

---

**Abstracts of the *Proceedings of the Eighth European T<sub>E</sub>X Conference, Gdańsk, September 1994***

Editor's note: Several of the papers presented at EuroT<sub>E</sub>X'94 were substantially the same as papers presented at TUG'94; for such papers, a cross-reference is given to the TUG'94 Proceedings.

### Principles

JANUSZ S. BIENI, Polish texts in multilingual environments (a case study); pp. 3–17

Author's abstract: "There are two possible approaches to the more general use of software originally developed for one specific natural language: to create a version specific to another natural language, or to make a multilingual version preserving all or most of the features of the original, and additionally handling also the other language(s) in question. The second approach is much more difficult than the first, but for an important class of users, especially those from the academic milieu, the first approach is of little use: more and more papers are now being jointly written by multinational teams communicating over the net; being able to use the same version both for national and international papers is an important advantage.

The present paper discusses the most important aspects of the multilingual adaptation of T<sub>E</sub>X from the point of view of typesetting Polish texts."

BOGUSŁAW JACKOWSKI and MAREK RYĆKO, Labyrinth of METAFONT paths in outline; pp. 18–32

Author's abstract: "The main reason for publishing this text was our need to share with other METAFONT fans our experience in non-standard METAFONT programming. We have shown several examples of universal ("bitmap-free") METAFONT routines and a few possible paths for future development."

KEES VAN DER LAAN, BLUe's Format — The best of both worlds; pp. 32–44

Author's abstract: "An independent format — `blue.fmt` — is proposed to assist authors with creating, formatting, exchanging and maintaining computerscripts during the lifephases of publications. The format builds upon `manmac.tex` and the functionalities provided by `tugboat.sty`. Experience gained by publishers has been picked up too, because of my in-depth study of the activities of AMS with respect to T<sub>E</sub>X formatting. More recent work of Knuth and co-authors has been borrowed from `gkpmac.tex`.

The design goal was to provide a format which suits me, which is easy to customize — to the world outside, and in general to changing circumstances — and which complies with the adages of software engineering. Another aim of `blue.fmt` is that it can be used throughout the life cycle of publications on modest equipment to format articles, transparencies and you name it. The hoped for [duration] is a lifetime. En passant the design process is accounted for.

New is the handling of a database of references — with cross-referencing — or pictures all in one-pass job."

KLAUS LAGALLY, Bidirectional line breaking with T<sub>E</sub>X macros; pp. 45–52

Author's abstract: "T<sub>E</sub>X was originally designed with European languages in mind, and thus, whenever a paragraph contains text portions running in opposite directions, e.g. when combining English and Arabic or Hebrew in the same document, the task of line-breaking becomes rather complicated.

For a clean solution, Knuth and MacKay have proposed a modification to T<sub>E</sub>X, TeX-XeT, which will produce an extended DVI file containing additional directional information to be exploited by a modified DVI driver; and by now there exist several implementations of this idea, including TeX--XeT that produces a standard DVI file. The main drawback is just that we have to go outside the T<sub>E</sub>X standard.

We present a portable technique to handle bidirectional line-breaking by using T<sub>E</sub>X macros alone, albeit at some sacrifice to quality. This technique has been implemented in version 3.02 of the author's multilingual ArabT<sub>E</sub>X package."

BERND RAICHLE, Sorting in T<sub>E</sub>X's Mouth; pp. 53–58

[no abstract available]

PETR SOJKA and PAVEL ŠEVEČEK, Hyphenation in T<sub>E</sub>X — Quo Vadis?; pp. 59–68

Author's abstract: "Significant progress has been made in the hyphenation ability of T<sub>E</sub>X since its first version in 1978. However, in practice, we still face problems in many languages such as Czech, German, Swedish, etc. when trying to adopt local typesetting industry standards.

In this paper we discuss problems of hyphenation in multilingual documents in general, we show how we've made Czech and Slovak hyphenation patterns and we describe our results achieved using

the program PATGEN for hyphenation pattern generation. We show that hyphenation of compound words may be partially solved even within the scope of T<sub>E</sub>X82. We discuss possible enhancements of the process of hyphenation pattern generation and describe features that might be reasonable to think about to be incorporated in  $\Omega$  or another successor to T<sub>E</sub>X82.”

