

Writing a Report using Microsoft Word's Tools

Version 1.2.2

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The latest revision of this document can be viewed at http://www.jasonpang.net/reference/word_report.pdf

Summary

Most people who write a lengthy report in Microsoft Word for the first time know how difficult it is – one has to number the pages, label all the figures and tables, and so on. There are seemingly endless hoops to jump through in order to make sure that your page numbering is correct, and to make sure all your figures and tables are numbered properly, making sure all your references are in order and correct, and so on.

However, there are a number of ways around this. Assuming you don't want to learn LaTeX, or any other advanced tool for typesetting, there are still a number of ways to get Microsoft Word to behave nicely.

Report writing is a huge chore as it is – and there are a number of ways that you can make Word do a lot of things for you. This guide will show you how to write a report using Microsoft Word while keeping yourself sane.

Acknowledgements

University of Waterloo – Engineering Classes of 2009:

- 60” Joystick (Computer Engineering, Stream 8)
- Byte Me and RAM It (Computer Engineering, Stream 4)
- Electronics (Electrical Engineering, Stream 4)

... for providing me the opportunity to teach them, and for putting up with me for the four months I was their WEEF TA for. These classes provided the inspiration for me to write this document. If I hadn't been a TA for GenE 167 for these classes, I would never have bothered to write this document. I apologize that it's probably too late for the stream 4 classes (since this was first published in April 2005) to use this on your Work Term Reports this term but hopefully it will help you on future reports.

Thanks also to the TAs who worked with me during the term, Zac Balson, Faye Bolorchi, David Li, and Matt Strickland.

University of Waterloo – Computer Engineering Class of 2007 (Overcocked), for making me realize that there are still people who don't know how to use these tools, necessitating the need for this document to educate all. And of course, thanks for simply being around in this insane world of Computer Engineering at the University of Waterloo.

Finally, thanks to all the rest of you (see Revisions section) who are making further improvements (I hope!) to this document.

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The latest revision of this document can be viewed at http://www.jasonpang.net/reference/word_report.pdf

Revisions

- 0.1 2004-11-01 *Jason Pang* - Started work on this document. Got to Section 2 before I got pre-empted by ECE 150 and GenE 167 report marking.
- 0.2 2004-11-30 *Jason Pang* - Began work on it (again) but then realized I'd better start my study of MSci 311 before I go ahead and fail the course. Also, had to mark ECE 150 assignments.
- 0.3 2004-12-20 *Jason Pang* - Work suspended indefinitely because I wanted to enjoy my break back home in Hong Kong, and because I had to finish my own work term report, which I had unwisely not started yet.
-
- 1.0 2005-04-23 *Initial release of document for review purposes.*
Jason Pang - Moved out to Stratford for my next work term – and had no Internet access for two days. Decided that since it was snowing really hard out I had nothing better to do anyway, to might as well finish this document that I had said would be finished by the end of December 2004. Wrote 20 pages in one day.
- 1.1 2005-04-25 *Addition of documentation for referencing.*
Jason Pang - Forgot about the need to add material regarding references, which is pretty important when writing a work term report.
- 1.2 2005-04-28 *Fixed some miscellaneous problems*
Jason Pang - Discovered a referencing error, plus took some time to clarify parts of the instructions where it wasn't clear. Proofread it a little bit, so there are fewer grammatical mistakes, but it's still far from perfect.
- 1.2.1 2005-11-06 *Added information about half-spaces*
Jason Pang – Half spaces for units are important! Describes a quick trick that can be used to insert what looks to be a half-space.
- 1.2.2 2006-08-26 *Added some more general hints and tips*
Jeff Zarnett – General tip added – save, save, and save often!
Added information on using Normal view vs. Print Layout view.
Thanks to Andre Masella for his perspectives on digital typesetting.

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GenE 167 tip: The entry “Table of Contents” should not show up in the Table of Contents! However, at times, I’m too lazy to fix it myself for the purposes of this report. You should fix it because your TAs will catch it and will take marks off for it!

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1 Introduction

1.1 Purpose

The purpose of this document is to provide a quick guide to how to use the features in Microsoft Word to make report writing easier. This document hopes to familiarize the reader with aspects of Microsoft Word's referencing capabilities so that the reader does not eventually go insane keeping track of all the numbers that will inevitably result by a report.

1.2 Scope

This manual is written for someone with reasonable computing background and at least familiar with aspects of Microsoft Word. Therefore, you should know how to type, and terms like *menu*, *toolbars*, etc. are assumed to be familiar to the reader. This document assumes that you know how to turn on a Windows-based (or Mac-based) computer and use it. So you know how to click, drag, and select items using a mouse.

1.3 This is a guide – not a manual!

This is not a manual, but a guide to how you would go about and use some of the cool features provided by Microsoft Word. This is definitely not a thorough manual of any description, and should not be treated as such. There are step-by-step instructions on how to do most things, so you can skip right to them if you want. However, it's usually nice to know *why* you're doing something as opposed to just doing it.

1.4 Version used

This document was written for and using Microsoft Office 2003, and thus the screens displayed or locations of features may differ from what you see in the screenshots in this guide. From experience, Office XP is pretty similar to 2003, but Office 2000 will differ a lot. If you're using Office 95 or 97... uhhhhh... – please save your sanity by upgrading to one of the newer Offices.

This document *should* apply to a Macintosh computer using Office X, but I can't guarantee that.

1.5 F1 – Help!

The F1 button – the universal help button in Windows programs – is your friend. Use it if there are things you don't know how to do or if this guide isn't clear. It doesn't bite, hurt, or cost you any money (okay, technically it does, but you've paid for it already, so you might as well use it). If you have a fear of little animated paperclips, that's understandable, and I assure you you're not alone. It can actually be turned off fairly easily, but that is beyond the scope of this document. You can press F1 to find out how to turn it off. ☺

1.6 Improvements to this document

Improvements to this document are always welcome. If you have any suggestions about how this guide can be improved or anything that could be added, please feel free to email me at the email address listed on the title page of this guide. Please don't spam – spam isn't good.

1.7 Why this was written

This document started while I was a teaching assistant for GenE 167 (Introduction to Methods of Electrical and Computer Engineering), during the Fall 2004 term. At the time, there was a 20-page report that was due, and it shocked me when I looked at many peoples' documents that people were doing their table of contents manually. Upon closer inspection, I discovered that not only that, everything *else* was done manually too!

This was intended to be done in time so that the Class of 2009 could use it for their first work term report. However, this document got put on the backburner amid all the marking that had to be done, and I never had a chance to finish it until the end of my Winter 2005 academic term.

Hopefully, this document will be a useful guide to students at the University of Waterloo and other schools/universities to help them with their reports.

1.8 A note about the audience

Note that because this report is written specifically with University of Waterloo ECE Department students in mind, there will be some department-specific references in the report. These will be clearly highlighted. The concepts and tips in this report, however, should be relevant to anyone who is writing a report using Microsoft Word.

1.9 A little trivia – and a tip for doing well

The pile of reports featured in Figure 6-1 as the test image was a picture taken of the GenE 167 reports to be marked. They took about 30 to 45 minutes each to mark, and at times they could take up to an hour. Each TA was responsible for roughly 74 reports, though the number varied a little bit between TAs. It took a long *long* time to mark.

So the tip: keep your TAs sane. Diagrams are good. Conciseness is good. As much fun as it is to slap a 486 page tome on your teacher's/TA's lap - I've done it before, for an A-Level (Year 13) Computing project – they probably won't appreciate having to look at all of it.

Two cliché quotes come to mind: “A picture is worth a thousand words,” and “It's quality, not quantity.” Both very true, albeit *very* overused.

1.10 Disclaimer, and other such stuff

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The author also cannot be responsible for anyone failing a course, failing a report, or losing marks due to this document – please don't use “but Jason said so!” as an excuse for not following the guidelines you are supposed to follow.

The author has made all reasonable attempts to ensure that the document contains no viruses and will not spread viruses to readers' computers. However, if you obtained this document from someone who doesn't happen to be the author, then, well, that's slightly dodgier (but read above, I'm still not responsible for it!)

2 Report Writing Hints and Tips

Although (in principle) outside the scope of this document, here are some tips and pointers for creating a report that reads looks good and reads well. This stuff is good to keep in mind while you're writing your report.

