

Layout Tips for Technical Papers in Microsoft Word 2000

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Here are some tips that I have gathered for making technical publications in Microsoft Word 2000. The tips are written for someone with experience using MS Word who needs a boost on the basic techniques for specific layout problems. In developing and documenting these techniques, I have in mind a regular, technical conference paper with columns, equations, and figures. There is an accompanying [MS Word document](#) that gives examples of these techniques.

The tips are:

- ◆ [Numbered Equations](#)
- ◆ [Column-Spanning Equations](#)
- ◆ [Centered Title Followed by Two-Column Text](#)
- ◆ [Figures and Caption Cross References](#)
- ◆ [Column-Spanning Figures](#)
- ◆ [Special Characters and Tedious-to-Type Words](#)
- ◆ [Bibliographic References](#)
- ◆ [Other Resources](#)

If you have techniques or corrections you'd like to have me include on this page, please email me at <mailto:jckrumm@microsoft.com>. If you have general questions on Microsoft Word, see Microsoft's technical support page at <http://support.microsoft.com/directory/default.asp>.

These tips are only suggestions and are not endorsed by Microsoft.

Numbered Equations

Numbered equations normally look like this:

$$f = ma \quad (1)$$

with the equation (nearly) centered in the column and the equation number justified to the right. [Although Microsoft Word has an equation](#)

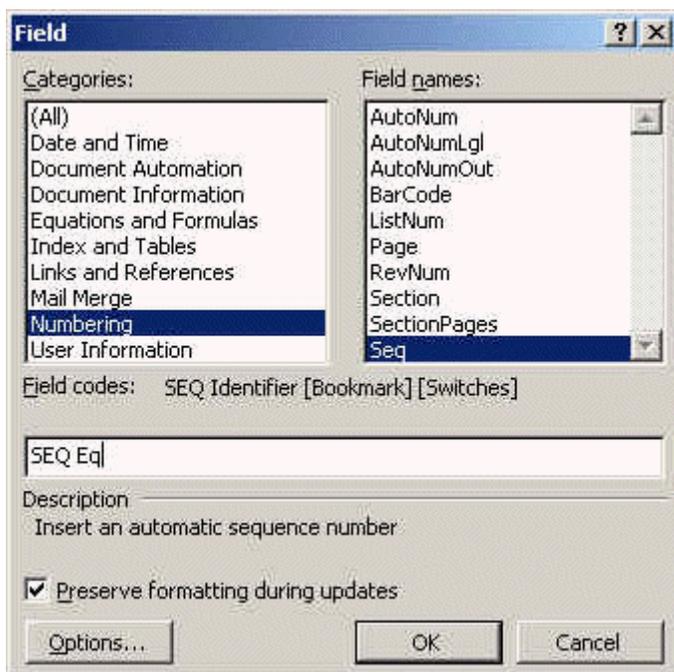
numbering feature as part of its caption feature, it puts the equation number either above or below the equation, not on the same line as is normally done.

One workable method, suggested by Eric Kiersky of Microsoft, is to use a 1x2 table, with the equation centered in the left cell and a field number right-justified in the right cell, like this:

$f = ma$	(2)
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Both cells have their contents centered vertically. Of course the borders should be turned off (border width set to zero) to make them invisible using Table Properties.

To make the equation numbers, insert a sequence field in the right cell. From the "Insert" menu choose "Field...". In the "Field" dialog box, pick the "Numbering" category and "Seq" field name. Type "Eq" (or whatever you want to call your equation number field) in the text box after "SEQ". This is all shown in the dialog box below. Do this for every numbered equation.



To cross reference the equation number in the regular text, pick "Cross-reference ..." from the "Insert" menu with the cursor placed at the point where the cross reference should appear.

Now the equations will be numbered sequentially. If you add a new equation between previously numbered equations, the numbering will not update immediately. It should update during "Print" or "Print Preview".

