

## General Delivery

### President's Introduction

Nelson H. F. Beebe

### News Items

Some technical magazines have a regular column each issue reporting recent newsworthy events in their fields. Because typography has such a broad range of applications, it would be impossible for a single unaided individual to write a similar one for *TUGboat*. I've been collecting small items of news that should be of interest to readers of *TUGboat*, and present them here as a small sample of what could be a regular feature, were there sufficient contributions from others.

### Music typesetting

Those who have previously followed the work of Eric Foxley [2], John Gourlay [3], Daniel Taupin [11], and Andrea Steinbach and Angelika Schofer (authors of *mtex*, available in some  $\TeX$  archives) on the typesetting of music should read the recent paper by Blostein and Haken [1]. It will also give you a chance to compare the "new typography", and extensive use of font scaling, introduced in the July 1990 issue of the Communications of the ACM with that of older issues. The change in the Communications of the ACM is so radical that it seems worthy of further comment. I shall refrain from doing so here, but I invite readers with sounder typographical backgrounds than mine to offer their scholarly views. I raise this point because some TUG members have called for a "new look" to *TUGboat*.

### The internals of $\TeX$

David Salomon has expanded upon his earlier presentations of  $\TeX$  output routines in these pages [8, 9] in some fine work which we hope to see published as a  $\TeX$ niques issue.

### A grand challenge

At the  $\TeX$ 90 meeting in Cork, Timothy Murphy [7] raised an important point that I had not heard discussed before. In compilation of computer languages, a number of automated techniques and programs were developed during the 1970s and 1980s for the generation of lexical analyzers and parsers directly from a concise specification of the language grammars. Much of this is based on pioneering work

of none other than  $\TeX$ 's own author, Don Knuth, on what are now known as *LR(k) grammars* [5].

The advantages of such an approach are now widely understood in the computer science community. In particular, these methods provide for rapid experimentation in language design, since grammar changes can be immediately incorporated in a correct working parser. Timothy Murphy suggested that we really ought to have a rigorous grammatical description of  $\TeX$ , and a reimplementing of the  $\TeX$  program based on that grammar.

Such an approach is, I believe, critical to future development of  $\TeX$ 's descendants. I do not, however, know whether it is even possible to define  $\TeX$ 's parsing by a grammar that is amenable to automatic parser generation. This could easily be enough work for a graduate thesis.

### METAFONT oddities

Sharp-eyed readers have sometimes observed peculiar things happening in the fine details of characters from METAFONT, particularly where lines join. The Grand Wizard explains it all in [6].

### TUGlib archive

The  $\TeX$  Users Group bibliography collection that I've been maintaining in the TUGlib archives at Utah continues to grow, thanks to the contributions of several colleagues who are acknowledged in the collections. Readers with network access can send an e-mail message with the text

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send index from tex/bib
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to [tuglib@math.utah.edu](mailto:tuglib@math.utah.edu) [128.110.198.2]. Alternatively, those with Internet connections can more conveniently use anonymous ftp to [math.utah.edu](ftp://math.utah.edu) and look in the directory `pub/tex/bib`.

There are now 65 book entries about  $\TeX$  and digital typography, 45 journal articles (these *exclude* articles from the various  $\TeX$  user group publications), and a list of nearly 100 periodicals that are typeset with  $\TeX$ , *exclusive of* the many AMS journals. Contributions to these bibliographies are invited from the *TUGboat* readership.

We expect to have current copies available for distribution at the TUG91 meeting in July. While it has been suggested that these bibliographies could be published as a  $\TeX$ niques issue, I am disinclined to do so, for the reason that they are continually being updated, sometimes more than once a week, so any printed copy would rapidly be out of date.

TUGlib archive access via e-mail is still small, but the log records over 800 accesses in the last year from 173 users. The anonymous ftp access to the

archives records 735 logins during the last two weeks of April 1991. It seems that these services are being found useful.

### Checksums

Robert M. Solovay at the University of California at Berkeley took up my challenge to write an idempotent file checksummer in WEB, and succeeded. I expect to incorporate it into regular use for files in the TUGlib archives, and of course, the code will be available as well.

### Literate programming

The 40 entries in the literate programming bibliography in the TUG archive now need to be supplemented with the contents of a recent annotated bibliography on the subject [10].

Usenet newsgroups `sci.math.symbolic` and `comp.text.tex` carried a posting on 26 April 1991 about a new version (1.3) of T<sub>E</sub>X/Mathematica available for anonymous ftp from `chem.bu.edu` [128.197.30.18] in the directory `pub/tex-mathematica`. This incorporates support for literate programming in Mathematica.

