The TUG91 Annual Meeting

July 15–18, 1991, Dedham

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Abstract

- **Education:**
  David Salomon is a great teacher: insights! He has donated his notes to TUG for inclusion in the
  TEXniques series.
- **Publishing houses:**
  THE publishing houses accept (La)TEX copy. AMS leads with their total production formatted
  via TEX: 90K pages per year.
- **Interchange format:**
  DVI and Encapsulated PostScript!
- **Workshops:**
  Modifying manmac was great!
  The ways of encapsulating Postscript are put together by Anita Hoover. (see elsewhere in MAPS)
- **Products:**
  LAMS-TEX goes public.
  Arbortext has extended and improved their products.
  ETP, of Mimi Lafrenz, did steal the show.

1   Preliminary

In the sequel attention will be paid to David Salomon's course, discussion of most papers presented at the conference, some rumours about the LATEX 3 project, and the vendor boots.

In the corridors I enjoyed meeting Mimi Lafrenz, of ETP. I also shaked hands with David Fuchs, yes THE. I also met Gillian Murray and Diana Berezowski, nice Canadian ladies from Carleton University (CU). The result of that was that my paper Math into BLUes, part I and II, has been presented at CU, after the meeting. It was extremely pleasant to refresh earlier made acquaintances, David Salomon, Don Hosek, Yannis Haralamboulis, Jackie Damrau, Lynne Price, to name but a few people who I vaguely new. It was really nice to pass time with friends at dinner. In 'Casa Portugal' I enjoyed sitting next to Mimi Bourbank, one of the anonymous editors of the proceedings, and opposite to David Salomon.. She, together with Christina Thiele, really improved my paper, and arranged that a real version of it will be included in the proceedings, despite its length.

I could not attend all presentations due to BoD committee work. For the Long-Range Planning Committee the roadblocks for effective working via email were removed, and the Publications committee agreed on the issues to be worked out later.

I flew by NorthWestern and enjoyed lodging at Amy's place; the weekend after I was the guest of Christina Thiele (and her Mike) at Ottawa. A pleasant time, if not for the really overloading work during the conference: Conference, BoD meetings, and committee meetings; then the pleasant talking to all those new faces, with the difficulty of remembering what they are up to next to their names: several Mimi's, even more Davids, some Dianas, Michaels, Peters, Chris', just one John —THE John Radel, and those interested in a copy of my paper: Harumi, Derick Wood, and Michael Wester. And believe it or not there are still people I have not met yet.

1.1   Course advanced TEX

Partly as BoD observer and partly as participant I attended Salomon's 5-days Advanced TEX course. Only 5 students were present. The lab made use of Macintoshes. That is an easy-going TEXnigma: easy file handling, fast compilation, handy correction of TEX input, all supported by windows and icons. Amazing simple was the font selection. A powerful previewer and a suitable printing facility completed the 'desk'. David's course can be characterized as: he provides insight to the topics spread all over the TEXbook. His coursenotes have been submitted to the TEXniques series as a donation to TUG. The notes reflect his broad

knowledge of what has appeared in TUGboat. During the lab I reworked Leban's Towers of Hanoi via TeX, TUGboat, 1985, 6, 151–154.

2 Conference

2.1 Organizational aspects

The conference was held in the Dedham Hilton, 10 miles south of Boston. The temperature was in the upper 90-ties. Roughly 250 persons attended, with 50 or so one-day participants on the first day. The theme was well-chosen: Inroads into publishing, and quite a number of publishing houses participated. Along with the presentation of papers, workshops, panels and BoFs were held. A few networking lunches were organized, so that between the mouthfulls no silence was to be heard. (In my opinion a good try to get people with the same interests together, but it did not work. I joined the SGML table but found no real openness, nor willingness to address issues different from pushing SGML. Too bad.) As always there were vendor booths, exhibiting new TeX products and consultants making themselves known. Amy has got quite a reputation already.

The day after the meeting was devoted to a LaTeX hearing, which required some extra $'s for participation, devoted to the new LaTeX 3 project fund. Before and after the meeting courses were planned. Some were cancelled because of insufficient number of participants. The conference dinner was a Clambake banket: lobster which will wet your neighbours when improperly handled. (The secret is to let the water out before cracking.)

