

with text. In the case of the PC/DOS implementation in particular, graphics applications are ubiquitous so there is a wide array of graphics sources. Moreover, we have suggested a *method* for including graphics with T_EX that allows T_EX the same control over graphics images as fonts of type. This approach affords a seamless blend of graphics and text in the same document. The distinction between device driver and T_EX is softened. Although the graphics insertion occurs at the device driver level, the *control* is retained in T_EX.

This idea has been extended to include the notion of converting graphics files to the PK/TFM format of T_EX. The primary benefit of this approach is expanding graphics capture to T_EX implementations which do not use the LaserJet printer. In particular, CAPTURE can support PostScript drivers for T_EX that use the same computer modern fonts in the PK/TFM format as the LaserJet drivers. The range of graphics sources available to PostScript users is considerably increased over the range of applications which presently support PostScript. Other extensions may also be possible.

We have consistently emphasized that CAPTURE serves as an example and proof-of-principle that the graphics capability of T_EX is considerable. We would like to propose (hopefully without being presumptuous) that other graphics implementation programs adopt some of the ideas discussed here. For example:

- T_EX should be able to manipulate graphics images equivalently to fonts of type.
- A graphics program for T_EX should support the PK/TFM format to maintain the greatest possible device independence.

In this way, the distinction between graphics and text in T_EX should be diminished and a connection between the various implementations of T_EX can be maintained by the device independent nature of the standard T_EX formats.

References

- [1] Lee S. Pickrell. "Combining Graphics with T_EX on IBM PC-Compatible Systems with LaserJet Printers." *TUGboat*, 11(1):26 – 31, 1990.
- [2] Leslie Lamport. *L^AT_EX, A Document Preparation System, Users Guide & Reference Manual*. Addison-Wesley Publishing Company, Reading, Mass., 1986. ISBN 0-201-15790-X.
- [3] Donald E. Knuth. *The T_EXbook*. Addison-Wesley Publishing Company, 1986. ISBN 0-2-1-13448-9.
- [4] David G. Cantor. "DROP.STY." Published in T_EXhax, number 16, 1988. Available on the Clarkson Archive Server (public domain).
- [5] CAPTURE, *A Program for Including Graphics in T_EX*. Wynne-Manley Software, Inc., 1094 Big Rock Loop, Los Alamos, NM 87544, March 1990.
- [6] Donald E. Knuth. *The T_EXbook*, pages 228–229. Addison-Wesley Publishing Company, 1986. ISBN 0-2-1-13448-9.
- [7] *LaserJet series II User's Manual*. Hewlett Packard Corporation, Boise Division, P.O. Box 15, Boise, Idaho 83707, December 1986. Part No. 33440-90901.
- [8] David Fuchs. "T_EX Font Metric Files." *TUGboat*, 2(1):12–17, 1981.
- [9] Tomas Rokicki. "Packed PK Font File Format." *TUGboat*, 6(3):115–120, 1985.
- [10] *T_EXPRINT/PS User Guide*. Oregon House Software, Inc., 12894 Rices Crossing Road, Oregon House, CA 95962, 1988.

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Resources

Data General Site Report

Bart Childs

The distribution with the new versions of T_EX and METAFONT is nearly finished. We are also rewriting the drivers for the DG, QMS, and LaserJet printers in Silvio Levy's CWEB. We have decided to use Tom Rokicki's PostScript drivers.

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VM/CMS Site Report

Joachim Lammarsch

My first report as new VM/CMS site coordinator starts with bad news. I have heard that it is possible to install a virus into IBM DCF or Waterloo Script input using the command `.sy`. This is the vehicle to send commands to CMS. Within the regular VM/CMS version of \TeX it's possible to use the command `\cms` to do the same. Therefore the warning: Be careful \TeX ing strange input; first look for the command `\cms!` I haven't heard anything about viruses in \TeX input yet, but nevertheless I'll try to find a method to make this kind of virus impossible.

Now the good news: Peter Breitenlohner has finished his work and sent the new \TeX 3.0 to me. It contains not only \TeX 3.0, but also `METAFONT 2.0`, `VPTOVF`, `VFTOVP` and last, but not least, a Big \TeX 3.0 containing two times more memory words than the normal version. Many thanks, Peter!!