### T<sub>E</sub>X and computer architecture

The recent book by Patterson and Hennessy [4] on computer architecture has attracted rave reviews. A foreword by noted computer architect Gordon Bell says *To advance computing, I urge publishers to withdraw the scores of books on this topic so a new breed of architect/engineer can quickly emerge.* The authors of the book are the originators of the Berkeley and Stanford RISC chips which have revolutionized the computing industry in the last decade. Throughout the book, they use three widely-available programs to justify architectural decisions. One of these programs is T<sub>E</sub>X; the others are the Free Software Foundation's C compiler, `gcc`, and the circuit-design program, `spice`.

### E-mail lists and archives

For a number of years, *TUGboat* editor Barbara Beeton has coordinated a small `tex-implementors` electronic mail list as a forum for discussing implementation issues, and sharing news about, and problems with, T<sub>E</sub>X and METAFONT software. Now there are some new lists.

`tex-archive` is intended to contain addresses of archive site coordinators, so that they too can be kept aware of recent happenings. We have endeavored to make this list reach major sites that we know of, but if your archive site is not included, and you

wish to be added, send a message to the human answering to `tex-archive-request@math.utah.edu`.

People interested specifically in the problems of font design and font naming can communicate on the `tex-fonts` list; a message to `tex-fonts-request@math.utah.edu` will get you on it. One problem that has received considerable discussion is how to map the names of thousands of existing fonts into the limited filenames of some operating systems, in such a way as to preserve document portability, not require forbidden changes to T<sub>E</sub>X itself, and still be understandable by users.

The three lists above are not intended for wide distribution; their goal is to reach a small core of experts.

Some new lists may be of wider interest.

The formation of a group of Irish T<sub>E</sub>X users was discussed at the T<sub>E</sub>X90 meeting in Cork, and on 22 February 1991, UKTeX issue 91.009 carried an announcement about the establishment of ITALIC (Irish T<sub>E</sub>X And L<sup>A</sup>T<sub>E</sub>X Interest Community). Users in Ireland and abroad are invited to signal their interest in this group and join the mail discussion list `italic-1` by sending a one-line electronic mail message to `listserv@irlearn.bitnet` saying `subscribe italic-L <your real name>`.

An announcement on 29 April 1991 appeared in the `tex-euro` list about the formation of a list to discuss Greek T<sub>E</sub>X. To join, send a message to `listserv@dhdurz1.bitnet` with the text `subscribe ellhnika` (`ellhnika` is Greek for Greek, in Roman).

The T<sub>E</sub>Xhax issue of 21 April 1991 (volume 91, issue 20) carried a posting about a new list for the discussion of Turkish T<sub>E</sub>X. To join, send a message to `listserv@trmetu.bitnet` with the text `subscribe yunus <firstname> <middle-name> <lastname>`. The list is named after Yunus Emre, a fifteenth century Turkish poet and philosopher.

A connection to the Usenet `comp.text.tex` list is now available for Bitnet sites; send a message to `listserv@shsu.bitnet` with the text `subscribe info-tex`. This list has been created by George Greenwade at Sam Houston State University in Huntsville, TX. A mirror image of the Aston archive is being established there, which will at long last make a North American copy of that archive readily accessible.

Finally, for those of you who have net access and have tried to answer the question "On what archive will I find this software?", you should know about the `archie` server at McGill University. This is a new project that is an archive of archives: the

archie server communicates about once a month with known archive sites around the world, fetches a directory listing of their holdings, and stores it in a database. A request like `prog dvia1w` returns a list of all archives containing my PostScript DVI driver, including their file time stamps. I intend to use this to announce updates.

The archie server is available both via e-mail, and via telnet to the host machine, `quiche.cs.mcgill.ca [132.206.2.3]`, where you can login with username `archie` (no password) and search the data base. On-line help is available. Via e-mail, a request `help` to `archie@quiche.cs.mcgill.ca` will get you started. `archie` is already overworked, and the plan is to clone him at other sites.

### REVTEX

In early April, 1991, the American Physical Society released Version 2.0 of the *REVTEX* macro package, which is a L<sup>A</sup>T<sub>E</sub>X-based system for preparation of manuscripts for the *Physical Review A, B, C*, and *D* journals, and soon, for *Physical Review Letters* and *Reviews of Modern Physics*.

This new version is incompatible with earlier ones, and should replace them. Instructions are provided in a `README` file for the conversion of manuscripts that used earlier versions. The new *REVTEX* is now compatible with B<sup>I</sup>B<sub>T</sub>E<sub>X</sub>.

