

TUGBOAT

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TeX Users Group

Memberships and Subscriptions

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- Students: \$40; \$35 if payment received before March 15, 1998.

Membership in the TeX Users Group is for the calendar year, and includes all issues of *TUGboat* for the year in which membership begins or is renewed. Individual membership is open only to named individuals, and carries with it such rights and responsibilities as voting in TUG elections. A membership form is provided on page 87.

TUGboat subscriptions are available to organizations and others wishing to receive *TUGboat* in a name other than that of an individual. Subscription rates: \$70 a year, including air mail delivery.

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Institutional Membership

Institutional Membership is a means of showing continuing interest in and support for both TeX and the TeX Users Group. For further information, contact the TUG office.

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Book design no less than ship design or any other kind of design is a matter of looking backward and forward at the same time. The grandeur of a volume's illustrations may so dominate its design that portability and readability become subsumed in the dominant objective.

Henry Petroski
*Remaking the World: Adventures in
Engineering* (1997)

TUGBOAT

COMMUNICATIONS OF THE T_EX USERS GROUP
EDITOR BARBARA BEETON

VOLUME 19, NUMBER 1 . MARCH 1998
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TUGboat

During 1998, the communications of the T_EX Users Group will be published in four issues. One issue will contain the Proceedings of the 1998 TUG Annual Meeting. One issue, also not yet assigned, may be a theme issue.

TUGboat is distributed as a benefit of membership to all members.

Submissions to *TUGboat* are reviewed by volunteers and checked by the Editor before publication. However, the authors are still assumed to be the experts. Questions regarding content or accuracy should therefore be directed to the authors, with an information copy to the Editor.

Submitting Items for Publication

The next regular issue will be Vol. 19, No. 2. The deadline for technical items will be June 1; reports and similar items are due by June 15. Mailing is scheduled for early July. Deadlines for other future issues are listed in the Calendar, page 81.

Manuscripts should be submitted to a member of the *TUGboat* Editorial Board. Articles of general interest, those not covered by any of the editorial departments listed, and all items submitted on magnetic media or as camera-ready copy should be addressed to the Editor, Barbara Beeton, or to the Production Manager, Mimi Burbank (see addresses on p. 3).

Contributions in electronic form are encouraged, via electronic mail, on diskette, or made available for the Editor to retrieve by anonymous FTP; contributions in the form of camera copy are also accepted. The *TUGboat* “style files”, for use with either plain T_EX or L^AT_EX, are available “on all good archives”. For authors who have no network FTP access, they will be sent on request; please specify which is preferred. Send e-mail to TUGboat@tug.org, or write or call the TUG office.

This is also the preferred address for submitting contributions via electronic mail.

Reviewers

Additional reviewers are needed, to assist in checking new articles for completeness, accuracy, and presentation. Volunteers are invited to submit their names and interests for consideration; write to TUGboat@tug.org or to the Editor, Barbara Beeton (see address on p. 3).

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For information about advertising rates, publication schedules or the purchase of TUG mailing lists, write or call the TUG office.

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See page 3 for addresses.

Other TUG Publications

TUG publishes the series *T_EXniques*, in which have appeared reference materials and user manuals for macro packages and T_EX-related software, as well as the Proceedings of the 1987 and 1988 Annual Meetings. Other publications on T_EXnical subjects also appear from time to time.

TUG is interested in considering additional manuscripts for publication. These might include manuals, instructional materials, documentation, or works on any other topic that might be useful to the T_EX community in general. Provision can be made for including macro packages or software in computer-readable form. If you have any such items or know of any that you would like considered for publication, send the information to the attention of the Publications Committee in care of the TUG office.

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General Delivery

From the President

Mimi Lafrenz Jett

Greetings, TUG Members!

What a wonderful time this is! As we begin a new year of publication and thank our good fortune that we are able to continue as a strong, lively, group, I wish to reflect on the events of the past weeks in TUG land. Beginning in New York at the T_EX/Northeast conference, I was happy to see many old, and many new faces enjoying the information and education available in the high-quality presentations. In addition, we were fortunate to enjoy the company and community of the T_EX users assembled, and extend our friendship to the folks that had never experienced the goodwill of our organization.

The T_EX/NE conference was the result of an outcry of members attending the TUG '97 conference in San Francisco last summer. They wanted more training, more information focused on the needs of the everyday user, and a format which included not only the basics, but also a look at coming developments that will enhance their use of T_EX and lead to future applications of the technology we employ. And what a success it was! Not only did we hear some of the real advantages of using T_EX in our current situations, Alan Hoenig and Anita Hoover organized a program which included vital information about the developments for the Web, of the flexibility possible, and the fundamental issues facing T_EX production systems. Many people contributed to the success of this conference, and I would like to thank the organizing committee, notably Sue DeMeritt, Cheryl Ponchin, Heidi Sestrich, Stephanie Hogue, Stacey Sensing and Don DeLand. I am certain we will see many of the fine papers from that meeting appear here, in *TUGboat*.

Immediately following T_EX/NE was the 10th EuroT_EX conference in St. Malo, France. Having a double dose of T_EX was great fun, especially in such incredible venues. The meeting in St. Malo was planned to coincide with EP '98, which provided additional depth to the conference and the community at large. This important gathering described the present and defined the future of electronic publishing. It is extremely exciting to see what has been developed, and how integral T_EX is in our daily world already, from the Techexplorer plug-in to the font design for telephone directories. But the thing that really set the tone for the meeting, and made it an event I will always remember, was the camaraderie of the people from literally dozens of countries all

over the world. The program and related events were top-notch, and I want to thank GUTenberg, and especially Michel Goossens, Bernard Gaulle, and Barbara Auzeby, and the Presidents of the Program and Organizing Committees, Mich le Jouhet and Jacques Andr , for the outstanding work they did.

The highlight of the conference, for me, was a dinner hosted by GUTenberg for the presidents of the local T_EX User Groups. There were eleven of us at the table, representing ten countries. It was like participating in the United Nations, except we were talking about things that really matter. One of the ideas that came from that evening was a proposal for a discussion group of all the presidents to communicate about issues and developments. There are so many individual initiatives happening all over the globe, and interested T_EXies that might help or support them, that this list would provide a venue for announcing or requesting resources. In addition, some of the local groups have resources to contribute if a project fits their objectives. One great example of this is the gift by DANTE of CDs for distribution to all TUG members.

Last year, we distributed **T_EX Live** v2 to all TUG members, and it was highly appreciated. Our membership is growing now for the first time in several years, partially due to the CD. In this issue you are receiving the latest 'Live' disk, **T_EX Live** v3, and in addition, **4AllT_EX**, the Windows T_EX program developed by our friends in The Netherlands, NTG. (Please access the **README** file for instructions.) Both of these disks are gifts of DANTE; the total cost of manufacturing has been covered by the generosity of DANTE. Marion Neubauer, the President of DANTE, announced this gift at the EuroT_EX conference. Both Marion and Joachim Lammarsch have been strong supporters of T_EX and TUG for many years. Joachim led the DANTE organization for its first ten years, and has recently stepped down. We owe a world of thanks to Joachim for all of his service to DANTE and TUG over the years. His kind of vision and leadership are a wonderful asset to our community.

In the next issue, you will receive a 3-CD set of the complete CTAN archive, again a gift of DANTE! We hope you enjoy all of this valuable information, and find many uses for it as you use T_EX. Please drop a note or email to our friends at DANTE with your thanks and appreciation.

In closing, I'd like to offer a round of applause—no, make that a standing ovation—to Mimi Burbank, Barbara Beeton, and the entire *TUGboat* team! These tireless volunteers contribute so much of their time, and themselves, to make this a pertinent publication. Thank you!

Editorial Comments

Barbara Beeton

Fonts are ruled copyrightable in the U.S.

For many years, the status of legal protection for typefaces has been different in the U.S. than in the rest of the world; under U.S. law, fonts were considered to be utilitarian devices, and did not meet the copyright guidelines — after all, no one “owns” the alphabet. This situation was discussed at some length by Chuck Bigelow in “Notes on typeface protection”, *TUGboat* 7:3 (October 1986), pp. 146–151.

Things are about to change.

A case brought by Adobe Systems against a company which admitted using the data from over 1000 fonts from Adobe to create ‘knock-off’ fonts questioned whether a font file is a formula defining a typeface or a software program. In a decision issued on 5 February 1988, U.S. District Judge Ronald Whyte of San Jose, California, wrote “The fact that a computer program produces unprotectable typefaces does not make the computer program itself unprotectable.” Font designers “make creative choices as to what points to select based on the image in front of them on the computer screen.” By this decision, Judge Whyte blocked the defense that fonts have not previously been protected by referring to the “creativity in designing the font software programs.”

Although the defendant will probably appeal the decision, type designers and type houses are celebrating. Type users should be pleased as well. This decision means that designers might have some assurance that their efforts will be rewarded by recognition and remuneration.

Details can be found in a news release from the Internet Type Foundry Index, at <http://www.typeindex.com/judge.html>.

MathML becomes a W3C Proposed Recommendation

On February 24, the World Wide Web Consortium announced the release of Mathematical Markup Language (MathML) as a W3C Proposed Recommendation. MathML, a markup language that is intended to facilitate the communication of mathematics on the Web, is defined as an XML application. Some early versions of tools already exist, and others are under development.

The W3C press release can be found at <http://www.w3.org/Press/1998/MathML-PR>.

The specification itself is at <http://www.w3.org/TR/PR-math/>.

“whois” service for TUG members

TUG members can now find out the current address for other members via a mail service created and maintained by Nelson Beebe and Art Ogawa. Submit the command (for example)

```
echo "whois Barbara Beeton" |
mail tuglib@math.utah.edu
```

on a Unix system (this should be on a single line), or simply send e-mail to that address with the `whois` request in the body of the message.

The origin of italics — An exhibit catalog

During the Fall quarter of 1997, the UCLA Library Department of Special Collections mounted an exhibit entitled *Legibility & migration: Italic & cursive letters in 16th century Italy*, consisting of items selected from the Ahmanson-Murphy Collections.

The Web site, at <http://www2.library.ucla.edu/libraries/special/scweb/italex.htm>, contains notes and quotes from various authorities. Although no graphics are shown, there is abundant historical information and a list of selected sources.

(Thanks to Karyn Popham and the TYP0-L list for this pointer.)

The improbability of typographical errors

One of my favorite magazines, the *Annals of Improbable Research (AIR)* has just announced a “massive new undertaking, *Project Typographical Erros*” [*sic.*] To quote from the announcement:

The formal name is: “A History of Typographical Erros Occurring in Books and Articles About Typographical Errors.” This project is self-explanatory. We request that all editors and proofreaders of relevant publications and e-lists disseminate word to the masses.

Please direct all data and inquiries to project director Wendy Mattson <posh@sirius.com>

A monthly supplement to *AIR* can be had by subscription; send a brief e-mail message to

```
listproc@air.harvard.edu
```

The body of the message should contain *only* the words `SUBSCRIBE MINI-AIR MARIE CURIE` (You may substitute your own name for that of Madame Curie.)

Enjoy!

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A Case for T_EX in India — The Indian T_EX Users Group

C. V. Radhakrishnan

Abstract

Unlike in other countries, T_EX migrated to India as a medium of typesetting for the Western publishing world. With its vast human potential and the cheapness of its cost, India enticed the publishing giants like Elsevier, Academic Press, Springer-Verlag, etc., for their pre-press work and with that the T_EX language found its way into this subcontinent. Its meager presence in the very many higher academic institutions and its pronounced absence from ordinary institutions strengthens the paradigm that T_EX usage in India is primarily a gut-oriented phenomenon rather than an author driven one. This is further demonstrated by the clear absence of T_EX-related research, newer macro development, font generation for the multitude of Indian scripts, etc. The Indian academy, in contrast to its Western counterparts, pays scant regard for such things or seldom considers it as a necessity. Therefore, the problems of T_EX usage in India are diametrically different from those in other parts of the world. It is not strange that the recently formed Indian T_EX Users Group faces the constraints of lack of research and economic issues of the users as well (quite strange!) since the vast majority of its members are from the typesetting industry who chose T_EX language as a means of their livelihood. These and related issues are described in this article.

A general overview of T_EX users in India

There can be a vertical split when we consider the general users of the T_EX language in India, one from the typesetting industry and the other from the higher institutions of learning. The former category may outnumber the latter. Except for the Indian Institutes of Technology (a chain of institutes spread all over India, noted for its academic excellence and standards) and certain specific scientific institutions like the Indian Institute of Science, Inter University Center for Astronomy and Astrophysics, Tata Institute of Fundamental Research, etc., T_EX is still alien to the academy or the researchers. The advent of WYSIWYG typesetting software has further pushed back the chances of T_EX usage. Yet another paradoxical element you can observe here is that the Indian academy considers typesetting issues as the burden of publishing houses, and it is not the concern of the author to address the enigma of his own document presentation. This is the general

philosophy of even the computer scientists working in various Universities in India. The limits of our document preparation skills are dictated by few Microsoft products. If any of the Microsoft product is incapable of presenting our document, we would resort to manual operations, thereby making it a childish doodle, for the present-day Indian mind is not at all carried away by refined and sophisticated presentation, in sharp contrast to the classic Indian aesthetic sensibilities.

This being the general attitude of the academics around this country, the quantum and the quality of T_EX usage in the academy can be gauged by anybody. This may be the prime reason why India lagged behind in forming its user group when everyone else in the educated West went ahead with their user groups and made substantive contributions to the T_EX language. India became a silent spectator, with a subdued longing for enjoying the fruits of T_EX research in the West with an apparent resignation that is typical of a Hindu mind. The shape of things in the Indian typesetting industry is also not so bright. Due to lack of any meaningful research and development team, they solely depend on or unabashedly hire Western intelligence for the development of their in-house arsenal. Even in matters as simple as writing a filter for SGML to T_EX or *vice versa*, they do get filters written by external agencies, present these to their clients as if developed by their own R&D team, and win huge contracts. In short, healthy usage of the T_EX language is still a distant dream in any of these agencies.

Early work on Indian languages

One of the earlier work on T_EX language that concerns Indian scripts are done by Avinash Chopde;¹ the package, called ITRANS, bundles lot of Indian scripts with L^AT_EX. You create an `.itx` file and run it through ITRANS to convert it to a `.tex` file. The commands are the same for Tamil, Sanskrit, Marathi, etc. His home page describes the system fully; it is available for UNIX and PC platforms.

There is also JTRANS (Sandeep Sibal), a Java program that enables you to see Sanskrit text in an HTML document. There is also an `Xdvng` font that if installed will display Sanskrit documents on the Web. All these are explained in detail in the file `index.html` available via anonymous ftp from `jaguar.cs.utah.edu` in the directory `private/sanskrit`. You will have fun with all these programs and Avinash can throw more light on all

¹ <http://www.paranoia.com/~avinash/itrans.html>

these topics, since he created the various ITRANS versions. He has also an ITRANS songbook that lists several thousand Hindi film songs in Devanagari script.

If you visit <http://www.concentric.com/~Dchand/jaguar>, click on Processing Tools, where several packages for processing Sanskrit on the net are described with pointers to ITRANS, JTRANS, and others. Currently ITRANS supports Devanagari (Sanskrit/Hindi/Marathi), Tamil, Telugu, Kannada, Bengali, Gujarati, and Romanized Sanskrit script output.

The input text to ITRANS is in a transliterated form. Each letter in an Indian Script is assigned an English equivalent, and the English letters are used to construct what will eventually print out in the Indian Language Script.

