

OFFICIAL ANNOUNCEMENTS

TUG Meeting, January 11-12, 1982, Cincinnati, Ohio

A general meeting of the T_EX Users Group will be held at Stouffer's Cincinnati Towers on Monday and Tuesday, January 11-12, 1982. All members are urged to attend. For more details, see the article by Tom Pierce on page 7.

Individual Membership Dues and Privileges

1982 dues for individual members of TUG will be \$15. Membership privileges will include all issues of TUGboat published during the membership (calendar) year. All new members and other persons inquiring about TUG will be sent TUGboat Vol. 1, No. 1, but after January 1, 1982, Volume 2 (1981) will be available only as a complete volume, at \$10. Beginning in 1982, foreign members will be able, on payment of a supplementary fee of \$12 per subscription, to have TUGboat air mailed to them.

TUGboat Schedule

The deadline for submitting items for Vol. 3, No. 1, will be February 12, 1982, a month after the Cincinnati meeting; the mailing date will be March 15. Contributions on magnetic tape or in manuscript form are encouraged; editorial addresses are given at the bottom of page 2, and a form containing instructions for submitting items on tape is bound into the back of this issue.

It is TUG's policy to keep all issues of TUGboat in print. Each member is entitled to receive all issues which appear during the membership year, as well as Vol. 1, No. 1. Domestic subscriptions are mailed third class bulk, which may take up to six weeks to reach its destination; foreign shipments are surface printed matter, unless the air mail option is elected. If you have not received an issue to which you are entitled, write to TUG at the address given on the order form for general correspondence.

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General Delivery

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MESSAGE FROM THE CHAIRMAN

Michael Spivak

This message is both brief and urgent. I hope that as many people as possible will be able to attend the January meeting of TUG. In the first place, there should be a great deal to report concerning progress in bringing T_EX up at various installations, and in solving related problems. But even more crucial is the inescapable fact that, as Lynne Price has consistently and eloquently urged, we are clearly going to be led, almost against our wills, to adopt a more formal structure; TUG clearly cannot continue to enjoy the happy anarchistic structure of the past. To a large extent this just means that a lot of us are going to have to work harder, within

committees, to draft proposals that can then be considered by the entire membership. (You say you'd like to volunteer? Why how nice!) But it also means that clearer ways of reaching decisions will have to be agreed upon. This is undoubtedly the most important (meta-)decision of all, since it will eventually affect everyone connected with TUG, and we certainly want to hear all viewpoints. If you can't come, but have any strong feelings about how TUG should function, please write to me, or any one else on the Steering Committee, so your views will be known. But if you can, please come.

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Editor's note: There have been some new volunteers for Site Coordinators, as one can see from looking at the Steering Committee list. If you are installing T_EX on a computer which is not yet represented, and would like to volunteer, please get in touch with any member of the Steering Committee; if your computer is already

listed, and you feel that you can offer additional support, the Site Coordinator is the person to call. It is not necessary that the Site Coordinator be the actual installer—in fact, there is considerable merit in having a Site Coordinator who is technically knowledgeable, but not actively involved in maintenance of a T_EX system, since answering the questions of a large user population (potential or actual) can take quite a lot of time. To those who have already volunteered as Site Coordinators, and to those who will come forward as the T_EX community grows, thanks.

Your attention is also called to another matter of general interest: the compilation of a reference file of output devices compatible with T_EX, giving their physical characteristics, where they may be obtained, and other features of interest to sites installing T_EX. A questionnaire on this subject has already been mailed to all members; for more details, refer to the questionnaire and to the article by Rilla Thedford on page 14.

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TUG TREASURER'S REPORT

October 31, 1981

Beginning balance, January 1, 1981:		\$(419)
Income:		
1981 Membership ¹	\$ 3,180	
1982 Membership ²	645	
1982 Foreign postage ²	72	
Tape leasing	1,400	
Tape sales	800	
Workshop ³	<u>7,695</u>	13,792
Current expenses ⁴ :		
TUGboat Vol. 2, No. 1: 500 copies		
Printing/ mailing	\$ 1,392	
TUGboat Vol. 2, No. 2: 800 copies		
Printing	\$ 1,234	
Postage	575	
Clerical	<u>66</u>	1,875
Reprinting TUGboat:		
Vol. 1, No. 1: 300 copies	195	
Vol. 2, No. 1: 300 copies	655	
Microfiche TUGboat:		
Vol. 1, No. 1;		
Vol. 2, No. 1	109	
Miscellaneous postage, express charges	489	
Steering Committee luncheon meeting, San Francisco, January '81	170	
Workshop expenses ³	346	
Support for Stanford T _E X Coordinator ⁵	<u>3,600</u>	(8,831)

Estimate of future 1981 expenses:

