

1 Proper Version of Scientific Workplace.

You should not use any version older than 3.0. Older versions create a tex file which is not compatible with ordinary LaTeX installations.

2 Preparing SWP (VERY IMPORTANT!).

Open the program. Go to Tools >User setup. At the top of the window choose “Files”. At the bottom of this window, in “open type” choose “LaTeX”, and in “save as type” choose “Portable LaTeX”. In this way the program will produce tex files that can be compiled by any LaTeX installation. Click OK.

Go to Typeset >Expert settings. Click “Format settings”. Choose “True TeX” (NOT “True TeX multilingual”). Click OK. In this way the program will produce dvi files that can be opened by any TeX installation.

Go to “View” and check everything from “Helper lines” to “Status bar”. I also recommend to check “Invisibles” if you want to have a greater control over what is happening in your document. Also, go to View >Toolbars and check everything with the possible exception of “compute”, “navigate” and “links”. You can then rearrange the new toolbars by dragging them with the mouse, in order to leave a large part of the window for the text of your document.

3 Writing your paper.

3.1 Entering Text or Mathematics.

There are two modes of typing, text mode and math mode. If you type a symbol, the program of course understands that this is in math mode and switches automatically. But if you type $f(x)$, the program will treat it as a word if you are in text mode, or as mathematics if you are in math mode: $f(x)$. Math mode appears red on the screen. Changing from text to math mode and vice-versa can be done by typing ctrl+T (see also “other useful hints” at the end of this document!). **Note:** you should not try to enter additional horizontal or vertical space by pressing many times the spacebar or “enter” respectively. Rather, go to Insert >Spacing and make the appropriate choice there. If you want to “display” an equation by writing it in the center of a separate line, press ctrl+d and write your equation in the opened box. Then put the

cursor after the box and continue writing your text. (See also below about equation numbering).

3.2 Defining Sections and Subsections.

If you want to create a new section, go to the bottom of the SWP screen and in the second “pop-up menu” choose “Section”. Type the section name (for instance, “Introduction”) and press “enter”. LaTeX will print the section name with the correct letter size and will assign a number to it automatically. This number will not appear in the SWP screen. It will appear only in your dvi file, which you can create, after you save the tex file, by going to Typeset >Preview. You should NEVER define sections manually, i.e., by choosing something like boldface and assigning it a number.

3.3 Typing Theorems, Lemmas, Propositions, Corollaries, Definitions, footnotes.

You should NEVER do this manually, i.e. by writing “Theorem 1” in boldface for instance. The proper way to write the statement of a theorem is the following: Go to the bottom left of the page and choose “Theorem”. The name “Theorem” appears in the text. Type the statement of the theorem. If you press “enter” to change the paragraph, then the name “Theorem” appears again. Press backspace to make it vanish and continue the statement. Important: when you finish the statement of the theorem, press “enter”, and then go to the bottom left of the screen to click the small left arrow. Then you are out of the “theorem environment”. When you create the dvi file, LaTeX will automatically write the statement in italics, assign a number to the Theorem and leave the correct space between the Theorem and the text before it. The same procedure is used for Lemmas, Definitions etc. If you want to type the proof, the procedure is exactly the same, with the exception that you don’t have to press backspace each time you press enter. See the example of a theorem and its proof below, and how it appears on the dvi file:

Theorem 1 *This is the theorem statement.*

Proof. Obvious consequence of the equation

$$x = y^2 \tag{1}$$

and other equally important arguments.

For footnotes, go to Insert>Filed>Note and type the footnote text in the new window that opens.

3.4 Numbering Equations.

A displayed equation, as equation (1) above, can be numbered if you want. To number an equation, put the cursor somewhere on the line of the equation but outside the box, and double-click. A window appears. Choose “Auto” and then type a “key” in “Key for this line”. You can type anything that could help you to remember that the key refers to this particular equation. Click OK.

