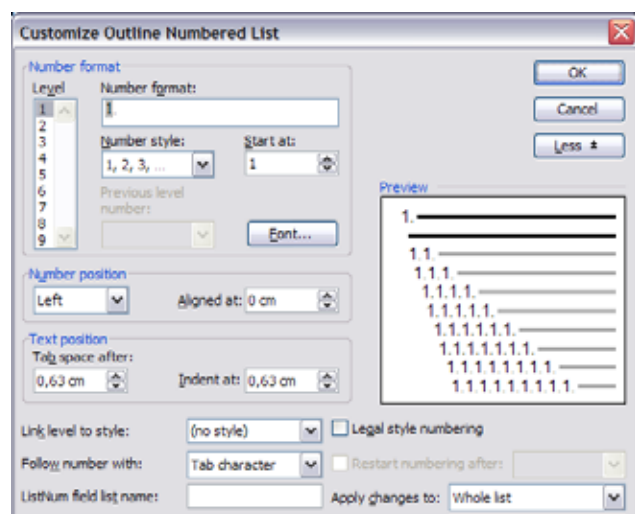


Figure 4-1: Customization dialog of outline numbered list.

center, or right edge of the list number from the page margin. The indent of the text following the number is determined by the selection in the Follow number with combo box along with a corresponding measure in the Tab space after text box. The left indent of the remaining lines of the list item is determined by the Indent at text box. Note that you *shouldn't* try controlling these indents afterwards by modifying the paragraph format of the style.

Now, to create an outline numbered list, the list style must be applied to a paragraph which thereafter becomes a top-level list item. Pressing **ENTER** creates the following list item at the same list level as the current one. While the cursor is placed immediately after the item number, pressing **TAB** moves the item one level down (increases indent) whereas **SHIFT+TAB** does the opposite.

By default, all paragraphs with the same numbering style are supposed to belong to the same list and are numbered continuously throughout the document. The most straightforward way to start a new list (employing the same list style) is to right-click on the number of the first paragraph of the new list and select Restart Numbering from the context menu (note that there is also Continue Numbering command available although **CTRL+Q** (Reset Paragraph) is recommended to achieve the same result). A more reliable but also more inconvenient method is to place a LISTNUM field at the end of each list. For a single level list, the appropriate syntax is **{ LISTNUM \s 0 }**. You can format the field using either white or hidden font to make it invisible when printing. For further possibilities, check Ref. [5].

## 4.2. Creating numbered headings

Multilevel numbering of headings is set up essentially in the same manner as that of a list; you just need to link each list level to the corresponding heading style (Link level to style combo box in Fig. 4-1). Depending on the document you may want to include the words “Chapter”, “Section”, “Appendix”, etc in the number of a title; you need to type this word into the Number format text box. It is suggested that you access the Customize Outline Numbered List dialog always from the Modify Style dialog of HEADING 1 [6].

## CHAPTER 5. FIGURES

### 5.1. Preparing figures for Word

Usually it's best to prepare high-quality graphics in dedicated software other than MS Word. From the image-editing program you need to save or export the image in a format that Word can later import. Photographs (and drawings that make a massive use of gradients) are best saved in JPEG format. Vector graphics should be stored as EMF (Enhanced Metafile) which is a native vector format of Windows (and MS Office). In some cases you might not have access to the original vector representation of a drawing or the EMF export filter might malfunction. In that case the drawings should be saved in a lossless raster format, since the lossy JPEG compression introduces artifacts whenever sharp transitions are present in the image. PNG and GIF provide a good compression and wide support but GIF is limited to only 255 colors.

Frequently the source of an image is a document in PDF format. Use the Snapshot tool of the PDF reader to copy a screen area as raster image into clipboard. The resolution of the copied image is determined by the resolution of your monitor and the size of the selection rectangle. In documents related to computing, screenshots of some software are frequently incorporated. Press **ALT+PRINT SCREEN** to capture the image of active window or dialog box into clipboard (**PRINT SCREEN** alone captures the whole desktop). For more specialized tasks, use a screen capture utility like MWSnap [7].

When preparing a raster image for inclusion in a Word document pay attention to the resolution (number of pixels). The resolution should be sufficient to yield a pleasing appearance on the printed page but it would be pointless to incorporate a maximum-resolution photograph (say, 3200×2400) from a digital photcamera. Use a tool like IrfanView [8] to reduce the image resolution (and/or perform cropping) if necessary.

It is usually preferred (at least for large images) to insert the image from a file instead of pasting from clipboard as Word maintains the compression that is present in the original file. Never copy and paste large photos leading to bloating file size; use dedicated software (like IrfanView) to prepare a properly compressed JPEG file.

The drawing tools provided by Word are sometimes sufficient for creating simple technical schemes and diagrams. Word also provides a special *drawing canvas* which keeps the drawing primitives (lines, shapes, textboxes, etc) together and provides a boundary between the drawing and the surrounding paragraph text (see Fig. 5-1). By default a new drawing canvas is created if you're trying to place a drawing object but no existing drawing canvas is selected (the behavior is set in the Tools ▶ Options ▶ General dialog).