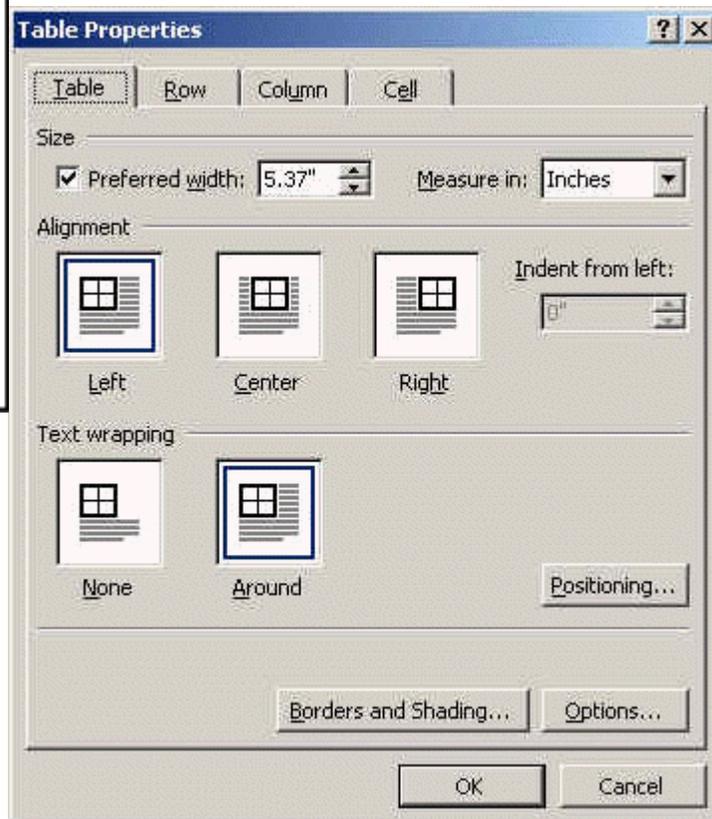
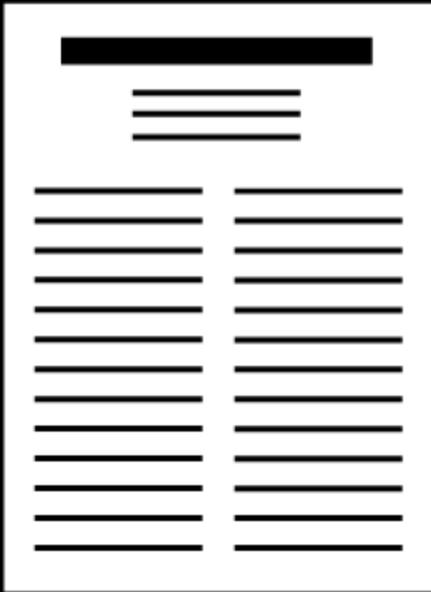
For more tips on equations (and also the source of the above idea for numbering equations), see <http://www.ist.uwaterloo.ca/ec/equations/equation.html>.

Here's another technique that I ran across recently that I like better than the above: <http://support.microsoft.com/kb/212381/EN-US/>.

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Column-Spanning Equations

Sometimes an equation is too wide to fit in the width of one column. If you use the [table technique](#) above for equations, you can **simply widen the equation's table into the adjacent column**. To make the text in the adjacent column(s) flow properly, turn on "Text wrapping - Around" in the Table Properties dialog box as shown below, just like we do with Figures.