ITRANS offers a choice of two input encodings: ITRANS, and CS/CSX. ITRANS encoding is a 7-bit ASCII encoding, while the CS/CSX encoding is an 8-bit encoding. The ITRANS encoding requires multi-character English code be used to represent each Indic Script letter, while the CS/CSX encoding uses a one-character code to represent each Indic script letter.

Other meaningful work undertaken in T_EX-related areas includes various fonts created using METAFONT or tools like that. Some of the work has been undertaken by non-Indians too.

1. ItxGuj, a Gujarati font, and ItxBeng, a Bengali font, were added to ITRANS. These fonts have been donated to ITRANS by Shrikrishna Patil, and are available in PostScript Type 1 and TrueType formats, so they can be used for printing as well as for display on WWW browsers such as Netscape 3.0 (or later).
2. Though a lot of improvisation is needed, KannadaT_EX (developed by the Central Institute of Indian Languages, Mysore) is a commendable work in the right direction. For the Kannada font from the KannadaT_EX package, ITRANS support was added by Raghunath K. Rao. This is a font in METAFONT format, so it can be used only with T_EX.
3. Devanagari font: Xdvng, by Sandeep Sibal is available in PostScript Type 1 and TrueType formats, so it can be used for printing as well as for display on WWW HTML browsers such as Netscape 3.0 (or later). The Xdvng font is a derivative of the Devnag font developed by Frans Velthuis.
4. Romanized Devanagari fonts: CSUtopia, by Dominik Wujastyk,² and Washington Indic Roman by Thomas Ridgeway; both in Classical Sanskrit Roman encoding (CS/CSX encoding).
5. Malayalam font: by Jeroen Hellingman,³ a commendable work for both the traditional and reformed scripts. This is complete except for METAFONT sources; instead a range of pre-compiled sizes is included for the main font, and is available at CTAN. This system comes with two pre-processors, patc and mm.

The malyalam.sty⁴ package is an interface to malayalamT_EX, for use with L^AT_EX 2_ε. It works by loading Hellingman's macro files mmmacs.tex and mmtrmacs.tex to interpret the T_EX macros generated by the patc and mm pre-processors.

Note that these macro files are *not* provided as part of malyalam.sty, but must be collected separately from CTAN or elsewhere.

Problems of T_EX in India

As you can see, except for baseline research on some font generation, nothing substantive is forthcoming from the Indian T_EX world. T_EX has never percolated into the local publishing industry. As such, document preparation (especially technical documents) in the regional languages suffers considerably and its current status is deplorably poor. It has an indirect effect on the development of scientific document presentation in local languages. People quite simply are forced to believe that our languages are not fit for scientific document presentation and console themselves that it is a cherished domain of European languages. For instance, the State Languages Institute of Kerala (Kerala is one of the Indian States where the literacy rate has surpassed 95%), the official body for the production of school and University text books in Malayalam (the language of Kerala), finds it difficult to produce advanced scientific books with a quality comparable to English language text books, though intellectual resources are abundant.

Secondly, with a very healthy and vibrant literature, the Indian regional languages publishing is one of the richest industries in the country. But electronic digitizing and archiving of the multitude of books released in a variety of languages (both officially recognized and otherwise) is a distant dream for us. No effort has been invested to address the

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³ etmjeh@etm.ericsson.se

⁴ <http://ctan.tug.org/tex-archive/language/malayalam/>

problems of archiving of text data and its retrieval. SGML (Standard Generalized Markup Language) is still alien to Indian languages. A vast heritage of Indian Literature still thrives on paper, raising a multitude of issues relating to storage and retrieval of information. The advent of InterNet and the WWW has prompted very many Indian regional periodicals to enter into the world of electronic magazines. Without proper fonts and an encoding scheme fit for the WWW browsers, most of them are still wallowing in the primitive world of presenting images of whole text pages, which becomes highly unpopular among Indian viewers where the poor dialup line speed prevents easy browsing.

Thirdly, there is a wide gap between Indian T_EX Users and the current status of T_EX in the world. The old L^AT_EX 2.09 is still in popular usage among most of the typesetting houses and general users as well. Most users are afraid of L^AT_EX 2_ε. When the world is hopefully anticipating the arrival of L^AT_EX 3, our users are still in the domain of the obsolete L^AT_EX 2.09. In the workshop held along with the inauguration of the Indian T_EX Users Group, most of the participants had not heard of graphics inclusion programs like METAPOST, XYPic, PSTricks, etc. PostScript and its relationship with T_EX is also still unfamiliar.

Formation and relevance of the Indian T_EX Users Group

It is at this state of affairs, some of the T_EXies in the southernmost part of India came up with the idea of forming a Users Group in India. Sebastian Rahtz⁵ of UKTUG played a key role in its formation. A few academics and researchers from the University of Kerala, Trivandrum, scientists from the Space Center, programmers from Indian software and typesetting companies assembled together and launched the Indian T_EX Users Group (short-named TUG_{India}). The aims and objectives of TUG_{India} do not differ much from that of the international TUG, aside from a special emphasis on extending T_EX to Indian languages. As a first step towards this goal TUG_{India} is associating with Yannis Haralambous⁶ of the French T_EX Users Group to build an Omega-Malayalam system. Preliminary work done so far gives quite encouraging results, and with these results the local education department has agreed in principle to finance projects relating to actualizing and perfecting the Omega Malayalam system that

can solve the problem of technical document preparation in Malayalam.

This is only a first step towards extending T_EX to Indian languages. Slowly and steadily this mission would be spread to other parts of India to cover all the major languages. It may sound a little strange that a single user group in a vast country with diverse lingua and cultures can hold all the users with different identities together. Unlike other parts of the world, this is an amazing truth so far as India is concerned and the TUG_{India} Board has decided that its secretariat would be shifting its location to different centers in India in a fixed periodical manner so that the current bias towards the south will be annulled.

To familiarize its members with the emerging trends in T_EX research, TUG_{India} will be holding periodical seminars and workshops, etc.; the first of these was conducted along with the inaugural ceremony. The main themes discussed were L^AT_EX to SGML conversion strategies, pdfT_EX and related issues, Hypertext in T_EX, graphics and color inclusion in L^AT_EX, and METAPOST and other graphics programs.

Miscellany

The majority of T_EX users in India are from the typesetting companies and the T_EX implementations are naturally the choice of their employers. Most of them are using Y&Y with Win95 operating platform except for one company (to my knowledge) which uses *Textures* for Mac. Still another company which has more than 100 terminals employs Novell Netware and DOS based T_EX implementation too. Most of the computers used are Intel based PCs. Unlike this scenario, the academic institutions like the Indian Institute of Technology, Indian Institute of Science, Inter-Univ. Center for Astronomy and Astrophysics, etc., where T_EX remains a leading document preparation medium, the operating platform is various flavors of UNIX. Most of these institutions have Sun workstations, DEC Alpha systems, or HP workstations, and T_EX implementations for these systems are in use.

Epilogue

The Indian T_EX Users Group would be publishing a journal *viz.*, TUG_{India} Journal, every four months and the first issue is getting ready to be released within a fortnight. TUG_{India} welcomes articles from all the T_EXies interested in publishing an article in our journal. Various User Groups are also informed that TUG_{India} will be happy to reprint each other's articles on a reciprocal basis. The address

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At the same time, they did me the great honour of inviting me to inaugurate the group, and I lost no time in accepting in principle. In the ordinary course of events it would have been beyond the finances of either TUG India or myself to pay for a trip there, but then a fairy godmother appeared, in the shape of the UK T_EX Users Group. The committee considered my tentative suggestion, and agreed that support of such a potentially important group would be a reasonable use of group funds. That just meant fixing a date, and finding a flight, and all was in train. By an amazing coincidence, another member of the UK TUG committee, Kaveh Bazargan, had already booked a holiday over Christmas and New Year at precisely the location in India chosen for the TUG India launch, so we were able to mount an even more impressive presence.

The inaugural meeting of TUG India

Sebastian Rahtz

First stirrings

Back in the summer when I first started corresponding with C. V. Radhakrishnan in India about T_EX and SGML-related matters, I little thought that I would be escaping the English winter for a week in Southern India at the start of 1998. But something seemed to crystallize in the minds of some Indian T_EXies, and events moved fast in the subcontinent during the autumn. By November 16th, Radhakrishnan was able to announce to the world that the newest T_EX user group had been born:

The Indian T_EX Users Group has been informally launched today at the academic premises of Department of Mathematics of University of Kerala, Trivandrum. Prof. KSS. Nambooripad, a world-renowned mathematician and an ace T_EX programmer, chaired the session. He was unanimously elected as the Chairman of the Indian T_EX Users Group. Following are the office-bearers of the TUGIndia.

Chairman: Prof. (Dr.) K. S. S. Nambooripad
Secretary: C. V. Radhakrishnan
Treasurer: Dr. R. Rajendra

Executive: Dr. A. R. Rajan (University of Kerala)
Dr. E. Krishnan (University College, Trivandrum)
Dr. V. N. Krishnachandran (Vikram Sarabhai Space Center)
Dr. R. K. Chettiar (Department of Education, Govt. of Kerala)
Mr. C. V. Rajagopal (University Observatory)
Mr. Deepak Tony Thomas, Oracle Corporation, Bangalore

India, and the inauguration

The TUG India meeting took place in Trivandrum, the capital of Kerala state, which forms the southwest corner of India. It is a tropical area, which sometimes seems to be entirely covered in coconut palms and banana trees, and is famous for its Communist state government, its almost 100% literacy rate, and a general air of some prosperity and a good distribution of wealth.

The principal mistake I made before setting off was to contract a vile cold, which rendered me almost speechless during my first few days, and a poor picture of health for the whole stay. However, after a long flight from London, a sweaty wait in Mumbai, and then a short flight to Trivandrum, it was little hardship to be taken off after lunch to the excellent beach resort of Varkala. Talking T_EX beneath the palms next to a sunny beach of the Arabian sea was a little disconcerting, but we managed. . . .

On Monday January 5th, we gathered in the University Observatory (a purely courtesy title these days) for the opening ceremony of TUG India, at which Kaveh and I were joined as speakers by Professor Nambooribad, the group's chairman, the University Vice Chancellor, and the local member of Parliament (showing a healthy interest in IT matters). Kaveh and I tried to present the T_EX world as a place of dynamism, excitement and new possibilities for conventional and electronic publishing, and some at least of our audience seemed convinced.

Many of the delegates were from typesetting companies (some of them suppliers to my own employer, Elsevier), with the biggest contingent from Madras — Thomson’s office seemed to have sent almost all their R&D team. But there was plenty of academic interest too, and of course a special concern with typesetting Indian scripts.

It was a pleasure to be able to hand over to Radhakrishnan a selection of \TeX -related books and journals, donated by Jonathan Fine, Malcolm Clark and myself, and to confirm the imminent despatch of back issues of *TUGboat* and MAPS to India. NTG had already sent a generous batch of 4All \TeX CD-ROM, of which each delegate was given a copy.

The first TUG India courses

On January 6th the serious work started, four days of tutorials in the morning on ‘advanced’ topics, and introductory \LaTeX in the afternoons. I managed to avoid teaching the latter (I always find myself *apologizing* too much for \LaTeX), but had fun in the mornings.

We started by dealing with a subject dear to my heart, and to that of some of the delegates — \LaTeX to SGML translation. I expounded the Elsevier system, based on four stages of transformation:

1. \LaTeX to dvi, using a very specialized class file, which redefines almost everything to put SGML markup into the dvi file;
2. dvi to ASCII (using Tobin’s dtl programs);
3. ASCII to SGML against an intermediate DTD;
4. SGML to SGML for the final DTD (using a Perl library which directly interfaces with the NSGMLS parser).

It turned out that at least two others present had also thought of similar methodologies, which was reassuring.

From \LaTeX to SGML, I moved on next day to DSSSL (Document Style Semantics and Specification Language) and its relationship with \TeX — perhaps not everyone present quite went along with me on that one. We were on safer ground discussing general aspects of electronic publishing using \TeX , and I was glad to be able to describe pdf \TeX in some detail, to publicize what I consider a much under-rated alternative to \LaTeX 2html (Eitan Gurari’s \TeX 4ht), as well as give a puff for my own \LaTeX hyperref package.

On the third day, we moved onto pictures, and I attempted to make a (rather shaky) case for MetaPost. Colour was a subject where it was easier to find common ground, albeit by agreeing

that color separation specification in \TeX was much too immature at present.

For the last day, I had decided that this was the moment where I would really make a first go at using Omega, and (somewhat to my surprise), I was able to write, compile and use a one-line Omega Transformation Process after some study of Omega examples. Since one of the Omega authors (Yannis Haralambous) is very actively working on the necessary OTPs, hyphenation and so on for typesetting Malayalam (the language spoken in Kerala), we can expect rapid deployment of Omega amongst those typesetting things like school textbooks.

... and some sightseeing

After talking \TeX for 5 days, I was ready for some relaxation. We started with a shopping expedition, during which I bought some dresses for my daughters which are certain to lighten up wintry Oxford, and a selection of South Indian classical music. Then on the Saturday we drove across the state line into Tamil Nadu to visit the Padmanabhapuram palace of the Maharajah of Travancore, the princely state which occupied much of what is now Kerala until Independence. In the late 18th century, a replacement palace was constructed in Trivandrum, and Padmanabhapuram was left untouched. With elements from the 16th century, it is an incredible structure built almost entirely of teak, often intricately carved, and all ingeniously designed to keep the rooms cool with natural air-conditioning. Whether it was the ladies’ bathing tank, the audience chamber, or the hall where 2000 Brahmins could be entertained to dinner, the whole place was a marvel of design — and preservation by the State Archaeological Service! Perhaps the best moment was when we were granted special access to view the Maharajah’s private meditation apartment whose plaster walls were covered in marvelous paintings, and where a pair of coconut-oil lamps had been burning non-stop for 200 years.

From the past to the present, we drove to Cape Comorin, the southern-most tip of India, where you can see both sunrise and sunset across the sea from the same spot, and where three oceans meet. Here, in the late 19th century, Swami Vivekananda (a very influential religious reformer) swam out to a bare rock in the sea, meditated for five days, and achieved a state of enlightenment to accord him the status of a saint. Now there is a modern memorial on the rock, and we joined hundreds of pilgrims in the boat ride to examine the spot. Thence back north, trying to visit a Jain temple set deep in a cave, but sadly

the gates were locked, and some monkeys laughed from the rock.

On the Sunday, to Kerala's secret paradise, the long salt waterway that runs for 200 km parallel to the sea, sometimes as wide as a lake, at other times turning into quiet green tunnels with barely enough depth for the boat. A vista of endless coconut palms, half-hidden houses, and small fishing boats provided a very relaxing boat trip.

Conclusion

This was a worthwhile, if exhausting, trip, and I hope it gave a good start to TUG India. When I left, they already had 79 members signed up, just from word of mouth, so the group looks set to be active. It is hoped to cycle the meetings around the different parts of India, as well as publishing a newsletter, so the current bias towards the south should soon be corrected.

I must, of course, take this space to extend the heartfelt thanks of Kaveh and myself to C. V. Radhakrishnan and the many others who looked after us so magnificently during our stay in Kerala. They were very worthy ambassadors of a lovely part of India. I look forward to working with them, and hopefully to visiting India again soon.