### 5.2. Positioning and captioning figures

Follow these steps to create a captioned figure in a Word document:

1. Position the cursor into an empty paragraph.

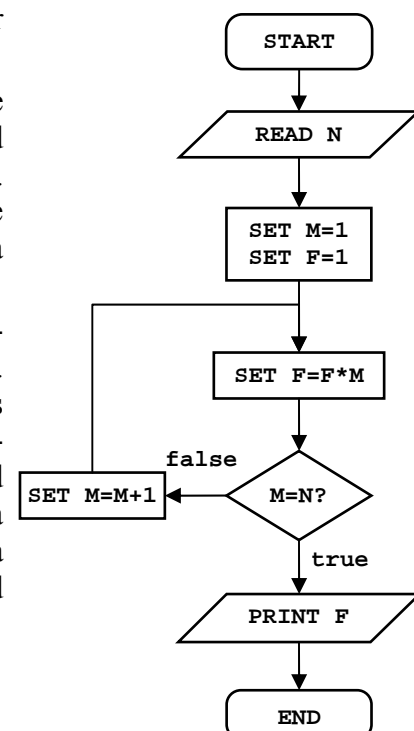


Figure 5-1: Calculating the factorial of  $N$ . The diagram is drawn on a drawing canvas by using the drawing tools provided by Word.

2. Put an inline image into the paragraph. Insert the image from a file (Insert ▶ Picture ▶ From File), paste from the clipboard (Edit ▶ Paste Special), or create a drawing canvas (Insert ▶ Picture ▶ New Picture) and draw a diagram using the drawing tools provided by Word.
3. Press **ENTER** to create a new paragraph beneath the image and type a caption for the figure. Use a special style for the caption to grant the possibility of creating the list of figures if needed (see page IV as an example) and centrally control the text formatting in the future. There is a built-in style CAPTION meant for the purpose (note that the numbering procedure, described in the next section, automatically applies this style).
4. If you don't need that the text freely flows past the figure (as it does in professional layouts), then all you need to do is to click on the figure, select Format ▶ Paragraph, go to Line and Page Breaks tab, check Keep with next. That ensures that the paragraph containing the figure stays always on the same page as the following paragraph holding the caption (for convenience, you may define for figures a special style enforcing this property). In addition, the style of the figure caption might need to have Keep lines together checked in paragraph settings to avoid breaking the caption across pages.
5. However, if you would like to create a floating image (like Fig. 5-1), select the image along with its caption and, on the Forms toolbar, click Insert Frame (you may want to add this command to some other toolbar or the Insert menu for quicker access). By the way, you can't use textbox instead of frame because in that case Word seems incapable to include the caption in the table of figures (it is said that Word looks for the captions in the document layer, which the frame is part of, whereas textbox belongs to drawing layer). Double-click on the border of the frame to display Format Frame dialog. Set Text Wrapping to Around. Set Height (and possibly also Width) to Auto so that the height (width) of the frame is adjusted to fit to the image and the caption. Set horizontal and vertical position as necessary. Usually you want the figure to align horizontally to the left or right margin and vertically to the top or bottom margin. You may also align vertically relative to the paragraph the frame is anchored to.\* Check Move with Text to make sure the figure will be moving with the paragraph it is anchored to. You can anchor the frame to a different paragraph by dragging the anchor symbol in front of the paragraph (if the anchor is not visible, you must check Object Anchors on the Tools ▶ Options ▶ View dialog).

For space-conserving and aesthetical reasons you may want to setup multiple figures side-by-side or one above the other. For that purpose (and also as an alternative to the use frames) you can use a table reserving a cell for each figure with its caption. Note that you should not allow breaking the row across pages (Table ▶ Table Properties, sheet Row).



Figure 5-2: An artistic view of Earth.<sup>†</sup>



Figure 5-3: Photo of Earth by Apollo 17.

\* You can also insist the horizontal or vertical position be just inside margins, but Word might not be smart enough to make reasonable decisions on the placement of figures. As far as I can tell, there is no possibility to achieve such robust figure/table positioning behavior available in LaTeX.

<sup>†</sup> S. Budig, How to make “cool” globes with the GIMP, <http://www.home.unix-ag.org/simon/gimp/globes.html>.

### 5.3. Numbering and referencing figures

Automatically numbered captions for figures and tables are created with the Insert ► Reference ► Caption dialog. Unsurprisingly, the number produced by the command turns out to be a SEQ field, for example `{ SEQ Figure }` or `{ SEQ Table }` or `{ SEQ Equation }` depending on the label selected. This field produces a sequence of integral numbers as mentioned in section 3.2. Furthermore, in the Insert ► Reference ► Caption dialog (click button Numbering) you can insist that current chapter number be included as the prefix. This is indeed the style used in longer structured documents (see figure captions of the present document as an example). That composite number is produced by the combination of two fields as follows: `{ STYLEREF 1 \s }-{ SEQ Figure \s 1 }`. The STYLEREF field is producing the number of the most recent level 1 title (i.e., HEADING 1). The switch `\s` in the field code is actually not documented; it causes the field to display only the number of the heading without any text (like Chapter or Appendix) that might also be defined as part of the numbering. The `“\s 1”` code in the SEQ field forces the restart of numbering whenever the level 1 style (e.g. HEADING 1) is encountered. Altogether, this algorithm produces figure numbers similar to those used in this document. Note that the use of the Insert ► Reference ► Caption feature automatically applies built in CAPTION style to the paragraph.