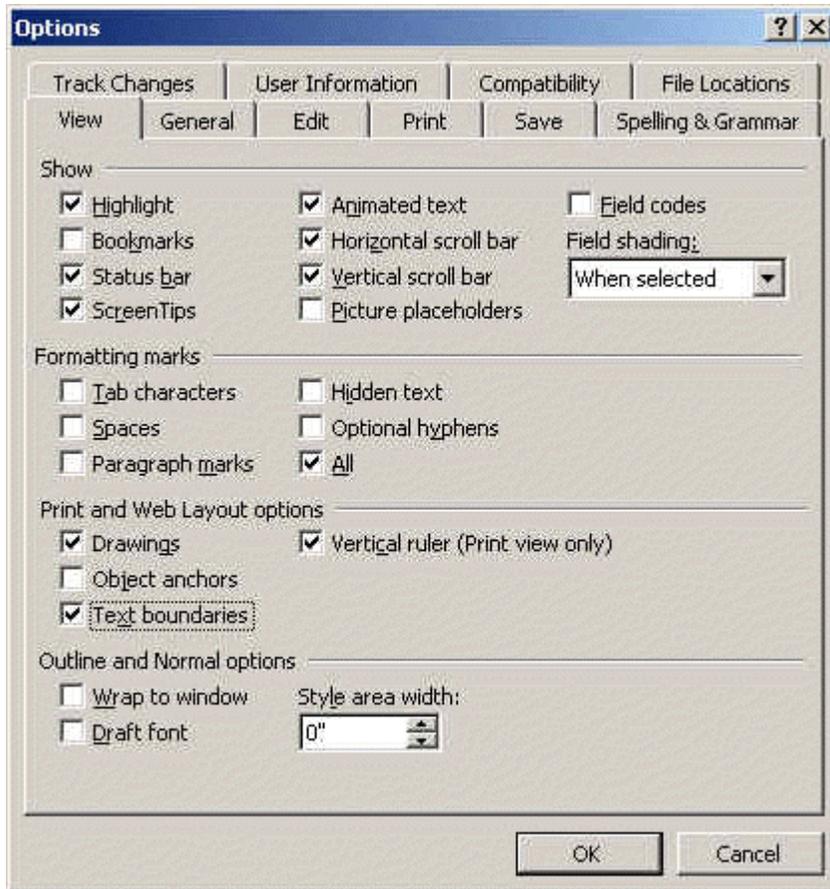


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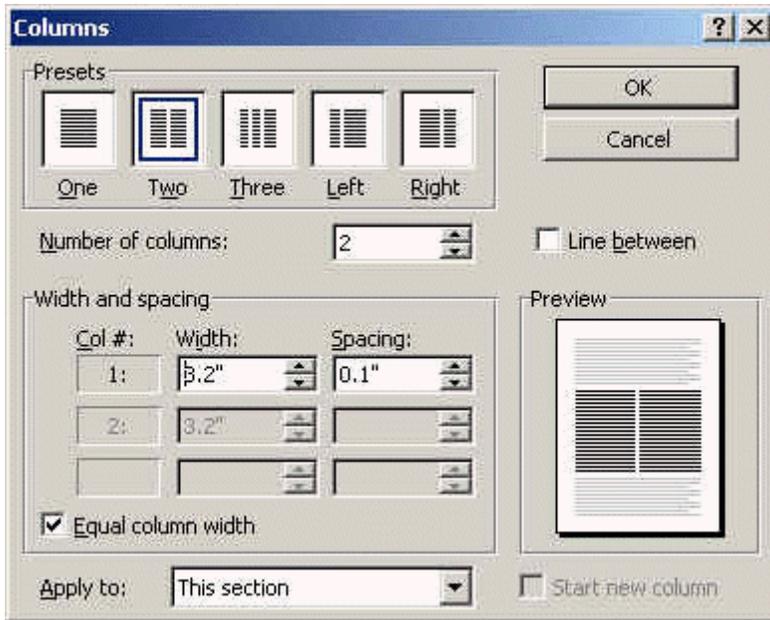
Centered Title Followed by Two-Column Text

Most conference papers have a title centered at the top of the first page followed by two-column text for the remainder of the paper, as shown to the right.

For setting up columns, it helps to see the column boundaries. To make these visible, bring up the "Option" dialog box on the "Tools" menu and put a check mark next to "Text boundaries", as shown below.



Type the paper's title (and anything else that goes with it, like author information) at the top of the first page. **Then insert a "continuous section break" beneath this.** Get the section break from the "Break ..." entry on the "Insert" menu. **With the cursor below the section break, pick the "Columns ..." entry under the "Format" menu.** The dialog box looks like this:



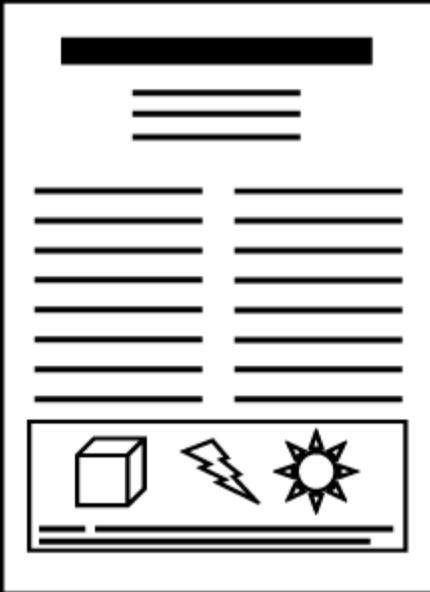
Pick the number of columns you want (normally two). Note that these columns will exist in this section of the paper, which starts after the continuous section break and goes until the next section break.