There was no price for the best paper, or the big show, but certainly the British deserved it, in making clear why an on-line help service is needed, as a warming up to Peter Flynn's paper. (Malcolm Clark as an innocent user was pissed-off from pigeon hole to pigeon hole. Doug and Allen did a great performance as respectively a real hacker and a maffia salesman.)

At another occasion, Malcolm imprinted the concept 'TUG a Member'. I felt at speaker's corner. A nice hand-out supported his act. (When you TUG a member a bonus T-shirt awaits you.)

2.2 Monday, July 15

The conference traditionally started with the 'Introduction to TeX' lecture, done by Alan Hoenig. (A nice survey to be taken over as part of our info package.)[1]

Nico as keynote speaker! (See elsewhere inn this MAPS for his paper.) The first day was scheduled with Publishing houses in mind: how do they work and what is the status of TeX in their processes.

Comparing TeX and traditional typesetting for the composition of a textbook. (Petrycki) This A-W-paper set the pace. I can't better summarize the talk by providing the abstract and conclusion.

Abstract

Producing a textbook with TeX, as opposed to a traditional typesetting system, requires different procedures to achiev a similar final result. The publisher's production staff takes on a much different role and enters the publishing process at an earlier stage when a book is produced with TeX. The most significant issue A-W faces when a book is typeset with TeX is the availability of typesetting houses who can produce the book at the level of typographic and page make-up quality we require. When we use a traditional typesetter we may pay a higher price, but we can count on meeting our publishing standards. The most significant advantage of producing a book with TeX is the accuracy of mathematical material, which then does not have to be rekeyboarded, and with which we can easily produce a subsequent edition or spinoffs.

Conclusion.

In my experience, traditionally produced books are more predictable and easier to work on than those produced with TeX. However, TeX does have its place in the technical publishing house. For some authors, using TeX is the most viable option when they want to preserve the accuracy of their mathematical equations. We will continue to support these authors by providing macro packages and working with TeX typesetters to provide the same kind of services we expect from more experienced traditional typesetters. Producing a book with TeX is a process that can proceed as smoothly as traditional typesetting as long as we have done the proper upfront planning and have evaluated the tradeoffs.

Contra-LaTeX, or what really works in the publishing world. (Bartlett) Bartlett considers LaTeX inferior to TeX because of:

1. LaTeX files will be 10% or more larger than an identical plain TeX file.
2. It takes longer to run LaTeX.
3. Inputting corrections becomes more difficult.
4. Implementing the publications style is much more difficult to do on top of of LaTeX than on plain TeX.

His advice to a novice TeX user in order to produce perfectly acceptable files is:

1. Avoid using TeX primitives, especially those that control spacing, but always call them from macros. (`\kern`, `\v/hskip`, etc. The only place authors should use plain or primitive control sequences is in math mode.)

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[1] A reprint is provided elsewhere in this MAPS91.2.

2. Use a macro for every typographical or logical entity in your work. (\section, \example, \theorem, etc.)

3. Use simple automatic numbering and cross-referencing macros. (Print characters as the label in the margin on the proof copies.)

My experiences are similar to Bartlett's, although I use TEX, and LATEX, whenever convenient. For macros I use TEX, such that the codes can be used within LATEX as well. In my opinion his criticisms and advice should be incorporated in courseware.

It is hoped that publishing houses will continue to provide style files, so that the disadvantages of LATEX are less severe. Hopefully, LATEX 3 will address the mentioned disadvantages as well.

A real hands-on paper, with in an appendix criticisms on published, TEX formatted books. It is full of insights.

User: a typist or typesetter? (Anita Hoover)
This was all about experience from the user support service.

For theses publication it is advised

- to start from supplied (and documented; examples of use) macros
- to have support available
- to provide inputting support tools (matching verifiers, de-TEXers, spell checking).

Hidden costs are: advisory service, increased user inputting time.

DVI and EPS: the ideal Author-to-Publisher interface. (Horn)
DVI files specifying text and document format, along with Encapsulated PostScript (EPS) filter for including figures, are rapidly becoming the de facto standard for interchange of machine readable manuscripts in technical publishing.