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Software & Tools

The future of AmiWeb2c

Andreas Scherer

Dear Amigicians,

It is with great pleasure that I announce the availability of the latest, last, and final update of “AmiWeb2c 2.1”, the Amiga port of the famous Web2c system (version 7.2) of “ \TeX and friends” (see <http://www.tug.org/web2c.html>). This final release will hopefully fix all the bugs reported to me over the past year and it introduces a lot of new stuff not present in earlier versions. Three major resources for “AmiWeb2c” are

- `CTAN:/systems/amiga/amiweb2c/`. This is the reference distribution of AmiWeb2c 2.1 on the “Comprehensive \TeX Archive Network”.
- `Aminet:/text/tex/`. Identical in contents, but packed in `.lha` instead of in `.tar.gz` format, this distribution is part of the “Aminet”, the world’s largest collection of free software targeted to a single computer system.
- <http://www.tug.org/texlive.html>. A fully integrated and ready-to-run installation of the Amiga binaries in the general Web2c setup is shipped with edition 3 of the “ \TeX Live CD”.

As pointed out in the closing remarks of the documentation coming with AmiWeb2c 2.1, I must now abandon the Amiga. Having served the \TeX and Amiga community for several years by providing ports of, at first, standalone METAFONT and, since 1993, ever more complete \TeX systems for the Amiga, the decision to step down as maintainer of AmiWeb2c was not easy to make. However, my professional career does not leave as much time as would be required to keep up with the many interesting developments in the \TeX nicl field. Having stopped *using* the Amiga for my daily work, I no longer feel qualified to support it. A long list of “possibly nice ideas” is already coming with AmiWeb2c 2.1; there is more than enough TODO.

In the past years I have received feedback on AmiWeb2c 1.0 (April/May 1995) and AmiWeb2c 2.0 (February 1997) from many users in different parts of the world, so I guess there still is interest in keeping the Amiga in the \TeX bandwagon, no matter how small the group of hardcore Amigicians might have become. At least for me, porting “UNIX \TeX ” to the Amiga most certainly was a challenging, more

often than not frustrating, but sometimes rewarding task. I learned a lot.

With this note I am calling out to any volunteers willing and capable to take over the task of developing AmiWeb2c in the future. Skills in both the programming and the T_EXnical fields are required. You have to be familiar with most if not all tools and languages listed in the AmiWeb2c documentation. Besides, you need to have a fast and well-equipped Amiga and the SAS/C development system (you could, of course, try a different Amiga compiler). Web2c proper already provides full (yet hidden) support for the Amiga, but each new version of the UNIX software introduces new obstacles that need to be fixed.

Last October I submitted a “request for help” to the `comp.sys.amiga.programmer` usenet group and to my greatest delight Jim Cooper of SAS Institute stepped forward to volunteer as the future maintainer of AmiWeb2c. Get in contact with Jim at `jamie@interpath.com` or with me at the address stated below if you find bugs in the software or have ideas for AmiWeb2c’s future.

To conclude I want to thank

- Don Knuth for giving us T_EX.
- Karl Berry, Olaf Weber, and all participants of `tex-pretest` and `tex-implementors` for supporting the Amiga by integrating all the stuff I submitted.
- All users of AmiWeb2c who reported bugs and submitted fixes or otherwise helped make AmiWeb2c what it is today.

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AUTHIDX: An Author/Editor Indexing Package

Nelson H.F. Beebe

Abstract

This document describes AUTHIDX, a package for automatic generation of author/editor indexes, and citation page references, with AmST \TeX , L \TeX , e-plain \TeX , and plain \TeX .

Introduction

Sadly, the bibliographic data provided in many technical publications is sparse, inaccurate, and hard to use as a resource in itself. Some of this can be attributed to the pain that authors and typists suffer in preparing bibliographic data for publication, and some is also certainly due to human egos: most authors would rather write about what *they* have done, than about what *others* have produced.

The availability of large bibliographic databases, such as those in the \TeX User Group bibliography archive at the author's FTP site, `ftp://ftp.math.utah.edu/pub/tex/bib`, and the huge Computer Science archive at `ftp://ftp.ira.uka.de/pub/bibliography` in Karlsruhe, Germany, offers interesting possibilities for substantially improving the traditional citation bibliographies in technical documents.

First of all, when literate references are readily available in marked-up form that can be converted automatically to the style required by the publisher or organization, much of the tedium of citing references in documents is eliminated. For example, with my favorite bibliographic system, BIB \TeX [6, pp. 155–164], all that I require in the running text of this article for the citation in this sentence is the text `\cite[pp.~155--164]{Lamport:1994:LDP}`, plus two simple `\bibliography` and `\bibliography style` declarations near the end of this document, and an invocation of the BIB \TeX program between L \TeX runs.

Second, when a fast and powerful search engine is used to access a large bibliographic archive, such as the BIBSEARCH [12] system at my site (a simple interface to the MG database system [12]), authors can readily locate many references that they might otherwise have overlooked, and they are therefore much more likely to provide more extensive bibliographies in their documents.

Third, when bibliographic data access is easy, and the collection is large, authors are likely to turn up many interesting references that they had

not previously encountered, thereby enriching their own ideas, and promoting intellectual progress by building on the work of others.

The book bibliography problem

During 1995–1996, at the University of Utah, with U.S. National Science Foundation support, we hosted a *Special Year in Mathematical Biology*. This brought together eighty-six outside researchers in the field (graduate students, post-doctoral fellows, and visiting faculty) from six countries, for visits ranging from a few days to several months, at our Mathematics and Biology departments. At the conclusion of this activity, we set about to prepare a book [8] to document the research carried out during the Special Year.

I was the consulting technical editor on the book, and its production took almost six months of extremely intense work on the part of the contributing authors, editors, and technical support people. Work began in June, and the day before Thanksgiving in late November, I uploaded the final completed POSTSCRIPT files to the publisher's printer shop. Just five weeks later, the book was available in bookstores.

The book has 573 literature references, every one of which was checked against library catalogs and journal databases. Though tedious, this checking was extremely worthwhile, since it uncovered scores of errors and omissions which were repaired before publication.

Since the book documents forefront research in the relatively young field of mathematical biology, most of its references were to work of the last two decades, and researchers and students who use the book will very likely want to read many of those publications.

With conventional bibliographies, the bibliography is of little use in itself, since one has no easy way to find out where in the text a particular publication was cited, and why, unless, of course, one has an author who is as conscientious as Donald E. Knuth is about indexing cited authors.

I therefore decided that the bibliography in our book would be different: every bibliographic entry would contain a list of page numbers in the book where the publication was cited, and every author of every publication would be indexed. This latter index is important, because good scientific research often requires reading all of the publications of a prominent author in a particular area. In addition, book entries would contain International Standard Book Number (ISBN) values, providing unique

identifiers that can be helpful in locating books in libraries, or ordering them through bookstores.

The problem with this objective is that with hundreds of citations, and over a thousand authors in the bibliography, accurate manual preparation of the cross-references and index is humanly impossible. Computers, however, get neither bored, nor tired, so they can accomplish the job, given suitable software. At the start of this project, such software did not exist.

Preparing to solve the problem

To understand how I solved the problem, it is useful to review how citations in the running text eventually produce a reference to a bibliographic entry. While the description here assumes (L^A)T_EX and BIBT_EX, *any* document formatting and bibliographic systems will have to do something similar.

First, the presence of a citation in the running text, such as `\cite{Lamport:1994:LDP}`, results in the entry on an auxiliary file of a line containing the citation label, such as

```
\citation{Lamport:1994:LDP}
```

Since the expansion of that citation in the running text may not be known until the bibliographic data has been retrieved, the amount of space that it requires is initially uncertain, and consequently, the typesetting system must make at least two passes over the document before line- and page-breaking decisions can be finalized.

Second, when the bibliographic software reads the auxiliary file, it must locate the requested citations in one or more bibliographic database files, and then format them for inclusion in the bibliography according to the specified style. For BIBT_EX, this might mean that the database entry

```
@Book{Lamport:1994:LDP,
  author = "Leslie Lamport",
  title = "{\LaTeX}: {A} Document
           Preparation System: User's
           Guide and Reference
           Manual",
  publisher = pub-AW,
  address = pub-AW:adr,
  edition = "Second",
  pages = "xvi + 272",
  year = "1994",
  ISBN = "0-201-52983-1",
  LCCN = "Z253.4.L38L35 1994",
  acknowledgement = ack-nhfb,
  bibdate = "Wed Aug 10 09:55:59 1994",
}
```

is retrieved and reformatted in an output bibliography file as

```

\bibitem{Lampport:LDP94}
Leslie Lampport.
\newblock {\em {\LaTeX}: {A} Document
  Preparation System: User's Guide and
  Reference Manual}.
\newblock Ad{\-d}i{\-s}on-Wes{\-l}ey,
  Reading, MA, USA, second edition, 1994.
\newblock \showISBN{0-201-52983-1}.
\newblock xvi + 272 pp.
\newblock \showLCCN{Z253.4.L38L35 1994}.

```

which is finally typeset by \LaTeX in the form shown in the bibliography at the end of this document.

Several modifications of the citation process are required for our book indexing project:

- each citation recorded in the auxiliary file must also include its page number;
- the page numbers must not interfere with the bibliographic data extraction;
- the page number lists for each cited publication must be collected, sorted, and merged to remove duplicates, and then included in the corresponding bibliography entry;
- the authors and/or editors of each cited entry must be extracted and added to an auxiliary index file;
- the author/editor index file must be sorted, merged, and formatted for inclusion in an index.

For (\LaTeX) , access to page numbers is complicated by the asynchronous nature of \TeX 's page breaking algorithm: the output routine can be called at any time, either implicitly or explicitly, and it may choose to delay some of the accumulated potential output material until the next page. Thus, \TeX does not have a single variable that reliably records the 'current page number'. Fortunately, \TeX 's author saw the need for this, and provided a `\write` command whose argument is not evaluated until the output routine has made its page-breaking decision and the text is sent to the output file [5, pp. 215, 217]. Thus, the same mechanism that is used for writing page numbers in table-of-contents, list-of-figures, list-of-tables, and index files can be used for recording the citation page numbers.

The user interface

Once the package is properly installed in the local \TeX system, to use it, you first need to load it near the start of your document file:

```

 $\LaTeX$  2e   \usepackage{authidx}
 $\LaTeX$  2.09 \documentstyle[authidx]{...}
 $\mathcal{S}$ - $\TeX$ 
e-plain  $\TeX$  \input authidx.sty
plain  $\TeX$ 

```

After loading the package, you need to request that data for the author/editor index be written on this run:

```
\makeauthoreditorindex
```

This command might be commented out during development to save a bit of time.

Although it is rarely necessary, or desirable, to do so, it *is* possible to write extra entries to the indexing file without citing them in the running text: `\authoreditorindex{BIB \TeX -label}` This command is used internally by the modified `\cite` command to record the citation label in the indexing file.

The `\bibliography` command has been modified to create `\bibdata` entries in both the normal auxiliary file, and the author/editor indexing file.

The index is printed inside a `theauthoreditorindex` environment, which is generated automatically when the user issues the `\printauthoreditorindex` command.

\LaTeX users will recognize the similarity of these to `makeidx.sty`, `\makeindex`, `\index`, `theindex`, and `\printindex`.

For additional user control over the author/editor index, the user may provide alternate definitions of the following macros, with `\renewcommand` (in \LaTeX) or `\def` (in other \TeX formats):

```

\def \AENAMEfontfirst #1{{\sc #1}}%
\def \AENAMEfontrest  #1{{\rm #1}}%
\def \AEPAGEfontfirst #1{{\bf #1}}%
\def \AEPAGEfontrest  #1{{\rm #1}}%

```

As shown, each takes a single argument, and allows typesetting the first author or page number differently from the remaining ones.

The reason for offering alternate typesetting of first and remaining authors is the tradition, in many fields, of referring to a multi-author work by the first author alone, or as a colleague once remarked to me:

If you see a reference to a paper by *Smith et al.*, then you know that Smith got the credit, but Al did the work!

Personally, I deplore this practice, and try very hard to avoid use of *et al.*, and the corresponding *and others* in $\text{BIB}\TeX$ files.

The default definitions of these font macros do not specify a font *size*, so in \LaTeX , they will automatically inherit the prevailing font size. This allows you to use \LaTeX input like this:

```

\begin{small}
  \printauthoreditorindex
  \printindex
\end{small}

```

to typeset the indexes in smaller type, as is commonly done.

The `theauthoreditorindex` environment is modeled very closely on L^AT_EX's `theindex` environment. It switches to two-column mode, which starts a new page, then begins an unnumbered section or chapter with the title *Author/Editor Index*, sets the even- and odd-page running heads to *AUTHOR/EDITOR INDEX*, sets the page style to *plain* for the first page of the index, and defines `\item` to be the same as the internal L^AT_EX `\@idxitem` macro.

While this default behavior will often be adequate, many documents may require something different, such as for the three-column indexing used in our book [8].

Rather than trying to parametrize bits and pieces of this environment with user-customizable macros, it seems to make more sense to simply advise the user to redefine `theauthoreditorindex` completely when needed, with `\renewenvironment` in L^AT_EX, or `\def` in other T_EX formats.

For example, for a journal article such as this one, starting a new page and changing page headers is unnecessary, so this simple redefinition suffices:

```
\renewenvironment
  {theauthoreditorindex}%
  {%
    \section*{Author/editor index}%
    \setlength{\parindent}{0pt}%
    \setlength{\parskip}{0pt plus 0.3pt}%
    \renewcommand{\item}%
    {%
      \par
      \setlength{\hangindent}{40pt}%
    }%
  }%
  {%
    \relax
  }
```

The corresponding redefinition of `theindex` differs from this only in the section heading.

In a large bibliography, it may be useful to include author/editor page references to the bibliography itself:

```
\bibliographyindextrue
```

You can turn off this feature with

```
\bibliographyindexfalse
```

The default setting is *true*.

Finally, the appearance of page-number cross-references in the bibliography can be controlled by redefining this macro:

```
\def \bibindex #1{\{\bf #1\}}
```

The argument to `\bibindex` is a comma-separated list of page numbers, in ascending order, with consecutive page numbers collapsed to page ranges.

In summary, here is what a typical input file for L^AT_EX 2e might look like:

```
\documentclass{book}
  \usepackage{makeidx}
  \usepackage{authidx}
  \makeauthoreditorindex
  \makeindex
\begin{document}
  ...
  \printauthoreditorindex
  \printindex
\end{document}
```

The AUTHIDX package must be included *after* the MAKEIDX package, because the latter fails to check for a prior definition of one macro (`\see`) that AUTHIDX also must define in case it is used without the other package.

Running the programs

Besides T_EX, BIBT_EX, and MAKEINDEX, there is one additional program needed to complete the author/editor indexing job: AUTHIDX. Its task is to combine the data in the author/editor index file (*.aei*) created in the (L^A)T_EX runs with data extracted from the BIBT_EX database files to produce a modified index file (*.ida*) that is suitable for input to MAKEINDEX.

Here is the sequence of job steps that needs to be run on a UNIX system:

```
latex mybook.ltx
bibtex mybook
latex mybook.ltx
bibtex mybook
authidx mybook.aei > mybook.ida
mv mybook.bbl mybook.tmp
authidx mybook.aei mybook.tmp \
  > mybook.bbl
makeindex -o mybook.ina mybook.ida
makeindex -o mybook.ind mybook.idx
latex mybook.ltx
```

The steps on most other operating systems would be very similar to these.

The second BIBTEX run is needed to handle bibliographic data that contains `\cite` commands for cross-referencing; it can be omitted if this is not the case.

The second AUTHIDX run modifies the *.bbl* file to include page-number cross references.

Since the above steps will likely need to be done several times during document development,

these commands should be encapsulated in a single command file, or better, a *Makefile*, since the MAKE program will check stated file dependencies to avoid running unnecessary steps.