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Figure and Caption Cross References

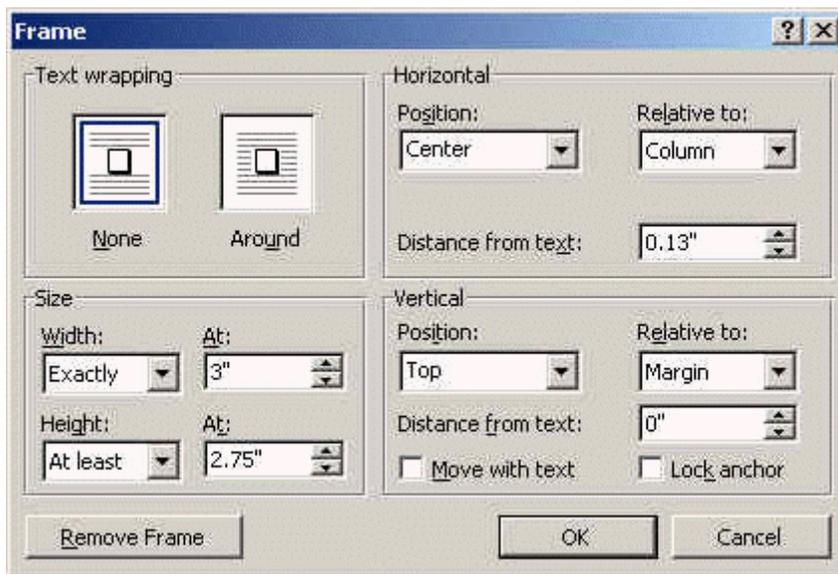
Figures in technical documents are not normally placed in line with the text. This is because most authors prefer to have figures appear strictly either at the top or bottom of the column. [A text box is the most obvious way to place figures where you want them, but it suffers from two problems. One is that text boxes tend to jump around as the document's text is edited, sometimes even jumping into the margin. I have no solution for this problem, although there is a solution using Visual Basic from \[www.officevba.com\]\(http://www.officevba.com\) described \[here\]\(#\).](#)

[The other problem with text boxes is that the figure numbers placed inside them cannot be cross-referenced from the regular text. This](#)



problem can be solved by using a frame instead of a text box. Text boxes are part of the "graphics layer", while frames are part of the "text layer". Numbered items in the graphics layer are not available for cross reference.

Start by making a regular text box and inserting the graphics and caption. Insert the caption with the "Caption ..." selection on the "Insert" menu. Then convert the text box to a frame by accessing the text box's properties. Format the frame from the frame properties dialog box as shown below.



I usually find it best to follow the order I just described, that is, **insert the graphics into the text box before converting to a frame**.

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Column-Spanning Figures

Sometimes a figure is too wide for just one column. In this case the figure can span the entire width of the paper from the left margin to the right margin, as shown to the right.