PHILIP TAYLOR, Defensive programming in T<sub>E</sub>X: towards a better class of T<sub>E</sub>X macro; pp. 69–79

Author’s abstract: “Defensive programming is a fundamental feature of any professional computer programmer’s toolkit; yet the techniques, while widely understood in the worlds both of ‘real’ and of ‘academic’ programming, seem to have received less than their fair share of attention from within the world of T<sub>E</sub>X. It would be unfair to single out any one package as being deficient in this respect, and equally unfair to suggest that all package writers are tarred with the same brush—some, indeed, demonstrate a far better than average awareness of the technique required—but what is perhaps most disturbing is that non-defensive techniques are still not only being used but continue to be advocated. In this paper I seek to redress this imbalance, and to try to illustrate both the pitfalls into which the unwary could stumble, and the safeguards which could be usefully adopted by the wise.”

## Practice

VLADIMIR BATAGELJ, Combining T<sub>E</sub>X and PostScript; pp. 83–90

Author’s abstract: “PostScript is becoming a de facto standard as a device independent page description language. By embedding PostScript elements in T<sub>E</sub>X we can extend the use of T<sub>E</sub>X to new areas of application.

In the first part of this paper we give some general information about PostScript and its features. In the rest of the paper we present some of our own experiences and solutions in combining T<sub>E</sub>X and PostScript:

- dictionaries, prolog files and how to save a lot of space with PostScript figures produced in *CorelDRAW*, *Mathematica*, ... ;
- writing T<sub>E</sub>X-PostScript macros, case: drawing graphs (combinatorics) in T<sub>E</sub>X; PostScript error handling mechanism, an application in function graph drawing macro.”

LUTZ BIRKHAHN, Tdb: An X11 T<sub>E</sub>X Debugger; pp. 91–95

Author’s abstract: “Writing T<sub>E</sub>X macros is an error-prone task, and finding those errors may still require solid (T<sub>E</sub>X) expert knowledge. Conventional programming languages offer a diversity of debugging tools that are specialized for finding coding errors. But for debugging T<sub>E</sub>X code, there are, even after 15 years of T<sub>E</sub>X programming world-wide, only the primitive debugging aids of T<sub>E</sub>X itself. This paper describes Tdb, a first approach to a T<sub>E</sub>X debugger, that claims to fill that gap.

Tdb consists of an extension to the T<sub>E</sub>X formatter, providing an interface to the famous Tool Command Language Tc1 and its X11 Window System toolkit Tk. Based on this Tc1 interface was built a debugger with a graphical user interface, enabling the user to do things such as setting breakpoints, single-stepping through the code or browsing in the actual macro definitions and variables. The flexible design based on Tc1 and the MCV concept (Model, View, Controller) allows it to customize and extend the user interface as well as the debugging functions. Furthermore, Tk’s interprocess communication facilities provide a solid basis for integrating Tdb into a complete T<sub>E</sub>X development environment.”

WIETSE DOL and ERIK FRAMBACH, 4T<sub>E</sub>X: a workbench for MS-DOS PCs; pp. 96–100

Author’s abstract: “T<sub>E</sub>X and all its companions offer an enormous number of possibilities. This is both an advantage and a disadvantage. The advantage is that almost anything is possible; the disadvantage is that you need detailed knowledge of all related programs to fully exploit the possibilities.

The workbench 4T<sub>E</sub>X is an attempt to integrate all major T<sub>E</sub>X-related programs in a shell that shields you from the tedious and frustrating job of setting environment variables and program parameters. 4T<sub>E</sub>X runs under MS-DOS, OS/2, and MS-Windows.

4T<sub>E</sub>X includes the following tools (amongst others): compilers, previewers, a spell-checker, BIBT<sub>E</sub>X, MAKEINDEX, T<sub>E</sub>XCAD, QFIG, graphics convertors such as HP2xx, BM2FONT and GHOSTSCRIPT, text convertors such as WP2IAT<sub>E</sub>X and TROFF2T<sub>E</sub>X. Note that all programs used by 4T<sub>E</sub>X are either *freeware* or *shareware*.

Naturally, there is on-line help, and all functions are available through simple menu choices.”

MICHEL GOOSSENS and FRANK MITTELBAACH,  
Real life book production—lessons learned from  
*The L<sup>A</sup>T<sub>E</sub>X Companion*; pp. 101–104

Author's abstract: "Some aspects of the production of *The L<sup>A</sup>T<sub>E</sub>X Companion* are described."