Portability considerations

The AUTHIDX program is approximately 1000 lines of code in the AWK programming language [1, 2, 3, 11].

AWK is a simple, and clean, text processing language that is ideally suited to this task. I have written over a hundred thousand lines of code in that language, and found that equivalent programs in other languages are invariably significantly longer, and much harder to get right.

In addition, AWK is an IEEE POSIX [4, 9, 10, 7, 13] standard, and since POSIX conformance is available (though not necessarily installed by default) for virtually all commercial operating systems, you should expect your system vendor to provide it.

To find out whether your system has POSIX compliance, visit <http://nemo.ncsl.nist.gov/posix/151-1reg> and <http://nemo.ncsl.nist.gov/posix/151-2reg> on the World-Wide Web, or send electronic mail to posix@nist.gov with this text:

```
send help
send 151-1reg
send 151-2reg
```

The most obvious omission among the many systems listed is the Apple Macintosh operating system; only the A/UX and MachTen operating systems on the Macintosh hardware platform have POSIX compliance. By searching on the Web, I located a reference to a port of AWK to the Macintosh Programmer's Workbench (MPW), but at the time of writing this, the link was unreachable.

There are also independent commercial implementations of the language for the IBM PC platform, and at least four freely-distributable implementations: BAWK, GAWK, MAWK, and NAWK, the last of which is from the original developers at AT&T [1], with continued improvements. The AWK development groups are in close contact, so the implementations retain fidelity to the original language definition [1].

The book about the Free Software Foundation's GNU implementation, GAWK [11], is also available in T_EXinfo form for use online in the GNU EMACS INFO system, or for separate typesetting and printing, but I use my bound copy a good deal too.

More details on sources of AWK implementations are included in the documentation in the AUTHIDX distribution.

Availability

The master archive location for the AUTHIDX package distribution is <ftp://ftp.math.utah.edu/pub/tex/authidx>. By the time you read this, it should also be mirrored to the Comprehensive T_EX Archive Network (CTAN); try `finger ctan@tug.org` to find a CTAN mirror site near you.

Conclusions

The bibliography and indexes which follow this section demonstrate, for this short document, what the AUTHIDX package can do. For a much bigger example, see our mathematical biology book [8]. That book has separate bibliographies in each chapter, demonstrating that AUTHIDX can be used even for documents with multiple bibliographies.

The beauty of the package is that it makes much better bibliographies and indexes available for very little effort on the part of the author: three extra lines in the input file, and four extra commands to be executed during the typesetting.

As the utility of its features becomes more widely known and appreciated, I hope that this package will receive wide use in the T_EX community, and that publishers will adopt it for their routine technical book production.

Provided that BIBT_EX bibliographic databases are used, AUTHIDX and a very simple MAKEINDEX style file that produces SGML instead of T_EX would make the package available to those many publishers who use SGML markup for documents.

With an alternate bibliographic database format, the AUTHIDX program would have to be rewritten, but I expect that major portions of the existing AWK code could be reused, so that the revision might take only a day or two of work.

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Erratum: High Quality Labels on Included Graphics, using X_Y-pic, TUGboat 1, no. 8(3), pp. 151–158

Ross Moore

Editor's note: The following figures appeared in *TUGboat* 1, no. 8(3), pp. 159-163, without frames, and we present them here, correctly printed using the `\UsePSframes` command from the X_Y-pic package.

Figure 1: Establishing an origin and coordinates.

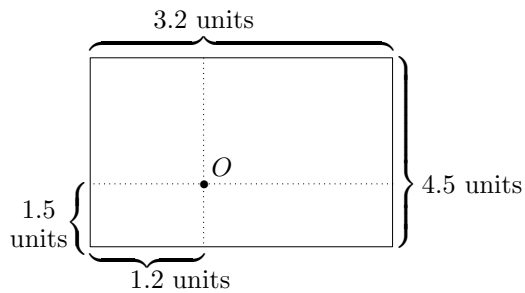


Figure 2: Axis labels on a weekly chart.

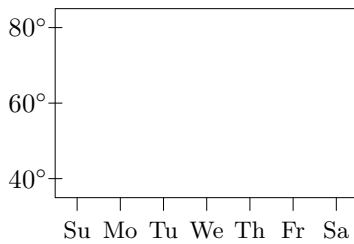


Figure 3: ...with rotated labels.

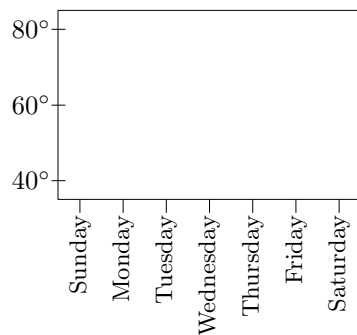


Figure 4: ...with horizontal grid-lines.

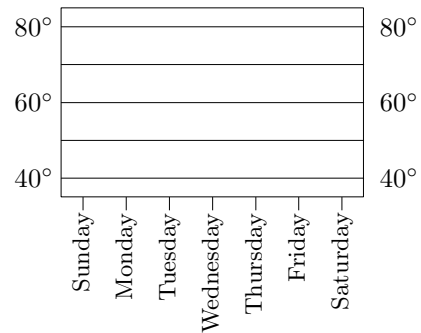
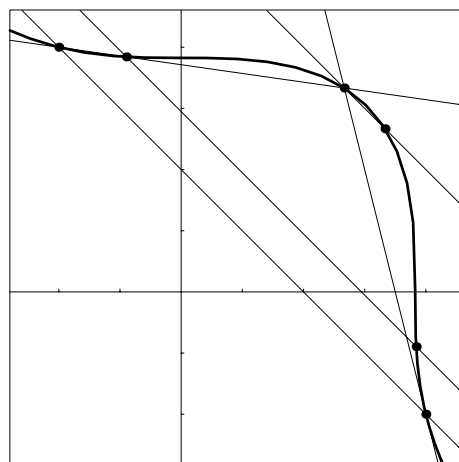


Figure 7: Original .eps graphic, with added frame...



framed contents of file:import1.eps

Fonts

The European Modern fonts

Berthold K. P. Horn

The European Modern (EM) fonts are based on Computer Modern (CM), but have ready-made accented and composite characters, thus enabling \TeX hyphenation when using languages that use such characters. The EM fonts are in ATM compatible Adobe Type 1 format, also known as ‘PostScript’ or ‘ATM’ form.

Unlike Computer Modern text fonts, the EM fonts are set up as ordinary text fonts and do not have hard-wired encoding (character layout). They can, for example, be used easily with either T1 (Cork) or LY1 (\TeX ’n ANSI) encoding. Because of this flexibility they also work well with applications other than \TeX , where they are simply reencoded to platform-specific text font encoding.

There are 57 EM text fonts corresponding to the CM text fonts. For typesetting math, the font set also contains some 23 EM and CM math fonts. The naming of EM fonts follows that of CM, so there are for example EMR6, EMSSBX10, and EMMIB7 fonts corresponding to the familiar CMR6, CMSSBX10 and CMMIB7 fonts.

The big difference between EM and CM is that EM text fonts each contain over 300 glyphs, including over 90 accented characters, compared to the typical CM text font with fewer than 120 usable glyphs, and no ready-made accented characters.

The European Computer Modern (EC) fonts also arose in part to solve the problem of hyphenation in languages using accented characters. In contrast to EM, however, they exist in METAFONT form and thus work only with \TeX , using fixed resolution PK bitmapped fonts. There are over 500 EC fonts which have to be augmented with the ‘text companion’ (TC) fonts and CM for math. And as do all PK fonts, the EC fonts use fixed encoding.

The EM fonts have some interesting special features, some of which are also available in EC. One is support for hanging hyphens, which make the right margin appear less jagged by allowing hyphens to partially penetrate the right margin. This works for both T1 and LY1 encoding in EM.

Another aspect is kerning with respect to the ‘boundary character’ (the inter-word space). In CM, Knuth added extra sidebearings to the quotation marks so as to effectively insert space around the quotation to set it off from the rest of the text.

This works fine for English when using CM, but other languages use different quotation marks, or worse yet, use the same glyphs in a different way (e.g. the German closing quote is ‘quoteblleft’, used in English for opening a quote).

By removing the extra sidebearings from the glyphs themselves in EM, and adding kerning with respect to the boundary character, the extra space can be inserted independent of the way the quotation marks are used. Of course, not everyone agrees that added space around quotations is necessarily desirable, since it destroys the even grey tone of the text.

By the way, kerning with respect to the boundary character is a relatively recent addition to \TeX , and it is a little tricky, since kern pairs with the boundary character on the left are considered *before* ligatures of the right character, while kern pairs with the boundary character on the right are considered *after* ligatures for the left character. Also, the latter uses the ordinary kern pair mechanism, while the former depends on a special ligkern program for the left boundary character.

When using CM fonts, the upright uppercase Greek characters are drawn from the text fonts. This means they are not subject to the special magic that is available to math fonts. In particular there is no possibility of independently controlling the subscript and superscript positions. For overhanging shapes like ‘Gamma’, ‘Upsilon’ and ‘Psi’ this means that subscripts are placed too far to the right. In EM, these characters come instead from the math italic EMMI fonts and so have been adjusted to provide optimal positioning of subscripts and superscripts.

Some additional points may be worth mentioning. One is that a few non-ideal kerning pairs in CM have been fixed in EM, and the side-bearings of a few characters adjusted. The position of the accents has been improved a bit, especially the grave and acute accents for French and the Umlaut for German.

Kern pairs with respect to accented characters have been added. In order to limit the resulting bloat of the TFM file, ligkern programs are shared as far as possible (This means that in a few instances ‘nonsense’ kerns are included that will never be used, but that help reduce the size of the TFM file by making ligkern programs for two characters identical).

While the fonts can be used with any desired encoding, TFM files are provided for the most commonly used text font encodings, namely T1, LY1 and LM1 (used by Textures). A single TFM file per

font provides real and pseudo ligatures as well as kerning. There is no need for virtual fonts.

Support for EM fonts exists for plain \TeX , $\LaTeX 2_{\epsilon}$ and $\LaTeX 2.09$. In $\LaTeX 2_{\epsilon}$, to use the ‘em’ package, just add `\usepackage[T1]{em}` or `\usepackage[LY1]{em}` between the commands `\documentclass{...}` and `\begin{document}`.

The fonts are available in file formats suitable for IBM PC/Windows, Macintosh, as well as Unix. They are easy to use with `dvips` by making suitable additions to `psfonts.map`.

The metrics of the basic alphabet of CM, EM and EC essentially match, but you have to be aware that there may be some changes in line breaks when switching from CM to EM (or EC).

The new Y&Y EM \TeX System is based on the EM font set. It also includes the new ‘TeX Pi’ font set, which adds math/symbol fonts to augment what is available in EM and CM math fonts.

European Modern release 1.2 is the outcome of a development effort that spans several years. It draws heavily, of course, on Donald Knuth’s Computer Modern and the existing CM and AMS fonts in Type 1 format, developed by Blue Sky Research and Y&Y, Inc. Many of the new characters were constructed one way or another from existing characters in these two large font sets.

EM also received inspiration from the EC font set of Jörg Knappen and Norbert Schwartz—although in some cases different choices were made about details. Critical typographic feedback, particularly from Jean-Pierre Vial, Alain Joly, Thierry Bouche, Hilmar Schlegel, Tapio Luttinen, and others must also be acknowledged.

David Carlisle provided the official PSNFSS support for EM. Doug Henderson played an important role as did Yuri Yarmola.

European Modern solves the problem of hyphenation in \TeX when using ‘Latin’ languages with accented characters. At the same time the fonts are in scalable outline format and so usable with Acrobat and other applications, not just \TeX .

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Hints and Tricks

‘Hey — it works!’

Jeremy Gibbons

Welcome once again to *Hey — it Works!*, a home for intriguing, elegant or just plain useful \LaTeX techniques. Please send me any ideas that you have for articles. Back issues of the column are available from my web page.

This issue we have four articles. The first, by my ex-colleague Paul Hafner, explains how to include in a document the page range of the document. The second is my own, and shows how to get text italics instead of math italics in maths mode by default. We conclude with two short pieces: one by Ramón Casares, showing how to fill the last line of each paragraph with a rule to prevent forgery by the addition of extra text, and one by Donald Arseneau, showing how to produce a ‘closed surface integral’ symbol.

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1 Determining the page range of a document

It is customary for journals to have an imprint on the first page of each article identifying the journal and providing the bibliographic details (volume, year, page range). \LaTeX can provide the page information, but it does not come without an effort. The page number of the first page is easily found: place a label at the start of the article, most conveniently using the command

```
\AtBeginDocument{\label{firstpage}}
```

Then the page number of the first page will be available via `\pageref{firstpage}`.

For the last page one is tempted to opt for the symmetric solution:

```
\AtEndDocument{\label{lastpage}}
```

However, the document *L^AT_EX 2_ε for class and package writers* (file `clsguide.tex`) explains carefully that the label will be placed *before* any end floats. The remedy provided in `clsguide` is to insert `\clearpage` before the label:

```
\AtEndDocument{\clearpage\label{lastpage}}
```

However, if you follow this all too literal reading of the documentation, the label will remain undefined, i.e., nothing will be written to the `.aux` file.

Now a solution is obvious: instead of `\label` we insert the code which writes the appropriate information to the `.aux` file (we steal it from `latex.ltx`). Since the `\clearpage` has moved us onto the ‘page’ after the last, we decrement the page counter before writing it out, and (for completeness) increment it again afterwards.

```
\AtEndDocument{\clearpage
\addtocounter{page}{-1}%
\immediate\write\auxout{%
\string\newlabel{lastpage}%
{}{\thepage}}%
\addtocounter{page}{1}%
}
```

In fact, at the CTAN archives there is a package `lastpage` by Jeff Goldberg that does exactly this.

An alternative implementation of the same idea redefines the command `\enddocument` (defined in the file `latex.ltx`), inserting the additional code *after* the `\clearpage` in line 4 of this definition. This has the advantage that collisions with other insertions via `\AtEndDocument` (say, if the article uses other packages) are less likely (such insertions might assume that the `\clearpage` command has not yet been issued; in this case we have to be very careful about the order in which they are loaded). On the other hand, to remain fully compatible and up to date, the maintainer of a package which redefines a critical command such as `\enddocument` has a six-monthly maintenance task for life: to check if a new release of \LaTeX has introduced changes of this command, and to accommodate them. I cannot foresee too many occasions where one would like to insert code at that late stage (lack of imagination?) but there could be a case for a *very-end-hook* at the position in question, or maybe a routine label for the last page that can be accessed by everyone.

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2 Text italics in maths mode

In most of mathematics, it is conventional to use single letters for variables. If two letters are adjacent, as in ‘ xy ’, this is read as two separate quantities x and y multiplied together. For this reason, \TeX and \LaTeX use two italic fonts: ‘text italics’ for italic characters in text, and ‘math italics’ for italic characters in maths. The difference is clearly visible with regard to ligatures (‘*difficult*’ versus

‘*difficult*’), but most of the letters have slightly different shapes in the two fonts.

In contrast, in my corner of computer science, it is common to use words instead of single letters as variable names; for example, I might write ‘*flatten xss*’. This looks horrible using the default math italics. I can get round the problem by using `\mathit` to select text italics for every variable mentioned in my document; this looks fine (‘*flatten xss*’) but is a pain to type. It would be nice to make letters appear in text italics by default.