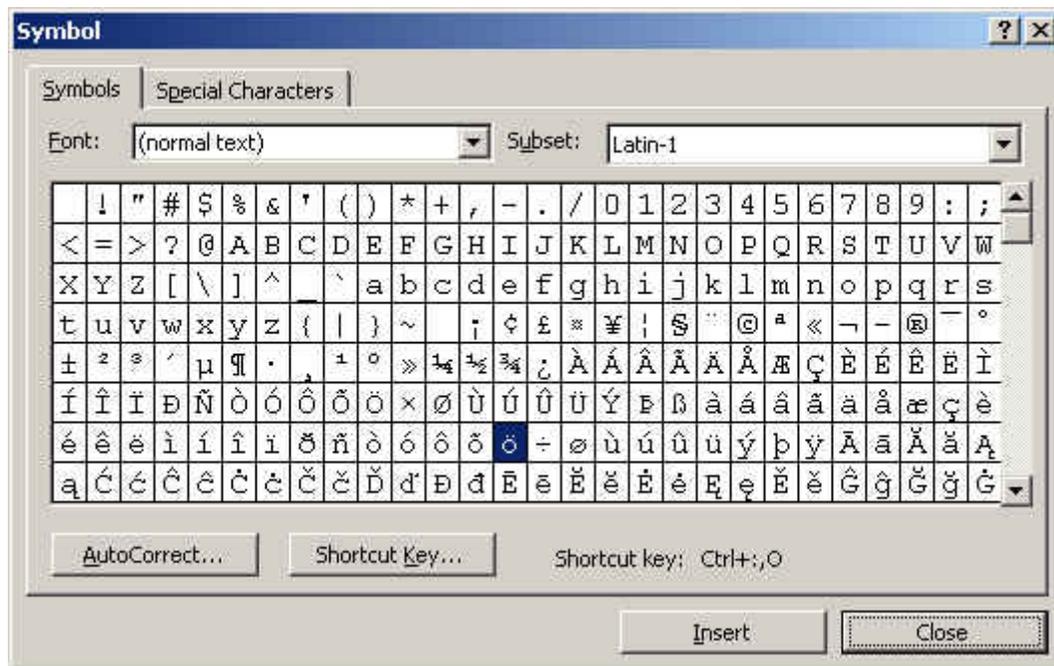
This can be accomplished by following the procedure above for [figures](#). Just make a text box that spans the columns and convert it to a frame after adding the graphics and caption. One problem is that the visible

border around the frame may in fact appear as multiple borders around different elements in the figure (e.g. one border around the caption and another border around the graphics). This can be fixed by first inserting a table in the text box whose cells hold the graphics, caption, and whatever else is part of the figure. Then instead of using a visible border around the frame, make a visible border around the table.

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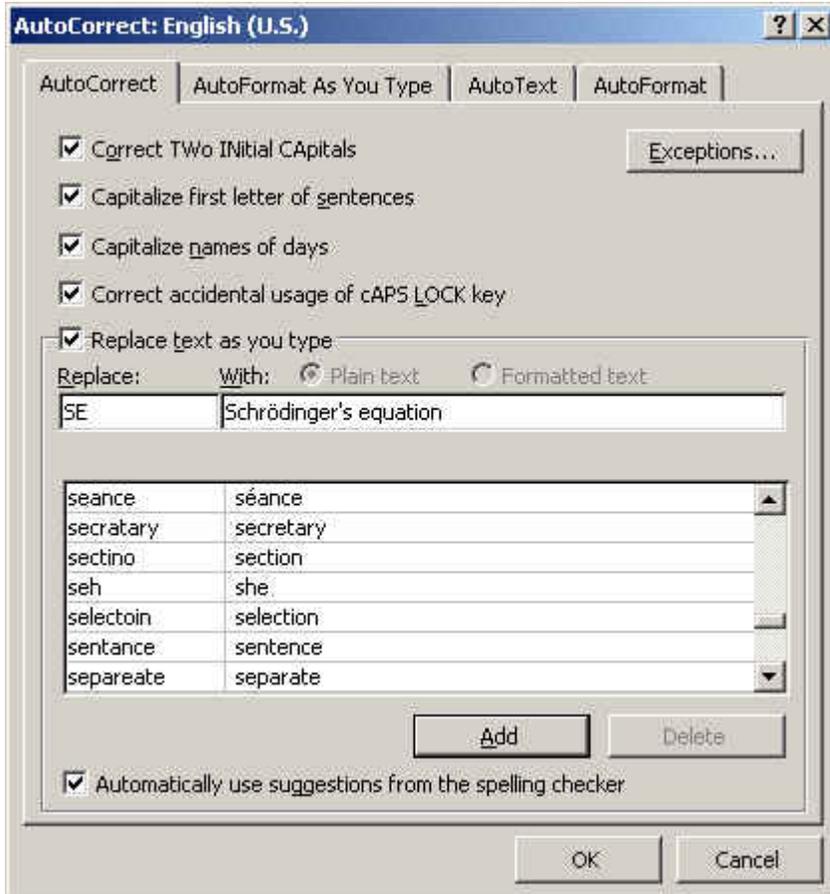
Special Characters and Tedious-to-Type Words

Technical documents are more likely than most to contain special characters and formulae. Word can insert special characters using Insert->Symbols. For instance, the [umlaut over the "o" in Schrödinger](#) can be inserted from the symbol dialog box as shown below. This is also where you can get the © and ® symbols.