DVI-files are extremely standardized, portable and compact.

The advantage of dvi-files over raw TEX-files is that there is no need to bring up the special version of TEX used;

the advantage of dvi-files over Postscript files is that dvi-files are resolution independent.

All that is needed now is a simple standard for figure insertion using \special, as is to consider resolution independent Postscript.

Panel: TEX in publishing.
The general trend was that publishing houses accept (La)TEX compuscripts, especially for mathematical/technical copy. A major issue was the communication between publisher and autor (Yes, trivial, but experience has it that it is so much underestimated!) Another advice was that authors should refrain from visual lay-out as much as possible: don't design! Not surprising that AMS leads: their complete production is now formatted by TEX, and they provide very good user guidelines along with their PD packages (Macros and fonts)! My general impression of this first day is that the promise[2] did not come through completely, but that TEX has earned its place, especially when typesetting math. In that area it has succeeded with respect to the creative needs of authors and the money-making needs of publishing houses and typesetters. Roughly 20% of scientific book production is done with the aid of TEX. A-W, Prentice-Hall, Springer-Verlag and Elsevier Science Publishers accept mainly LATEX compuscripts. I have not seen detailed guidelines for authors, similar to those of AMS of yet. AMS accepts compuscripts in $\mathcal{AMS}$-TEX, and AMS–LATEX (The AMS extension of LATEX.)[3] Not treated was the issue of self-publishing.[4] It is taken for granted that authors should not. With electronic dissemination in sight, and TEX and Postscript universally available, it is not that obvious. It is done in practice, at a small scale, however.

Workshop: Modifying Manmac.
This lab on Macintoshes, by Daniel Olson, was extremely well-done. It showed that it was not that difficult to understand and modify Knuth's macros used for producing the TEXbook.

2.3 Tuesday, July 16

This day was mainly devoted to the SGML-TEX relation. The introduction by McGaffney, did not bring new issues, it even compared SGML and TEX, while they perform different roles! He did not mention competitors, nor refer to other work on the interrelation. No mentioning of problems in using TEX as back-end to SGML.

Sperberg-McQueen elaborated on the SGML tag set created by the Text Encoding Initiative project.[5]

From the abstract: 'This paper focuses on the ways LATEX and the TEI identify and classify the structural and other components of text; discusses the models of text underlying the two systems and the methods of text

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[2] For 10 years or more, TEX has promised authors full control of the typographical appearance of their books and publishers a way to turn out high-quality books at much lower costs.

[3] Note: Spivak's L$\mathcal{AMS}$-TEX is an extension of TEX reflecting LATEX features, and some more, especially commutative diagram tools.

[4] See for instance: Meadows, A.J. (1978): Should researchers also act as publishers? Universiteit en Hogeschool, 24, 6, 354–361.

[5] Sperberg-McQueen, C.M. and Lou Burnard (eds.) Guidelines for the Encoding and Interchange of Machine-readable texts. Text Encoding Initiative, Chicago, Oxford, draft version 1.1. edition, 1990.

definition and validation they make possible; describes a number of specific issues that arise; considers some systematic differences; and describes one possible way in which they might coexist.'

Note: remind however that no mentioning of tables, math nor graphics was made.

Typesetting SGML documents using TeX. (Dobrowolski)

Again Andrew provided an innovative contribution. He concentrated on typesetting SGML documents with TeX as formatter, guided by the Formatted Output Specification Instance (FOSI).

Abstract:

Since its publication as an international standard in 1986, the Standard Generalized Markup Language (SGML) has become a preferred document-markup standard within many industries. Many users have developed their own document type definitions (DTDs) that define the elements (tag sets) for their documents. However, if SGML is to become a universally accepted standard of document interchange, then a standard way of specifying formatted output and a means of producing that output will be needed. The U.S. government's Computer-aided Acquisition and Logistic Support (CALS) initiative selected SGML as the standard for text interchange. The output specification section of the CALS standards proposed the Formatting Output Specification Instance (FOSI) as the means of formatted output specification interchange. TeX can be used as the formatting engine to implement FOSI-based formatting. But without extending TeX, not every FOSI formatting request can be fulfilled. Conversely, certain TeX capabilities cannot be formulated in terms of FOSI characteristics. However, a FOSI/TeX-based formatting system would be a major advance towards fulfilling the document interchange needs of a growing community of SGML users.