It is tempting to use `\SetSymbolFont` for this:

```
\SetSymbolFont{letters}{normal}
{OT1}{cmr}{m}{it}
```

This makes maths family 1, from which letters in maths mode are normally taken, use text italics instead of math italics. This does achieve the desired effect, but it has some unfortunate side-effects too. Not only the letters, but also many other symbols are taken from family 1. Because Computer Modern text italics has a different encoding from math italics, many of these other symbols now appear as the wrong glyph. For example, full stops appear as colons, commas as semi-colons, the Greek letters are all wrong, and so on. Of course, the definitions of all these symbols can be changed, to take them from other families, but this is a both nuisance and error-prone: a quick count through `fontmath.ltx` reveals that more than 50 definitions need changing.

Fortunately, there is a better solution. This is to declare a new symbol font for text italics:

```
\DeclareSymbolFont{textit}{OT1}{cmr}{m}{it}
```

and to take each of the letters from this new symbol font:

```
\DeclareMathSymbol{a}{\mathalpha}{textit}{‘a’}
\DeclareMathSymbol{b}{\mathalpha}{textit}{‘b’}
...
\DeclareMathSymbol{Z}{\mathalpha}{textit}{‘Z’}
```

(This must be done in the document preamble.)

When long variable names can also include digits, it may be preferable also to make the digits italic by default:

```
\DeclareMathSymbol{0}{\mathalpha}{textit}{‘0’}
...
\DeclareMathSymbol{9}{\mathalpha}{textit}{‘9’}
```

This gives, for example, ‘*inits1*’ instead of ‘*inits1*’. However, this makes *all* digits in maths mode italic, which may not be what you want; somehow, the number *3.14159265* does not look quite right.

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3 Anti-appending rule

When important documents, as contracts, were hand written it was usual, at least in Spain, to complete the last line of every paragraph with a line. The purpose of the line was to avoid the completion of the paragraph after signing the document to change the meaning of the agreement.—————

It is in fact an amusing exercise to take the last document written by, let's say, the boss and make a nonsense of it just using the part of the line that was left blank in each paragraph.—————

If you fear that one of your documents could be faked by your enemies or if you just want to imitate the old legal style of writing, then \TeX makes it easy.—————

```
\def\unfakeablepar{\unskip\nobreak
\leaders\parrule\hskip\parfillskip
\vadjust{}{\parfillskip=0pt\endgraf}}
\def\parrule{\hrule height 2.2pt
depth -1.8pt\relax}
```

To activate the feature just write

```
\let\par=\unfakeablepar
```

To return to the fakeable style write

```
\let\par=\endgraf
```

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4 Closed surface integral

Donald Arseneau sent in this quick definition of a closed surface integral \oiint , a double integral like \oiint :



This is defined by:

```
\newcommand\oiint{\begingroup
\displaystyle \unitlength 1pt
\int\mkern-7.2mu
\begin{picture}(0,3)
\put(0,3){\oval(10,8)}
\end{picture}
\mkern-7mu\int\endgroup}
```

Note that if we had used braces $\{...\}$ here instead of $\begingroup...\endgroup$, the subscript would be attached to the whole \oiint subformula (as on the left, below) instead of being attached to the second \int and tucking neatly under it (as on the right):



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Tutorial

Book Design for T_EX Users

Part 1: Theory*

Philip Taylor

Motto: *There can never be too little space below headings, only too much!*

Abstract

Book design cannot be taught; it can only be learned, preferably by critical study of as many books as possible. Of all the elements which make up a book, white space is frequently the least considered and the most important. *Avant garde* designs are compared and contrasted with more conservative and traditional approaches. Three key elements: *uniformity*, *information* and *structure* are identified, and ‘good design practice’ discussed in terms of each of these.

— — * — —

1 Introduction

The widespread use of T_EX and other typesetting or DTP packages by tens of thousands of scientists, researchers and other academics has resulted in two rather disturbing phenomena: (1) more and more people are spending ever longer trying to get their publications to *look* right, rather than worrying about whether such publications are factually correct or are well written, and (2) fewer and fewer people, on opening a book for the first time, think first about the content, but instead commence by judging the book on its form, or to be more precise, on the appearance of the design and typesetting. We are, in fact, becoming a generation of self-taught designers and typographers, but in so doing we are tacitly avoiding the many years of training, apprenticeship and indenture which previous generations have deemed necessary.

This is, in itself, no bad thing — there are far too many self-appointed ‘experts’ ever ready to initiate neophytes into the arcane mysteries of their craft, in exchange for not inconsiderable sums of money — but in order for learning by osmosis to be effective, the beginner has to be exposed both to good and to bad examples of the art, and to think critically about what it is that differentiates

* This is the first part of a talk delivered to a SOFSEM meeting in Hrdonov (Czech Rep.). It is reprinted with permission from the SOFSEM Organizing Committee, Masaryk University, Brno, Czech Republic; the second part will appear in a subsequent issue.

the former from the latter. In Departments of Typography and Design, such examples abound, and the professors daily compare and contrast good with bad to the great benefit of their students; but in the incestuous world of \TeX , good examples are rare whilst bad examples abound.

But why should this be? What is it about \TeX , which in skilled hands is capable of producing results equalling the very best examples of hot lead composition, that encourages the production of second- and even third-rate designs? I suggest that there are two main answers to this: (1) in *The \TeX book*, which is presumably the first (if not the only) book on typesetting that users of \TeX ¹ encounter, there is extraordinarily little guidance given concerning document design, as opposed to document formatting, and (2) the standard styles which accompany \LaTeX generate results which even the staunchest \LaTeX adherent would have difficulty arguing represent “the state of the art” in document design, and which if considered dispassionately might justifiably be said to lack subtlety and finesse.²

Thus the lack of explicit guidance, together with the rather poor examples generated by the standard \LaTeX styles, has resulted in a proliferation of poorly designed books all of which shriek “ \TeX ” (or “ \LaTeX ”).³ It would not be fair on the authors to adduce particular examples of this creed of mediocrity, but a glance at any reasonably complete library of \TeX -related (or even \TeX -set) books will shew what I mean. . .

However, all is not lost: a new generation of \TeX -setters are emerging who appear to have studied the typesetter’s craft, and several of the more recent books on \TeX shew every evidence of having been *designed*, rather than having been ripped untimely from their progenitor’s womb.

In this paper, then, I propose to discuss what it is that differentiates a well-designed book from one that is ill-designed (or worse, one that has not been designed at all); and in so doing, I hope that I can in some small way contribute to a more universal adoption of \TeX . For all the while that professional publishing houses see only bad examples of \TeX -set books, they are unlikely to consider adopting \TeX as a house standard; but if the general standard

of \TeX -set books can be raised to a point where they are either indistinguishable from, or even better than, books produced by traditional means or by commercial typesetting packages, then simple economics will ensure that such publishing houses give \TeX the consideration it so richly deserves.

2 The Book

We all know what a book is, for we handle them every day; assuming a Western culture, it is basically a set of uniformly sized sheets of paper, joined at their left edge in some way, sandwiched between two slightly larger sheets of a more rigid or robust material that wraps around the left edge. It is differentiated from a magazine primarily by virtue of its cover: that of a magazine is only slightly more robust (although frequently more glossy) than the pages which it protects, whilst that of a book is almost invariably either thicker, or more rigid, or both; a magazine cover, too, has only one basic point of articulation, whilst most book covers articulate independently of each other. One other aspect separates the all but the thinnest book from all but the thickest magazine: a book is typically bound in *signatures*, whilst a magazine is usually stapled through its spine as a single entity.

But open a book and open a magazine, and we see that these differences are only superficial; for there are far more fundamental differences which manifest themselves once inside the cover. The magazine is characterised by variation — each page is clearly different from the preceding and the next; whilst the book is characterised by uniformity — each page, seen from a distance, is virtually indistinguishable from the next (special pages apart). And in this uniformity lies the basis of successful book design; for readers have come to *expect* this uniformity, and anything which detracts from it will serve only to distract the reader.

Yet uniformity of itself is not enough: we could achieve uniformity by leaving each page blank, or by simply placing a large black rectangle within the margins of each page; but this will not satisfy our reader, who looks not only for uniformity but for *information*. Indeed, information is the very *raison d’être* of a book: without it, the book serves no purpose at all, and is at best a work of art (and at worst is totally valueless).

So the book exists to supply information; and anything which inhibits or interrupts the flow of information from book to reader will diminish its value. If the flow of information is too badly affected, the reader will simply cast the book aside (how many of us, on attempting to read a page of

¹ as opposed to \LaTeX .

² The Dutch, always sensitive to such issues, have produced a sub-style ‘Sober’ which attempts to tone down the worst excesses of the default \LaTeX styles.

³ Knuth, in his closing exhortation, wrote: “GO FORTH now and create *masterpieces of the publishing art*.” Nowhere, so far as I can trace, did he write: “and let every one of them shriek ‘ \TeX ’ from every page” . . .

reversed-out Bodoni in some otherwise traditional magazine, have simply given up and left the material unread? I have, many times, and cursed the designer for his/her stupidity in putting form before function).

Uniformity, information: what else? Well, if the book is in any sense *technical* (by which I exclude the novel but include almost everything else), then it is also *structured* (indeed, as we shall see, even a novel is structured in many senses, but not in the one which I am using here); and, possessing structure, it is capable of being accessed in a structured manner. It will have, at the very least, a table of contents; it *should* have an index (although far too many books that would benefit enormously from an index are lacking in this respect), and it may also possess an internal structure, in that the reader may be asked from time to time to *see Chapter 3*, or *see also Section 2.4.2*.

And these three elements, I suggest, lie at the heart of successful design: uniformity, information, and structure. We will look at each in turn to see how it may best be achieved, implemented or accomplished.

3 Uniformity

Take a book (a traditional book, not one hot off the presses of the DTP revolution), and flick the pages, rather as if there were one of those old-fashioned animated cartoon characters lurking in the corner of each page. What do you see? Most people perceive a regular grey grid: not black and white — you only see that if you look at a static page — but instead a grey blur where the text appears, and white where there is no text (or other material). What is significant is that the white appears at the same place on every page: above the headline, below the footline, between the head/footlines and the body of the text, and to left and right of the text, in the margins of the page. If the book is set in multiple columns (usually two, but rarely more, except for rather specialised works), then a further block (or blocks) of white space will appear, separating the columns from each other.

And in many senses, this white space is the most important of the graphic elements which will go to make up each page. It provides the framework or matrix within which the ‘dark matter’ — the text, graphics, etc., which make up the *information* content of the page — is set. But probably because it does not of itself appear to carry any information, it is frequently afforded less respect than it deserves, particularly by those undertaking design without any formal background. And yet, although it does

not *appear* to carry any information, in fact it carries a great deal: without it, we would not know where the headline stopped and the page body began; where the page body stopped, and the footline began; where the left column stopped and the right began, and so on. . . . In fact, it is *vital* to our comprehension of the contents of the page, and is therefore *at least* as important as every other element on the page, if not more so.

Because the white space and the dark matter are inextricably interlinked — one starts wherever the other stops, until the physical limits of the page are reached — any discussion of the uniformity of white space must equally be interlinked with a discussion of the uniformity of the dark matter of the page. But there is a third element to this uniformity which is even more dependent upon the inextricable interlinking of white space and dark matter, and that is the sense of ‘greyness’ of every page. The human eye is remarkably sensitive to small variations in grey level, and if the apparent greyness varies either within a page or between pages (particularly between facing pages, which form a *spread*), the effect can be quite discomfoting. Such variations in apparent greyness can result from a variety of causes, of which the most common are: (a) use of letterspacing for justification; (b) inconsistent leading between two or more blocks of text in the same font; (c) inappropriate changes of leading or font (or both) when deliberately setting a block of text in a different font (in a multi-line quotation, for example). The cures for each of these ills are fairly straightforward: *never* use letterspacing to achieve justification, unless its use is so subtle that the eye cannot perceive the variation in inter-letter spacing; *never* allow the typesetting system to vary the leading in order to achieve vertical justification (and never set two blocks of text in the same font but with a different leading without being aware of the effect which will be achieved); and be aware of the perceived grey-level (white-matter : dark-matter ratio) when setting blocks of text in different fonts.

In an ideal world, attention to the suggestions of the previous paragraph would do much to ensure that the apparent greyness of each page was uniform: but there is another problem which results from our less-than-perfect world which can also significantly affect perceived greyness, and this is the problem of ‘print through’. Ideal paper presents a uniform opaque whiteness on which the black of the ink is superimposed; real paper, on the other hand, whilst uniformly white (at least, as far as high-quality printing papers are concerned) is rather less than opaque; if held up to a bright light,

even the best paper will allow some light to shine through, and poorer papers are so translucent that printed material can be read almost as easily from the back as from the front (albeit as a mirror image). This in itself would be no problem were it not for the fact that the two sides of each sheet are logically independent entities: not only are they printed in separate operations, but the material appearing on one side bears little or no correlation with the material appearing on the other. However, in *designing* such pages, the effect of their back-to-back nature must be borne in mind, and a good design will attempt to ensure that each line of text on the obverse is matched by another line of text on the reverse. Of course, in practice this is not achievable; sections break up the flow of the text, as do illustrations and other graphics: but it must be the *intention* of the designer to achieve this line-for-line equivalence, and on this philosophy is predicated the whole concept of the *grid*.

The grid represents an abstract model of each page; special pages (e.g., chapter openings) may be afforded a special grid of their own, but normal ‘running’ pages will each use the same grid, onto which is mapped the various elements of the page. The grid can be perceived in a hierarchical manner: at its most superficial, it will have lines for the physical limits of the page, for the left and right limits of the text (or of the columns, if a multi-column work), for the upper and lower limits of the page body, and for the headline and footline. At the next level of refinement, the page body will be divided into lines of text (which is why most traditional specifications for books express the dimensions of the page body in terms of lines of text, rather than so many picas or so many inches or centimetres). Superimposed back-to-back, two of these grids will intermesh perfectly, each line of text on one side corresponding to a line of text on the other; the left edge of the text on the obverse will exactly align with the right edge of the text on the reverse, and so on (which has implications for the margins, as we shall see).

Of course, the grid is an ideal, but conformity to the grid must at times be allowed to be violated; if this were not the case, there would only be a finite number of positions at which a heading (for example) could appear above the text which it introduces: one line, two lines, three lines, etc. But such granularity is far too coarse for the aesthetic demands of real book design, and headings therefore need to be treated as special cases, allowed to float away from their ‘natural’ grid line whilst the paragraphs of text above and below the heading remain bound

to the grid. Illustrations and graphics, too, must be treated as special cases, and float within the white space equivalent to an integral number of lines of text, thereby themselves being independent of the grid whilst leaving their surrounding paragraphs locked firmly in place.

But sometimes the requirements of page make-up will dictate that a particular page be underfull: a paragraph, for example, may finish in such a way that there is insufficient room (e.g., only a single blank line) for a new paragraph to start; or there may be room for a heading but not for a heading plus post-heading vertical white space plus at least two lines of text. How, in those circumstances, can the contradictory requirements of uniformity and page makeup be reconciled? In the limiting case, there is no general solution which will always work, and practical (real-life) books may occasionally have to violate one or other constraint; but equally often there is a solution which is both elegant and aesthetically pleasing: violate, by the same amount, the constraint of uniformity for two facing pages (i.e., for a *spread*). If, for example, the verso (left-hand) page runs one line short, then *force* the recto (right-hand) to run one line short also; if the verso page would ideally run one line long, then allow it so to do, but require the matching recto page to run one line long also.

