General Delivery

Donald E. Knuth Scholarship

Larry Sharlow was honored at the 1988 Annual Meeting, McGill University, Montréal, as the 1988 Scholarship Winner. He has volunteered to serve on the 1989 selection committee.

We are pleased to announce the Fourth Annual "Donald E. Knuth Scholarship" competition. This year **two** Scholarships will be awarded. The awards consist of an all-expense-paid trip to TUG's 1989 Annual Meeting and the Short Course offered immediately following the meeting. The competition is open to all 1989 TUG members holding support positions that are secretarial, clerical or editorial in nature.

To enter the competition, applicants should submit to the Scholarship Committee by May 12, 1989, the input file and final TEX output of a project that displays originality, knowledge of TEX, and good TEXnique. The project may make use of a macro package, either a public one such as LATEX or one that has been developed locally; such a macro package should be identified clearly. Such features as sophisticated use of math mode, of macros that require more than "filling in the blanks", or creation and use of new macros will be taken as illustrations of the applicant's knowledge. Along with the TEX files, each applicant should submit a letter stating his/her job title, with a brief description of duties and responsibilities, and affirming that he/she will be able to attend the Annual Meeting and Short Course at Stanford University, Stanford, California, August 21–25, 1989.

Selection of the scholarship recipient will be based on the TEX sample. Judging will take place May 13–June 12, and the winner will be notified by mail after June 12.

All applications should be submitted to the Scholarship Committee at the following address:

Larry Sharlow
10 Toltec #3
Flagstaff, AZ 86001

From the President

Bart Childs

I am looking forward to the celebration of 10 years of TUG at Stanford. The call for papers has already appeared; I hope you can and will participate.

Below is an announcement for a "dingbat" competition. I have had a lot of positive response from the preliminary versions. I hope the competition will be a good step in expanding our METAFONT horizons, which I feel have been neglected.

Announcing
A TUG Dingbat Competition

TUG announces a METAFONT competition for the creation of the best dingbat characters. Each entry will consist of one specific character (such as a logo) or a dingbat family, the METAFONT source, annotation of the source for pedagogical use, and samples of the use of the character(s). These characters can be in the spirit of the Zapf dingbats in PostScript, symbols, icons, logos, or of some other useful or entertaining nature.

A dingbat family could be:

- a character in different orientations (such as a hand or flag),
- a character in different presentations (such as outline, solid, black on white, white on black, gray, ...),
- a set of characters for doing border designs (TUGboat, Vol. 5, no. 2),
- a set of characters for a particular use (TUG could use an anchor, a dinghy, a printing press, ...), or
- any reasonably useful, entertaining, or interesting character.

TUG is holding this competition to encourage the use of complete TEX systems and to complement the initial system that was created by Don Knuth and given to us all. It is hoped that this competition will contribute to excellence in fonts, graphics, and documents in general.

Prizes

1st Prize: $250 plus autographed volumes
A through E of *Computers &
Typesetting*.

2nd Prize: $100 plus two autographed volumes of
choice.

3rd Prize: $50 plus one autographed volume of
choice.

Five Honorable Mentions: autographed volume of
choice.

Conditions for Submission

1. The artist/author shall be the creator of the
METAFONT sources and attest to the best of
his/her knowledge that public distribution of
these sources will not infringe on any known
property rights. TUG will assist in efforts to
determine that no property rights exist in any
submission.

2. Each submission should be a dingbat family or a
single character. Each individual may make as
many submissions as desired, but each should
be on a different theme. The METAFONT
source shall be submitted electronically or on
a standard diskette, PC or Mac format. Other
formats can be approved on an *ad hoc* basis.
The METAFONT source must be compatible
with plain.mf; any additional METAFONT
macros that are necessary must be furnished
and become a part of the submission.

3. Each submission shall be accompanied by a
text, in TeX, to explain its meaning, give
examples of its use, and show the character
in at least three sizes. These sizes should
be appropriate for use in textual documents
and screen display. A range of 10pt to 72pt
is considered appropriate. This text will be
the primary object studied to determine the
awarding of prizes.

4. Each character or family shall include a discus-
sion of one to five pages on considerations of
design and METAFONT implementation. This
discussion is for the purpose of pedagogy for
other METAFONT users. The discussion should
be appropriate for inclusion as a part of a
possible companion to Volumes C and E, *The
METAFONTbook* and *Computer Modern Type-
faces*. Additional pages may be added for useful
METAFONT macros. This source will also be
considered as part of the basis for awarding of
prizes.