Ferdinand Hommes from GMD, Gesellschaft für Mathematik und Datenverarbeitung Bonn, has sent me new public domain drivers for IBM laserprinters supported by PSF and for IBM 4250; for PostScript printers; QMS Lasergrafix model 800, 1200, and 2400; and for IBM display stations supported by GDDM. Unfortunately, there are only text files.

Dean Guenther has sent me `DVIALW`, a driver ported to VM/CMS by S. Sathaye from Nelson Beebe's public domain `dvia1w` driver.

I plan to bring the new distribution tape with me when I come to TUG90. It should be available from Maria Code in July.

I have created a new discussion list named \TeX -IBM to discuss problems concerning the implementation of \TeX and his children under VM/CMS. All IBM MVS users are invited to join this list, too. To subscribe to the list, send the command

```
SUB TEX-IBM firstname familyname
```

to your nearest listserv.

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Resources Available to \TeX Users

Barbara Beeton and Ron Whitney

In this installment we have a few updates to the inaugural column in *TUGboat* 11, no. 1.

Archives with network connections

We have received several lists of network hosts with a summary of items that can be found at each. Unfortunately, time has prevented our checking the data (it is clearly out of date, as `Score.Stanford.edu` appears in every list). So, rather than spread erroneous information, we will spend some time over the summer checking it and provide an accurate list in the fall. Anyone who would like to assist with this research, or knows of any interesting repositories, please get in touch.

Sources of software and macros for PC and Macintosh

The following information was posted recently to UK \TeX (issue 14) by Sebastian Rahtz:

The Aston \TeX archive has a new version of \TeX for MS-DOS and OS/2, contributed by Eberhard Mattes from Stuttgart. This release comprises *all* of \TeX , `METAFONT`, support programs (`BIB \TeX` , `Makeindex`, `webware`, etc.), `dvi` drivers, previewer, and drawing package for \LaTeX pictures (`texcad`).

On the good side:

- there are separate binaries for normal MS-DOS, for 286/386 processors (which make things go a little faster), and for OS/2 protected mode
- the release has a full `METAFONT`
- expanded memory is used if present
- there are 'big' versions of \TeX and `METAFONT`; the former is a boon for \LaTeX users who load lots of extra macros (such as `P \TeX`)
- the \TeX is as fast as, if not faster than, `sb \TeX`
- the printer driver family and screen preview share a common interface, and a common set of `\special` commands for graphics (used in the `texcad` package); the previewer can use the same 300 dpi fonts as a laserprinter. An interesting development is the use of optional 'libraries' of fonts, a convenient way of combining together those huge directory hierarchies.

On the down side:

- the documentation is all in German. And why not, you may ask? It only matters to the

uneducated among us! [Editor's note: but see below.]

- the printer drivers are for dot matrix and laser printers, but *not* for PostScript
- T_EX 3.0 isn't available yet (but promised soon)
- the huge T_EX is rather slow

If any or all of these apply to you:

- you have a reading knowledge of German
- you want T_EX for OS/2
- you need a big T_EX
- you need a fast free PC METAFONT

then you should check out emT_EX. Users who just want a good, fast T_EX may be better off getting Wayne Sullivan's excellent sbT_EX, now in T_EX version 3.0, as it does nearly all you want and is a little simpler to set up. But emT_EX is an excellent way to set up a complete T_EX on your PC.

The files are a set of B00-encoded .zip archives in

`[tex-archive.tex.msos.emtex]`

at Aston University.

Editor's note: A later issue of UKT_EX has announced that most of the documentation has now been translated into English, and is also available from the Aston archive. Instructions for obtaining information and files from Aston have appeared most recently in *TUGboat* 10, no. 2, pages 194-195, and can also be found at the end of every issue of UKT_EX.

We have also learned that emT_EX is available for anonymous ftp from

`terminator.umich.cc.edu`

in the directory `soft/text-mgmt/emtex`.

Electronic discourse

TEX-D-L. The last issue contained two errors with respect to this list—in the name and in the node. The correct form of the name is shown here, with two hyphens and no underscores. To subscribe, send a message to `LISTSERV@DEARN.Bitnet` containing the request

`SUBS TEX-D-L <your name>`

This list is conducted in German.