MS Word provides the Insert ► Reference ► Cross-reference command for create a cross-reference to various parts of the document. However, the referencing capability appears to have a serious limitation: referencing the number only is not possible (for example, you are forced to say “see Figure 3” instead of “see fig. 3”). Fortunately, the limitation is easy to overcome by placing a bookmark enclosing the text to be referenced.\* Mark the figure number, select Insert ► Bookmark and give the bookmark a unique and meaningful name (to make it easy to recognize later). Then go to the point in the document where you would like the reference to appear, click Insert ► Reference ► Cross-reference, select Bookmark from Reference type, select Bookmark text from Insert reference to, and finally select the name of the bookmark. It is usually beneficial to check Insert as hyperlink making it easy to navigate the document. You may ascertain that this procedure actually creates a REF field. This field accepts the switch `\h` to behave as hyperlink.

Note that after placing the bookmark you must be careful in the modification of the text nearby. If you insert some text just before or just after the bookmark you won’t know if it becomes enclosed within the bookmark or not. If things go wrong you just have to reinsert the bookmark (with the same name).

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\* The existing functionality is also based on bookmarks but these bookmarks are hidden and not meant to be controlled by the user. These hidden bookmarks usually enclose *both* the label and the number making it impossible to reference the number alone.

## CHAPTER 6. EQUATIONS

Handling of math in Word involves a number of problems: how to create, align, number and reference equations, and what formatting style is appropriate to use.

### 6.1. The style of equations

The style used for writing equations is somewhat a matter of personal taste and traditions of the scientific discipline the writer is representing. Still, professional publications adhere to some widely accepted math and physics traditions which are supposed to improve the aesthetics and readability of the text.

- Font size should match the surrounding paragraph text.
- Alphabetical symbols denoting variables, physical quantities, etc, are set in italics ( $x$ ,  $y$ ,  $\alpha$ ,  $\beta$ ). Capital Greek letters are an exception being usually written in upright ( $\Phi$ ,  $\Delta$ ).
- Numbers and normal text (including textual subscripts) are in upright letters. This applies also to units of physical quantities, symbols of chemical elements, symbols of elementary particles, etc. Example:  $V_{\text{rocket}} = 8000 \text{ m/s}$  (note that there is a space between the numerical value and the unit).
- Function names ( $\sin$ ,  $\log$ , ...) and mathematical operators (summation and integral signs, etc) are set in upright letters.
- Multiplication symbol ( $\cdot$  or  $\times$ ) is used only in some special cases, for example when denoting numbers in scientific notation (e.g.  $1.98 \times 10^{24}$ ). In equations it is usually omitted. Sometimes people utilize even the asterisk symbol ( $*$ ) to denote multiplication although the symbol is meant to serve only in computing and programming languages (see Fig. 5-1 for an example) and not in ordinary math. The same applies to symbols like  $>=$ ,  $<=$ , and  $<>$ , which are normally written as  $\geq$ ,  $\leq$ , and  $\neq$ .
- The hyphen (-) is not the minus sign ( $-$ ) and looks unaesthetic in this role. The minus sign is usually designed to be the same length as the plus and equals signs. En-dash may be used as a minus sign.
- The brackets are set in upright font. The size of brackets should match the enclosed content (equation editors have usually special vertically “stretching” brackets for that purpose).
- Although in handwriting, vector quantities are designated by an over-arrow (or a bar), it is more common to apply a bold style in printed documents.
- Compact math expressions and equations that will not be referenced elsewhere in the document should be embedded (inline) within a paragraph (e.g.  $y = ax^2 + b$ ). For inline equations the fractions of the form  $a/b$  are preferred over stacked style  $\frac{a}{b}$ .

As an example, formula 6.1 is written in accordance to these rules whereas formula 6.2 is not.

$$x_{1,2} = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \quad (6.1)$$

$$x_{1,2} = \frac{-b \pm \sqrt{b^2 - 4*a*c}}{2*a} \quad (6.2)$$

If you use the Equation Editor included with Word, it's usually best to use its default settings, which automatically match the surrounding text and mathematical tradition.

## 6.2. Aligning and numbering equations

Aligning a displayed equation and its number (as in the examples above) is fairly simple by defining a special style for that purpose. Create a new style (based on normal body text) and set two tab stops for it — one for positioning the equation and another for aligning its number. In the present document, for example, the first tab stop is at 8 cm centered whereas the second tab stop is at 15.5 cm right-aligned (Eqns. 6.1 and 6.2). Now that you have the EQUATION style defined, create an empty (single-line) paragraph and set its style to EQUATION. Press **TAB** once. Enter the equation. Press **TAB** once more. Enter the number for the equation. The numbering and cross-referencing of displayed equations can be implemented in exactly the same manner as in the case of figures (see section 5.3). However, the Insert ▶ Reference ▶ Caption feature automatically applies the built-in CAPTION style to the paragraph which is totally pointless here. You may want to employ a macro that does the same job of creating the combination of STYLEREF and SEQ fields (see Appendix B).

As an alternative to tab stops, you can use a table (with invisible borders) for equation alignment [10]. This might be necessary for displaying a large equation in a multicolumn layout.

## 6.3. Creating equations

In general, there are three (fairly different and inconsistent) ways to create math in a Word document. Equation Editor (or its professional version MathType) is generally the preferred tool for the purpose. However, it is reasonable to create simplistic inline expressions (like  $E = mc^2$ , etc) just by direct formatting of normal text (applying italics, bold, sub- and superscript as necessary) and using Insert ▶ Symbol for obtaining special symbols. Finally, Word has the EQ field, which allows (in combination with direct formatting) creating some simple math constructs like  $\sqrt{a^2+b^2}$ , but I can hardly see any practical use for this approach unless you can't get Equation Editor running.