5. TUG shall have the right to publish and
use all submissions. Submissions shall carry

explicit permission for unlimited redistribution
of the sources and characters on the same basis
as TeX and METAFONT. This will include
acknowledgement of the creator and TUG in
the sources in all redistributions.

6. The artist/author's submission carries implied
agreement to abide by the terms of this an-
nouncement. It is expected that the judging
will be done by ballot of the members attending
TUG 89 but this is subject to change at the
discretion of the Finance Committee of TUG.

Editorial Comments

Barbara Beeton

Once again it's time to get organized and put all of
the good things I've seen before anyone else into a
nice neat package. The news from all over the world
is that TeX continues to be both a challenge and
a useful production tool, and users are organizing
regional interest groups as well as conferences of
wider scope. See the calendar and the reports
following it for details.

TeX news

As has already been announced, Donald Knuth will
be giving the keynote address at the tenth annual
TUG meeting at Stanford, 21–23 August 1989, on
the subject of "The errors of TeX". His paper on
this subject will soon be published in *Software —
Practice and Experience*. And occasional errors
continue to be found (actually, I suspect the process
owes more to careful excavation than to "luck" in
most cases); the current versions are

TeX 2.97
PLAIN.TeX 2.94
METAFONT 1.7
PLAIN.MF 1.7

Some changes have also been made to the CM fonts,
in the files

CMBASE.MF
BIGOP.MF
ROMANL.MF
SYM.MF
SYMBOL.MF

These changes definitely affect all cmsy* and cmex*
fonts; if you have the capability, you should regen-
erate these. Other fonts are also affected randomly

in various magnifications; the list is too long to reproduce here, and it may not be the same for different resolutions or settings of *blacker*. You could regenerate everything if you have the capability and patience, but unless you are a distributor, a service center, or are actively shipping .dvi files to other sites, you shouldn't have any problems if you wait for someone else to to the job.

The changes to TEX, METAFONT and the CM fonts are posted in the errata list supplement bound into this issue.

All changes have been communicated to all the implementors and distributors on my mailing list. If you are creating a new implementation of TEX and distributing it to other users, you should be receiving this information. Send me your name and address (preferably an electronic address accessible via the Internet), and a short description of the implementation you're working on.

TUGboat selections on-line

The directory <TeX.TUGBOAT> has been in existence at Score.Stanford.edu for some time now, and slowly, very slowly, items that have appeared in TUGboat are being installed for general use. The TUGboat header files are there, of course — TUGBOT.STY for use with Plain TEX and LTUGBOT.STY for LATEX (as an article sub-style). Several sample articles are present, along with a "driver" file that reads in the (plain) headers and then the article files: TUGBOT.TeX (the driver file), TBOHYF.TeX (the most recent edition of the hyphenation exception list) and TBOCYR.TeX (the article from TUGboat 6#3 that introduced the cyrillic and AMS extra symbol fonts).

Other items now available at Score include
- the .mf sources for Knuth's Punk fonts (TUGboat 9#2); 13 files named PUNK*.MF
- .mf sources and the article and macros for APL fonts (TUGboat 8#3); files APL*.TeX, CMAPL10.*, and TBOAPL.TeX
- tree diagrams by David Eppstein (TUGboat 6#1); files TREEDEF.TeX and TBOTREE.TeX
- LATEX macros for form letters, MERGE.STY, by Graeme McKinstry (TUGboat 8#1, revised)
- hyphenation patterns for German (GERMAN-HYPH.TeX), Icelandic (ICEHYPH.TeX) and Portuguese (PORTHYPH.TeX); if anyone knows of other available patterns, please let me know.
- complete TUGboat tables of contents, files TB-CONT.DEF, TBvvyy.CNT for volume vv published in year yy and two driver files to produce the contents for volumes 1–5 (TBCV05.TeX) and 6–10 (TBCV10.TeX)

The file -CHRONO-.DIR (there is one in every <TeX> subdirectory at Score) contains a chronological list of the directory contents. -READ-.TUG and TUGFIL.CHG describe the files in the directory and identify any updates that have been made.

These files are available from Score via anonymous FTP on the Internet. Copies have also been installed in the archives at Clarkson and Aston, and we are looking into ways to make them available from the TUG office for those who have no network access.