Chiwriter into TeX files. (Horstman)

It is argued that WYSIWYG input and correcting is easier than inputting TeX. The author, alias vendor, claims that the converter is quite able to scan math formulae in the picturial representation and to translate them in the logical structure required by TeX. The transformation process is illustrated by various examples. As to be expected the transformation of math is severely limited with erroneous converting of multi-line equations, let alone for the numbering. Commands like `\TeX` have to be treated artifically (via so-called shadow font). For tables and matrices it is again claimed that they are easier to input in Chiwriter than in TeX[6] and correctly translated.

Reviewer's comment.
It is a pity that no report with real math documents as

copy nor with a canonical test set has been provided. The idea of style files, which govern the lay-out, and logical mark-up are completely bypassed. At best the Chiwriter 'editor' can be seen as a keyboarder for typing in the copy, relieved from the task to provide a (La)TeX correct compuscript.[7]

Panel: SGML and TeX.

From this panel no news came across. No survey of available tools, nor where it is used in practice.

Workshop: Getting Postscript into TeX.

This workshop done by Anita Hoover 'picked' the brains of those present. See for the report elsewhere.

Other workshops were: Interpreting TeX error messages, and interpreting LaTeX error messages.

2.4 Wednesday, July 17

Dialogue between TeX and the user. (Downes)

The primitive commands `\message`, `\read`, and `\write` are explained, and some examples of use with respect to communication to the user are given. A form of communicating to the user is the number of automatically determined columns of a table (As in Cowan's tables.sty). Another is checking for the page-break without having to proof the publication: Just TeX and from the messages/flags inserted the page break can be distilled. I like that because I myself proof more or less in the blind.

The main application is how to provide a menu-choice mechanism with a default, while running TeX. The macro for this is supplied and explained. Use is made of puzzling hacks. An example is given below for converting the string contents of a def `\ans@` into uppercase, without using auxiliary macros.

```
\xdef\ans@{\uppercase{%
    \def\noexpand\ans@{\ans@}}}%
\ans@
```

Authors new to TeX publish a TeXbook with a publisher new to TeX. (Rhoads)

A report is given about publishing a Programming-in-Pascal book. It demonstrates reinventing the wheel: no already available macros for formatting Pascal syntax diagrams were used, nor macros for formatting programs.

Reviewer's comment. It might be the case that macro packages are not easily found c.q. the right one selected, or that the packages are too complex and repelling for novice users. We are still a long way from a formatting macro library similar to numerical program libraries.

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[6] Simple matrices and tables are easy to input in TeX as well, in my opinion.

[7] Experience within NTG, voiced via TeX-nl@hearn, is not in favour of this converter. It might save you some work, but that is insignificant compared to the increased complexity.

Simultaneous electronic and paper publication. (Lavagnino)   It is argued that SGML is the best language to choose for 'multiform' texts, that is texts to be used in several forms, for example in print and electronic form. In their 'Thomas Middleton's complete work' project the problem was faced of how to integrate output information from the formatter (line numbers) in the descriptive mark up source. Interesting!

Refining a process.   (Williams) The various changes in the type of user of TeX is profiled. The suggestions made for future structure and encouragement in the use of TeX come down to the following. TeXnically speaking. The future of TeX depends on its ability to meet the varying and continuously growing needs for typesetting of technical documentation. Non-TeXnically speaking. The basic idea is to establish TeX's uses and users and to support them.

Panel: TeX in publishing—Authors as compositors.   The views ranged from following guidelines for authors to submitting Postscript files with all the formatting and inclusion of graphics done. Every possibility in the spectrum has it advantages and disadvantages, as always. A general item is to agree with the publisher on whatever you are intending to do, and to keep in touch.