And in this concept of balancing the *spread*, as opposed to achieving uniformity between *all* pages, lies, I believe the essence of good design. For when the book is held open in the hand, or laid open on the desk or lectern, it is not a single page that is seen at all, but a double-page spread; and if the two facing pages of the spread appear uniform (uniform in greyness or visual density; uniform in placement of headline and footline; uniform in size of margins — outer margins the same size as each other, inner margins also the same size but not necessarily the same apparent⁴ size as the outer; and uniform in terms of gridlock, in that verso lines appear in perfect vertical alignment with their recto counterparts) and balanced (with both verso and recto page bodies starting at the same height from the bottom of the page, and extending for the same depth), then much will have been accomplished; and if this same uniformity and balance can be carried through every spread of the book (thereby avoiding problems of print-through and so on), then much

⁴ I use the term *apparent* here quite intentionally, for as we shall see, the apparent size of the inner margins is always less than their actual size, by an amount which is a function both of the thickness of the book and of the binding technique(s) used.

of the framework of good design will already be in place.

But there are many practical problems associated with the concepts of gridlock and balanced spreads; some of these are particularly true when using \TeX , whilst others are more general. Those that are particular to \TeX will be addressed in the sequel to this paper,⁵ whilst those that are more general are discussed below.

Considering first the problems of balanced spreads: it was suggested above that if the natural height for a verso page was one line short, or one line long, then it should be set to its natural size and its counterpart recto page *forced* to the same size. But what if the verso page naturally sets at the target size of the page, whilst the recto page runs one line light or one line over? If page makeup is performed on a page-by-page basis, then it is already too late to re-set the verso page, and either the recto page will have to be set to a non-natural size (if there is sufficient flexibility in the page makeup to allow this), or the balance constraint for the spread violated. And therefore we must postulate that any typesetting system intended for the production of well-designed books *must* be capable, at the very least, of setting a *spread* as an entity, rather than a page. Of course, this does not let us off the hook completely: for example, if the verso page naturally runs one line over, but the recto page finishes a paragraph at the natural height for the page, then it may not be possible to graft an additional line onto the recto page without violating some other (tacit) constraint; in these circumstances it may be necessary to backtrack even further, and to start asking questions such as “what if I were to set the preceding spread one line light, or one line over”, and so on; in the final analysis, the more decisions about page makeup that can be deferred, the better the final volume is likely to be. As computer memory becomes cheaper and cheaper, it is by no means unreasonable to think about optimising a complete chapter at a time.

And what of uniformity: what if a multiline quotation, set in a smaller font with correspondingly reduced leading, *must* appear as an entity on a page, whilst there is no matching quotation on the other (physical) side of the same page? Then print-through will undoubtedly occur for the duration of the quotation, and in the worst case there will be an interference effect as the lines of the quotation drift into and out of synchronism with

the lines of paragraph text on the other side. Here no matter how much material we accumulate can a makeup solution be postulated; and in the end we are dependent more on the skills of the paper maker in achieving near opacity than we are on our own skills in using and programming our typesetting system.

But there is much more to uniformity than simply gridlock and balanced spreads. Uniformity is a concept which percolates through every element of good book design. Consider, for example, the treatment of chapter headings, section headings, paragraphs, quotations and so on: in what sense can they, too, be made ‘uniform’? Clearly each must be unique, in order for the reader to immediately identify at what sort of entity he or she is looking; yet if they are not only unique but are also afforded wildly disparate typographic treatment, then any sense of coherence is lost and the book starts to take on the appearance of a mismatched hotchpotch of design ideas.

We might start by positing that there should only be a small number of different fonts used — ‘the fewer the better’ is hard to equal as an axiom for the selection of fonts! — whilst equally there should only be a small number of placements. For example, if paragraphs are fully justified (as would usually be the case for a book, although exceptions to this rule will be discussed elsewhere) and if section headings are set ranged left, then the book as a whole should probably restrict itself to these two styles of setting: it would normally be inappropriate to have centered headings in a book that otherwise has a fully-justified or ranged-left theme running through it. But if section headings are set ranged left (perhaps in conjunction with semantic line breaks⁶), whilst normal paragraphs are set fully justified, then quotations could either be set fully justified (like paragraphs) or ranged left (like section headings), but should probably not be set ranged right without good reason.

And what of indentation? Here two different schools of thought obtain. One would argue that the requirement of uniformity encompasses indentation, and that the indentation, once chosen, should apply to the whole book: thus, for example, lists would be indented by the same amount as paragraphs; quotations might be set with an additional left margin equal to this indentation; and the bibliography might be set with reverse indentation also equal to

⁵ Book Design for \TeX Users; Part 2: Practice, to appear in a subsequent issue.

⁶ A concept whereby a ragged-right setting is used in conjunction with ‘strongly recommended’ line breaks, thereby ensuring that complete ideas (phrases, clauses, sentences, etc.) are not unnecessarily split over two lines.

this same amount. The other would say that the requirements of clarity and lack of ambiguity dictate that a *different* indentation should be used wherever different entities occur, thereby giving the reader maximum indication of the nature of the entity being indented even on the most superficial glance at the page. I have sympathy with both points of view, but my inherently conservative background renders the former more appealing than the latter; I do not think I have yet seen an example in which the reader could have been misled had a uniform indentation been adopted. But this whole area transcends the boundary between *uniformity* (which suggests a uniform indentation), and *information* (which suggests different indentations for different purposes), and brings us naturally to the next section.

4 Information

The primary function of any book is to convey information; yet the preceding discussion has concentrated almost entirely on the aesthetics of book design, rather than on its rôle as a medium for the communication of information. However, provided that the two ideas do not come into conflict, a uniform and aesthetically pleasing appearance does much to assist the book in its communication rôle, for it allows the reader to concentrate on the text (i.e., the *information content* of the book) whilst not being distracted by its design (a fact which is sadly ignored by many of today's more *avant garde* designers). But there comes a point at which excessive adherence to the precept of uniformity would start to detract from the book's primary rôle as information source, and it is therefore to this area that we must now turn our attention.

Consider first of all the rôle of section headers: those single (or occasionally multiple) lines of text which serve to introduce the reader to the ideas which follow. This paper, for example, makes use of only a single level of section header, the author preferring to lapse into straight prose within each section; other authors, particularly those with a strong scientific background, feel happier if they can classify their ideas in a strongly hierarchical manner, and frequently have recourse not only to *A-heads* (as in this paper), but *B-heads*, *C-heads*, *D-heads* and even *E-heads* on rare occasions. The first requirement for such headers is that they shall, *unambiguously*, refer to the text which follows: it should not be possible, in a well-designed book, to mentally attach them to the preceding text. The means by which this is accomplished is simplicity itself, yet is so often violated in amateur-designed books and other documents that one wonders whether the idea

has ever occurred to their designers at all: the section header shall be physically closer to the text which it introduces than to the text which precedes it. Note that this is strictly a 'less than' relationship, not a 'less than or equals' one: the header must *never* be equi-spaced between the preceding and following texts. This rule has some interesting knock-on effects: for example, a header must *never* appear in isolation at the bottom of a page, for were it so to do, it would by definition be nearer to the preceding text than to the text which follows.

But in a strongly hierarchical book or paper, it is just as important that the different levels of header (A-head, B-head, etc.) shall be capable of being differentiated at a glance. How should this hierarchy of headers best be conveyed to the reader? We have available several options: (1) Higher-level headers may be separated from their preceding text by greater amounts of vertical white space than lower-level; (2) Higher-level headers may be separated from their qualifying (following) text by greater amounts of vertical white space than lower order; (3) Higher-level headers may be set in a larger font than lower-level; (4) Higher-level headers may be set in a bolder font than lower-level; (5) Some other typographic differentiation (e.g., the use of a *sans serif* font in a book or document otherwise set in a *serif* font) may be used for one or more levels of header; (6) Run-in headers may be used for the lowest level of header. Indeed, these are only some of the available options: for example, in some works a new page is taken for each new top-level section, even where that section is only one of many similar sections in a chapter.

Clearly the range of options is vast, and it is not possible in a paper of this brevity to give more than a few typical conventions, but one requirement is tantamount: if two or more conventions are adopted within a single document, then no combination of those conventions must lead to ambiguity. For example, if A-heads are set in 16 point roman, B-heads must not be set in 14 point bold, for the boldness of the B-head would counteract the effect of the smaller font and lead to ambiguity in the mind of the reader. Even if a bold font is not explicitly used, it is possible (by, for example, selecting an ill-matched *sans serif* font for B-level headers in an otherwise *serif* document) to accidentally specify an *apparently* bolder font for a subsidiary-level header. Such ambiguities must be avoided.

In what other ways can the book designer ensure that information is most clearly conveyed? Perhaps most important of all by ensuring that the book can be *read!* This goes without saying,

you may say, but there are sadly only too many counter-examples already published for this particular requirement to be omitted from any reasonably critical analysis. Perhaps we need to start by defining what we mean by “to read”; I suggest that if reading is to be conducted efficiently and pleasurably, then it must (for the normally-abled adult) be an almost unconscious activity. If I pick up a book hoping to gain information from it, then the *last* thing that I want is to have the designer’s personality forced down my throat (unless it is a book on book design, in which case I may be able to judge from the book’s design whether or not to bother to read it!); the design must therefore be very ‘quiet’ and unintrusive, allowing the content to flow naturally forth through the medium of the form, rather than having the form leap out from the page and distract the reader from the content. Naturally there are exceptions to this rule, and books on design clearly come into that category, being inherently self-referential, but generally speaking the reader wants to know as little about the designer and as much about the content as possible.

Furthermore, reading must be able to proceed in a linear and uninterrupted manner; it is well known that any infelicity on the part of the author which results in ambiguity in the reader’s mind will cause the latter to backtrack through the work, hoping to gain further clues and thereby disambiguate the text on a second or subsequent reading. Classic authors on grammar (Fowler, Weseen, Partridge, Onions, Gowers, Quiller-Couch, Sweet) pay much attention to this. But there are many typographic pitfalls which can also cause a reader to have to backtrack, and it is as important for the designer to avoid these as it is for the author to avoid the grammatical infelicities.

For example, during the 1930s, there was a great vogue for *sans serif* faces: they were modern, *avant garde*, stylish, modish—use whatever term you will. And particularly in North America, and to a lesser extent in Europe, such was the pressure to use these typefaces that their *raison d’être*—to provide a simple, minimalist, style for short sections of text which would not draw attention away from the main theme (frequently an accompanying graphic)—were forgotten, and they were advocated (and used) as *the* typefaces for every conceivable purpose. These purposes were not restricted to their classic use in headings, captions, posters, etc., but were instead extended to encompass even the running text of books; every page was set in *sans serif* text, with little feeling for the comfort and convenience of the reader. The effect on the reader

was all too predictable (with hindsight): readers found it difficult to concentrate on such books for any period of time, finding it tiring and even distressing; and the reason was very simple, although not well understood at the time: even though the *serifs* which characterise most of our classic typefaces today are in reality no more than artifacts dating back to the original letterforms of stonecutters (particularly in the case of upper-case letterforms), and later of typecutters, these *serifs* perform a very important function when the letterform occurs in running text: they serve to draw the eye naturally along the line of text, very much reducing the risk of the eye vacillating between two adjacent lines of text, and also help to minimise the amount of backtracking within a single line. And so, with the benefit of hindsight and of psychological and physiological research, it has now been established that the typeface of choice for passages of running text (as opposed to captions, etc., which extend for at most a few lines) is almost invariably a *serif* face. Sadly this fact is still occasionally ignored.

But if the choice of a *serif* face is almost mandatory to avoid vacillation between lines of text and backtracking within a single line, what other psychological or physiological factors can also affect the readability of the text? Perhaps the most important of all, and one for which plain $\text{T}_{\text{E}}\text{X}$ sadly gives most inappropriate guidance, is the size of font with respect to the *measure* (i.e., the width) of the text. Plain $\text{T}_{\text{E}}\text{X}$ is predicated on the use of 10 point fonts on a measure of 6.5 inches (39 picas), which simply gives far too many characters per line. Psychologists have shewn that the optimal number of characters per line for normally sighted people lies in the range 40–70, and peaks somewhere near the upper bound of that range; below it, people become frustrated: they are forced to take in too little information per glance; and above it, they tend to lose their place, and either backtrack within the line, or on re-scanning to the start of the next line, lose their vertical place and re-scan to the start of the wrong line. Even $\text{L}^{\text{A}}\text{T}_{\text{E}}\text{X}$, which generally gives better guidance than plain $\text{T}_{\text{E}}\text{X}$ in matters of typographic design, allows the user complete freedom to select between 10 point, 11 point and 12 point fonts, regardless of the style chosen and therefore of the measure of the text. For European readers, accustomed to the DIN series of paper sizes, the best guidance I can give is as follows: if you are setting on a sheet of A4 paper (which is unlikely for a book but quite possible for a report or other similar document), with ‘normal’ margins (circa 1 inch), then a 12 point font is called for; you can get

away with 11 point, but 10 point is out of the question. The same goes for North American readers with 1 inch margins on a sheet of American ‘letter’ paper, 8.5" × 11". And for a book? Well, ‘how big is a book’ is a question to which I will return in the sequel to this paper, but generally speaking books *are* set in 10 point typefaces; however, as the width of the paper increases, two columns become obligatory or pathologically large margins become required.⁷ In unusually small books, 9 point fonts may be used, but anything less than this poses problems of legibility for normally sighted people.

In the preceding paragraph, I have spoken of a “10 point font” as if it were some sort of ISO standard; but sadly it is anything but. Fonts vary enormously both in their actual size (as measured), and in their perceived size, and the quoted size is at best an approximation and at worst a d@mned lie! For what it is worth, the notional size of a font is that distance which may separate consecutive lines of text in a paragraph set in that font without the descenders of one line overlapping the ascenders of the line below; it is also approximately the height + depth of a parenthesis glyph. But in practice one designer’s 10 point font may well be another’s 11 point; and if you are using two or more fonts in a single document, then it is your responsibility as designer to ensure that the size at which they are used renders them visually conformable, even if this means loading one at 10 point and another at 11 point (or even at 10.6347 point, if that represents the true ratio between their perceived sizes).

And for the leading: some authorities will suggest “1.2 times the design size of the font”; others will suggest “2 points more than the design size of the font”; and others will suggest yet further formulæ. The answer is, of course, that no one formula will be right for every font, or for every size, and until experience has given you the insight to look at a font sample and *know* the appropriate leading for the target font size, then you will have to use the most powerful tool available to you: your eyes. In other words, you will have to print samples of the text at various leadings (probably of the order of magnitude suggested by the formulæ above), and adjust until it looks right to you. But when you print these samples, you will come up against another, and very subtle, psychological quirk: assume you

do as most people do, and print your proofs on a laser printer; then your output will appear either on a sheet of A4, or on a sheet of ‘letter’ size paper, and most unusually on anything else. And try as you might, you will not be able to judge the size of the font and the size of the leading as they will appear in the final book form, even if you draw a box around your sample text to represent the dimensions of the final trimmed page; your eye/mind will refuse to believe that the white paper which lies outside that line is not attached to the text, and will judge the size of the text and the size of the leading in terms of the untrimmed sheet of A4 or ‘letter’ paper. The solution, of course, is to guillotine the paper to the final trimmed size, and then to paste two such trimmed sheets together (or to print a double page spread in the first place) and to look at a full-size replica of the final spread of the book; and then, and only then, will you be able properly to judge the size of type and the size of the leading in terms of the printed page.