Note that Word 2007 has completely redesigned (and arguably better) approach to equation editing and handling. In Word 2007, equations are written using a LaTeX-derived notation and they are more natural ingredients of the text. The old-fashioned equation editor is also available, though.

## CHAPTER 7. HANDLING BIBLIOGRAPHY

Scientific papers, dissertations and monographs have frequently lists of references or bibliographies containing hundreds or even thousands records. There are two main citation styles: author-year or numerical. In the latter case all references are sequentially numbered and it's hardly imaginable to manually update this list and the corresponding citations scattered all over the document. For bibliography numbering, one can employ the SEQ field (quite fool-proof and flexible), a numbered list (a bit more convenient but more fragile and not so flexible), footnotes/endnotes (a quick and dirty way to get the job done) or dedicated reference management software (by far the most complete solution).

### 7.1. Footnotes and endnotes

The simplest solution appears to be using footnotes or endnotes (Insert ► Reference ► Footnote). Unfortunately, there is no consistent way to cite a bibliography item more than once. A cheap trick is to create a cross-reference to an existing citation (Insert ► Reference ► Cross-reference, select Footnote from Reference type). The formatting of footnote/endnote text is controlled through the internal styles FOOTNOTE TEXT/ENDNOTE TEXT whereas the number formatting is determined by FOOTNOTE REFERENCE/ENDNOTE REFERENCE. It is also possible to remove the horizontal separator line that Word automatically places between the list of notes and the main text. In the Normal view select View ► Footnotes; this opens a special note pane near the bottom edge of the window. Select Endnote separator from the combo box near the top of the pane and delete the horizontal line.

### 7.2. Numbered list

The Insert ► Reference ► Cross-reference tool allows referencing any numbered paragraph whether it is a heading or a list item of the body text. Therefore the numbered list can be used to implement the list of references. To reference a list item, click Insert ► Reference ► Cross-reference, select Numbered item from Reference type, select Paragraph number from Insert reference to, and finally select the bibliography record you want to cite. There appears to be one limitation, though. If the list is customized such that the number is enclosed in brackets, then you are unable to cite multiple sources at a time. For example, if the list goes as [1], [2], [3], etc, then you can't cite like [2, 4-7, 9]. Nevertheless, this document relies on this approach due to modest citation requirements (see page 23).

### 7.3. SEQ field

The use of SEQ field seems to be the most flexible route for handling references (if relying on the built-in features of Word). Therefore you need to start each bibliography record with something like { SEQ reference }. It may be advisable to create a special style for references. You can employ the paragraph's first line (hanging) indent and left indent in combination with a tab stop to implement something that looks like a list.

### 7.4. Dedicated reference management software

Specialized database software exists to collect and manage bibliographic records [12]. In addition, such programs have the very useful ability to import records from web-based databases and other sources, and to instantly format the records in accordance to any specified citation style. Custom styles are easy to set up. The software integrates with word processors


(through the use of macros, etc) and fully controls the citing as well as the list of references in the document (citations and references are both implemented as fields to enable their automatic update). With a few mouse clicks a different citation style can be applied (to suite for the requirements of another journal, for example). A fairly popular commercial package seems to be EndNote [13] whereas quite decent freeware solution is Zotero [14].

Note that Word 2007 has a promising new feature to handle the references, although it's still lacking some essential abilities of dedicated software (importing and exporting records, creating custom citation styles, etc).

## CHAPTER 8. MISCELLANEOUS TASKS

### 8.1. Copying and pasting data from other applications

When you're copying-pasting data from another application supporting rich text formatting and multiple image formats (web browser, PDF viewer, e-mail client, etc), Word tries to preserve as much of the original formatting as it can. However, this formatting is rarely what is needed as it does not adhere to the styles that were set up in the Word document. You can do one of the following:

- Use Edit ► Paste Special instead of Edit ► Paste. In the dialog box that appears, select Unformatted text from the list box to remove any formatting (and graphics) and preserve just the raw sequence of characters (for handling figures, see Chapter 5).
- If you have Show Paste Options buttons checked in the Edit tab of Tools ► Options dialog, you may paste the text as usual. Then an icon like  appears just after the pasted text. After clicking on that icon a drop-down menu appears containing various paste options as shown in figure 8-1. Match destination formatting or Keep text only are the most fool-proof choices. Keep text only should be similar to Edit ► Paste Special ► Unformatted text.

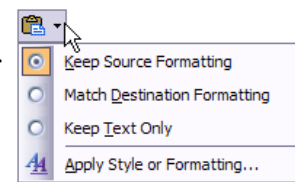



Figure 8-1: The Paste Options button.

It may still happen that the pasted text contains a number of excess line breaks. At this point it is useful to make various non-printing formatting characters in your document visible by clicking the button  on the toolbar. There are two kinds of “hard” line breaks in Word: paragraph breaks (indicated by a ¶ symbol) and manual line breaks (indicated by a ↵ symbol). While a few unwanted line breaks are easy to fix manually, longer texts may require more serious means of attack. Usually it's possible to get rid of the excess paragraph breaks by just applying AutoFormat to selected text (Format ► AutoFormat ► AutoFormat now). In general, however, the replace tool (Edit ► Replace) may become handy. In the replace dialog, press More to see some advanced options (Fig. 8-2). Position the cursor into the Find what textbox. At the bottom of the dialog, there is button labeled Special. After clicking on it a list of special (incl. non-visible) characters is displayed. For example, you can select Paragraph Mark or Manual Line Break, which are inserted into the textbox as special codes ^p and ^l (you may type the codes yourself). Into the textbox Replace with type a space. Then either press Replace All or play with Find next and Replace to confirm or reject each case individually. Similarly, empty lines (e.g. ^l^l) may be converted to paragraph breaks, multiple consecutive spaces to single space, non-breaking space to ordinary space, etc.