TEX-D-PC. A second list in German has been established for those interested in matters concerning T_EX on PCs. Send the command

`SUBS TEX-D-PC <your name>`

to `LISTSERV@DHDURZ1.Bitnet`.

A Proto-TUG Bibliography: Installment Two

Barbara Beeton

In the last issue, we presented the first installment of a TUG bibliography, in progress, containing references to books and articles about T_EX, L^AT_EX, WEB and related topics, or prepared using one of these tools. The list that follows continues with references to additional works that had accumulated in my office as well as citations sent in by obliging *TUGboat* readers. Please send more.

We have not yet created a bibliography style especially for *TUGboat*, so some of the elements we would like to show are hidden. This will be corrected as soon as we find time. (And have received the newest, "final", version of BIBT_EX, now under construction.) In the meantime, if you send in information, please include the following:

- Author(s), full name(s)
- Title
- For books, including proceedings or other collections:
 - Publisher, with address
 - Year of publication
 - ISBN
 - Editor (for collections)
 - Series name and number, if relevant
 - Conference name, location and date (for proceedings)
- For journals prepared completely or substantially in T_EX:
 - Year when publication in T_EX began; year when journal began publication, if not the same
 - Publisher and address
- For articles in journals:
 - Year and month of publication
 - Volume, issue and page span
- For articles in collections:
 - Full reference for the collection as a whole: editor, title, publisher, conference information, etc.
 - Page span of article
- For technical reports:
 - Publisher or sponsoring institution, with address
 - Series name and number
 - Year and month of publication

- Indication of extent to which T_EX (or L^AT_EX, A_MS-T_EX, etc.) was used in preparation
- Any other useful information, e.g. translation, language

Although the present compilation is in BibT_EX format, I have been reminded of the existence of another competent bibliographic tool, Tib. (See the article by James Alexander in TUGboat 8, no. 2.) The suggestion has been made that the bibliography be maintained in parallel in both forms, and we are seriously considering doing just that, when time permits.

Once again, please send your suggestions and candidates for inclusion.

Here is the second installment, in two parts: publications about T_EX, and publications prepared with T_EX. In both sections, preparation with T_EX is assumed unless stated otherwise.

Publications about T_EX

- Paul W. Abrahams, with Karl Berry, and Kathryn A. Hargreaves. *T_EX for the Impatient*. Addison-Wesley, Reading, MA, 1990.
- Wolfgang Appelt. *T_EX für Fortgeschrittene*. Addison-Wesley Verlag, Bonn, 1988.
- Malcolm Clark (editor). *T_EX: Applications, Uses, Methods. Proceedings, Third European T_EX Conference, T_EX88, Exeter, August 1988*. Ellis Horwood, Chichester, 1990.
- Jost Krieger and Norbert Schwarz. *Introduction to T_EX*. Addison-Wesley Europe, Amsterdam, 1990. Translation of *Einführung in T_EX*.
- Norbert Schwarz. *Einführung in T_EX*. Addison-Wesley Verlag, Bonn, 1988(?).
- Norbert Schwarz. *Inleiding T_EX*. Addison-Wesley Europe, Amsterdam, 1990. Translation of *Einführung in T_EX*.