More honors for Knuth

On 7 October 1988, as part of the celebration accompanying the dedication of the new Center for Information Technology, Brown University awarded Donald Knuth an honorary Doctor of Science degree, in accordance with the following citation.

Donald Ervin Knuth   Doctor of Science

Computer science pioneer, mathematical typographer, developer of the art of programming, concrete mathematician, musician, and author, you are renowned in many areas for your uncompromisingly high standards and your seminal contributions. In your web you have caught the essence of computer science. In your books you have made profound and influential contributions to your fields. In your mathematical typography you have provided the glue for the expression of ideas, great and small. Through your music you have elevated spirits. Through your writings you have expressed artistic, surreal, and transcendental connections. You have been an inspiration to generations of colleagues and students. We honor you today as a distinguished scholar and scientist who epitomizes the academic life at its best.

Propter scientiam egregiam et famam universalem et in rebus computandis et in musica litterisque, auctoritate mihi commissa te ad gradum *in Scientia Doctoris* admitto, omniaque jura atque privilegia ad hunc gradum pertinentia tibi concedo. In huius testimonium hoc diploma tibi gravitate summa do.

October seventh   Howard R Swearer
  1988   Præses

UNIVERSITAS BRUNENSIS
  Providentiæ in Rhodiensis Insulæ Republica

A TeX Encounter in Japan

Barbara Beeton

On January 27, following a meeting in Tokyo of ISO/IEC JTC1/SC18/WG8 (whew!), the international Working Group whose interest is in standardization of office and publishing systems, and from which the SGML standard was issued, I attended a presentation devoted to introducing the family of WG8 standards to members of the Japanese manufacturing and business community. Two standards were discussed in some detail: SGML (ISO 8879-1986, Standard Generalized Markup Language) and SPDL (Standard Page Description Language, still a working paper). Two others, DSSSL (Document Style, Semantics and Specification Language) and Font Information Interchange (DIS 9541, an official draft, and the reason for my presence in Tokyo), were mentioned, but not described in detail.

The rationale for SGML is similar to that for LaTeX — a document has a logical structure that is separate from its presentation, and formally indicating this structure by markup enhances the value of the document content by making it transmittable and processable. (A couple of talks on SGML were on the program at the August '88 TUG meeting in Montréal, and can be found in the Proceedings.) In Tokyo, the focus was on how these standards could support the publication needs, both paper and electronic, of large organizations (one specific example was the Department of Energy of the U.S. Government), and some demonstrations of SGML-based products — an editor and a markup aid — using an example text in Japanese describing the tools and prepared particularly for the Tokyo audience.

All very interesting, but what does it have to do with TeX? It turns out that the paper copy of the SGML talk, by Martin Bryan of SOBEMAP in Belgium, and Yoichi Tanaka of Toppan Printing Company of Tokyo, was prepared using TeX, more specifically JLaTeX, as the formatter. This is a natural pairing of the two systems — SGML for structural markup, and TeX for formatting. For the demonstration, TeX was running on a workstation, and changes to the text could be processed immediately; an impressive display, as always. The authors kindly provided me with the original typeset output of the talk; the first page appears on page 9. To prepare this copy, TeX was run on a FACOM (Fujitsu) computer, and the output sent to a Hell Digiset phototypesetter at 900 dpi. The beginning of the input used to prepare this copy appears on page 10; however, this is reproduced from a photocopy of (unknown) laser printer output, so the quality has suffered. Mr. Tanaka informed me that the TeX software was provided by the ASCII Corp. (a long-time member of TUG).
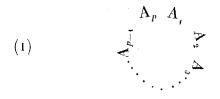
Earlier in the day, I'd had a chance to speak with Geoff Leach, a member of ASCII's publishing division staff. He informed me that the Japanese-language edition of *The TeXbook* will probably appear early next summer; I'm looking forward eagerly to seeing a copy. There seems to be a devoted, and growing, group of TeX users in Japan — there have been presentations on Japanese TeX at the last two TUG meetings — and a tailored edition of *The TeXbook* can only make it more accessible. Stay tuned.

TeX Would Find It Difficult...

From Donald Knuth:

When preparing *Concrete Mathematics* I ran across [this] example of an unusual displayed formula in a paper by Joseph Bertrand (*Journal de l'École Royale Polytechnique* **18** (1845)). It's [an example] that PostScript will do with relative ease, while TeX and METAFONT must work harder. We could pose it as a problem to get the nicest output; the French typesetting of 1845 leaves something to be desired. Curiously, Bertrand says he chose the notation *pour plus de simplicité*!