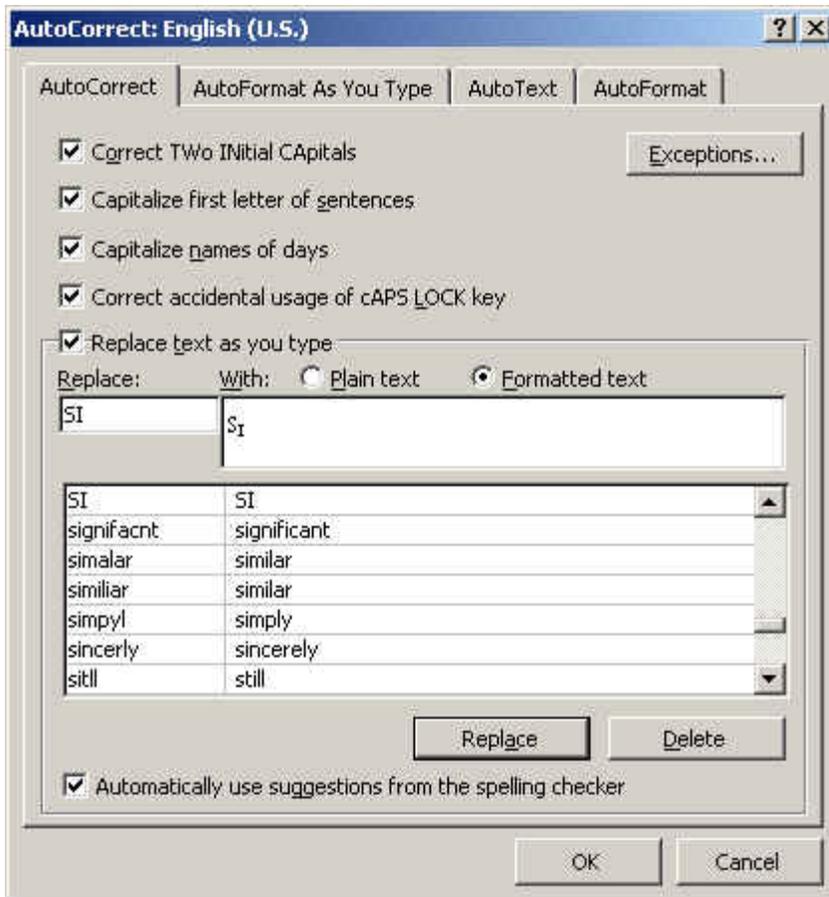


Sometimes you have to type the same word containing special characters or special formatting over and over. For instance, you may use the phrase "Schrödinger's equation" several times in a document. You can cut and paste to make this easier, or, even better, you can

use Word's "AutoCorrect" feature under the "Tools" menu, as suggested by Simon Corston-Oliver of Microsoft Research. For instance, I can have Word automatically replace the characters "SE" with "Schrödinger's equation", by doing the following in "AutoCorrect":



I can automatically insert "S_l" whenever I type "SI" by doing the following in AutoCorrect:



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Bibliographic References

Word has no built-in solution for making a list of references and inserting citations to those references in the text. One solution is to use EndNote, a Word add-in from ISI ResearchSoft. (For those of you at Microsoft Research, where I am, you can get a site-licensed copy. Ask me where it is.) EndNote runs as a separate program that is used to build up a bibliographic database. EndNote can also be controlled from add-in menu items in Word, letting you switch quickly between the programs, insert citations in your text, and automatically format a bibliography in your Word document.

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Other Resources

- NASA [web site](#) devoted to formatting for technical documents, including tips and templates for Microsoft Word
- [MS Word MVP FAQ](#) site for lots of information on Word contributed by many people
- OneOnOne[®] has a [guide](#) to some of the methods described above, including fields
- [Chikrii Softlab](#) makes software for converting between TeX and Word documents

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