2.1 General Report Writing

- Structure your report from the very beginning. Provide an outline first, and then fill in the rest of the document according to your outline. Your brain and the person reading your report will thank you for it.
- Spell check and proofread! This may sound hypocritical since this document hasn't been proofread by someone else, but it's important for a quality report.
- Get someone else to proofread it for you – you'll be amazed at all the problems you didn't catch.
- Months should be spelled out to avoid confusion, i.e. "8 October 2004" instead of "8/10/04." Alternatively, use the unambiguous short form, "Year-Month-Day" format, i.e. "2004-10-22."
- Use one consistent date format throughout your report.

2.2 Style

- Make your top-level headings a large size (in this document, they're 16pt). Make your 2nd-level headings at least 3 point sizes smaller than the top-level heading.
- In general, a document reads better if you use sans-serif fonts (e.g. Arial, Helvetica, Tahoma) for headings, and serif fonts (e.g. Times New Roman, Georgia) for the main body.
- Use consistent fonts. Fonts should not abruptly change in the report. For example, use one font and size for headings, one for the main body, one for captions, etc. Word generally does a good job of doing this for you if you don't change anything too drastically.
- Comic Sans MS is an evil font. Using it turns your otherwise brilliant report into something little more than a comic strip without pictures. It also isn't as pleasing to the eye as fonts like Helvetica.
- 1.5 spacing is generally a good spacing to make a report readable. You can actually get away with 1.3 in most cases, and it'll still be relatively readable. Make sure it doesn't violate the rules that govern your particular report, though.
- If you need more space, decrease the margins of the page (File → Page Setup). Again, ensure it doesn't violate any rules governing your report.
- Leave a new line between paragraphs if they are not indented.
- The referencing style used in this document is the January 2004 edition of the Computer Society Style Guide [2]. You may follow the style used in your textbook or the one used in this document – both are valid for the purposes of a GenE 167 report (as of Fall 2004).

- Consistency is key! For example, in this list, you see that all the ends of sentences have periods. Others in this document do not. This is bad style – stick to one convention, and don't deviate. Similarly, table entries should either all have periods, or not.
- There should never, *ever* be a report section titled “Report Body.” That's just plain wrong.
- There should not be a “Table of Contents” entry in the Table of Contents.

2.3 Spell checkers and grammar checkers

- The grammar checker isn't the smartest thing on the planet. Consider this sentence:
Ann, while Bob had had "had," had had "had had". "Had had" had had a better effect on the teacher.
It is a perfectly valid sentence, but will probably warp the average reader's brain. In this case, let's say that “had” and “had had” are answers to some kind of test.
Ann, while Bob answered “had,” had answered “had had.” The teacher liked “had had” better as an answer.
The grammar checker will not see a problem (it's a correct sentence) but it takes way too much effort to make sense of. (Thanks to my high school computing teacher, Dr. Checkland, for this)
- Spell checkers are also not foolproof.
- But use the spelling and grammar checkers! It will help you reduce the number of spelling and grammatical errors. It is no substitute for having a person read it.

2.4 General tips and hints

- Save, save, and save *often*. Put a copy on your Nexus account, and email it to yourself once in a while. “At the end of every day, I put a copy in my GMail. So at worst, I'm only out one day's work.” – Jeff Zarnett, CompEng 2009.
- Whoever is proofreading your report should *never* be the first to read your report. I'm not kidding – people have given me reports that they have obviously not read themselves. A strip from Calvin and Hobbes comes to mind (Calvin tries to gets his future self to write his book report for him):
Mom: So is the report done or not?
Calvin: Oh it's done. I just haven't read it.
- Print it out, look over it in *print* form before binding it and handing it in. There are an amazing number of problems you can catch.

2.5 University of Waterloo ECE Department tip

ECE Department work term report checklist guidelines specifically state that the report must *not* “read like a manual.” If your report looks anything similar to this, (i.e. step-by-step instructions), then you will *definitely* fail a work term report for the ECE Department.

3 Setting up the Environment

3.1 Why bother?

In order to make report writing not a huge chore, one must set some settings in Microsoft Word. Ironically, in this first step, you will be *disabling* many of the automatic “features” that claim to make your life easier.

Features like AutoFormat and AutoCorrect do more damage to your document than good usually, and although you might save a bit of time, you lose control over how your document looks. Worse, you lose the ability to finely control the numbering of headings and sections in your document.

3.2 Why do we do this? Aren't automatic features helpful?

For example, Word will automatically help you do formatting of bulleted lists. But how many times has a bulleted list come up when you didn't necessarily intend it to? Or it might have made a bold title into a heading for no real reason. This will mess up your formatting, but more importantly, it will mess up the cross-referencing features discussed in Section 6.

3.3 Disabling Features in Microsoft Word

1. Open Microsoft Word
2. Go to Tools → AutoCorrect Options in the menu bar.

Note: You may be presented only with a partial menu. This can be identified by the double arrows at the bottom of the menu, shown in Figure 3-1. In order to expand this menu to show all of its options, hover over the double arrows at the bottom of the menu. The menu will then expand to its full size.

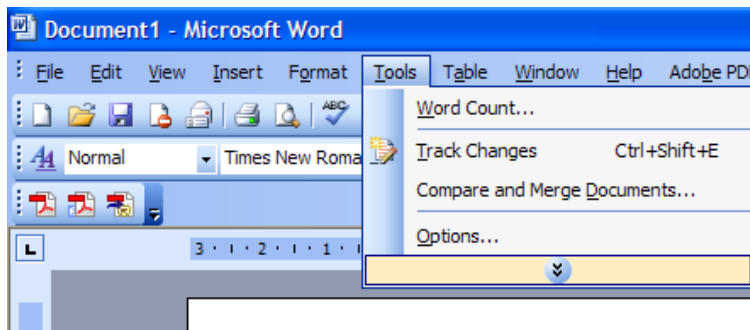


Figure 3-1: Partial Tools Menu

3. Under the *AutoFormat* tab, deselect all the options shown in Figure 3-2.

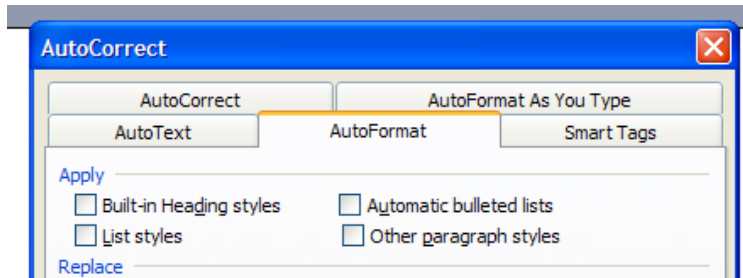


Figure 3-2: AutoFormat Options

- Next, in the *AutoFormat As You Type* tab, you should disable all the features listed under *Apply As You Type*. The settings should roughly match the settings shown in Figure 3-3.

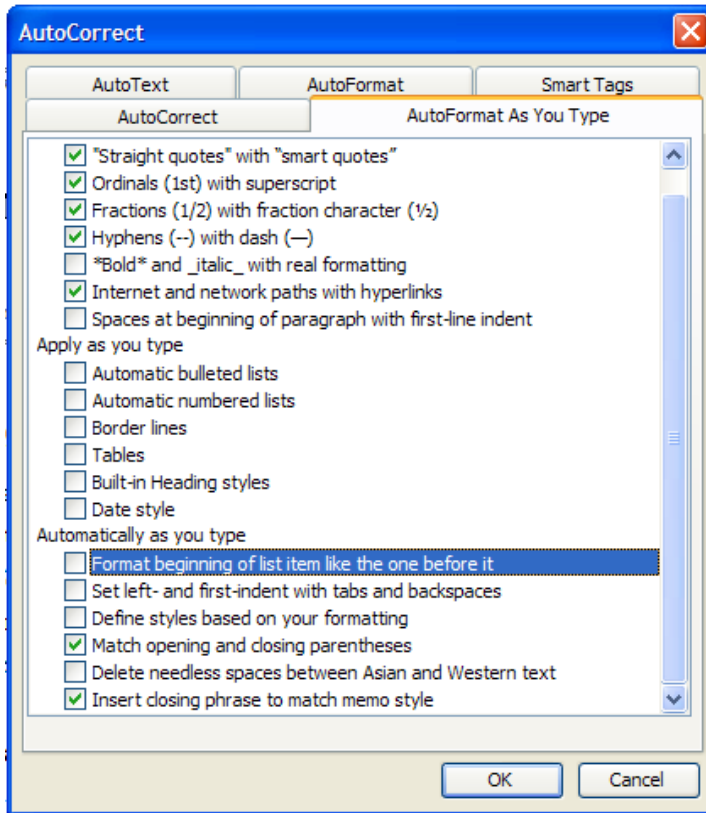


Figure 3-3: AutoFormat As You Type Options

- Finally, click the OK button to close the dialog box.