[See also *TUGboat* 15 no. 3 (1994), 170–173.]

KAREL HORÁK, Fighting with big METAFONT pictures when printing them reversely or [in] landscape; pp. 105–107

[no abstract available]

JÖRG KNAPPEN, Towards a 256-character IPA font; pp. 108–109

[no abstract available]

OLGA LAPKO, MAKEFONT as part of *CyrTUG-emT<sub>E</sub>X* package; pp. 110–114

[no abstract available]

MARION NEUBAUER, Conversion from WORD/WordPerfect to L<sup>A</sup>T<sub>E</sub>X; pp. 115–119

Author's abstract: "Production of a large document with many contributors requires conversion of all submitted manuscripts into the L<sup>A</sup>T<sub>E</sub>X format. A large proportion of manuscripts is submitted in the formats of WORD and WordPerfect, two very popular word processing programs. I will discuss different approaches to converting such files to L<sup>A</sup>T<sub>E</sub>X format.

First of all the differences between the word processors WORD and WordPerfect versus the document preparation system L<sup>A</sup>T<sub>E</sub>X will be explained, and problems encountered during text conversion into L<sup>A</sup>T<sub>E</sub>X will be discussed. The conversion can be done either by means of a separate program (external conversion) or using macros, style sheets and a printer driver from within the word processors (internal conversion). Advantages and disadvantages of both methods for different types of text elements such as plain text, lists, tables and mathematical formulas will be discussed. This is followed by an overview of the conversion programs currently available."

ÉRIC PICHERAL, Building and supporting the GUTenberg archive; pp. 120–124

Author's abstract: "Three years ago, the GUTenberg Local T<sub>E</sub>X Users Group established an archive, accessible via *ftp*. Its main purpose is to supply ready-to-use T<sub>E</sub>X versions convenient for French-speaking people."

## Progress

JOHANNES BRAAMS, Document Classes and Packages for L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub>; pp. 127–134

Author's abstract: "In the first section of this article I describe what document classes and packages are and how they relate to L<sup>A</sup>T<sub>E</sub>X 2.09's style files. Then the process of upgrading existing style files for use with L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub> is described. Finally I give an overview of the standard packages and document classes that are part of the distribution of L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub>."

[See also *TUGboat* 15 no. 3 (1994), 255–262.]

YANNIS HARALAMBOUS, Typesetting the Holy Bible in Hebrew, with T<sub>E</sub>X; pp. 135–152

Author's abstract: "This paper presents *Tiqwah*, a typesetting system for Biblical Hebrew, that uses the combined efforts of T<sub>E</sub>X, METAFONT and GNU Flex. The author describes its use and its features, discusses issues relevant to the design of fonts and placement of floating diacritics, and gives a list of rare cases and typographical curiosa which can be found in the Bible. The paper concludes with an example of Hebrew Biblical text (the beginning of the book of Genesis) typeset by *Tiqwah*."

[See also *TUGboat* 15 no. 3 (1994), 174–191.]

YANNIS HARALAMBOUS and JOHN PLAICE, Ω, a T<sub>E</sub>X Extension Including Unicode and Featuring Lex-like Filtering; pp. 153–166

Author's abstract: "Ω consists of a series of extensions to T<sub>E</sub>X that improve its multilingual capabilities. It allows multiple input and output character sets, and will allow any number of internal codings. Finite state automata can be defined, using a *flex*-like syntax, to pass from one coding to another.

In this paper both a technical introduction and a few applications of the current implementation of Ω are given. The applications concern typesetting problems that cannot be solved by T<sub>E</sub>X (consequently, by no other typesetting system known to the authors). They cover a wide range, going from calligraphic script fonts (Adobe Poetica), to plain Dutch/Portuguese/Turkish typesetting, to vowelized Arabic, fully diacriticized scholarly Greek, or decently kerned Khmer.

A few problems Ω *cannot* solve are mentioned, as challenges for future Ω versions."

[See also *TUGboat* 15 no. 3 (1994), 344–352.]

DAG F. LANGMYHR, How to make your own document styles in L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub>; pp. 167–175

[no abstract available]

FRIEDHELM SOWA, Printing colour pictures;  
pp. 176–181

Author's abstract: "The availability of cheap colour printers has increased the demand for colour support in  $\text{\TeX}$  for text and graphics. This paper shows what components are necessary and available to satisfy this demand. Further, it points out the problems that have to be solved to make the  $\text{\TeX}$  Colour Interface as device independent as possible.

