Book review: *The Advanced TeXbook*, by David Salomon

Włodek Bzyl

David Salomon, *The Advanced TeXbook*. Springer 1995, softbound, xx + 492 pp. ISBN0-387-94556-3. The size is the same as *The TeXbook*..

With the book in my hands I tried to guess what it hides inside. Looking at the title, I expected that it should begin with the repetition of basic material which afterwards would be continued with the detailed exposition of advanced concepts. The table of contents confirmed my guess. Moreover, it is the only book I know which contains two introductions (the first is basic, the second advanced). Introductory material is followed by eighteen chapters where every aspect of the TeX language seems to be explained. The chapters of my immediate interest were:

- Examples of Macros,
- Multipass Jobs,
- Output Routines,
- OTR Techniques,
- Insertions.

The book contains a bibliography, the answers to exercises, and an extensive index.

Browsing through the book revealed that the concepts are usually illustrated by examples and complemented with exercises. Approximately one-third of the book contains material previously published in *TUGboat*. To summarize, the material covered is sufficient to move anyone all the way from the rank of TeXnician to the rank of Grandmaster.

In assessing the accuracy of this work I have attempted to read part of it very carefully. This simple approach discovered many errors and inaccuracies in the presentation. Let us start this part with a citation taken from the book under review.

> Tokens and file I/O are two more features that distinguish TeX from most word processors and page layout programs. They contribute to the power of TeX and should be mastered by anyone aspiring to the title of TeXmaster (or even that of a TeXnician).

Although the first of the two sentences above might sound controversial, the second describes the place to be visited on the way to become the true TeXmaster. Unfortunately tokens could not be mastered with *The Advanced TeXbook*. The author has a wrong idea of the tokenization process. To justify this strong opinion I chose two examples.

Let's start with (p. 172): "We thus cannot say ‘`\def\endverb{\endverbatim}`’ ... because the string in macro `\endverb` starts with $\backslash_0$ instead of $\backslash_{12}$." This is wrong because the replacement text of the `\endverb` macro is the token $\boxed{\texttt{endverbatim}}$.

To learn the concept of token lists in TeX we are told that TeX is a living organism with four key organs: eyes, mouth, stomach, and bowels. Research work of leading TeX anatomist Victor Eijkhout proved that these organs should be given new names (matching the functions they perform): input processor, expansion processor, execution processor, visual processor. David Salomon looking at the anatomical diagram on the page 456 of *The TeXbook* discovered a new organ which he named ‘gullet’. Its function is to expand tokens and execute certain commands. It is my opinion that introduction of the new organ which performs some functions of mouth and stomach, and at the same time narrows the functions of the eyes results in a creature which hardly resembles TeX.

In several places the readers are warned by the author: "The macros and the programs listed in this book have been tested by the author but are not guaranteed. They are meant to be read, understood, and modified by the reader for specific applications. They are not meant to be copied and used verbatim." OK, I feel warned.

On page 140 I found two lines of code which should make a comma stick out into the margin, if it occurs next to a line break.

```
\setbox0=\hbox{,} \catcode`,=\active
\def,{,\kern-\wd0\kern\wd0}
```

This piece of code produces an infinite loop. It was not difficult to repair the code.

```
\setbox0=\hbox{,}
\def\comma{,\kern-\wd0\kern\wd0}
\catcode`,=\active
\let,=\comma
```

Next I tried to understand how the macros work. The comma hangs when the line is broken between the two kerns. This agrees with the explanation provided: "If a comma is used at the end of a line, however, the last `\kern` is discarded and the comma is left hanging out on the right." But, on the page 91 we are told: "A line break can only occur at a glue, a penalty, a ‘math-off’, or a discretionary break." This means that a line break cannot separate kerns. The two kerns cancel each other and the comma does not hang at all. To recapitulate the situation: there are two sentences of which at least one could be true. (By the way, the above code could be criticized on two points more.)

Let me finish the review with personal comments on the design of the text. The design is very stingy on the vertical space. This causes a lot of trouble. Sometimes it looks as if the author added or dropped artificially a line of code to make a page exactly full. The effect is strange. Diagrams are oversized and look ugly. A keyboard and an arrow symbol are used to mark points in the text. Whatever reasonable meaning is attached to them, they are frequently misplaced or put in unnecessarily.

In spite of the above criticism I would like to recommend this book to anyone wanting to pay for the one-fourth of it covering multipass jobs and output routines plus insertions. The reason I offer is simple: these are places where I found a lot of inspiring material.

◇ Włodek Bzyl
Instytut Matematyki,
Gdańsk University,
Wita Stwosza 57,
80-952 Gdańsk,
Poland.
matwb@univ.gda.pl