What you just did was to disable some of the more annoying things in Word that will drive you nuts when you proceed to prepare a more complicated report. However, despite setting all this up, there will still be times when Word tries to be smart. What this means is that you will have to be ever-vigilant to outsmart Word.

3.4 Setting up your view

My personal preference is to view the document in “Print Layout.” This is because it allows me to see how everything will be laid out on the page when it’s printed, as I go along. As you will find out later in this document, Normal mode will be used for some purposes, but not very often.

To go to Print Layout mode, select

View → Print Layout

from the menu. Figure 3-4 shows how to select the Print Layout view.

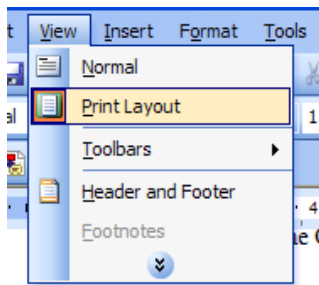


Figure 3-4: Selecting Print Layout view

One useful tool that many people overlook is the ability to view formatting marks in your document. This shows where all the spaces in the documents are, page breaks, and any other weird and wonderful formatting you have done with your document. This transforms your view of the document from this (Figure 3-5):

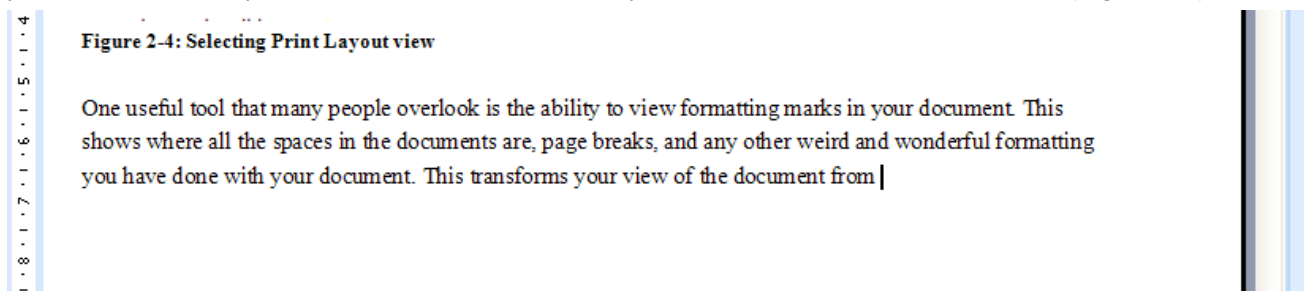


Figure 3-5: Print layout view without paragraph marks

To this (Figure 3-6):

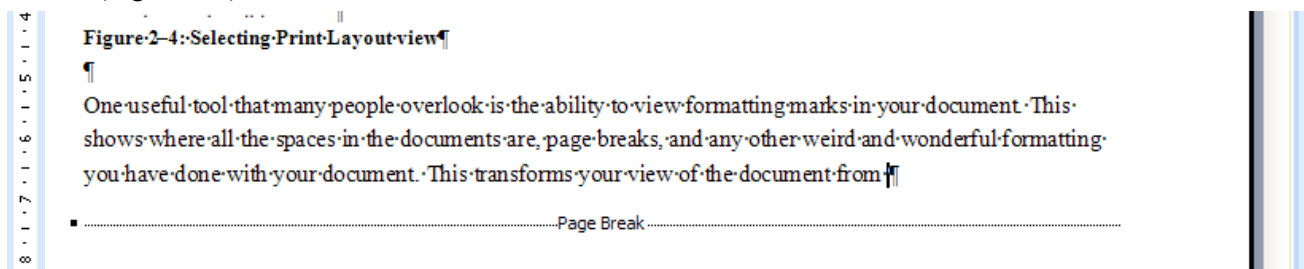


Figure 3-6: Print layout view with paragraph marks

Note the addition of the paragraph marks ¶, the spaces ·, and other information about page breaks now shown. There are many other special symbols that they use - that is beyond the scope of this document.

3.5 The Normal view vs. Print Layout view

The main difference between the “Print Layout” view and the “Normal” view are how you can see your document. As said above, I personally use the “Page Layout” view since it allows me to see exactly how stuff will be laid out on the page (see Figure 3-7). However, there are a couple of shortcomings: one of them is that you may tend to want to over-manage the page layout so that it’s exactly how you like it.

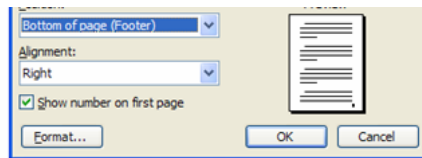


Figure 5-3: Inserting page numbers

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4. Click OK. The first section will have page numbers inserted.
5. Go to your new section, and select Insert → Page Number from the menu bar again.
6. This time, instead of clicking OK, click Format...

Figure 3-7: Print Layout view

The thing to keep in mind about Word is that it is a digital typesetter – it will try its best to handle all the layouts and stuff for you, and you just have to sort of trust it to do so. Micromanaging the thing won't help, and in many cases, it will turn out very badly.

But if you use the Normal view (Figure 3-8), it allows you more of an objective look at the document, without much of the fanciness of the “Print Layout” view - for example, headers/footers are hidden. The other thing that is useful is that you can see where your page and section breaks are located at a glance.

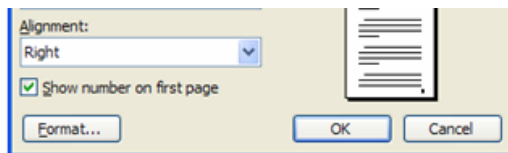


Figure 5-3: Inserting page numbers

4. Click OK. The first section will have page numbers inserted.
5. Go to your new section, and select Insert → Page Number from the menu bar again.
6. This time, instead of clicking OK, click Format...
7. You will see a dialog box shown like in Figure 5-4. Notice the drop down list (highlighted as a 1) in the figure. This box allows you to select a numbering style for the current section.

Figure 3-8: Normal view

That being said, I *still* prefer the “Print Layout” view over “Normal” since things look prettier.

Hint: you may want to use the “Normal” view to do your section breaks and stuff. It's just easier that way.

4 Setting up Styles

4.1 Why bother?

One of the features in Microsoft Word that many people overlook (or just don't know about) is the ability to define *styles* that will allow you to keep a consistent look and feel throughout your entire document. For example, you can define your "Normal" style which you will use for your main body text, a "Heading 1" for your top-level headings, a "Diagrams" style for keeping all text in your diagrams looking consistent, and a "Code Snippet" style for making your text look like it came out of *Notepad* (i.e. mono-spaced, smaller font, etc.)

Another way to think about *styles* is simply to think about formatting your text normally in Word, except instead of applying it to only a certain block of text, you'll be applying it to all similar blocks of text throughout your document. For example, if I wanted to change my heading fonts from Arial to Verdana, I can change them all in one go by changing the style (assuming all my headings follow the "Heading 1" style)

Point of Interest: All of Word's formatting is based on styles. If you make something in your document bold, it creates a style "bold" style automatically.

4.2 Setting it all up

To show the styles in Word, click on the "Styles and Formatting" button on the toolbar. This button looks like two letters side by side, and is shown with the red arrow in Figure 4-1.

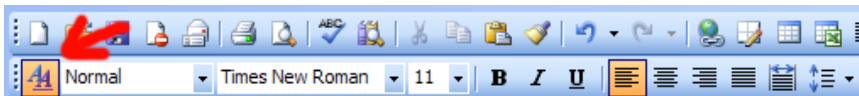


Figure 4-1: Formatting Toolbar Showing Styles

Your window will now have a toolbar (or "Task Pane," by Microsoft terminology) on the right hand side, with all your current styles shown. Clicking on a style will apply the style to the current paragraph the cursor is on, and you can change the style by right-clicking on the style and clicking "Modify." You can see this in action in Figure 4-2.

This is Heading 1 Text
This is Heading 2 Text

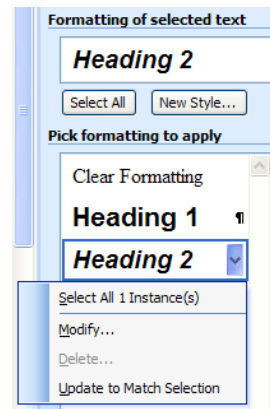


Figure 4-2: Styles Task Pane

Note: The styles can also be accessed as a pull-down menu next to the “Styles and Formatting” button (see Figure 4-1).