5 Structure

Finally we turn our attention to *structure*, and in particular to the means by which a well-designed book can be efficiently referenced (and cross-referenced) in a quasi-random, rather than sequential, manner. At the coarsest level of granularity, a book is divided into volumes (if huge), parts (if large) and chapters (almost all books). Access to volumes need not worry us unduly: each will contain the name and/or number of the volume on the spine and front cover, and only if two or more volumes are concurrently open in front of the reader will it be necessary to be able to differentiate between volumes by inspection of only the open spreads.

Parts are not uncommon, but many of the potential problems associated with the identification of parts can be eliminated by sequential numbering of chapters independent of the part in which they happen to fall; with sequential chapter numbering, the reader can always be referred to *Chapter n*, without needing to qualify it as *Chapter n of Part m*.

But the most important division of the majority of books is into chapters, and here we must start our investigations into *structure* in earnest. Consider the classic case of a multi-chapter, single-volume, book, with a table of contents (‘TOC’) among the *front matter* (a.k.a. ‘the prelims’). The reader wishing to access the book through the TOC consults the latter and sees, for each chapter, its number, its name (if the chapters are named), and the page on which it commences. Selecting a chapter from those

⁷ I am advised by a North American student that it is the practice in North America for students to annotate their books; for this reason, they *expect* far wider margins than European readers, which may explain something about the default L^AT_EX styles.

listed, the reader flicks through the pages looking for the page on which the chapter starts. This is not a random search: the page numbers increase monotonically with period 1, and if the reader overshoots he or she is invariably sufficiently familiar with the general concept of a book to realise that it is necessary to backtrack.⁸ But an interesting phenomenon occurs as the reader converges on the page of interest, at least in many less-than-optimal books: the page numbers (*folios*, as they are frequently termed) traditionally alternate between top-left and top-right, occupying the top-left placement on verso pages and top-right on recto; this placement is believed to make them maximally visible. But on opening chapter pages it is traditional to suppress the running head ('headline'), because the design of these pages (discussed in greater detail in the sequel to this paper) is such that a running head is generally considered aesthetically displeasing. And therefore the very page which (logically) bears the number sought is also the very page which (physically) has no page number on it; and the reader is forced to perform a narrow binary search to ensure that the page of interest has truly been located, by comparing the last physical page number which can be found (and which will, in the worst case, not even be visible from the page of interest, if the previous chapter happens to finish recto, since it is also traditional to start new chapters recto and a completely blank page will therefore form the verso half of the spread) and the next physical page number, which will invariably also be invisible from the page of interest. Of course, the name and/or number of the chapter will be visible on the sought page, and it will be clear from its design that it *is* an opening chapter page, but none the less the reader who until then has been searching for a specific page number is forced to modify his/her search algorithm.

The solution generally advocated for this problem is to present the page number on opening chapter pages as a *drop(ped) folio*: a centered page number occupying a part of the footline. The percipient reader soon becomes familiar with this convention, and modifies his/her gaze to take in the bottom

⁸ It is interesting to realise that the scenario outlined is the converse of what usually happens in practice: because books are generally either laid on the desk/lectern or held in the right hand with the highest number page at the bottom, it is far more natural for the reader to make a *backwards* search through the pages until the desired page is found, or until overshoot occurs, than it is to make a *forwards* search. This is because it is far easier to raise a number of pages, frequently almost the entire page set, in one hand and allow them to fall back individually under the effect of gravity than it is to lift each page individually whilst seeking the page of interest.

of the page rather than the top outside edge when reaching an opening chapter page. But if dropped folios are acceptable on opening chapter pages, why not use them consistently throughout the book? This would have two beneficial effects: (1) the reader would be able to find *any* page in the book by studying the same part of every page, regardless of the nature of that page, and (2) additional space would be released in the running heads for additional cr(oss-)referencing material, space which as we shall see becomes of a premium as the complexity (in terms of explicit hierarchical structure) increases.

Once we have ensured that page numbers occur on *every* page (blank pages excepted, since by definition no possible well-formed (cross-)reference could require the reader to turn to such a page), we have at a stroke ensured that our tables of contents, indexes, etc., all of which generally yield a *page number* when 'dereferenced' (consulted), will invariably result in a hit rather than a miss. We must now turn our attention to other techniques for (cross-)referencing, and in particular methods for locating logical sub-divisions of the book (e.g., sections, sub-sections, etc.) by their *name*, and also by their *number* if such entities are numbered.

Generally speaking, the names and numbers of logical sub-divisions are used for cross-referencing (i.e., referencing from within the text), rather than for direct referencing (e.g., from a table of contents or an index); but regardless of the source of the reference, the reader will ultimately be required either to *see Section 2.1.4* or to *see also Lagopus hyperboreus*—in neither case will the reader explicitly be instructed to turn to a specific page. It is frequently possible to convert one of these *indirect* references into a *direct* reference to a page number, by consulting the appropriate table of contents or index, but this two-stage process is both frustrating and time-wasting: a more direct method is required.

The mechanism by which this direct access to named or numbered logical sub-divisions of a text is generally accomplished is through the medium of *running heads*; these have been referred to previously in the current paper without any formal definition being given of their nature or purpose. A running head is so called because it recurs on (almost) every page; opening chapter pages and blank pages are usually excluded from the set of pages on which a running head can occur, and if an entire page is given over to an illustration then that page too may be excluded; but special cases apart, running heads occur on every page. But of course the *content* of the running head varies from page to page: were it

not so, there would be no purpose to the running head at all (which is also frequently the case when it is used to echo the title of the book on every page or every second page; the reader is normally aware of the title of the current work, although there are counter-examples, as when consulting many works at once; thus the echoing of the title is not necessarily evidence of poor design). In general, the content of the running head is adjusted to reflect the content of the page over which it appears; thus, for example, if *Section 2.1.4: metalinguistic notions* commenced on page 23, the running head of page 23 would almost certainly reflect that fact. But in a hierarchically structured work, there are potential conflicts; consider a book with chapters, sections and sub-sections: which of these entities should the running head reflect? A convention frequently adopted is to ascribe different semantics to the verso and recto heads: the verso carries ‘more significant’ information (e.g., the name/number of the chapter), whilst the recto head carries ‘less significant’ information (e.g., the section name/number). Yet this is not enough: where should the sub-section information appear? Ultimately there is no solution to this problem: if the book is sufficiently complex (i.e., possesses too deep a nesting), then no matter how complex an arrangement of headers is adopted there will be a level of nesting beyond which it is simply not possible to reflect lower-order entities in the header. The designer, then, must perform a trade-off, and decide which information is most beneficial to the reader. Omissions are possible at either or both ends of the spectrum: it may be that knowledge of the name of the current chapter is less important than knowledge of the current section/subsection/sub-subsection/sub-subsubsection; or it may be that knowledge of the chapter is deemed more important than knowledge of the current sub-sub-etc. The designer and author must work together on this problem.

But there is one additional mechanism which is considerably under-used, yet which allows twice as much information to be packed into each header: if folios are removed to the footline, thereby releasing the outer edge of each running head for other usage, then provided that the author can be encouraged to provide *short* names for each of his/her chapters/sections/etc., each running head can serve double duty. For example, verso heads can carry (left) chapter name/number, whilst carrying (right) section name/number; recto heads can then carry (left) sub-section and (right) sub-sub-section. Adequate space must clearly be left between the two elements to avoid potential ambiguity.

Finally, is it the *name* or the *number* of each logical entity which is to appear in the header? Above I have hedged my bets by consistently referring to name/number, yet at some point a decision must be made. If space allows, and if the author co-operates by providing short names, then there is no reason why *both* should not appear; with less space, or longer names, it may be necessary to omit the numbers in order to allow the names to appear; and if the author is unconscionably prolix in naming the various entities, then the designer may have little choice but to simply give the hierarchical name (e.g., *Chapter, Section*) followed by the relevant number. But this last serves the author rather than the reader, and pressure should be brought to bear on the author to provide suitable ‘short forms’ purely for use in the running heads. Of course, some works use *only* numbered entities; in such works, there is no choice: the hierarchical names (if appropriate) and numbers must be used.

6 Conclusions

Good book design can be discussed in terms of three parameters: *uniformity, information* and *structure* (although there are many other parameters which would be addressed in a longer paper), and attention to each of these will do much to increase the potential value of a book to its readers. More practical advice is given in the sequel to this paper: “Book Design for T_EX Users; Part 2: Practice”, which will appear in a future issue.

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Abstracts

Die T_EXnische Komödie Contents of Some Past Issues

8. Jahrgang, Heft 1/1996 (Juni 1996)

Luzia DIETSCHÉ, Editorial; p. 3

A short statement commenting on the current issue, in particular, its newly developed layout, and a new section ‘From the properties room’ on selected material from CTAN.

- *Hinter der Bühne : Vereinsinternes*
[Backstage : Club matters]; pp. 4–19:

Joachim LAMMARSCH, Grußwort
[Welcome message]; pp. 4–5

A short comment on club matters by the president of DANTE. In particular, DANTE will upgrade its CTAN server and offer TUG the predecessor (a SUN Sparc 10 workstation) as a replacement for the CTAN server in Houston, Texas (see page 24).

[Luzia DIETSCHÉ],
Protokoll der 14. Mitgliederversammlung von DANTE, Deutschsprachige Anwendervereinigung T_EX e.V. [Protocol of the 14th assembly of members of DANTE]; pp. 5–15

This is the official report on the members’ meeting held in Augsburg (March 28, 1996). As usual, it treats formal matters and includes short accounts on the various hardware platforms, `german.sty` and other special topics (as presented by the appointed coordinators), followed by a report on the situation of DANTE (mainly organizational matters). Two new books are mentioned: *L^AT_EX-Vademecum. Ein Kompaktführer für Einsteiger und Fortgeschrittene* by Axel Heilmann (Springer, 1996) — see page 60 — and *Erste Arbeiten mit T_EX* by Arnulf Liebing (Prentice Hall, 1996). Finally, a member proposes to create a new position (honorary president) and this proposal is discussed.

Friedhelm SOWA, Kassenbericht für Zeitraum 1.1.1993 – 31.12.1993 [Report of the treasurer for the year 1993]; pp. 16–17

Finally, after many problems, the treasurer’s report for 1993 is available and published here.

Joachim LAMMARSCH, Ein Brief an die *c’t*
[A letter to *c’t*]; p. 18

This a short letter to the editor of *c’t*, a German computer journal, which — in a survey of

shareware — has published an article on T_EX. The president of DANTE criticizes the article as ‘slightly out of date’ since “there are only rarely users which really apply T_EX today. Without doubt and for several years now the actual trend has been in favour of L^AT_EX which is much easier to apply.” Moreover, he gives additional sources (CD-ROM) for T_EX which he missed in the article. (Excerpts of this letter have been published in *c’t* 7/96, page 11.)

Luzia DIETSCHÉ, Das CJK-Paket – Korrekturen
[The CJK package – Errata]; p. 19

Three corrections of errors in the article by Werner Lemberg, *Das CJK-Paket für L^AT_EX_{2 ϵ}* (issue 4/1995).

- *T_EX-Theatertage*
[T_EX theatre festival]; pp. 20–23:

Henning MATTHES, Bericht von der
Frühjahrstagung in Augsburg [Report from the
spring meeting in Augsburg]; pp. 20–23

A personal account of DANTE ’96 (March 26–29, 1996). The author describes a successful and well organized meeting, but also notes that the number of participants decreases from year to year and that there are only few newcomers. Perhaps, he closes, the concept of the meeting needs fresh ideas.

- *Von fremden Bühnen* [On other stages]; p. 24:
`ftp.shsu.edu`; p. 24

On June 20, 1996, the CTAN server at SHSU in Houston, Texas, stopped its services. This (bad) news is formatted as an announcement of death.

- *Aus dem Fundus : Nützliches aus CTAN und anderen Quellen* [From the properties room : Useful tools from CTAN and other sources]; pp. 25–42:

Gerd NEUGEBAUER, Von “krakelig” bis “wie gemalt” [From “scrawled” to “like painted”]; pp. 25–42

A survey of fonts imitating text written by hand (with samples).

- *T_EX-Beiprogramm* [T_EX co-features]; pp. 43–57:
Bericht des technischen Beirats
[Report of the technical council]; pp. 43–56

A collection of short reports (by the appointed coordinators) on the various hardware platforms and other special topics, supplementing those of the protocol (p. 5). In particular, Jörg Knappen reports

on version 1.2 of the dc-fonts (including the *tc(text companion)*-fonts), and Christa Loeser on MeDoc (= *Multimedial Electronic Documents*) and MATH, an online publishing project.

Martin SCHRÖDER, \TeX ies, fahrt nach Heidelberg! [Go to Heidelberg, \TeX ies!]; pp. 56–57

Pointers to an exhibition in the library of the university in Heidelberg which presents old documents (beautiful handwriting!), its interesting (but badly formatted) catalogue, and a volume on the art of book printing in Germany 1951–1990 (Hans Peter Willberg: *40 Jahre Buchkunst*, Frankfurt am Main 1991).

◦ *Leserbriefe* [Letters]; pp. 58–59:

Peter WILLADT, Orale Spielereien – Teil III, Heft 4/95 [Oral games – part III, issue 4/95]; pp. 58–59

In his comment on Bernd Raichle's article (cited in the title) the author gives a short piece of code that compares two numbers and will never produce a $\backslash\text{relax}$, but is not fully expandable. Bernd Raichle comments on this letter and corrects an error in his article.

◦ *Rezensionen* [Reviews]; pp. 60–61:

Klaus HÖPPNER, \LaTeX -Vademecum – Ein Kompaktführer für Einsteiger und Fortgeschrittene [\LaTeX vademecum – A compact guide for new and advanced users]; pp. 60–61

A review of a book (by Axel Heilmann) with this title (Springer-Verlag Berlin Heidelberg 1996). The bottom line: In spite of some weaknesses concerning details, the book is a reference on $\LaTeX 2_{\epsilon}$ suitable for advanced users or those changing over from $\LaTeX 2.09$.

◦ *Spielplan* [Repertory]; pp. 62–63:

The international and national calendar.

◦ *Adressen* [Addresses]; pp. 64–67:

Various addresses related to DANTE, the addresses of everyone who has contributed to this issue, and the addresses of the coordinators in charge of the various hardware platforms and other special topics.

8. Jahrgang, Heft 2/1996 (August 1996)

Luzia DIETSCHKE, Editorial; p. 3

A short statement by the editor commenting on the current issue. In particular, she mentions the crossword puzzle (page 69) and the reprint of an

article by Donald E. Knuth copied from the WWW. The reaction to the journal's new layout has been essentially positive.

◦ *Hinter der Bühne : Vereinsinternes* [Backstage : Club matters]; pp. 4–9:

Joachim LAMMARSCH, Grußwort [Welcome message]; pp. 4–6

A short comment on club matters by the president of DANTE: Due to technical reasons, there has been a delay in performing the bank invoice of the membership dues. The new CTAN server has been installed, its predecessor will be presented to TUG and probably be operated by Karl Berry in Boston. Publishers of \TeX CD-ROMs have shown little interest in replacing distributions which contain the bad version of the Slackware-Linux distribution with the damaged font files (cf. the article on page 10).

Friedhelm SOWA, Kassenbericht für Zeitraum 1.1.1994 – 31.12.1994 [Report of the treasurer for the year 1994]; pp. 6–9

Following the report for 1993, the treasurer's report for 1994 is also available and published here.

◦ *Von fremden Bühnen* [On other stages]; pp. 10–13:

Donald E. KNUTH, Important Message to all Users of \TeX (in English); pp. 10–13

(This article is copied from Knuth's WWW page.) Some versions of the Slackware Linux distribution (around 1995 and 1996) contain CM fonts with changed font metrics. They can be recognized (for $\text{cmr10}\ \backslash\text{rm}$) by checking $\backslash\text{setbox0}=\backslash\text{hbox}\{\text{ho}\}\backslash\text{showbox0}$.

