

George Grätzer – *More Math into L<sup>A</sup>T<sub>E</sub>X*, 4<sup>th</sup> edition, Springer, 2007, XXXIV + 619pp, ISBN 978-0-387-32289-6

The author of this book is well known in the L<sup>A</sup>T<sub>E</sub>X community. Most probably, many of the readers of this review learned (as I did myself) L<sup>A</sup>T<sub>E</sub>X by reading his previous books (actually, previous editions of this one). Of course, we mathematicians also know Professor Grätzer as a very fine algebraist, but this is not the point here.

L<sup>A</sup>T<sub>E</sub>X users who are not so young may remember that in the early 1990's some enthusiastic people adapted the  $\mathcal{A}\mathcal{M}\mathcal{S}$ -T<sub>E</sub>X set of macros, created by Michael Spivak, for use with L<sup>A</sup>T<sub>E</sub>X. The result was called  $\mathcal{A}\mathcal{M}\mathcal{S}$ -L<sup>A</sup>T<sub>E</sub>X. For the first several years of its existence you had to use a separate format file in order to process an  $\mathcal{A}\mathcal{M}\mathcal{S}$ -L<sup>A</sup>T<sub>E</sub>X file. The first edition of Grätzer's book was devoted to the description of the facilities (mostly mathematical) offered by  $\mathcal{A}\mathcal{M}\mathcal{S}$ -L<sup>A</sup>T<sub>E</sub>X. The book evolved in parallel with L<sup>A</sup>T<sub>E</sub>X. Thus, the second edition, published shortly after the launch of L<sup>A</sup>T<sub>E</sub>X<sub>2 $\epsilon$</sub>  (when  $\mathcal{A}\mathcal{M}\mathcal{S}$ -L<sup>A</sup>T<sub>E</sub>X turned into a system of L<sup>A</sup>T<sub>E</sub>X packages), was already devoted to both L<sup>A</sup>T<sub>E</sub>X and  $\mathcal{A}\mathcal{M}\mathcal{S}$ -L<sup>A</sup>T<sub>E</sub>X. By the third edition (2000), the title of the book lost the " $\mathcal{A}\mathcal{M}\mathcal{S}$ -L<sup>A</sup>T<sub>E</sub>X" part and became just *Math into L<sup>A</sup>T<sub>E</sub>X*. The edition under review is a significantly expanded version of this edition, including much more new material.

Before turning to the description of the content of the book, the reader should be warned that inside he will find just what the title promises: L<sup>A</sup>T<sub>E</sub>X for mathematicians. Of course, this doesn't mean that the book is concerned with typesetting mathematics only. Other subjects are described that are relevant for the mathematicians. On the other hand, despite the title, even if the author doesn't state it explicitly, the math that you get is provided by the  $\mathcal{A}\mathcal{M}\mathcal{S}$ -L<sup>A</sup>T<sub>E</sub>X packages. These packages should always be loaded if you don't use an AMS document class.

Now let's get to business. The first part of the book is a very concise but, at the same time, crystal clear introduction to the fundamentals of L<sup>A</sup>T<sub>E</sub>X. The author manages to give, in very few pages, just enough information to allow the reader to typeset a first article (not very complex, of course) and to turn it in a presentation, if necessary.

The second part of the book, the most consistent, describes in detail how to typeset text and mathematics with L<sup>A</sup>T<sub>E</sub>X. The material included is the standard set except, as already mentioned and unlike many other textbooks, Grätzer con-

centrates on the use of the  $\mathcal{A}\mathcal{M}\mathcal{S}$ - $\text{L}\text{A}\text{T}\text{E}\text{X}$  packages. Apart from these, he doesn't describe other packages here.

The third part of the book is devoted to the structure of documents, with special emphasis on the `amsart` document class, while the fourth part deals with the important use of PDF and presentations. Here he explains how to work with specific packages, such as `hyperref`, `backref`, `colorlinks` and he provides an excellent introduction to the `beamer` package, for making presentations.

The fifth part, "Customization," is concerned with what is often called " $\text{L}\text{A}\text{T}\text{E}\text{X}$  programming:" (re)definition of commands and environments, counters, lists, a.o., while the last part, "Long documents," describes the tools used to produce a bibliography and index (`Bib $\text{L}\text{A}\text{T}\text{E}\text{X}$`  and `MakeIndex`), and analyzes some of the particular aspects of producing books with  $\text{L}\text{A}\text{T}\text{E}\text{X}$ .

Finally, there are some appendices that describe technical aspects, such as installing  $\text{L}\text{A}\text{T}\text{E}\text{X}$  on Windows and Mac, tables of symbols, a little bit of history and short discussion of different systems of  $\text{T}\text{E}\text{X}$  macros, PostScript fonts,  $\text{L}\text{A}\text{T}\text{E}\text{X}$  and Internet, and the localization of  $\text{L}\text{A}\text{T}\text{E}\text{X}$ .

What impressed me, first of all, besides the huge quantity of information, is the way the author approaches the process of learning. He is definitely a fan of the "learning by doing" paradigm. As such, the book contains a large number of examples, all of them processed. It even includes entire articles. There are, also, a large number of tips, all of them helping the user to build a personal style of typesetting. Moreover, I would like to mention also the way the author attempts to build an appropriate "learning curve" for  $\text{L}\text{A}\text{T}\text{E}\text{X}$ , by returning, again and again, to some topics, but at different levels. I should mention, also, that the author made a series of videos, suggesting a "gentle learning curve" to  $\text{L}\text{A}\text{T}\text{E}\text{X}$  using his book (see his article and videos in this issue of TPJ).

As far as the content of the book is concerned, I think Grätzer's presentation of  $\mathcal{A}\mathcal{M}\mathcal{S}$ - $\text{L}\text{A}\text{T}\text{E}\text{X}$  is, really, masterful. Besides that, he managed to present, surprisingly clearly and in relatively few pages, the essence of `beamer` (which is, indeed, an accomplishment, since the original manual has more than 200 pages, if I'm not wrong).

To conclude, I think that, for mathematicians at least, this is the most complete  $\text{L}\text{A}\text{T}\text{E}\text{X}$  textbook. Any serious  $\text{L}\text{A}\text{T}\text{E}\text{X}$  user (from beginner to expert) could benefit a lot from using it. If you are a mathematician and you don't use a lot of exotic packages, you will hardly need anything other than this book.

**Paul Blaga**