Now, say I want to change the Heading 2 style from the (boring) Arial font to Tahoma. This can be achieved by right-clicking the corresponding style and choosing “Modify” from the menu. This will bring up the dialog box shown in Figure 4-3. The intricacies on how to modify fonts and font styles will be left to the reader.

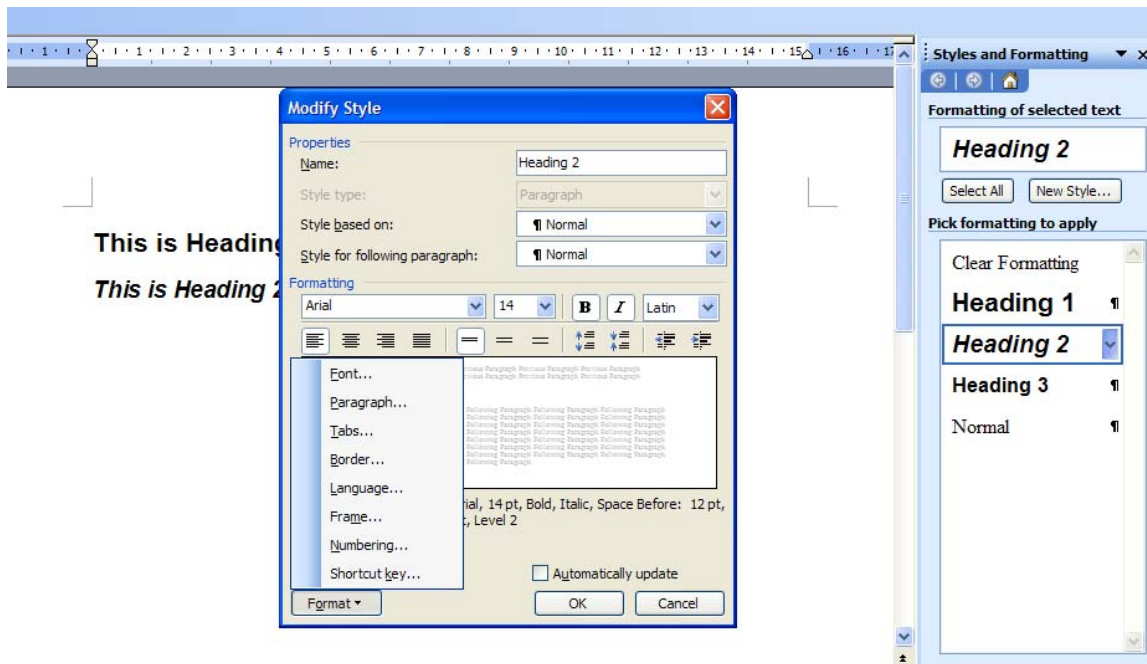


Figure 4-3: Modifying a Heading Style

It is strongly recommended that a style for numbering is set up now. You can do so by clicking on the “Numbering” item in the menu shown in Figure 4-3, and then by selecting your favourite numbering style in the *Numbered* tab. This should be done for all the heading styles that are defined in your document.

4.3 Defining a style of your own

Now that you've learnt how to do styles and what they're all about, it's time to define your own – a Heading 1 style that is **not** numbered. It will be useful when you need to make your Table of Contents headings.

In order to do this,

1. Click on the “New Style” button (above the listing of styles).
2. Make the new style “based on” (third drop-down box from the top in the dialog box) Heading 1 - see Figure 4-3.
3. Disable the numbering (Format → Numbering).
4. Give the new style a meaningful name.
5. Set it up so that the “Style for the following paragraph” is *Normal*.

4.4 Using your styles

Using your styles is very easy. Just select the paragraph you wish to apply the style to, and click on the corresponding style in the toolbar on the right.

Note: It is *imperative* that you consistently label your major headings as “Heading 1” and your minor headings as “Heading 2” or “Heading 3.” It will become apparent when you do your table of contents (Chapter 7) why you need to do so.

Congratulations! You have just learnt the basics of how to do styles!

Right now, this stuff seems like unnecessary overhead – especially when you're trying to get to *actual* work doing your report. However, this will all pay off in the end, I promise.

5 Splitting Sections

5.1 Why bother?

One of the major annoyances when writing a report is the need to number your pages in the front matter using Roman numerals, while everything else in the body is numbered normally – oh wait, the numbering has to restart from 1 too! Furthermore, some pages must not be numbered and some pages must be numbered but not show it on the page!

In my term as a TA, I have seen various weird and wonderful ways of getting around this problem. For example, front matter and body material are kept in separate files, and the title page and letter of submittal is kept in yet *another* file in order to keep the numbering straight. The table of contents are done manually, as are the list of tables and figures – a right pain if you have more than a handful of tables and figures. Another method was to do all the numbering by hand in the form of text boxes.

Aside: one of the more interesting solutions to the problem I've seen is page numbers being printed out, then (physically) cut and pasted into the document, and the resulting document photocopied. So each page looked like it had a printed page number, but in fact the person had spent hours (probably) putting the numbers in. The only part that gave it away was that one of the page numbers was half-folded when it was copied, so I saw the shadow plus the awkwardly covered number.

5.2 Solving the problem - Sections

Okay, so we want to obviously avoid this source of pain. What can we do? The answer to this lies in the form of *Sections* in Word. Each section can (among other things) have its numbering completely independent of the preceding section, and its headers and footers can also be different for each section.

Hint: You may want to temporarily switch to “Normal” view while you do your sectioning. It's just easier that way. (On the menu: View → Normal)

5.3 Show me how!

Let's say we're writing a typical work term report, and it requires the front matter to have a different page numbering scheme, and a different header and footer than the main body of the report. In order to do this, these steps should be followed. This assumes that you already have some kind of content in your first section:

1. Move to the end of your front matter.

2. Instead of making a new page for the new “section,” select Insert → Break... from the menu bar. You will see a dialog box similar to the one shown in Figure 5-1.

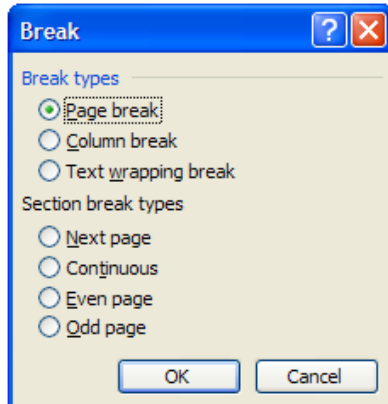


Figure 5-1: Selecting a break type

3. Under “Section break types,” select “Next page.”

Note: You can experiment with the other types of breaks more when you have time. For almost all intents and purposes, a “Next page” break is suitable.

4. You will get a new page.

This seems unremarkable at first: a new page has been created. Hooray. But on closer inspection, you will notice something different: the section number (shown circled in red in Figure 5-2) is now 2. If you click back on the first page, you will find that the section number is 1.

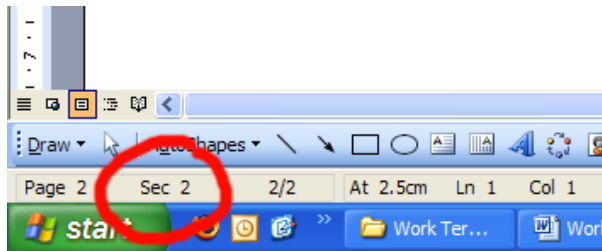


Figure 5-2: A new section number

Now, let's insert page numbers into each section.

1. Go to your previous section.
2. Select Insert → Page Number from the menu bar.
3. You will be shown a dialog box like the one shown in Figure 5-3.

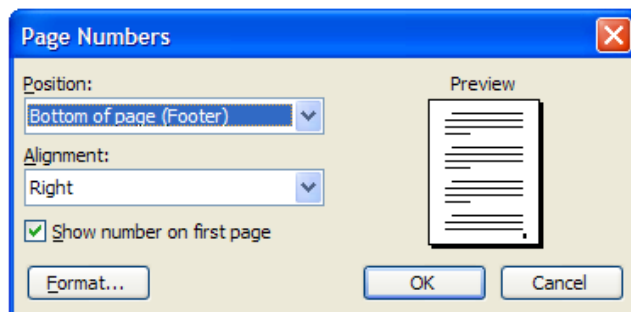


Figure 5-3: Inserting page numbers

4. Click OK. The first section will have page numbers inserted.
5. Go to your new section, and select Insert → Page Number from the menu bar again.
6. This time, instead of clicking OK, click Format...
7. You will see a dialog box shown like in Figure 5-4. Notice the drop down list (highlighted as a 1) in the figure. This box allows you to select a numbering style for the current section.
8. However, note item 2 in Figure 5-4. It allows you to “Continue [page numbering] from previous section” or “Start at:” – this allows you to set up a new section’s numbering system!

