Book review: *Guide to LaTeX, 4th Edition*

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Helmut Kopka and Patrick W. Daly, *Guide to LaTeX, 4th Edition*. Addison-Wesley 2004, pp. 624, ISBN 0-321-17385-6, USD 49.99.

I believe I should point out at the beginning that my wife has a t-shirt which reads "My next husband will be normal". However the problem is deeper than that. I seem to be attracted to groups where the whole membership is not normal, for example, the local Linux users group. Reading the Kopka and Daly book I have come to the conclusion that one should not consider TeX users to be normal either. And I think it is important to keep this in mind.

This whole issue arose when I started by looking at the cover and introductory material to see what the authors' objective was. I found "how to begin using LaTeX" right on the back cover. Against this backdrop I began to read. By chapter 2 I began to get the sense of being completely overwhelmed if I tried to put myself in the mind set of a neophyte. I can't imagine a normal person not completely boggling soon after diving into this book. As a specific example, when I reached chapter 1, section 1, subsection 1 (i.e., the very beginning) I encountered the word "markup" in the first line of the first bullet. As a test, I gave that paragraph to my wife to read and she confirmed my suspicion that normal people do not know what that word means.[1] I then took her forward two pages to where the authors give an clear example of markup in both HTML and plain TeX and she now saw right away what the term meant. But I would still argue that something was basically wrong. That first bullet could have been worded without the jargon. More importantly, I suspect such stumbling blocks for the beginner would not have survived if the authors had bounced the book off test readers who were *completely* naive when it come to TeX/LaTeX.

I was reinforced in this view that TeXers are not normal when I joined the TeXhax list. While there will always be those who simply do not RTFM there is still a large group who seem simply bewildered by the jargon (RTFM, for example). While this soon wears off, it is still very real initially. The strategy of teaching people to swim by pushing them off the dock does not work well here. It is better to recognize that total immersion can create an aversion — the reverse of what is intended. I find a parallel situation with those new to Linux. Again there seems to be a steep learning curve. Here the neophytes forget that they have gone through a similar process coming to grips with Windows or Microsoft Office. However, reading a periodical like *PC Magazine*, where page after page is devoted to clarifying yet another dark corner of the Microsoft world, demonstrates that neither Linux or LaTeX is really that difficult once you put it into that perspective. However, one must not ignore this barrier; although it may be misperceived as being high, that perception is still very real and must be kept in mind if one is going to proselytize successfully.

Now, as will become clear below, I still found this book a very useful reference. So, on the assumption that a "newbie" or two may still try to use it as a primer, I shall give some advice[2] and list a few general tricks that the neophyte should know. My authority for doing this is that, over the years, I have made just about every mistake imaginable, so I am quite familiar with the pitfalls, if not the solutions.

- Crawl before you walk. Do not try to create a fancy/complex document first time around. Start with a "Hello World" example as the first step (this is a standard computer ritual to show you have something working; you write just sufficient code to have the program capable of saying "Hello World" back to you). In fact, Kopka and Daly show you how to do just this on page 13. Now, emboldened by this success, add *o*ne new frill; for example, put your name on a line below the "Hello" line but at the right hand end thereof. Next you might try to put "Dear sir" at the left end of a line above the "Hello". As you can see, we are on our way to creating a letter. When you finish your creation, go to Kopka and Daly and see how they do it; at this point you will be in a much better position to appreciate more of the fine points.
- At each stage in the preceding process, run the file through LaTeX, and look at the output file with a viewer. Since you are making just one change at each stage, it is reasonably easy to locate any typos and the like. Also, in no time, this repetition will become second nature and you'll be hooked.
- Don't be afraid to make mistakes. That is really the way you learn, not by reading and somehow

[1] In fairness, I should add that she, an anesthesiologist (our kids used to say "Mommy is the *real* doctor"), was wondering why I had suddenly taken an interest in the problems associated with rubber gloves — allergies and the like — so much so as to buy a book on latex!

[2] At my age you tend to do this a lot.

(osmosis?) having it all sink in without any effort on your part.