Publications prepared with T_EX

- Harold Abelson and Andrea A. diSessa. *Turtle Geometry*. MIT Press, Cambridge, MA, 1981. This book was prepared with T_EX80; this was described in TUGboat 2, no. 3 in an article by Michael Sannella.
- Ronald N. Bracewell. *The Hartley Transform*. Oxford University Press, 1986.
- Commentationes Mathematicae Universitatis Carolinae. This publication was prepared with A_MS-T_EX.
- Gerard Gazdar, Alex Franz, Karen Osborne, and Roger Evans. *Natural Language Processing in the 1980s, A Bibliography*, volume No. 12 of *Center for the Study of Language and Information Notes*. U. Chicago Press, 5801 Ellis Ave., Chicago, IL 60637, 1987. This book was prepared automatically from a database and set with T_EX. The intent is to keep it updated.
- R. L. Graham, D. E. Knuth, and O. Patashnik. *Concrete Mathematics*. Addison-Wesley, Reading, MA, 1989.
- Alan Hoenig. *Applied Finite Mathematics*. McGraw-Hill Publishing Company, New York, 1990.
- Arthur M. Keller. *A First Course in Computer Programming Using PASCAL*. McGraw-Hill Publishing Company, New York, 1982.
- Steven E. Koonin and Dawn C. Meredith. *Computational Physics*. Addison-Wesley, Redwood City, 1990.
- Tom Lyche and Larry L. Schumaker. *Mathematical Methods in Computer Aided Geometric Design*. Academic Press, Boston, 1989.
- Roman Mæder. *Programming in Mathematica*. Addison-Wesley, Reading, MA, 1990.
- William H. Press et al. *Numerical Recipes*. Cambridge Univ. Press, Cambridge, 1986. Originally for FORTRAN and then rewritten for a C version, *Numerical Recipes in C*; also example books in Fortran, Pascal and C, making a total of five books with "Typeset in T_EX" on the back of the title page.
- Robert Sedgewick. *Algorithms*. Addison-Wesley, Reading, 1988.
- Robert Sedgewick. *Algorithms in C*. Addison-Wesley, Reading, 1990.
- J. F. Traub, G. Wasilkowski, and H. Woźniakowski. *Information-Based Complexity*. Academic Press, New York, 1988. This book was prepared with A_MS-T_EX.
- Stephen A. Ward and Robert H. Halstead, Jr. *Computation Structures*. The MIT electrical engineering and computer science series. MIT Press, Cambridge, MA, 1990.
- Stephen Wolfram. *Mathematica: A System for Doing Mathematics by Computer*. Addison-Wesley, Redwood City, 1988. This book was prepared with T_EX, L^AT_EX and PostScript.
- Daniel Zwillinger. *Handbook of Differential Equations*. Academic Press, Boston, 1989.

New Books on T_EX

Victor Eijkhout

There is a piece of good news to be reported: two new books on T_EX have appeared recently, one for beginning to intermediate users, and one for intermediate to advanced users. And there's more good news: T_EX is so widely spread that both books originated in Germany, and are written in German. Of the introductory book, translations into English and Dutch exist, but the advanced book, in more than one respect the more interesting of the two, has not been translated yet.

T_EX books in languages other than English are a good thing for two reasons. One is that they give an indication of the widespread use of T_EX. The other is that, to quote Norbert Schwarz, author of *Einführung in T_EX* [1], such books are 'a bit more internationally oriented than a book of English or American origin would probably be'. This is especially apparent in *T_EX für Fortgeschrittene* [2] by Wolfgang Appelt, which has a whole chapter on 'Deutschsprachige Text', containing useful remarks that are relevant to more languages than just German.

Introduction to T_EX

Introduction to T_EX by Norbert Schwarz assumes no knowledge of T_EX whatsoever; indeed the first chapter 'General information' gives a short list of the merits of T_EX. This makes for a nice and motivating introduction for the complete novice.

The same holds for chapter 2, 'Operation', that contains, after a few pages of braces, backslashes, and punctuation, a first example of the use of T_EX. Some thirty commands are used here. Obviously the author wants to get the reader going: the details will come later.

Chapter 3 was written in the same vein. In 30 pages a large amount of information about 'Setting text' is given to the reader, with lots of examples. However, this chapter had me frowning a number of times. It is the author's style of writing to use unusual examples like

```
{\obeylines\everypar{\hfil}...}
```

to introduce the concepts of `\everypar` and `\parfillskip`, but it wouldn't be mine. And I object to

```
\centerline{\it The current page has
the number \folio}
```

(because the statement may be untrue due to asynchronous output routine behaviour).

Fortunately, some important concepts are explained more fully in chapters on macros and 'How T_EX works' — although I feel that the section on modes is a bit skimpy. There are two nice chapters on mathematical typesetting, there is a short chapter on output routines, and I was particularly pleased with the chapter on 'Tables and alignment' as it is well-written and contains good examples.

The main part of the appendix to this book is an 80 page (!) list of all T_EX and plain T_EX commands. The explanations are short, but certainly not cryptic, and often an illuminating example is given. Definitely a good idea of the author.