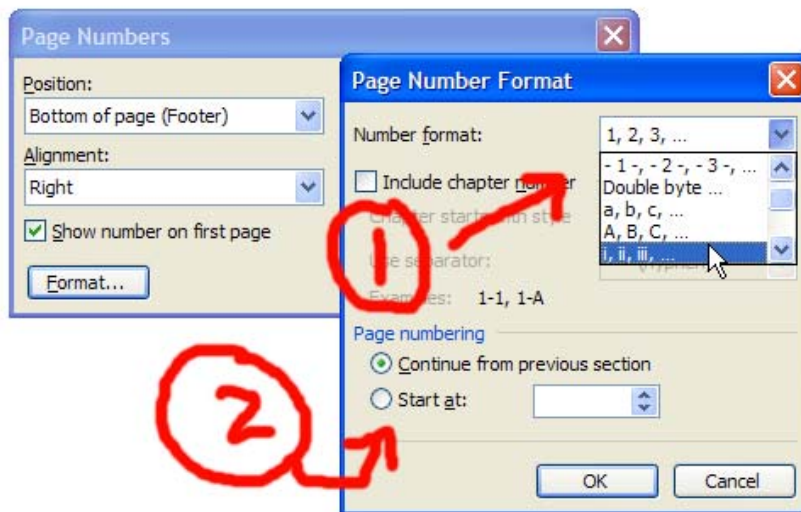


Figure 5-4: Page Number Format dialog box

9. Select a different numbering system, and “Start at” 1.
10. Now, notice that the two sections have page numbers that are independent.

5.4 Headers and Footers in Sections

Another thing that can be done with sections is the ability to have different headers and footers for each section.

Recall: Headers and footers are bits of text (or anything, for that matter) that appear at the top and bottom (respectively) of every page.

To modify your headers and footers, select View → Header and Footer from the menu bar. Alternatively, if you have already defined headers and/or footers, double-clicking on the header or footer will allow you to edit it.

Once you’re editing the header and footer, you will see the *Header and Footer* toolbar, and you will be able to change the text in your headers and footers. There are a few things that I would like to highlight that are special to headers and footers in sections, shown below in Figure 5-5.

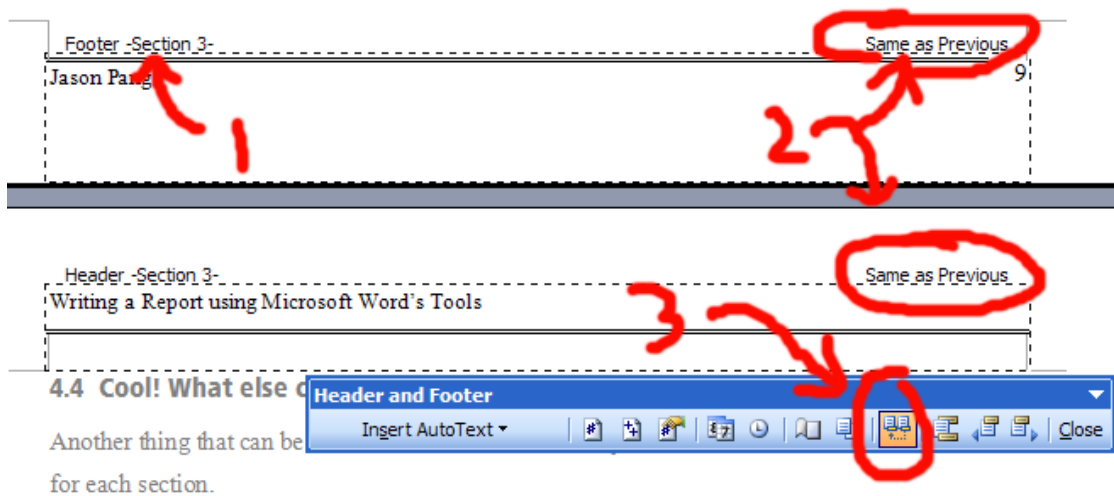


Figure 5-5: Editing Headers and Footers

1. Shows which section's header/footer you are working with,
2. Shows whether or not the current section's headers/footers are the same as the headers/footers of the previous section,
3. Button toggling between linking the headers of the previous section and un-linking.

If this section's header/footer is not "Linked to Previous," then you can change your header and footer for this section. And that's it! You've learnt how to use sections to your advantage!

Remember: page numbering inserted by using Insert → Page Numbers... is just another element in the header or footer. If you unlink it (i.e. disable "same as previous") then you can delete the page numbering from one section while keeping it intact in another.

Hint: In case you haven't figured out where to apply this, think Letter of Submittal and Title Page.

6 Captioning Tables and Figures

6.1 Why bother?

It's required for most report style guides (IEEE, APA, etc.) that you have to caption all your tables and figures; that is, you must *caption* all your images with a number and a short description. It's a huge hassle to keep track of the numbers, and an even bigger hassle to make sure that, if you insert an image/figure earlier in your document, all the figure numbers following that new figure are updated. Word's captioning feature can be used to keep track of this for you, and you will save yourself a lot of hassle in the end. You can use this captioning feature with both tables and figures.

6.2 Show me how!

1. Insert the image into your document.

Tip: You can insert images by clicking and dragging a file into the document, by using Insert → Picture from the menu, or by copying your image from your image editing program and pasting it in.

2. Right click the image, and select "Caption."

Sometimes the "Caption" item is not displayed. In this case, you can use

Insert → Reference → Caption from the menu bar. You can see this step in Figure 6-1.

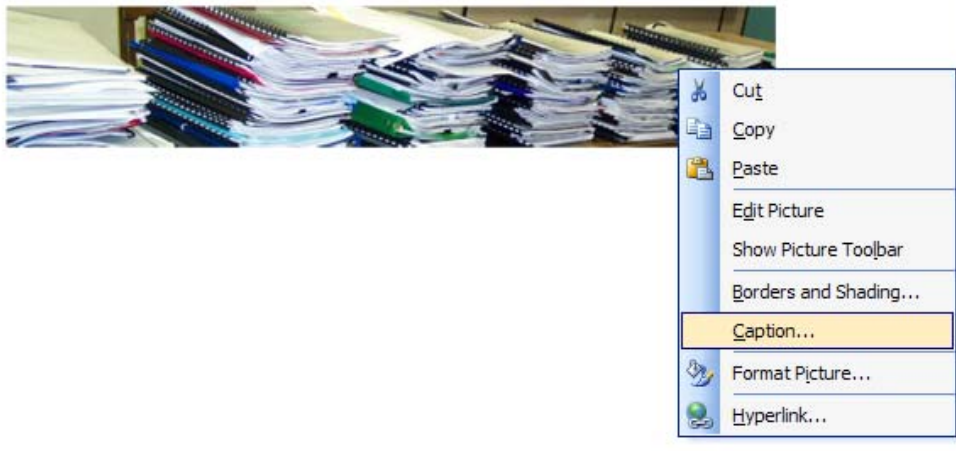


Figure 6-1: Selecting the Caption feature

3. A dialog box will pop up allowing you to select the type of label (Figure, Table, Equation), position relative to the captioned item (above/below), and you are also able to select numbering options. It is recommended that you check the "Include Chapter Number" option, by clicking on "Numbering," and then selecting the relevant options.

Note: Here is where things should start falling into place about why we defined the Heading 1's. If you notice in Figure 6-2, there is a selection saying "Chapter starts with style." This means that the chapter number (i.e. in this example, the "6" in "Figure 6-2") is derived from the number of the

“Heading 1” preceding the caption.