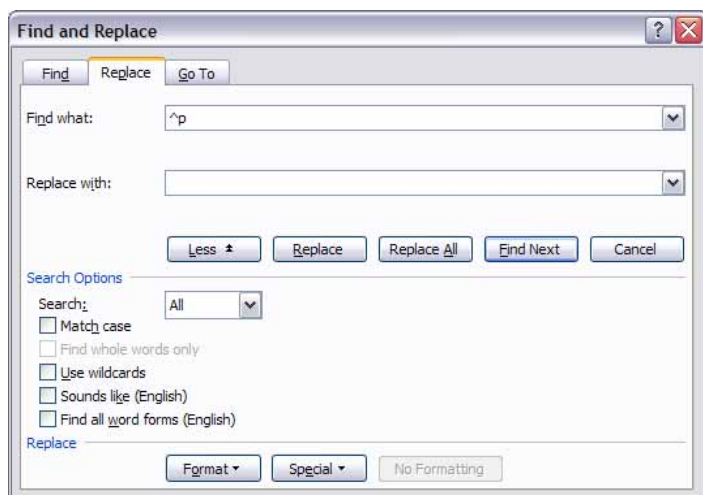



Figure 8-2: The Find and Replace dialog.

## 8.2. Sections and page numbering

You can divide a Word document into any number of *sections*. Each section can have different settings for paper size and orientation, margins, columns, headers & footers (incl. page numbering). To create a new section, execute Insert ► Break and select a proper type of section break in the dialog. A newly created document consists initially of just one section. The markings of section breaks are toggled by pressing the button  on the toolbar.

Note that Word sections have nothing to do with the logical division of the main text into parts, chapters, paragraphs, etc (and the sections, subsections, etc as used in LaTeX). Different sections might be useful, for instance, for separating front matter (title page, table of contents, preface) and body (main text) of a book.

A *page number* in Word is nothing but a field inserted usually into the header or footer area of the page. Each section can have different page numbering scheme (and header/footer contents in general). The number of a page within a section is determined by a starting value (usually 1) and the location of the page in the section. Note that the values of page numbers do not depend on whether they are actually displayed or not.

Although Word provides Insert ► Page Numbers command, a more robust and cleaner approach is to setup header/footer content manually. Execute View ► Header and Footer to switch editing to the header/footer area. Position the cursor where you want the page number to appear and insert the field `{PAGE}` to display the page number. Related useful fields are `{NUMPAGES}` and `{SECTIONPAGES}`, which allow implementing “Page X of Y” style of numbering. There are various more sophisticated (albeit seldom needed) tricks you can do with the fields related to page numbering [11].

Note that you have a quick access to all the fields as well as to other relevant tasks through a special toolbar which appears as soon as you activate the editing of header/footer (Fig. 8-3). In order to

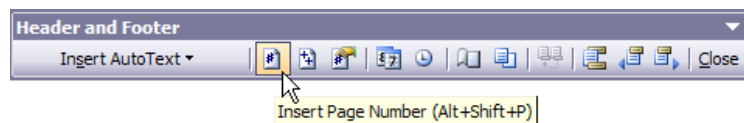


Figure 8-3: The Header and Footer toolbar.

change the starting value of the page numbers for the current section, click the Format Page Number button. You have the option to continue the numbering from the previous section or type the desired value in the Start at textbox. Furthermore, the same dialog provides a possibility to modify the numbering scheme (arabic, alphabetic, roman).

Finally, note that by default the layout of headers and footers of all sections are the same because the sections are *linked*. You can link or unlink sections by toggling the Link to Previous button.

### 8.3. Customizing the table of contents

Table of contents is a TOC field that is conveniently created through the Insert ► Reference ► Index and Tables ► Table of Contents dialog. The depth of titles to be shown in the table of contents is determined by the Show levels value. The look of the table of contents is controlled by the built-in styles TOC1, TOC2, ..., corresponding to levels 1, 2, ..., respectively. For example, the common right-aligning of the page numbers (with a leader dotted line) is achieved by setting a proper tab stop. These styles are usually not visible in the Styles and Formatting task pane, but you can easily access them by opening Insert ► Reference ► Index and Tables ► Table of Contents dialog and pressing the button Modify located at the lower right corner. However, it seems that automatic update is enabled for the styles by default so that any direct formatting of the table of contents entries should modify the styles correspondingly. If necessary, table of contents based on any styles (not just the built-in heading styles) can be set up by clicking the Options button.

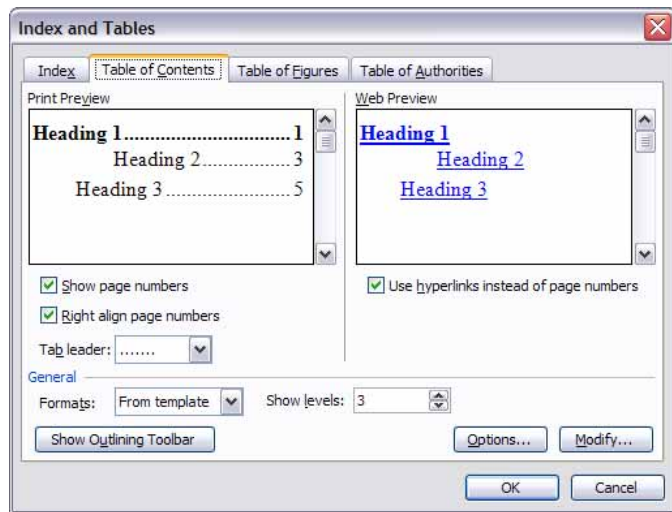


Figure 8-4: The dialog for setting up table of contents.