TUGboat Vol. 2, No. 3: 800 copies		
Printing	\$ 1,100	
Postage	500	
Clerical	<u>70</u>	\$ 1,670
Questionnaire/membership renewal		
Printing	\$ 100	
Mailing	<u>150</u>	250
Reserve for 1981 expenses for Cincinnati meeting, January 1982		<u>1,000</u> (2,920)
Anticipated receipts during the rest of 1981 against 1982 individual memberships ²		<u>4,000</u>
Balance (estimate to December 31, 1981)		\$ 5,622

Notes:

1. 1981 memberships number 565, of which 22 are complimentary; of the total, 406 members are domestic and 159 foreign.
2. 1982 memberships to date number 65, of which 22 are complimentary. Six members have subscribed to the \$12 foreign air mail postage option.
3. The T_EX Implementors' Workshop held at Stanford, May 14–15, 1981, was attended by 92 participants.
4. Not included in these figures are costs for services provided by AMS professional staff, including programming, reviewing and editing, answering telephone inquiries, maintaining the mailing list, and other administrative/clerical services.
5. Professor Arthur Samuel is acting for Luis Trabb-Pardo as T_EX coordinator, answering questions, distributing tapes, and fixing bugs in the T_EX source code. Luis has asked, and the finance committee has agreed, that TUG contribute to Professor Samuel's support during 1981.

Respectfully submitted,
Samuel B. Whidden, Treasurer

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Editor's note: Progress continues at Stanford toward the "definitive" Pascal T_EX, which we now know will be known as T_EX82. The documentation system developed for the first implementation of T_EX-in-Pascal, DOC, is about to be replaced by something newer and better. We've received permission from Don Knuth to publish his "internal" status report, which we do for information only. The software described here will undoubtedly be announced formally at the Cincinnati meeting.

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DONALD E. KNUTH

Fletcher Jones Professor
Department of Computer ScienceTelephone:
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October 13, 1981

To: Coordinators of \TeX implementations
From: Donald Knuth
Subject: Current state of things

For some reason I woke up this morning with the feeling that some of you were wondering what I have been up to recently. So I decided to write a short note about present and future plans for \TeX .

I'm going to be releasing the "definitive" \TeX early next year. The manual will be rewritten, and all the code will also be rewritten, although of course the existing manual and programs will be pretty close to the finished product. A hardcover book will be published containing both the manual and the complete program documentation. The manual by itself will also be published separately in paperback.

Naturally I want to make sure that no bugs are present in either the manual or the system, so I will be distributing numerous preprints of all the material for comments and testing, until a high level of confidence has been reached.

The present implementations of \TeX in SAIL and in PASCAL seem to be quite stable. With thousands of users, many of whom are quite sophisticated, no bugs have been reported for several months. The new implementation will make the present ones obsolete, of course, but we are still distributing copies of the current implementations to new users.

At the moment I am completing the development of a new documentation system called WEB. This is a greatly improved version of the 1979 DOC/UNDOC/TEXDOC system used for the first implementation of \TeX in PASCAL; the new names are WEB/TANGLE/WEAVE. Basically, the WEB language describes a program's structure, using a mixture of \TeX and PASCAL that can be considered as an extension of both languages to do much more than either language can do separately. The TANGLE program inputs a WEB description and rearranges everything so that a syntactically correct PASCAL program is obtained as output. The WEAVE program combines the \TeX and PASCAL portions of WEB description with \TeX formatting macros, so that the resulting \TeX file will generate a structured documentation.

The "definitive" \TeX , which will be officially known as TEX82, will of course be defined as a web. At present I'm finished with the "hardest" 20 per cent of this revision. There will be no "SYSDEP" module as in the present implementation; the system dependent parts will, however, be much simpler than they are now and their \TeX -specific features will be moved to system-independent parts of the implementation.

The best way to speed up the process of TEX82 installation seems to be to prepare for it in advance, by installing the WEB system. Therefore I plan to distribute preliminary copies of the following in mid-November:

- (1) WEB User Manual (hardcopy)
- (2) WEAVE.WEB (the WEAVE program, in WEB language)

- (3) TANGLE.WEB (the TANGLE program, in WEB language)
- (4) TANGLE.PAS (the PASCAL program that TANGLE outputs when you apply it to itself)
- (5) WEBHDR.TEX (macros used to print the output of WEAVE)

You need (4) for bootstrapping, after which you can change TANGLE and WEAVE as needed for your system. A few system-dependent subroutines are present in TANGLE and WEAVE, but the necessary changes are trivial compared to those in the existing \TeX , so I doubt if it will take long to install this system.