Form letters with 3-across labels capability. (Damrau & Wester)   The motivation for this work is that creating multiple letters that follow similar format by the general methods will yield problems. A general approach is to set up a form with changeable parameters, such as name and address, specified by macros. The form can then be input a fixed number of times, each time preceeded by redefinition of the parameters. The problems of this approach are:
1. Modifying the list of addresses or adding new parameters to the form can be cumbersome.
2. Serious REformatting may be required to use the individual pieces of information (such as the names and addresses) in other contexts.
The difficulties are overcome by the TeX address program which requires as input three files: preamble, list of addresss, and template. The list of addresses use implicit positional tagging, no SGML-like descriptive tagging! The article concentrates on a template file with 3-across labels capability. Macros provided are among others: to separate a first symbol from a string (seen in many applications and are basic in Lisp), and to test whether a line is a blank line. The address program is powerful especially in handling implicitly tagged addresses, as data. The typing of addresses is efficient because no explicit tags have to be provided. No rework, detagging for example, is needed when the same data are to be used by other programs.
Reviewer's note. In my opinion it should be the other

way round: an application independent database of addresses, with 'filters' towards particular applications.

Typesetting forms with LaTeX. (Roth)   A fundamental talk because it tackles the question of how to deal with fill-in forms in the electronic decennium and beyond. Roughly there are two approaches:
1. Provide a template and fill-in (read replace) the 'dotfills', and
2. A two-step process: user interface and LaTeX formatting.
The first approach requires knowledge of LaTeX, and the layout of the form is not guaranteed fixed. Because of these drawbacks the latter approach has been worked on and reported about in the article. For the user interface the Vitamin C graphics window library of C functions was used. As formatter a *stripped* version of LaTeX was used, especially the picture environment was needed. Nine forms are in production. Difficulties encountered were:
1. Getting approval for the project.
2. The variety of computers caused portability problems.
3. Greater printer area than usual provided by laser printers was needed.
4. Complete LaTeX did take too much memory, so it had to be stripped.
An interesting detail is the attention paid to the automatic use of smaller fonts when the information does not fit in the left open space.

TeX and those other languages. (Haralambous)
It is an account of the power of TeX and Metafont to handle a variety of non-latin languages, such as Arabic, Syriac, Hebrew, Greek(Epigraphical), Armenian, Saxon, Old german. First a combined use of Metafont and a Postscript font creation program is described. Next the TeXnical problems (and their solutions) in relation to each language are presented. Finally some new ideas for further development and application of TeX in non-latin alphabet transmissions through electronic communication medias are given.
Problem areas: lack of space in font tables, lack of typographic tradition, alternating text direction and character shape at each line, kerning.
An overwhelming demonstration of the use of various non-latin languages with TeX. The creation of the new fonts (via Metafont) showed a sound approach and an enormous amount of work done.
Reviewers note. Puzzling is that the author does not speak those languages well. So what is the quality of it all?

Developing a Pop-Up facility for TeX on PCs. (Flynn)   A very interesting contribution with respect to on-line help for using (La)TeX. First some existing systems are reviewed. Second criteria which should be

obeyed are enumerated. And third a publicly available product is discussed. The product contains data (50KB, in English) and makes use of Qhelp, a publicly available help system.) The result of a query can be printed as well. The system is available among others at the Heidelberg server as file texhelp.zip.

Math into BLUes. (Kees van der Laan)   That the subject is appropriate was demonstrated by ETP's humorous mission statement as formula: it looked like math to a non-mathematician, but suffered from TEXfalls.

2.5   Thursday, July 18

Graphics and halftones with BM2FONT. (Sowa)   From the abstract.
The program BM2font converts different kinds of bitmap files to TEX fonts and writes an input file for integration of those graphics into documents. It is the link between a lot of graphic systems and TEX. The main part of BM2font is the conversion colored pictures to halftone output. This paper describes the method of graphics integration done by BM2font and the most important aspects of the program.
Note reviewer. It is questionable whether considering graphics as text (fonts) is the long-term way. Incidental graphics, like institutional seals, are handled effectively that way, however.

A text-processing language should first be a programming language. (Semenzato & Wing)
To the reviewer's opinion the authors have built a preprocessor for TEX. It is unclear what functionality has been added. Complexity is increased and it is difficult to read because terminology has been borrowed from various fields in computer science.