However, it seems that automatic update is enabled for the styles by default so that any direct formatting of the table of contents entries should modify the styles correspondingly. If necessary, table of contents based on any styles (not just the built-in heading styles) can be set up by clicking the Options button.

### 8.4. Creating appendices

The problem with appendices is that they are usually subject to a different type of numbering scheme than the main headings, such as Appendix A, Appendix B, ..., instead to Chapter 1, Chapter 2, .... Therefore you can't employ HEADING 1 for that purpose. A common solution is to exploit a heading style that is not in use for titles in the main part of the document, say HEADING 7 (it is very improbable that you need so deep nesting of titles, therefore this style should be unemployed).

1. From the Modify Style dialog of HEADING 1, select Format ► Bullets and Numbering and click Customize. In the Level list, click 7. In the Number format box, type **Appendix** and press **SPACE**. From the Number style list select A, B, C, .... Click More. From the Link level to style list select Heading 7 and click OK. You may also play with the alignment options. Finally, modify the font and paragraph settings of HEADING 7 style as appropriate. For example, if you want the appendix titles look exactly like HEADING 1 (as in this document), you may take HEADING 1 as the base style.
2. In order to incorporate appendices into the table of contents, open the Insert ► Reference ► Index and Tables ► Table of Contents dialog and click Options. To show HEADING 7 titles in table of contents at the same level as HEADING 1 titles, type "1" into the TOC level box to the right of Heading 7 in the Available styles list. Clear the Outline levels check box. Click OK twice.
3. If you would like to change figure, table or equation numbering scheme to include appendix number, you need to modify the STYLEREF and SEQ fields accordingly to reference level 7 headings (see Fig. A-1 in Appendix A).

## CHAPTER 9. INCREASING PRODUCTIVITY

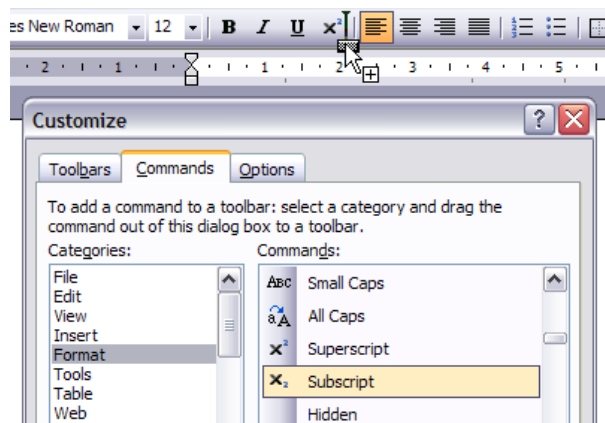
MS Word has a fairly well-designed user interface which supports nearly unlimited customization. You can:

- Customize and reorganize menu items and toolbar buttons (Tools ► Customize).
- Create macros for automating lengthy but frequently required tasks (Tools ► Macro).
- Associate custom keyboard shortcuts with commands, macros and styles (Tools ► Customize, click Keyboard button).
- Define useful AutoCorrect rules (Tools ► AutoCorrect Options).

If you have customized Word a lot, you may want to use the Save My Settings Wizard (included with MS Office installation) to store the workspace in a file. When you need to reinstall the application you can then easily restore your customizations.\*

### 9.1. Customizing the workspace

As the first step, you can somewhat optimize the layout of the workspace. Just after installation you may need to adjust the placement of toolbars so that all buttons become visible on the screen (hover the mouse pointer above the left edge of the toolbar so that it will turn into a four-headed pointer, then click and drag the toolbar). Technically minded people may want to include additional buttons for Superscript, Subscript, Insert Equation, Insert Symbol, etc. For that purpose, right-click on the toolbar area and select Customize. Then, on the Commands tab, find the commands of interest and drag them on the desired location on any toolbar (Fig. 9-1). There is even more convenient



**Figure 9-1: Dragging additional commands onto the toolbar.**

route to toggle the visibility of buttons: click on the downward arrow on the right edge of the toolbar and select Add or Remove Buttons. For example, you may want to remove surplus commands like Cut, Copy, Paste, Undo, etc, which are better accessed by a hotkey.

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\* Alternatively, you may backup the Normal.dot template which should be located at %APPDATA%\Microsoft\Templates (type the path into Windows Explorer address bar).

## 9.2. Using and customizing hotkeys

In a text processing application (as opposed to a CAD program, for example) the rational use of keyboard is the main way to increase productivity as the routinely used text editing and navigational commands do not assume precise pointer movement on screen and it's always more time-consuming to hunt the commands from menus or toolbars with the mouse. The hotkeys shown to the right are so widely recognized on PC platform that nearly all well-designed applications support them.