T_EX for the advanced

T_EX for the Advanced by Wolfgang Appelt is a very different book. The subtitle, 'Programming techniques and macro packages' is probably the best indication to its contents. Wolfgang Appelt argues in the preface the need for high level macro packages, and then sets out to assist the reader in constructing such packages. He does this in three ways.

The preface, the introductory chapter, and a chapter 'Macro packages' give general thoughts on how macro packages should be structured, and what their nature should be. He distinguishes between the logical structure and the layout structure, and, for both of these, the generic and the specific structure. It is useful to have such concepts explained in some detail, and the reader won't hear me arguing the author's point of view.

Pure T_EX theory is treated in chapters on 'Spaces' — such a chapter must be answering many prayers of desperate T_EXers — and 'Macros and parameters'. The author has a very clear style of exposition, but his explanation of conditionals, sufficient for most cases, distorts the truth a bit.

Lastly, four chapters can be classified as "case studies in macro package design." They treat the subjects of a font selection scheme, text structures (lists and sectioning), referencing (including table of contents), and adaptations necessary for the German language. These chapters give complete sets of macros, and they are well explained.

Appelt makes no attempt at being complete. *Mathematical typesetting and alignments* are not treated in this book, and output routines are hardly touched upon. Given the size of the book this would not have been possible, and concentrating on a few selected topics is probably a good idea.

In all, this book is maybe not sufficient reason to start learning German — which means you'll never make such delightful discoveries as that *ragged right* is *Flattersatz* (*flutter setting*) in German —

but if you know a smattering of the language it certainly won't harm you to pick up this book.

How does it look?

When a book about \TeX appears, there is an obvious question: "Has it been done in \TeX ?" For both books reviewed here the answer is yes, but the results are widely different. The Appelt book is set in 12 point Computer Modern with non-obtrusive headings, which gives a surprisingly open and readable page. Of the Schwarz book I have only seen the Dutch and English translations, which are totally unlike each other. The English translation is set in Computer Modern, photographically reduced to 10 point. Unfortunately, the book was printed rather lightly, which makes the page appear somewhat hazy.

The Dutch branch of Addison-Wesley must have been in an adventurous mood, combining New Century Schoolbook as a text face with Avant Garde headings. Choosing Courier as the typewriter font was not the optimal choice, but the overall result is rather pleasant — even though there have been a few accidents in typesetting the examples.

As a conclusion I would state that both books are an asset to the \TeX community. Neither book is a definite \TeX bible, but niches certainly exist for both to fill.

[1] *Einführung in \TeX* , Norbert Schwarz, Addison-Wesley Verlag, Bonn 1988(?) ISBN 3-925118-97-7.

Inleiding \TeX , Norbert Schwarz, Addison-Wesley Europe, Amsterdam 1990, ISBN 90-6789-151-7.

Introduction to \TeX , Jost Krieger and Norbert Schwarz, Addison-Wesley Europe, Amsterdam 1989, ISBN 0-201-51141-X.

[2] *\TeX für Fortgeschrittene*, Wolfgang Appelt, Addison-Wesley Verlag, Bonn, 1988, ISBN 3-89319-115-1.

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DECUS \TeX Collection — Submissions Wanted

Ted Nieland

DECUS is putting out a Call For Submissions to the DECUS \TeX Collection.

I plan on putting out an update to the DECUS \TeX Collection in August. I am currently looking for any submissions that would be helpful in the DEC computing environment (not necessarily on DEC computers).

Support for the following operating systems will be available:

- VMS
- Ultrix/Unix
- MS-DOS
- Macintosh
- Amiga-DOS

I am also planning to put out an Ultrix/Unix version of the tape. It would still have everything the other tape has, only in Ultrix (instead of VMS) biased format.

I have a couple of people helping me this time around, so I hope to be able to do more.

Also, there will be a number of \TeX -related items on the Spring 1990 L&T SIG tape in the EPUBS subdirectory. Included will be the latest XDVI for DECWindows (and it is very nice), the update to GPLOT/GTEX, an update to DVIOUT, a document that is an introduction to \TeX , \TeX examples, and updates to the \TeX help files for VMS. I am still looking at a few other items that may make the spring tape, but my major concern is for the actual \TeX tape for the fall.

Anyone with something to offer is invited to send me a description, preferably by electronic mail.

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