Most T<sub>E</sub>Xware archive sites should have the new version available by the time you read this.

### An industry leader's view

During the last week of March, the Novell Developer's Conference was held across the street from my office, and I took the opportunity to listen to keynote speakers each morning. One of them, Steve Jobs, the co-founder of Apple Computer, and the founder of NeXT Computer, said that in his view, the two most significant events in computing during the last two decades have not been hardware, windows, graphical user interfaces, or the Macintosh. They have been (a) the spreadsheet, and (b) desktop publishing. These two areas have been responsible for the spread of personal computers so that several tens of millions have now been sold, and the manufacturing economies of scale have revolutionized the rest of the computing industry.

### T<sub>E</sub>X Users Group Board changes

The past year has been a difficult time for the TUG Board. A severe division arose in the Board over future directions, and management. This division was approximately between the Executive and Finance Committee members on one side, and part of

the remainder of the Board on the other. Actions were taken at the Cork meeting to partially revise T<sub>E</sub>X Users Group bylaws, and to terminate the contract of the Executive Director effective at the end of 1990.

These divisions have been so strong that three of my fellow elected officials have resigned their offices. In the interests of maintaining at least some continuity, I will remain in office until the expiration of my term at the end of 1991. At that time, I will step down, and will not in the future be a candidate for T<sub>E</sub>X Users Group office. I have chosen not to appoint interim officers to fill the three Executive Committee vacancies. It is difficult for me to write this; I have suffered many sleepless nights over Board issues.

The Board has revised the election procedures, and an election will not be held at the TUG91 meeting. Instead, a mail ballot will be sent to the full membership. Details should appear in the first issue of a newsletter which is in preparation.

The new directions chosen by the Board will require significant financial resources to carry out. The fact that the TUG budget will suffer a significant loss this year, mostly due to falling course revenues (which in turn may be related to the state of the economy), is a very real problem.

Most TUG members are probably unaware that their membership/subscription dues contribute less than 25% of the budget (a figure that can be readily determined from the Treasurer's Reports published periodically in *TUGboat*). Although dues have been increased slightly, they do not produce sufficient additional income to cover the deficit, which may this year be more than 10% of the budget.

For comparison with another non-profit organization, the Association for Computing Machinery (ACM) 1990 budget shows membership providing 30% and subscriptions 12% of their annual budget, which is about 32 times larger than TUG's. The ACM has 18 times as many members as TUG, so their budget share per member is about double that of TUG.

### The future

I regret the state of TUG finances, because it prevents us from supporting research into digital typography at a time when I believe strongly that such research is essential. We must not forget that T<sub>E</sub>X was designed *before* personal computers and workstations, *before* bitmapped graphics displays, *before* cheap memory, *before* fast RISC processors, *before* laser printers, *before* graphics standards, *before* PostScript, and *before* SGML.

All of these have resulted in limitations in T<sub>E</sub>X's design that *must* be removed in future systems. I believe that T<sub>E</sub>X has many unique features, the most important of which are high quality mathematical typography, support for multiple languages and character sets, programmability, and public access to the source code.

The desktop publishing industry is responding to all of the above issues, and there is the very real risk that the benefits of T<sub>E</sub>X will be lost to commercial systems which will once again produce captive markets and ultimately, throttle development.

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## Editorial Comments

Barbara Beeton

### Newsletter news

The biggest piece of news to report here is the appearance of a new TUG publication — a newsletter. (You should probably have received your copy by now.) While the present incarnation is just a prototype, its usefulness will be examined in detail against the mechanics and cost of production.

A newsletter is presumed to be a timely publication, providing information about events, scheduled or spontaneous, and carrying questions and answers with a short turnaround. A newsletter is a suitable forum for reports on TUG activities and news from the Board of Directors. (A significant part of the prototype issue is devoted to such matters.) Therefore, it should appear more frequently than *TUGboat*, probably about six times a year.

If you have opinions on this subject that you wish to share, send them to the TUG Publications Committee, in care of the TUG office (the address is at the top of the list on page 203), or via e-mail to [TUG-Pubcomm@Math.AMS.com](mailto:TUG-Pubcomm@Math.AMS.com).

### TUGboat items in electronic archives

I have seen a number of inquiries about whether macros, style files, and similar items published in *TUGboat* are available from the various electronic archives. This is an old question, and the answer is also rather old, although it has unfortunately not yet been put into action. Several years ago, it was agreed in principle, and confirmed by the TUG board of directors, that such items should be made available electronically, one form of which is installation in the archives.