You will also find the following editing and navigational shortcuts very useful in MS Word:

Save	<b>CTRL+S</b>
Undo	<b>CTRL+Z</b>
Cut	<b>CTRL+X</b>
Copy	<b>CTRL+C</b>
Paste	<b>CTRL+V</b>
Select All	<b>CTRL+A</b>

<b>Special characters and formatting marks</b>	
En-dash	<b>CTRL+(NumPad)-</b>
Non-braking space	<b>CTRL+SHIFT+SPACE</b>
Non-braking hyphen	<b>CTRL+_</b>
Optional hyphen	<b>CTRL+~</b>
Manual line break	<b>SHIFT+ENTER</b>
Page break	<b>CTRL+ENTER</b>
<b>Navigational commands</b>	
Previous/next word	<b>CTRL+LEFT/RIGHT</b>
Previous/next page	<b>CTRL+PAGE UP/DN</b>
Beginning/end of document	<b>CTRL+HOME/END</b>
Zoom in/out	<b>CTRL+MOUSE WHEEL</b>
Go back (after clicking a hyperlink)	<b>ALT+LEFT</b>
Previous editing location	<b>SHIFT+F5</b>
<b>Formatting</b>	
Italic	<b>CTRL+I</b>
Bold	<b>CTRL+B</b>
Underline	<b>CTRL+U</b>
Reset character	<b>CTRL+SPACE</b>
Reset paragraph	<b>CTRL+Q</b>
Change case	<b>SHIFT+F3</b>
Apply NORMAL style	<b>CTRL+SHIFT+N</b>
Set focus to Style combo box	<b>CTRL+SHIFT+S</b>
<b>Fields</b>	
Insert field	<b>CTRL+F9</b>

Update field	F9
--------------	----


In addition, I would suggest assigning handy shortcuts to commands such as Redo, Subscript, Superscript, and Insert Bookmark. In order to assign/modify hotkeys, open the Customize dialog (as explained above) and click the Keyboard button at the bottom of the dialog. Select the command, then move the focus to the textbox labeled Press new shortcut key and press the desired combination of keys, and finally press Assign. Note that Word automatically handles the possibility that the hotkey might already be assigned to another command (no need to remove the previous assignment).

In most applications, Save (**CTRL+S**) and Undo (**CTRL+Z**) are your best friends. To minimize the possibility of losing work due to unexpected system failure, develop the habit of pressing **CTRL+S** whenever you're making a pause in editing. Pressing **CTRL+Z** is a quick way to reverse the last action. The maximum number of undo levels in Word is allegedly limited by system resources only (not true for the other programs in the office suite) meaning that you may fairly confidently experiment with editing and recover the initial state if situation is getting out of control. There is even matching multi-level Redo to reinstate accidentally undone actions. If you click the downward arrow next to the Undo (or Redo) button on the toolbar, you will get a detailed list of all undoable (redoable) actions. This provides a convenient way to undo (redo) a great amount of editing at once. Understandably undo and redo capability is limited to current editing session only.

### 9.3. Macros

If you're preparing a lengthy document, you're definitely going to repeat some series of actions for a number of times (like creating a figure number using the SEQ and STYLREF fields, etc). In that case you should record the series of actions as a macro (Tools ► Macro ► Record New Macro) and assign a toolbar button or a shortcut to the macro. In order to make smart, convenient and error resistant macros you might need to manually edit the macro code using Visual Basic editor (Tools ► Macro ► Visual Basic Editor). Initially record the macros close to what you would like to implement and later in the code editor try to decipher and modify the macro code that Word creates. It seems to be a faster way to get started than trying to code the macros from scratch by learning the VBA scripting language. The macro editor is also quite convenient due to "Auto List Members" feature and context-sensitive help. Some useful macro examples are collected in Appendix B.

### 9.4. AutoCorrect

The AutoCorrect feature (Tools ► AutoCorrect Options) allows Word to automatically respond to specific input patterns. It usually operates in the background to correct some typing errors but from the technical point of view it can be used to easily insert special characters (for instance, transforming the character sequence --> into an arrow →). Furthermore, you may attribute convenient abbreviations to some frequently encountered complicated phrases, like "Schrödinger equation" or "Hertzprung-Russell diagram", etc. If Word applies an AutoCorrect rule you didn't expect just press **CTRL+Z** or **BACKSPACE**. In addition, an icon like  appears just beside the location where AutoCorrect was applied. Clicking the icon reveals a menu where you can find a proper command to permanently disable an annoying AutoCorrect rule (see Fig. 9-2).

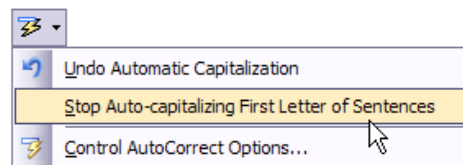


Figure 9-2: AutoCorrect options button.

## 9.5. Equation Editor

If you're doing a lot of math work and using Equation Editor, you can do the following:

- Word has a special command to launch Equation Editor; you just have to customize the toolbar (or menu) to include the command (otherwise you have to use the inconvenient Insert ► Object route).
- Equation Editor has a hidden setting to force it open in a separate window (which makes the editing more convenient). You need to open the registry editor, navigate to `HKEY_CURRENT_USER\Software\Microsoft\Equation Editor\3.0\Options\General` (this registry key will be present only if you have run Equation Editor at least once on that computer) and set the string value `ForceOpen` to 1.
- Memorize the hotkeys of most frequently used commands. Note that Equation Editor does not display the shortcuts (or allow customizing them); you have to consult the help file.