- Use Kopka and Daly, or a clone, as a reference book. Don't try to read it like a novel. One can skim to get the lay-of-the-land but, in the end, the stuff sinks in only when you actually use it.
- Look in books for specific examples of code (you will find Kopka and Daly are great here). This way, you are less likely to leave out a key space or the like when you are still new to the game and do not yet appreciate all the nuances. With time, you will begin to see patterns and what initially may seem arbitrary will suddenly make perfectly good sense. It is rather like learning to play bridge. Initially you are amazed at how people can figure out where cards must be and then one day you suddenly realize "the Queen has to be in that hand" and, indeed, that it where it turns out to be!
- Sometimes you find that simple trial-and-error is quicker than pausing to look something up. Current computers are fast enough that, especially for short documents, one can rapidly type, LaTeX, and view to get fast feedback. And it is hard to go the trial-and-error route without learning something. (Some may disagree with me here but you should realize their problem — they're normal.)
- Don't be overwhelmed by the huge number of commands and variants thereof that are available. As an academic pharmacologist, I have had to face this same problem with medical students trying to come to grips with "all those drugs". I point out that this is an advantage, not a disadvantage; the more you know, the finer the control you can exert. Their patients will appreciate being able to tailor drug choice individually. Similarly, the breadth of LaTeX means you can do all sorts of wonderful things. With LaTeX however, you are better off than the medical students. They don't know what the next patient will need. You, on the other hand, can choose when to go down a new path.
- At each stage do not be afraid to look a little farther than you feel is friendly territory. Initially such forays will be into *terra incognito* but each time you will find the critters you encounter are a tad less frightening and eventually you will find yourself looking at the code of a package file and actually beginning to be able to make sense of it. The trick is not to try to do it in one swell foop.
- In the words of Boston's Tom Lehrer [6], plagiarize. With computer programming, you never want to reinvent the wheel. What you want to do is find someone's code that comes close to what you want and then make a relatively minor modification (in this case, you can crawl without ever having to learn to walk). To this end, a book like Kopka and Daly comes into its own. Now all that detail is no longer just detail; it is code you can build on. This is why it is so useful to have a book with lots of examples. You can also see why there is such enthusiasm for "open source" code (software like Linux and LaTeX which give you not only the program, but also the underlying instructions which make it work; thus everyone can "look under the hood" both for clarification and as a base for further development). You become part of a large community; sooner than you may realize, you will create something someone else will find useful and you will have become part of the system.
- Take a look at Peter Flynn's [1] recent miniguide to LaTeX. It is directed specifically at the newbie.
- Try to set aside a little time to play, to dig a little deeper now and then — all work and no play ... and all that. I get no kicks from computer games but I can derive a lot of entertainment out of deciphering how a snippet of code works and/or how to get it to work for me. Try it; you may get in touch with your abnormal self.
- How do you pick which books you will keep nearby? First you *do* need something at hand. One way to customize the selection is to wait until you have a specific problem, preferably similar to most that you stumble over, and go to the book store to see how the various candidates fare when faced with a specific problem.

(I cannot get anything right; here, instead of a book review, I go off on a tangent writing a guide to getting started with TeX.)

I am now going to proceed by abandoning that initial goal of using the book as a "Gentle Introduction" (to coin a phrase) and refer a reader who is really new to LaTeX to a less detailed first round such as Flynn's opus mentioned above, or the original "bible" by Lamport [5].

So I shall start all over again. I found Kopka and Daly's book very useful and I suspect that the rest of you readers, who I still suspect are not normal, will also find it valuable.

This book is in fact part of a series of four books and is written to take advantage of this linkage. Thus, the authors can refer to other members of the series when it is impractical to cover all the details

without getting off track. For example, they can refer to the *LaTeX Graphics Companion* [3] to take over where the present text leaves off when dealing with graphics. Similarly, the HTML aspect can be found in expanded form in the *LaTeX Web Companion* [2]. And all three are scions of the original LaTeX book by Lamport[5] and of another general book in the series [7]. They all fit together in a reasonably integrated whole. This collection, in turn, stands on the foundation of TeX as originally set forth by its god [4].

So what specifically does Kopka and Daly offer? First, lots of examples. As noted above, this makes life much easier, even for experts. Especially when you are trying to get a specific job done, you want something you can plug right in and get on with the main task.

A simple perusal of the table of contents gives a rough view of the lay of the land. In particular, of the *current* view. LaTeX is continually being improved. While this can be a nuisance — you just get the hang of it and they change it — it is good in the long run. The tool becomes more powerful. Again the price you pay for this power is having to come to grips periodically with new toys.

As a notable example, the last few years have seen the rise of PDF files[3] as the *de facto* standard for final presentation of documents, especially in an electronic form. Thus the (La)TeX gurus have given us pdfLaTeX, a version of LaTeX which can generate PDF files directly. This opens the door to use of hyperlinks, and we are served the `hyperref` package to take care of the details. The reader who may have noticed allusions to such developments but has not yet had time to look more closely will find Kopka and Daly very useful. This edition arrives just at the right time (the PDF world seems to have stabilized enough to be ready for prime time and the rest of us) to bring us up to date in this area.

The beginner will like the section *TeX and its offspring* as a tidy map of who's who. If you are starting cold, little things like why there is a LaTeX, a LaTeX 2.09, and a LaTeX 2_ε, can be confusing. (The situation is similar in Boston where visitors find the main streets are not labeled "Because everybody will know where they are!").