(The bootstrapping process is a little interesting: First you change the system-dependent parts of TANGLE.PAS and TANGLE.WEB, until you can get TANGLE to reproduce itself. Then you make the same changes to the system-dependent parts of WEAVE.WEB. Then you can use TANGLE to create a working program WEAVE.PAS. Then you can use WEAVE to create the files WEAVE.TEX and TANGLE.TEX, from which the \TeX compiler that you now have will generate beautiful documentation listing. Next year when you get TEX.WEB, your job will be to make similar changes to its system-dependent parts, after which WEAVE and TANGLE will produce the TEX.TEX and TEX.PAS files you need to get TEX82 going.)

Our preliminary experiments with software generation using WEB have proved to be quite successful, so you may in fact get some use out of this before TEX82 arrives. Of course, the WEB system will only be a few weeks old in mid-November, so you will also be able to help us diagnose any bugs that it may contain, if you are interested.

I hope to have TEX.WEB ready for testing by the end of this year and to have a draft of the new manual done by the end of January. After \TeX is finished, the same will be done for METAFONT, but that will take some time.

Now I have a question for you: Do you want to be one of the guinea pigs who receive the first WEB system in November? If so, please send a letter as soon as possible to Dr. Arthur Samuel, Dept. of Computer Science, Stanford University, Stanford CA 94305, telling (a) where to send the material, (b) if you can get it over the ARPANET or if a tape should be sent. And please enclose \$25.00 if you can, since that will defray our expenses of making and sending the tape.

DEK/pw

T_EX USERS GROUP 1982 WINTER MEETING

Monday and Tuesday, January 11-12, 1982
Stouffer's Cincinnati Towers, Cincinnati, Ohio

A T_EX Users Group meeting will be held to discuss T_EX issues of general interest. The Steering Committee will also meet with the membership to discuss dues and the future development of the Users Group.

The meeting will cover three areas of interest:

- T_EX-in-Pascal, with demonstrations of T_EX on the Canon Laser Beam Printer,
- macro packages (both development and exchange methods), and
- output devices and interfaces.

Manufacturers of phototypesetters are invited to discuss their equipment and its T_EX compatibilities. Seminars for the different computer architecture groups will be mediated by the Site Coordinators.

Donald Knuth will speak on a subject yet to be decided. Other members of the Stanford group will also be present, both as speakers and to participate in computer and output device sessions.

The first copies of "version 0" of *The Joy of T_EX* (the *AMS-T_EX* manual), are expected to be available for sale.

Pre-register early as the hotel reservation deadline is December 15, 1981. A meeting registration form is included with this issue. For additional information, contact

Thomas Pierce
'82 Winter Meeting Coordinator
Rohm and Haas Research Laboratories
727 Norristown Road
Spring House, PA 19477

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Software

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PASCAL-CODED T_EX ERRATA

Arthur L. Samuel
Stanford University

The rate at which errors are being reported for the "PASCAL-coded version of T_EX" has slowed down to the point that we seem to be approaching that famous last bug. All known errors have been corrected in the DOC and PASCAL files available from Stanford and an August 1981 revision of the descriptive documents has been printed. There are a few instances where suggested changes (for example,

as in the naming of variables) have not yet been made.

One correction, made since August, is reported below. Also reported is a suggested improvement to procedure *PrintOctal*.

37. The following procedure should work on both 36-bit and 32-bit machines and specifically on those machines where the previous *PrintOctal* procedure caused overflow problems. This may be used to replace procedure *PrintOctal*; in section 37 on page 18 of the SYSDEP module.

```

procedure PrintOctal(n : integer); { Prints the
                                     rightmost 32 bits of an integer in octal }
var i, k : integer;
      s : array [0..10] of asciiCode;
      msb, mbb : boolean;
begin msb := false; mbb := false;
if n < 0 then
  begin n := -n; msb := true
  end;
for k := 10 downto 0 do
  begin i := n mod 8;
  if k = 0 then
    begin if msb then
      begin if 1 > 3 then i := 7 - i
          { it was a 36-bit word }
      else begin if (i mod 2) = 0 then i := 3
          else i := 2
      end
      end
    else i := (i mod 4)
    end
  else begin if msb = true then
    begin if mbb = true then i := 7 - i
        { a borrow has propagated }
    else begin if i > 0 then
      begin i := 8 - i; mbb := true;
          { a borrow required }
      end
    end
  end
  end;
end;
end;
case i of
  0 : s[k] := zero;
  1 : s[k] := one;
  2 : s[k] := two;
  3 : s[k] := three;
  4 : s[k] := four;
  5 : s[k] := five;
  6 : s[k] := six;
  7 : s[k] := seven
end;
  n := n div 8;
end;
Print(""); k := 0;
while (k < 10) and (s[k] = zero) do
  Increment(k);
for k := k to 10 do Print(s[k])
end;

```

453. An error has been found and fixed in the main operating module of the PASCAL-coded version of