3.5 Referring to Equations, Theorems etc.

You should NEVER refer to an equation or theorem number “manually”, for instance “Theorem 1”. First of all, you should assign a “marker” or “key” to the theorem, equation etc you want to refer to. In the preceding paragraph, we showed how to assign a key to a displayed equation. If you want to assign a marker to a theorem, definition etc, put the cursor immediately after the word “Theorem”, “Definition” etc. Then go to the “Fields” toolbar (normally this is vertical, at the right-hand side of your screen) and click the fourth button (the small flag). Alternatively, you should go to Insert >Field >Marker. A small window opens. Write the name of the marker you want, and click OK. Now the name of the marker appears after the name “Theorem” etc. If you want to refer to this theorem (for instance Theorem 1), go to the fields toolbar and click the fifth button (cross-reference). Choose the name of the appropriate marker in the pop-up menu and click OK. To refer to an equation, you should first type the left parenthesis, then make the cross-reference as above, and then type the right parenthesis.

3.6 References.

If you make a list of references, put the cursor at the end of your document in a new line. Then go to the pop-up list at the bottom left of the screen and choose “Bibliography item”. A small window appears. Type a key in the “Key” window, and click OK. Then type the reference following any style you want. Use standardized abbreviations for journal names or book series, which you can find at the web site

<http://www.ams.org/serials-list/>. If you press enter at the end, you will get the same prompt to enter a new bibliography item. To cite a reference, for instance [3], click the first button of the fields toolbar and choose the appropriate key from the pop-up menu.

3.7 Writing the Title and Author’s Names and Addresses.

You can do this “manually” if you want, but you can also let LaTeX format it automatically. In the second case, go to Typeset >Front Matter and in the new window that opens, create a “environment” named “Author”, by going at the bottom left of the screen and choosing “Author” in the pop-up menu. When you finish typing your name, press enter and go again to the bottom left of the screen to click the small left arrow. Then you are out of the “Author environment”. Then add an “Address” environment in the same way as “Author”. Then add “make title” by going again to the same pop-up menu. After “make title” you can type your abstract in the same way as “Author”. Click OK.

4 Finishing Touches

After saving your document, create your dvi file by going to Typeset >Preview. Note that you should take care that in the small window that opens while LaTeX is processing the document, there should be two passes marked, otherwise you will get question marks instead of cross-references. If some lines obviously go beyond the border of the text, you should take care that this does not happen, because a photo is taken of each page and only the part inside the borders is taken into account. To repair this, you may try to change your text slightly, or add a “negative thin space” to lessen the space between symbols (go to Insert >Spacing >Horizontal space and click “negative thin space” and then OK, as many times as necessary) or even put your equation in two lines by pressing “enter” where appropriate. You can print your paper from the program that opens when you create the dvi file, or from Typeset >Print (do NOT use File >Print).

5 Other Useful Hints

Here are some recommendations that may help you type your document faster.

1. Go to the top of the window, choose “Math”. Uncheck “automatically number new equations” (if it is checked). Check at the bottom (right side): Spacebar: “after space switches to math” and “at the end of Math: “enters space and switches to text”. Click OK. Then each time you are in math mode and press spacebar you switch to text mode. If you are in text mode and press the spacebar twice, you switch to math mode.
2. To type quotation marks correctly, do not use the character ” twice as you do in Microsoft Word, since in this case you get something like ”this”. Instead, type the character ‘ twice at the beginning of the quotation and ” at the end of it. Then you get “this”.
3. SWP has a lot of keyboard shortcuts that you can use instead of the mouse. Go to Help >Search and find “keyboard shortcuts” following the instructions. A new file opens with a lot of useful hints. Print it (by going to File >Print) and consult it frequently. This can save you a lot of time. Also, go again to Help >Search and find “key prefixes”. This also contains very useful instructions on entering symbols by the use of the keyboard.

References

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- [2] Daniilidis, A. and N. Hadjisavvas, *Characterization of nonsmooth semistrictly quasiconvex and strictly quasiconvex functions*, J. Optim. Theory Appl. 102, 1999, 525-536.
- [3] Avriel, M., Diewert, W.E., Schaible, S. and I. Zang, *Generalized concavity*, Plenum Press, New York 1988.
- [4] Penot, J.P., *Are generalized derivatives useful for generalized convex functions?*, in *Generalized Convexity, Generalized Monotonicity*, J.-P. Crouzeix, J.-E. Martínez-Legaz and M. Volle, eds., Kluwer Academic Publishers, Dordrecht, 1998, 3-59.
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