[3] A file with the extension `.pdf` signals "PDF format", that is, it follows the rules for Adobe's "Portable Document Format" which has been designed to make portable files with the ability to present pictures, sounds, hyper-references (links to targets outside the current document) and the like. The Adobe people did such a good job (as they did with the predecessor "Postscript") that PDF has been widely accepted. One program for reading such files, Adobe Acrobat, has been made available by Adobe at no charge.

I have not methodically listed chapter topics. They are about what you would expect in a systematic text. I found the details consistently clear for anyone who has some background in (La)TeX and who will therefore not stumble on terms like "source" or "bounding box". I noticed no obvious big gap but, and I am probably dating myself here, I did miss PiCTeX (although it did get into the *Graphics Companion*, if not its index.) I did not find a note on how to pronounce LaTeX; I don't know whether this is good or bad.

I would say the book's main strength is the gathering together in one place of an up-to-date summary of what one can do with LaTeX and its clones. In this spirit, about one third of the book is devoted to appendices. For example, Appendix G contains an alphabetical list of commands with both brief descriptions of their behavior as well as references to both section and page where the fuller treatment appears. A second section of G gives tables showing a wide range of symbols you might want and how to generate them. The first appendix puts the New Font Selection Scheme into perspective — another topic where a reader who has not been keeping up-to-date will welcome a primer. Appendix C gives a systematic approach to error messages including lists of the various possibilities. Appendix D delves into "LaTeX Programming". Most users probably will not think of themselves going down this path but they may still find this survey useful if they want to make a minor tweak to a package. Take a peek.

As you may gather, I think readers will find this book useful. Are there any flaws? A glossary would have been handy, for example when Chapter 2 starts with a reference to a "source file". (Yes, if you know what that means, you have passed a simple test to demonstrate that you, too, are not normal!) When the reader first hits "bounding box" not only is a glossary missing, the term did not make the index. I can nit-pick and wonder why a section starts with the title "Chemical formulas and boldface in math formulas" and then discusses them in the reverse order. Overall, such issues are well offset by conveniences like a list of "Mathematical typesetting conventions" which, while not LaTeX *per se*, puts the latter into good perspective.

The book includes a compact disc with selections from the TeX Live collection — enough to enable installation of a working system on Windows, Linux, or a Mac OS X system (Linux users will generally find their installation already provides (La)TeX albeit of uncertain vintage).

References

[1] Peter Flynn. Formatting information. *TUGboat*, 23(2):115–237, 2002.

[2] Michel Goossens, Sebastian Rahtz, Eitan Gurari, Ross Moore, and Robert Sutor. *The LaTeX Web Companion*. Addison-Wesley, Reading, MA, 1999.

[3] Michel Goossens, Sebastian Rahtz, and Frank Mittelbach. *The LaTeX Graphics Companion*. Addison-Wesley, Reading, MA, 1997.

[4] Donald E. Knuth. *The TeXbook, Computers and Typesetting, Vol. A*. Addison-Wesley, Reading, MA, 1986.

[5] Leslie Lamport. *LaTeX: A Document Preparation System*. Addison-Wesley, Reading, MA, 2nd edition, 1994.

[6] Tom Lehrer. Lobachevsky. In *Songs by Tom Lehrer,* track 6. Tom Lehrer, Cambridge, MA, 1952. 33 rpm 12 inch record, US$3.95, "plus 30 cents shipping".

[7] Frank Mittelbach, Michel Goossens, Johannes Braams, David Carlisle, and Chris Rowley. *The LaTeX Companion*. Addison-Wesley, Reading, MA, 2nd edition, 2004.

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Book review: *Guide to LaTeX, 4th Edition*

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In an attempt to represent the "new user" end of the spectrum — I've used *Guide to LaTeX* since it first appeared on the market. However, I begin at the back of the book — having done so since I was first introduced to TeX way back in 1985. I could spell the word "computer" at that time, and was hired simply because I was too naive to understand just how complex TeX was going to be. I had never even seen a computer before. I think I spent three months reading the index (slept with it under my pillow at night) and then going back to the front of the book and reading chapter by chapter.

For someone who has been introduced to LaTeX but has not had the time to spend learning its intricacies, this is an excellent reference book in that you can look in the index for the word (since most commands are a backslash and some semblance of the actual "word" itself) and then choose whether you wish to do the "quick and dirty" (just need to know how many options and which ones they are), or whether you need a deeper understanding of the definition. Finally, while the book is not intended to represent the "full" instructions for "every" package, the authors have provided pointers to the best information available for various packages and utilities on the web and on paper.

For typists who have to either type or edit manuscripts, it presents a comprehensive reference utility. It is updated often enough to be "current" and is written in lay language.

I confess I consider it required for all of the people that I work with, who need to know how to do anything with LaTeX.

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