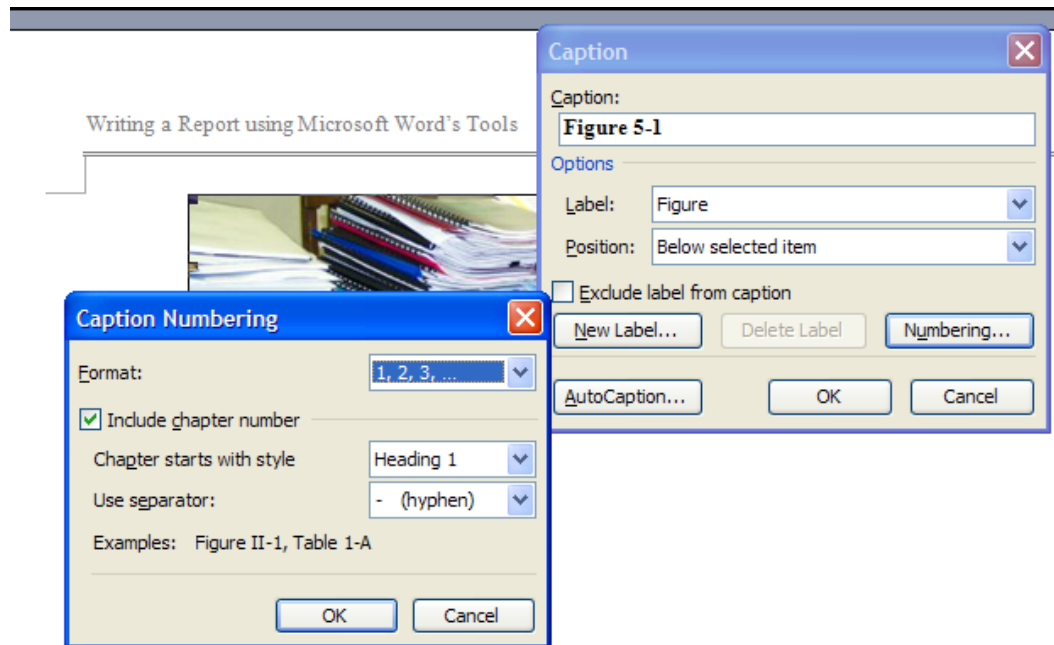


Figure 6-2: Changing caption options

4. Now, change the Caption text. Make sure *not* to overwrite the label and text, as this is the automatic part of the operation. It is recommended that you place a colon immediately after the caption number, a space, and then your short description of the image.
5. If you do not see the label (i.e. Figure / Table / Equation), uncheck the box labelled “Exclude label from caption”
6. Make sure at this point that you have selected the correct *type* of caption – i.e. selecting Figure, Table, or Equation from the drop down box (see Figure 6-2).
7. Click OK, and you’re done! The caption will appear in the place you selected (above/below)

Note: The IEEE referencing guide requires that tables must have their captions above, and figures below [2]. Be sure you have followed this convention (if you’re writing using the IEEE style).

The procedure for captioning tables is similar. It’s recommended that you select the entire table, right click it, and then select “Caption.” The procedure then follows exactly the same as that for captioning images. However, make sure that you put your caption for your table in the correct place!

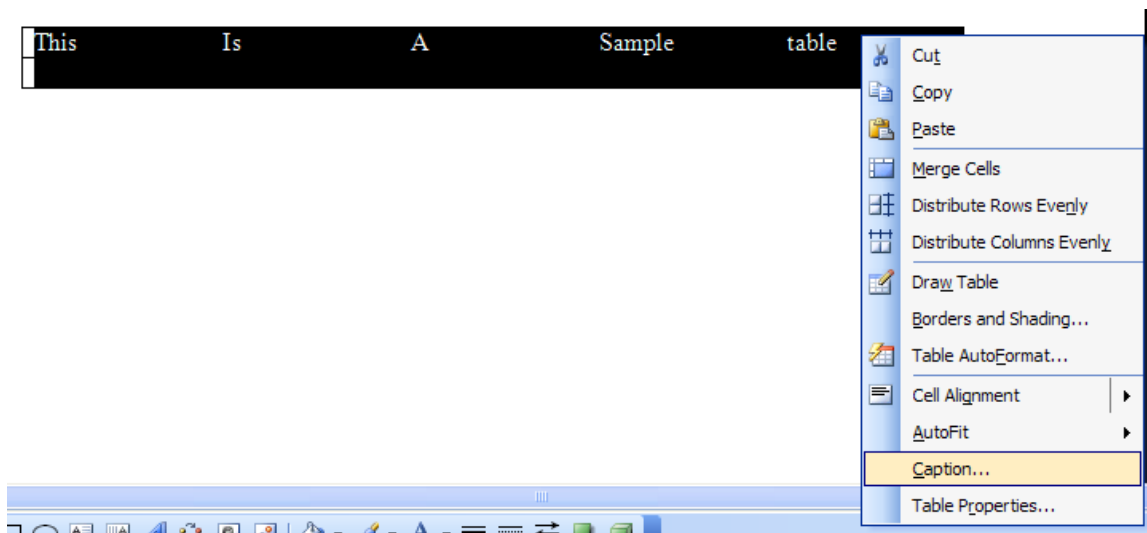


Figure 6-3: Captioning a table

6.3 That's great... who cares?

Nothing remarkable has happened yet. You have captioned an image or table, and the numbers are static anyway. The magic happens when you try to add a figure *before* the last figure. If you add a figure before the last figure, you will notice that the numbering will be *automatically updated* for *all* the following figures!

Note: Okay, sometimes it's not quite as automatic as that. You may have to select the entire document, and then press F9 to update all the captions.

And that's it!

7 Cross Referencing Features

7.1 Why bother? ... I mean, why did I bother?

So we've meticulously numbered everything from the headings to the figures to the tables. *Who cares?* It seems like we did an awful lot of work for almost nothing. We've numbered our pages correctly, and we've defined a whole bunch of styles.

Here is where the fun begins, though. Word's cross-referencing features are truly amazing, in that they are (basically) fully automatic! In this chapter we'll step through how to cross-reference material in the document. And it's actually a lot simpler than it seems.

7.2 Cross-referencing things

So let's say we need to refer to an image from before, say Figure 6-3. These are the steps that you need to follow:

1. On the menu bar, select Insert → Reference → Cross-reference.
2. A dialog box similar to the one you see in Figure 7-2 below will appear.

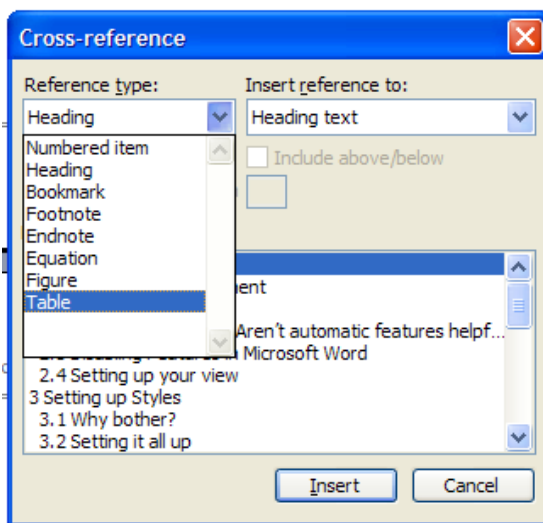


Figure 7-1: Cross-reference dialog box

3. And here is where the fun begins. You can now select between headings, tables, figures, endnotes, etc. to cross reference. So if you wanted to cross-reference a figure, you would select “Figure” from the drop down box shown in Figure 7-1. If you wanted to reference the section number, you would select “Heading” from the drop down box.

- Let's say we wanted to reference a figure. Figure 7-2 below shows an example of the numbered items available for you to reference (the list is actually from this document).

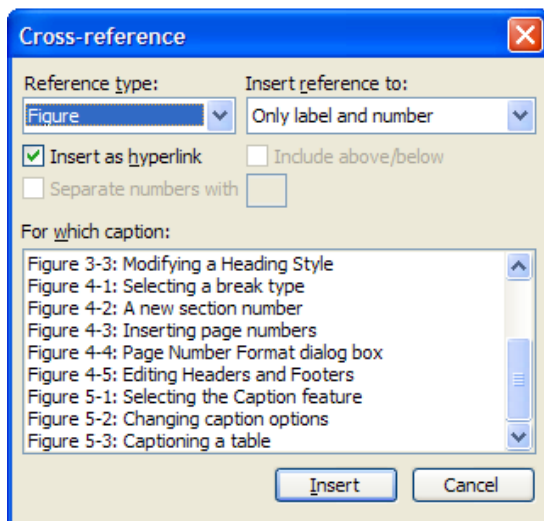


Figure 7-2: Cross-reference dialog box for figures

- Click on the figure you want to cross-reference.
- You will probably want to change the “Insert reference to” drop-down box to “Only label and number.”

Table 7-1: Result of different types of referencing

Insert reference to:	Result of referencing Figure 7-2
Entire caption	Figure 7-2: Cross-reference dialog box for figures
Only label and number	Figure 7-2
Only caption text	Cross-reference dialog box for figures
Page number	21
Above / below	above (<i>Useful if you want to refer to the “figure above”</i>)

- And that's it! You've made a reference to another object! Now, if the order of the figures changes, you the caption will be updated automatically to reflect the change in numbering.