A colour package for printing coloured text was developed by Jim Hafner and Tom Rokicki by defining a set of commands which use the `special` primitive. This was the base for the colour interface in the new  $\text{\LaTeX}$ . It represents the first and — up to now — only method to print coloured text.

Printing colour pictures in a  $\text{\TeX}$  document needs a driver program that is able to exploit the capabilities of a colour device. The driver must separate the colours of the picture into the basic colours used by the colour model supported by the output device. This was the purpose [for] develop[ing] the `dvidjc`-drivers for the Hewlett Packard inkjet printers and to upgrade `BM2FONT` to version 3.0.

The upcoming problems during the development of this dot matrix driver and the integration of colour screens (separated by `BM2FONT`) showed that text and graphics have to be treated differently. A possible description of a  $\text{\TeX}$  Graphics Interface is proposed."

[See also *TUGboat* 15 no. 3 (1994), 223–227.]

PHILIP TAYLOR,  $\varepsilon$ - $\text{\TeX}$  and  $\mathcal{N}\mathcal{T}\mathcal{S}$ : a status report;  
pp. 182–187

Author's abstract: "The  $\mathcal{N}\mathcal{T}\mathcal{S}$  project was created under the aegis of DANTE during a meeting held at Hamburg in 1992; its brief was to investigate the possibility of perpetuating all that is best in  $\text{\TeX}$  whilst being free from the constraints which  $\text{\TeX}$ 's author, Prof. Knuth, has placed on its evolution. The group is now investigating both conservative and radical evolutionary paths for  $\text{\TeX}$ -derived systems, these being respectively  $\varepsilon$ - $\text{\TeX}$  (extended  $\text{\TeX}$ ) and  $\mathcal{N}\mathcal{T}\mathcal{S}$  (a New Typesetting System). The group is also concerned that whilst  $\text{\TeX}$  itself is completely stable and uniform across all platforms, the adjuncts which accompany it vary from implementation to implementation and from site to site, and has therefore proposed that a 'canonical  $\text{\TeX}$  kit' be specified which, once adopted, could safely be assumed to form a part of every  $\text{\TeX}$  installation. Work is now well advanced on the  $\varepsilon$ - $\text{\TeX}$  project, whilst the group are concurrently involved in identifying the key

components of a complete portable  $\text{\TeX}$  system and in investigating sources of funding which will allow the  $\mathcal{N}\mathcal{T}\mathcal{S}$  project to become a reality."

[See also *TUGboat* 15 no. 3 (1994), 353–358.]

JIRÍ ZLATUŠKA, Surviving in a multilingual world with multiple font encodings; pp. 188–195

Author's abstract: "This paper develops constructions needed for utilizing the encoding scheme concept embedded into  $\text{\LaTeX}2_{\varepsilon}$  in order to develop a system allowing one to use different font encoding schemes and different languages within one format and to provide mechanisms for fully functional switching between them. The concept of language extends that of  $\text{\TeX}$  based just on proper set of hyphenation patterns. A practical demonstration of this is shown in the example defining hyphen-splitting feature as a modification to the standard line-breaking behaviour of  $\text{\TeX}$ ."

MICHEL GOOSSENS and SEBASTIAN RAHTZ, Simple colour design, and colour in  $\text{\LaTeX}2_{\varepsilon}$ ;  
pp. 196–205

Author's abstract: "This article reviews some basic principles underlying the use of colour. We start by a review of the functional use of colour, explaining how it can help to focus attention, explain relationships, guide the reader/viewer through the presented information so that its contents are easier to absorb and appreciate. Some common rules for optimizing communication using colour elements in documents are discussed. We then explain the colour support in  $\text{\LaTeX}2_{\varepsilon}$  and give some examples."

[See also *TUGboat* 15 no. 3 (1994), 218–222.]

Editor's note: For more information on Euro- $\text{\TeX}$ '94, held September 26–30 in Gdańsk, Poland, there is a summary in *TTN* 3,4:17–18. Copies of the 200-page Proceedings of the Euro $\text{\TeX}$ 94 conference can be obtained by sending 15 DM (postage included) to Włodek Bzyl, Instytut Matematyki, Uniwersytet Gdański, Wita Stwosza 57, PL 80-952, Poland.

(Compiled by Christina Thiele)