Désignons, pour plus de simplicité, par

$$(1) \qquad \begin{array}{c} A_p \quad A_{\prime} \\ A_{p-1} \qquad\qquad A_2 \\ \qquad A_3 \end{array}$$

Editor's note: Are there any takers?

SGML/TeX 電子出版システム

Martin Bryan SOBEMAP/田中洋一 凸版印刷 (株)

1989年 1月 25日

凸版印刷 (株) は SOBEMAP 社より SGML [1] システムを導入し、本格的文書データベースを使用した電子出版システムの開発に着手した。今回試作したシステムは、TeX を印刷システムとして利用したもので、高度な数式等を含む論文を手近なパソコンを使って印刷したり、CTS システムを通じて本格的な印刷を行うと共に、CD–ROM 等のデータベース出版にも容易に対応することが出来るものである。

1 標準マーク付け言語 (SGML)

昨年は米国において DTP [2] がブームとなり、今年は日本の DTP 元年となることが予想されている。ワードプロセッサは既に各家庭にまで入り込み、今や文書をコンピュータで処理することはまったく当り前のことになっている。コンピュータを用いて印刷を行なうことは、比較的古くから行なわれていて、日本でも 1970 年の始めより、新聞社、印刷会社を中心に CTS [3] システムが開発された。現在では新聞記事のほぼ 100% がコンピュータ処理されている。

ところで、これらのコンピュータデータである文書情報を扱う方法や環境は、現在でも多くの問題を抱えており、日増しにその重用度を増している。ワードプロセッサのデータ非互換問題は昔からいわれていることである。世界規模の情報化がすすむ中で、さらにこの問題は深刻になりつつある。

またビデオテックス、CD–ROM 、などのような、多様なメディアによる出版もニーズが高まってきている。このため文書情報は印刷だけではなく、多くのアプリケーションに応用できる必要が

あるのだが、現在の多くの文書情報は汎用性に乏しく、メディアを変えるたびに変換作業に多くの負荷をかけている。

これらの問題を解決するために SGML と呼ばれる文書情報の国際標準が開発され、既に 1986 年10 月に国際規格 (ISO8879-1096) となっている。SGML は文書情報から組版指示を分離し、情報の本質である意味関係だけを記述し、文書データベースとしようとするものである。

SGML の目的として次のものが上げられる。

- 文書情報交換の保証。情報流通の促進。

- 文書情報の有効利用。

- アプリケーション非依存。

- システム非依存。

- 編集の効率化。

- 著作の効率化。

- 文書入力の効率化。

- 入力のシステム非依存。

同様の考え方をもったものに IBM の GML がある。名前のとおりこれは SGML のモデルとなったものである。GML は DCF [4] という組版システムに含まれている。組版情報を文書情報より分離しようというものの例として、文書整形システムである TeX や、Scribe, Troff などのマクロを使ったものがある。

TeX の数式の例

$$\sqrt{\dfrac{a+b+c}{x+y+\sqrt{2}}}$$

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[1] Standard Generalized Markup Language
[2] Desk Top Publishing
[3] Computer Typesetting System

[4] Document Composition Facility

16 The TeX File

```
¥documentstyle[a4j]{jarticle}
¥title{SGML/¥TeX 電子出版システム}
¥author{Martin Bryan  SOBEMAP/田中洋一  凸版印刷（株）}
¥begin{document}
¥西暦
¥maketitle
凸版印刷（株）はSOBEMAP社よりSGML
¥footnote{Standard Generalized Markup Language}システムを導入し、本格的文書デー
タベースを使用した電子出版システムの開発に着手した．今回試作したシステムは、¥TeX
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て印刷したり、CTSシステムを通じて本格的な印刷を行うと共に、CD-ROM等のデータベー
ス出版にも容易に対応することが出来るものである．
¥section{汎用組版指示言語(SGML)}

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ある．

SGMLの目的として次のものが上げられる．
¥begin{itemize}
¥item
文書情報交換の保証．情報流通の促進．
¥item
文書情報の有効利用
¥item
アプリケーション非依存．
¥item
システム非依存
¥item
編集の効率化
¥item
著作の効率化
¥item
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