Note: In order to insert a cross-reference to anything, the figure has to be in the document and captioned already. Therefore you have to insert your images/tables before you caption, and make sure you refer to the table by number in the text *before* it appears.

You'll probably have to play around with all the different things you can do with this tool in order to fully grasp everything that can be done.

7.3 What else can I do? Table of Contents and more

One of the great pain-in-the-behinds (if you didn't do your numbering and things correctly, that is) is the fact that you need to create a table of contents, list of figures, and list of tables. But now, with our newly learnt referencing capabilities, we can get Word to do this for us!

1. Go to where you want your Table of Contents in your document.
2. From the menu, select Insert → Reference → Index and Tables... as shown in Figure 7-3.

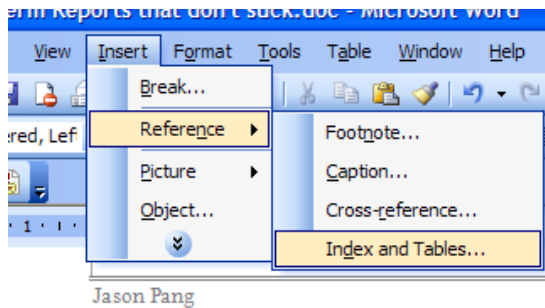


Figure 7-3: Selecting Index and Tables

3. A dialog box like the one shown in Figure 7-4 will be displayed.

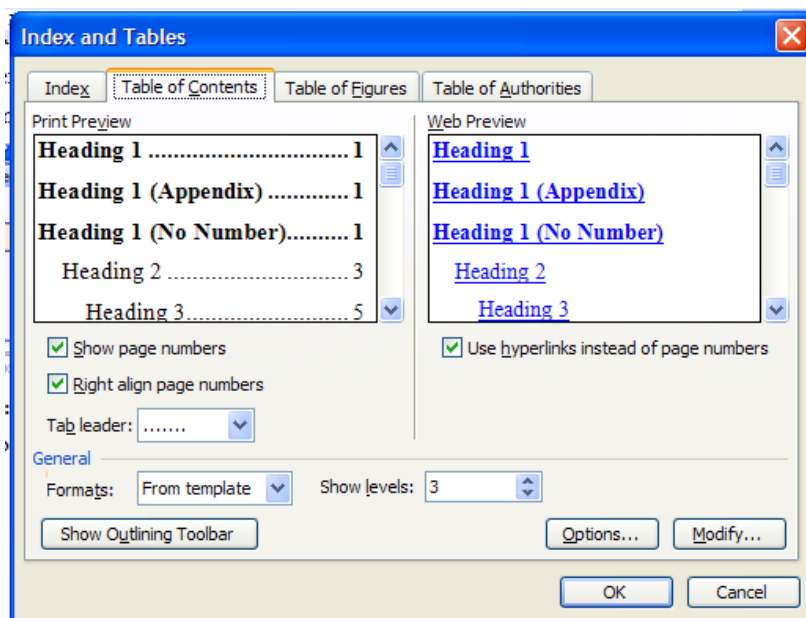


Figure 7-4: Creating a Table of Contents

4. Select the Table of Contents tab.
There should not be anything else you need to modify. However, if you have spare time, you can play around with the many settings that are available to you through this dialog box.
5. Click OK. Your table of contents will be inserted!

That really is all there is to it. You can repeat the steps above to get a list of figures and list of tables inserted. You will find that sometimes, page numbers do not get updated automatically after inserting a new figure.

When this happens, this is what needs to be done:

1. Select everything in the document (press Ctrl + A, or from the menu: Edit → Select All)
2. Press F9.

3. A dialog box *may* appear like the one in Figure 7-5.

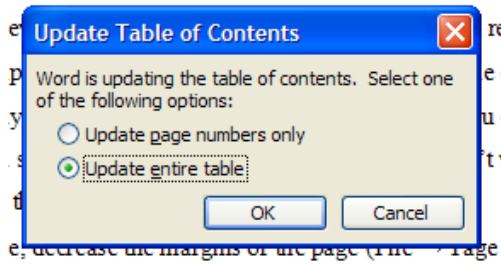


Figure 7-5: Updating Table of Contents

4. For each one of them that shows up, select “Update entire table.”

Occasionally you will encounter the text: “**Error! Reference source not found**” in your document. This means that the image or table that you referenced was deleted, and therefore no reference to it can exist any more. You should check your document for these errors before printing out your final copy to ensure you’re not left with embarrassing reference not found errors in your document.

You can do a regular search (by selecting Edit → Find from the menu) for this text to see any errors resulting from deleted references.

8 References

8.1 References: why are they important?

Finally, we get to one of the most important aspects of a report: references. While in some cases there really is no need to cite other material, this would be in the rarest of cases. In most other cases, you'll need to be citing other documents in your work, whether it is other technical papers, journals, books, or websites. Not citing your sources can also land you in some serious trouble, and many institutions, such as the University of Waterloo, have strict policies to deal with plagiarism [1].

Note: This document is written primarily with University of Waterloo students in mind. In any case, at any school or university, plagiarism is a big no-no and one must take care to ensure that other peoples' work is properly acknowledged. The relevant policy for the University of Waterloo is Policy 71, which can be found at <http://www.adm.uwaterloo.ca/infosec/Policies/policy71.htm>

Note: The referencing style used for this document is based on the IEEE Computer Society style guide [2]. Another popular style used is APA [3], which will have a different referencing style.

8.2 Referencing in Word

A little-known method for referencing documents in Word is to hack around with footnotes. This way, Word will keep track of the footnotes for you, and you have to worry a lot less about keeping them in order and making sure they appear (numerically) in order in the document. There may be a more elegant way to achieve this, but I haven't found it yet.

8.3 Setting it all up

Unfortunately, referencing isn't something that Word does very well, so a bit of set up and tweaking is required to get it to do what we want it to do. Hopefully by now, you know how to set up sections in your document (see Section 5). In order to follow the IEEE format, references need to appear *before* any of your appendices. Therefore, if you want to include any appendices, you should create a new section for them now, before starting to do your references.

1. Once you've set up your new section, we can now add our first reference. You will want to create a new page by pressing Ctrl + Enter. This will give you a new page to work with.
2. Next, using your style created in Section 4.3, create the "References" heading, and press Enter after typing that.

3. Here comes the fun part – you will now add your first reference! First of all, go to the place where you want to insert your reference.
4. From the menu, select Insert → Reference → Footnote. The window shown in Figure 8-1 will appear.

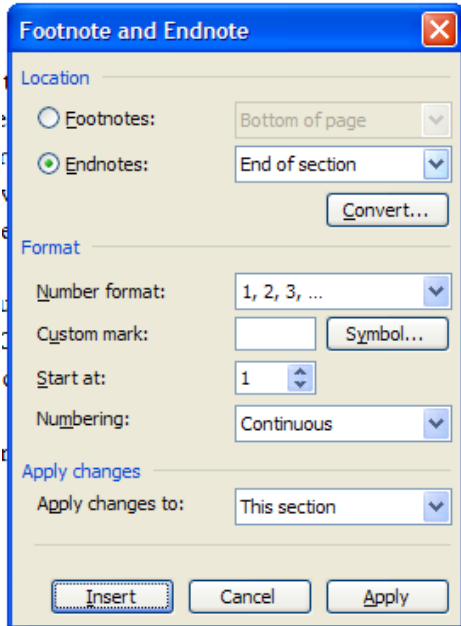


Figure 8-1: Footnote and Endnote window

5. You will want to select “Endnotes” for the *Location*, and then select “End of section.”
6. The rest of the settings should be defaulted to those shown in Figure 8-1. If not, set these settings.
7. Click Insert. You will now have something that looks like the following.

Figure 8-2 shows the document body after inserting your first footnote. Figure 8-3 shows the references section after inserting the footnote.