Fraction	CTRL+F
Superscript	CTRL+H
Subscript	CTRL+L
Square root	CTRL+R
“Stretching” parentheses	CTRL+9
Insert vector variable	CTRL+B
Insert Greek letter	CTRL+G

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## APPENDIX A. VARIOUS MS WORD TIPS AND TRICKS

- For easier navigation in long documents you should consider the document map (View ► Document Map) which provides a quick hyperlinked table of contents of the document based on the titles which have the built-in heading styles assigned [15].
- The split view (Window ► Split) gives you two different views of the same document and might be useful for comparing or copying of text from different parts of the document.
- MS Word keeps track of the last three locations where the document was edited. Press **SHIFT+F5** to go back to the previous editing location. You may also press **SHIFT+F5** immediately after opening the document to resume editing at the location where you last made a change.
- In order to select rectangular columns of characters hold down **ALT** while dragging the mouse. This feature might be useful for trimming leading spaces from pasted text, etc.
- Word permits selecting multiple, noncontiguous blocks of text. Just hold down **CTRL** when selecting the pieces of text.
- To reveal complete formatting information about some part of the document, issue Format ► Reveal Formatting (**SHIFT+F1**) and select the text you are concerned about. To determine the formatting source (whether the formatting is due to a style, etc), mark the Distinguish style source check box. Might be useful for troubleshooting purposes.
- The MS Word executable (C:\Program Files\Microsoft Office\Office\Winword.exe) accepts a number of command-line switches to modify the startup behavior. The switch /a prevents Word from automatically executing any macros stored in the Normal.dot template. The switch /n prevents creating a new blank document at startup. The switch /mMacroname asks Word to execute the macro called "Macroname". For example, the built-in macro File1 loads the most recently used document.

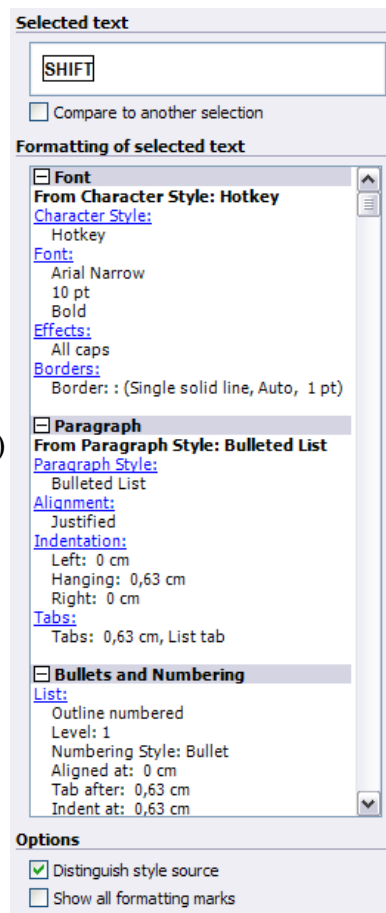


Figure A-1: The Reveal Formatting task pane

## APPENDIX B. SOME USEFUL MACROS

If you would like to create Zoom In and Zoom Out buttons on a toolbar, you would need these macros (replace the 10% with the amount of zoom you would like):

```
Sub ZoomIn()
  With ActiveWindow.ActivePane.View.Zoom
    .Percentage = .Percentage + 10
  End With
End Sub
```

```
Sub ZoomOut()
  With ActiveWindow.ActivePane.View.Zoom
    .Percentage = .Percentage - 10
  End With
End Sub
```

The next macro transforms the last typed (or selected) Latin letter to the corresponding Greek letter of "Symbol" font (assign a convenient shortcut to the macro, like **CTRL+G**):

```
Sub ConvertToGreek()
  If Len(Selection.Range) = 0 Then Selection.Start = Selection.Start - 1
  iCode = Asc(Selection)
  Selection.InsertSymbol iCode - 4096, "Symbol", True
End Sub
```

Paste clipboard content as unformatted text (e.g. **CTRL+SHIFT+V**):

```
Sub PastePlainText()
  On Error GoTo PasteError
  Selection.PasteAndFormat wdFormatPlainText
End
PasteError:
  MsgBox "Couldn't find any text on clipboard!"
End Sub
```

Open the most recently edited document (from the list of recent files) and locate the cursor at the position where the document was last edited:

```
Sub ResumeLastDocument()
  RecentFiles(1).Open
  Application.GoBack
End Sub
```

Insert a sequential number prefixed with the chapter number (the macro asks for the name of the sequence):

```
Sub InsertSequence()
  sName = _
  InputBox("Type a name for the sequence", "Sequence name", "Figure")
  If sName = "" Then Exit Sub
  Selection.Fields.Add _
  Selection.Range, wdFieldEmpty, "STYLEREF 1 \s", True
  Selection.TypeText "-"
  Selection.Fields.Add _
  Selection.Range, wdFieldEmpty, "SEQ " & sName & " \s 1", True
End Sub
```

Update all fields in the document:

```
Sub UpdateAllFields()
  Selection.WholeStory
  Selection.Fields.Update
```

```
If ActiveDocument.TablesOfContents.Count >= 1 Then
  For i = 1 To ActiveDocument.TablesOfContents.Count
    ActiveDocument.TablesOfContents(i).Update
  Next i
End If

If ActiveDocument.TablesOfFigures.Count >= 1 Then
  For i = 1 To ActiveDocument.TablesOfFigures.Count
    ActiveDocument.TablesOfFigures(i).Update
  Next i
End If
End Sub
```