Should TEX be extended?   (Vulis)   The paper discusses the hot potatoes: Graphics inclusion, font rotation and font selection, with emphasis on the author's VTEX.
Bitmap graphics inclusion. The two methods in use are described as:

- TEX allocates space for a graphics box, sets the reference point and passes the name of a graphis file via `\special`.
- Graphics are converted into .tfm/.pk pairs (for example via Metafont) and TEX treats them as characters.

The author states that only `\sizegraph` needs to be implemented. VTEX's extension is discussed, especially the implementation to measure the sizes of graphs, via `\exec`.
Font rotation. Hoenig's approach is elaborated, although VTEX and Postscript drivers are mentioned to

provide already the facility.
Automatic index generation. The only drawback mentioned with respect to TEX is the lack of sorting possibilities. The use of the separate IDXSRT program together with TEX is explained.
Font selection. The problem is the lack of compact and portable definition of `\large`, `\small`, etc. that will support all TEX fonts.
Reviewer's note. It is felt that the author's believe 'Software systems that remain unchanged are destined for oblivion' is somewhat unshaded, or better misplaced, with respect to extendible and flexible systems, to which class TEX belongs. The paper does not convince this reader that modifications to the kernel of TEX have to be made. It is a believe of this reviewer that Knuth had the right feeling what could best be done by a system like TEX and what could best be done by other tools.

7 Bits good, 8 Bits bad or The eight-bit blight. (Clark, BHK, Kempson)   The article focusses on the need for a universal encoding scheme to accomodate the many different kinds of files and file organizations that need to be supported by archives. Specs are given and a new encoding scheme —VVcode— was needed. The article concludes with the enumeration of the archives which will support VVcode: Aston, Heidelberg, Sam Houston State University, TUGlib.

Panel: Future of TEX.   Apart from the discussions Spivak had handed out 'A contrarian view on TEX extensions.' The problem is that it is not clear yet and generally agreed upon what is needed. Another aspect of that is that there is still so much other work to do, that better gains are obtained by paying attention to the neglected areas instead of paying so much attention to the extensions. A general mistrust in committee work was felt and the general believe was in the air that the extensions will come from individuals who simply will provide them. Nelson Beebe challenged the audience to make their wishes explicit in writing, with Frank's E-TEX as example to start with.

Typesetting along arbitrary curves with TEX and metafont. (Hoenig)   Abstract. It is possible to ask TEX to successfully typeset text on arbitrarily curved paths provided one enables TEX and metafont to communicate with one another in an appropriate manner. In this paper, we describe one method for setting text on convex paths. One possible application of this work may be toward setting text along circular rims of institutional seals so that TEX can include such images in letterheads. We discuss the particular example in some depth.
Reviewer's note. Really impressive but still cumbersome to do, and not competitive towards other techniques from the old-days. But if paste up has to be done

by electronic means there is not much choice. And redoing costs less energy than inventing.

Historic round table. Very amusing to hear the people talk about their experiences from the pioneer's days: the anarchy model was explictly chosen, then.

2.6   LATEX 3 forum: 19–20 July.

I did not participate in the workshop. From 'the corridors' the following was felt.

Again a workshop on the LATEX 3 project. What is to be desired is well underway, but implementation lags behind, because of too many people willing to coordinate the project and not that much people are willing to implement other people's ideas. The admission fee will be used for the LATEX3 fund.

Note: Two years since Stanford have been passed by, and no product of yet, not even dates are available when what version will appear.

3   Vendor booths

THE contribution was from Mimi Lafrenz, ETP services. Also noteworthy is Spivak releasing LAMS-TEX into the public domain. Arbortext has further improved The Publisher.

The vendors: AMS, ArborText, Blue Skye research, Electronic Technical Publishing, Micropress Incorporated, Personal TEX incorporated, Quixote Digital Typography, TCI Software Research, TEXnology Inc. and Y&Y. What they are up to is summarized in the program and will be available for inspection on the next NTG meeting.

It is just a pity that I had not the right frame of mind to visit the Micropress booth with VTEX.

Also enumerated in the program brochure is a list of TEX consultants and production offices, with a summary of their services.