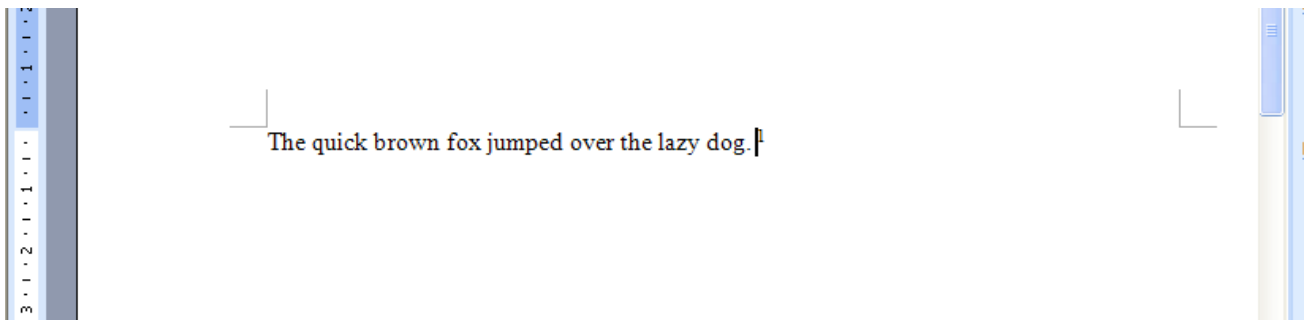


Figure 8-2: Document body after inserting reference



Figure 8-3: References section after inserting reference

8. You will notice that there are a couple of things wrong with this. First of all, the reference numbers are superscripted – this is not allowed by the IEEE style guide. We need to change that by using the *Styles and Formatting* bar on the right hand side (See Section 4.2).
 - a. Select the reference *number* in the References section (the little “1” in Figure 8-3).
 - b. The top box *Styles and Formatting* bar on the right hand side should now read “Endnote Reference”
 - c. Change that style (see Section 3.5) so that it is not longer superscript.
9. The second thing wrong with this document is that there is a line appearing underneath the “References” heading. This needs to be removed.
 - a. Select View → Normal from the menu bar (see Section 3.4)
 - b. Now, select View → Footnotes from the menu bar.
Your screen will now be split into two parts – the bottom part will look something like what is seen in Figure 8-4.

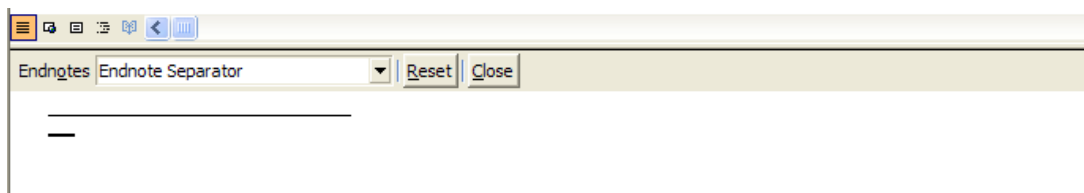


Figure 8-4: Endnotes screen

- c. From the drop-down box, select Endnote Separator.
- d. Delete the line. Your screen should now look like

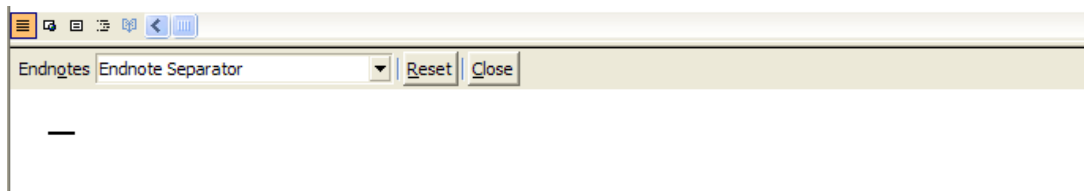


Figure 8-5: Endnotes screen after removing separator line

10. Now return to the Print Layout view (View → Print Layout). You will now see your references in a way that is desired.

Congratulations! You have now made your first reference in Word. However, you must be sure that you place the square brackets (e.g. [1]) around the numbers in accordance with IEEE style. Now, in your references section, you can go and change the text following the number.

Making any subsequent references is much less painful:

1. From the menu, select Insert → Reference → Footnote. The window shown in Figure 8-1 will appear.
2. You will want to select “Endnotes” for the *Location*, and then select “End of section.”
3. The rest of the settings should be defaulted to those shown in Figure 8-1. If not, set these settings.
4. Click Insert. The reference will now be inserted. Modify as you need.

Finally, if you need to reference the endnote (remember – a reference is an endnote in Word terminology) again, then you can simply follow what you did to reference figure/table captions:

1. Select Insert → Reference → Cross-reference from the menu bar
2. Select your *Reference type* to be “Endnote”
3. Select the *Insert reference to* to be “Endnote number”
4. Click Insert.

Done – you have now created a reference to the endnote (reference).

9 SI Units

9.1 Why bother?

A pet peeve of many professors is that there is no functionality for producing a half-space in Word.

According to your textbook, *Introduction to Professional Engineering (Andrews, Aplevich, Fraser, & Ratz)*, half-spaces are preferred to full spaces when separating the number from the unit. In LaTeX and mathematics packages, such as MathType, you can put in the half spaces as required.

However, given that you're reading this document, you probably don't know how to use LaTeX or don't want to bother to learn how.

9.2 A quick how-to

A quick (but dirty) workaround is to use a subscript to pretend to be half space. Let's see what the difference is in Table 9-1.

Table 9-1: Differences in sentence between using no spaces, half spaces, and full spaces for SI units

Type	Sample sentence
No space	The quick brown fox jumped over the 1A power supply and 3 Ω resistor.
Half-space	The quick brown fox jumped over the 1 A power supply and 3 Ω resistor.
Full space	The quick brown fox jumped over the 1 A power supply and 3 Ω resistor.

Although you don't quite notice it, the half-spaced version is more readable than the full space version especially in a long block of text.

The no-space one is plain wrong. Don't do it.

9.3 Show me how!

1. Type the number, variable, or whatever it is before your unit.
2. Press Ctrl= \pm to activate the _{subscript} option. You can also type Ctrl+= to activate the ^{superscript} option.
3. Type the space.
4. Press Ctrl= \pm or Ctrl+= again (press what you pressed in Step 2 again). This deactivates the option.
5. Type the unit.

And that's it! Nicely half-spaced units – your TAs will thank you for it.

10 The End... or is it?

This concludes the documentation for how to write a report using Microsoft Word's tools. This is by no means an exhaustive manual – there may be better ways around this, but this is the way that I have learnt how to over the years writing reports.

If you have any suggestions and/or improvements that can be made to this document, please email me at the email address on the front cover of this document. I'd be very glad to hear from you. If you have found this document useful, you can also drop me a line – it's always nice to know that your work is appreciated. ☺

Finally, I'll present some of the quirks in Word that might drive you nuts in the final two sections. They're not in the appendix because:

- This is good reading anyway.
- I'm too lazy to fix the sections to include it as an appendix.
- This is the fastest way to present the information.
- I'm tired.

I hope you've found this document helpful in preparing your report.

If you have any comments, please email me. My contact information is located on the front cover of this document.

11 Hints and Tips for using Word

Sometimes, Word is just... plain weird. Here are some things that you might encounter, and workarounds for them:

- F1, the universal help button, is your friend. Use it. It doesn't bite, and it doesn't cost you to use it.
- Inserting a symbol is not as hard as it seems. By selecting: Insert → Symbol from the menu bar, you can easily get the most common symbols that you need.
- If you have formatted a paragraph like crazy and it's not behaving properly, use the "Clear Formatting" format to return it to a clean state, and re-format accordingly.
- AutoRecover is good. Set it up by going to Tools → Options... Under the "Save" tab, check the box labelled "Save AutoRecover info every..." and set it to save every three minutes or so.
- When making a numbered list, sometimes, when you start the next list, it continues on from the previous list. If this happens, right click the number, and click "Restart Numbering." Similarly, you can select "Continue Numbering" in order to continue numbering your items from where your last list left off.
- You can make a new page at any time by hitting Ctrl + Enter.
- Word, as are most word processing programs, are "digital typesetters." Treat it as such, believe that the thing that will handle your layout, and try not to micromanage everything – for example, exact diagram locations. If you micromanage how Word does stuff for you, then it tends to end badly.
- *A quip from Andre Masella, UW Comp Eng 2007:*
I've come to the conclusion that Word and LaTeX are similar in that respect. It's just that LaTeX is a wise old man who listens and tries to make suggestions and Word is a community college grad who thinks he knows it all.

References

- [1] "Policy 71 | Secretariat | University of Waterloo," December 2004; <http://www.adm.uwaterloo.ca/infosec/Policies/policy71.htm>.
- [2] "IEEE Computer Style Guide," January 2004; <http://www.computer.org/author/style/special.htm>.
- [3] "APA Style | Electronic References," April 2005; <http://www.apastyle.org/elecref.html>.