\TeX must show a $\backslash\text{hbox}$ of width 10.55559 (not 10.31947, as with the bad fonts). Moreover, in the spring of 1992 Knuth made some important corrections (without changes in the font metrics) to the Computer Modern fonts which can be recognized from the improved shape of the $\backslash\text{delta}$ symbol. Bad or obsolete fonts should be replaced!

◦ *Bretter, die die Welt bedeuten* [The stage is the world]; pp. 14–43:

Markus KOHM, *Koma-Script* – Eine Alternative zu den Standardklassen? [*Koma-Script*—An alternative to the standard classes?]; pp. 14–33

Koma-Script is based on the document style family *Script* developed 1992 for $\LaTeX 2.09$ by Frank Neukam. Since 1994 Markus Kohm has been (re)implementing (and extending) it for use

with $\text{\LaTeX}2_{\epsilon}$. It offers replacements for the four main classes of \LaTeX (`article`, `report`, `book`, and `letter`) which are better suited for German (European) typography and are more flexible, as well. In this article Markus Kohm describes the main features of his package and the design principles: The page format is computed from prescribed parameters by typographical rules (mainly following advice by Tschichold). There are also tools for customizing the title page and the table of contents. Default headings are smaller than in the standard classes, headlines and footlines are changed and offer more options. Moreover, additional flexibility has been added for sectioning commands (unnumbered sections, `\minisec`, i.e., a command for auxiliary headings, and a `labeling` environment).

Bernd RAICHLE, *Orale Spielereien – Teil III (Addendum)* [Oral games – part III (addendum)]; pp. 33–37

Following a suggestion by David Kastrup, Bernd Raichle shows how the macro `\CheckForRelax` (described in part III) can be used to implement a fully expandable and generally applicable comparison test for numbers that does not have the flaws of the solutions discussed earlier (issue 7/4, pp. 15–29).

Ulrich BREYMAN, *Dokumentation von C-Programmen* [Documentation of C programs]; pp. 37–43

The author describes his `c.sty`, a simple tool that allows to include a C program file into \LaTeX files. The code is typeset `verbatim` and the comments are typeset as \LaTeX input (which has to follow some minor restrictions). (The \TeX code of `c.sty` is reprinted but not commented.)

- *Aus dem Fundus : Nützliches aus CTAN und anderen Quellen* [From the properties room : Useful tools from CTAN and other sources]; pp. 44–53:

Gerd NEUGEBAUER, *Tafel-Fett* [Blackboard bold]; pp. 44–53

In mathematical texts, very often uppercase letters with an additional vertical stroke are used for sets of numbers (like natural numbers, real numbers, etc.). Originally, this convention was derived from a way used to represent boldface on a blackboard but it is now widely used in print, too. Answering a FAQ, this article surveys how to represent such sets in \TeX , either by macro solutions or, in particular, with the help of suitable fonts (AMSFonTS, `bbold`

by Alan Jeffrey, `doublestroke` by Olaf Kummer, `bbm` by Gilles F. Robert). (Font samples are given.)

- *Was Sie schon immer über \TeX wissen wollten ...* [What you always wanted to know about \TeX ...]; pp. 54–55:

Bernd RAICHLE, *Roman statt Italic in mathematischen Formeln* [Roman instead of italics in mathematical formulas]; pp. 54–55

It is a frequently asked question how to replace math italics by roman letters for use in chemical formulas. The author shows how this should be done in $\text{\LaTeX}2_{\epsilon}$.

- *\TeX -Beiprogramm* [\TeX co-features]; pp. 56–69:

Ulrik VIETH, *\TeX Live – Die erste TDS-konforme ready-to-run* [\TeX Live – The first ready-to-run \TeX -CD-ROM based on TDS (for Unix systems and other platforms)]; pp. 56–63

‘ \TeX Live’ offers a ready-to-run installation of \TeX based on `teTeX` by Thomas Esser, including binaries for 23 Unix platforms, which implements TDS—the new \TeX directory structure. For platforms other than Unix it can be used as a well-organized source for fonts, macros, and documentation complying with this standard. It will also help to maintain \TeX on servers of networks (e.g., universities). It is the result of a joint project by TUG, UK TUG, and GUTenberg.

Peter NÜCHTER, *Beschleunigung eines \LaTeX -Durchlaufs* [Accelerating the \LaTeX cycle]; pp. 64–66

\LaTeX has a large overhead caused by loading various packages before `\begin{document}` can be executed. This overhead is annoying, in particular when compiling short documents. But it can be avoided by generating a format file containing all the standard material which is never changed. Bernd Raichle has added a remark in which he points to `mylatex.ltx`, a macro package by David Carlisle, which helps to do this right and avoid some mistakes.

Klaus LAGALLY, *Das alternative $(\text{\La})\text{\TeX}$ -Glossar – Addendum* [The alternative $(\text{\La})\text{\TeX}$ glossary – addendum]; pp. 67–68

More ‘definitions’ of \TeX and \LaTeX commands (cf. also the first part, issue 7/4, pp. 43–47).

$(\text{\La})\text{\TeX}$ -Rätsel [($\text{\La})\text{\TeX}$ puzzle]; p. 69
A crossword puzzle of \TeX terms.

- *Spielplan* [Repertory]; pp. 70–71:
The international and national calendar.

- *Adressen* [Addresses]; pp. 72–75:

Various addresses related to DANTE, the addresses of everyone who has contributed to this issue, and the addresses of the coordinators in charge of the various hardware platforms and other special topics.

8. Jahrgang, Heft 3/1996 (Dezember 1996)

Luzia DIETSCHÉ, Editorial; p. 3

A short statement commenting on the current issue. Together with it two CD-ROMs containing an (almost) complete copy of CTAN are distributed to the members of DANTE.

- *Hinter der Bühne : Vereinsinternes*
[Backstage : Club matters]; pp. 4–25:

Joachim LAMMARSCH, Grußwort
[Welcome message]; pp. 4–5

A short comment on club matters by the president of DANTE: Due to technical reasons, the bank invoice of the membership dues has still not been performed. As a special offer for members, back volumes of the *Komödie* are available at a special reduced rate.

[Luzia DIETSCHÉ],
Protokoll der 15. Mitgliederversammlung von
DANTE, Deutschsprachige Anwendervereinigung
T_EX e.V. [Protocol of the 15th assembly of
members of DANTE]; pp. 6–21

This is the official report on the members' meeting held in Hamburg (October 10, 1996). As usual, it treats formal matters and includes short accounts on the various hardware platforms, `german.sty` and other special topics (as presented by the appointed coordinators), followed by a report on the situation of DANTE (mainly organizational matters). Some of the items treated are the following: Cooperation with TUG has improved (CTAN server, CD-ROM 'T_EX Live'). Since the number of members of DANTE decreases, new strategies have to be considered. Joachim Lammarsch has visited Donald E. Knuth. ϵ -T_EX version 1.1 is available.

Diskussionsgruppe "BELICHTER", DANTE E.V.,
Eine eigene Lichtsatzanlage für DANTE e.V.?
[Their own phototypesetter for DANTE e.V.?];
pp. 21–25

In September 1994 it was proposed that DANTE should buy a professional phototypesetter in order to make high-quality (high-resolution) printing available to members at a low price. In reaction to

this proposal a discussion group was formed. In this final report the group comes to the conclusion that (due to financial reasons) this plan is not feasible.

- *T_EX-Theatertage*
[T_EX theatre festival]; pp. 26–30:

Volker RW SCHAA, Bericht von der 17. Tagung
der TUG – (Cyr)TUG 96 in Dubna [Report on
the 17th TUG meeting – (Cyr)TUG 96 in Dubna];
pp. 26–30

A report on TUG'96 on 'Polymath-Polytechnic-Polyglot' held in Dubna (July 28–August 2, 1996), the first such meeting in a country using a non-Latin alphabet.

- *Bretter, die die Welt bedeuten*
[The stage is the world]; pp. 31–35:

Andreas SCHLECHTE, *Make-Index* – Dem Fehler
auf der Spur [*Make-Index* – Tracing the error];
pp. 31–35

Make-Index with option `-g` may produce surprising output. The bug is caused by wrong string handling: After conversion a string may overwrite parts of another string. The author shows how to patch the program to remove this bug.

- *Aus dem Fundus : Nützliches aus CTAN und anderen Quellen* [From the properties room : Useful tools from CTAN and other sources]; pp. 36–56:

Gerd NEUGEBAUER, Das unentdeckte Land
[The undiscovered country]; pp. 36–56

This article describes in detail how PostScript fonts found on the net can be installed for T_EX. It is based on the `fontinst` package by Alan Jeffrey and uses fonts inspired by the StarTrek series as examples, thus also providing a survey of such fonts (with samples). However, a note added remarks that most of the URLs given are no longer valid due to the ever-changing nature of the WWW.

- *T_EX-Beiprogramm* [T_EX co-features]; pp. 57–68:

Bericht des technischen Beirats
[Report of the technical council]; pp. 57–64

A collection of short reports (by the appointed coordinators) on the various hardware platforms and other special topics, supplementing those of the protocol (p. 6). Three new German T_EX books are listed: *Einführung in L^AT_EX_{2 ϵ}* . *Lehrbuch und Referenz* by Karsten Günther, *L^AT_EX, Bd. 3: Erweiterungen* by Helmut Kopka, and *Das Vieweg L^AT_EX_{2 ϵ} -Buch – Eine praxisorientierte Einführung*

by Rames Abdelhamid (third revised and extended edition).

Das Redaktionsteam, (L^A)T_EX-Rätsel: Die Auflösung [(L^A)T_EX puzzle: the solution]; pp. 64–68

The story of the crossword puzzle (issue 8/2, p. 69) and its solution.

◦ *Leserbriefe* [Letters]; p. 69:

Jörg KNAPPEN, Tafel-Fett, Heft 2/96 [Blackboard bold, issue 2/96]; p. 69

A short additional remark on the `mathbbol` package: How to obtain the uppercase Greek letters and the numbers of Alan Jeffrey's font.

◦ *Rezensionen* [Reviews]; pp. 70–75:

Gerhard WILHELMS, Eine etwas andere Buchrezension [A book review of another kind]; pp. 70–75

This is the review of the book *Die PostScript & Acrobat-Bible. Was Sie schon immer über PostScript und Acrobat/PDF wissen wollten* [*The PostScript & Acrobat bible. What you always wanted to know about PostScript and Acrobat/PDF*] by Thomas Merz (dpunkt.verlag 1996). The review is told in the style of the story of a sorcerer (or wizard) and highly recommends the book which tells not only *what* PostScript can do but also *how* it can be done and which comes with a CD-ROM that contains all the necessary tools. (An English translation of the book is available from Springer.)

◦ *Spielplan* [Repertory]; pp. 76–79:

The international and national calendar, and the announcement of DANTE'97 in Munich.

◦ *Adressen* [Addresses]; pp. 80–83:

Various addresses related to DANTE, the addresses of everyone who has contributed to this issue, and the addresses of the coordinators in charge of the various hardware platforms and other special topics.

8. Jahrgang, Heft 4/1996 (Februar 1997)

Luzia DIETSCHKE, Editorial; p. 3

A short statement commenting on the current issue which contains a wide range of topics. Its production required 22 macro packages—a new record.

◦ *Hinter der Bühne : Vereinsinternes* [Backstage : Club matters]; pp. 4–7:

Joachim LAMMARSCH, Grußwort [Welcome message]; pp. 4–7

A short comment on club matters by the president of DANTE: The bank invoice of the membership dues has been performed. The double CD-ROM included with the last issue was a great success, and the workstation donated to TUG will soon be operating as a server for CTAN. The letter of thanks by TUG president Michel Goossens is reprinted.

◦ *Bretter, die die Welt bedeuten* [The stage is the world]; pp. 8–40:

Jörg KNAPPEN, Ankündigung: Die ec-Schriften 1.0 sind da! [Announcement: The ec-fonts 1.0 are ready!]; pp. 8–9

A short note announcing the official release of version 1.0 of the Extended Computer Modern (ec-fonts) fonts.

Andreas SCHLECHTE, Theoremverzeichnisse automatisch erstellen [Automatic generation of theorem listings]; pp. 9–16

This article describes `newthm`, an extension (developed by the author) of the `theorem` package by Frank Mittelbach. It provides tools for the convenient generation of lists of theorems, and commands which allow one to change the numbering of theorems. It may require up to four runs of L^AT_EX to get all the references right! (The package can be found on CTAN in `/macros/latex/contrib/other/newthm`.)

Herbert BERGER, Erfahrungen bei der Anwendung von plain T_EX und Edmac auf die Leibniz-Edition [Experiences when applying plain T_EX and Edmac to the Leibniz edition]; pp. 16–22

The Leibniz archive Hannover (in cooperation with other institutions) is preparing an edition of the *Collected Works* of Gottfried Wilhelm Leibniz (philosopher and mathematician). 29 volumes have already been published. While some working groups are using TUSTEP, a program well-established in the humanities, it cannot be used for mathematical texts. Thus T_EX (emT_EX) with Edmac (a package for historical-critical editions developed by John Lavagnino and Dominik Wujastyk) was chosen, and has been used since 1993. However, Edmac was not sufficient to obey the strict formal requirements of the edition. Therefore, additional macros had to be developed (up to now about 60kB of files). In the

meantime, more than 1000 pages of text have been entered.

This is a report on the problems which were encountered and how they have been solved. Surprisingly, one of the problems was that Edmac is not well-suited for mathematics! The article includes a sample page of the edition.

Marion NEUBAUER,
Feinheiten bei wissenschaftlichen Publikationen
– Mikrotypographie-Regeln, Teil I [Fine points
of scientific publishing – microtypographic rules,
part I]; pp. 23–40

‘Microtypography’ means the fine-tuning of the text after its contents and layout have been finished: The contents—the idea—have highest priority, but: “An excellent publication is also marked by an elegant presentation!” There is no standard source for microtypography. Advice is scattered in many books, and is sometimes contradictory. This article attempts a survey of the rules for German text (with some additional rules for foreign languages) and how they can be followed in L^AT_EX. The present first part deals with abbreviations, acronyms, units, quotes, punctuation, special symbols, electronic mail addresses, and ligatures. 25 references—eight of which are suitable for further study—are given.

- *Aus dem Fundus : Nützliches aus CTAN und anderen Quellen* [From the properties room : Useful tools from CTAN and other sources]; pp. 41–53:

Gerd NEUGEBAUER, Genealogisches
[Genealogic matters]; pp. 41–53

The DUDEN (the ‘bible’ of correct German) contains a list of genealogical symbols. The author describes his search for these symbols. This is used as an opportunity to survey and display various symbol fonts.

- *Was Sie schon immer über T_EX wissen wollten ...* [What you always wanted to know about T_EX ...]; pp. 54–55:

Rainer SCHÖPF, Seitenumbrüche in Listen
[Page breaks in lists]; pp. 54–55

The answer to a frequently asked question: How to prevent unwanted page breaks with the L^AT_EX_{2_ε} command `\@nobreaktrue`.

- *T_EX-Beiprogramm* [T_EX co-features]; pp. 56–59:

Peter MISCHKE, Eine T_EX-Umgebung für OS/2
[A T_EX environment for OS/2]; pp. 56–59

Jürgen Hanneder has described the use of AucT_EX as an OS/2 T_EX shell (issue 7/2, pp. 38–41). This article suggests EPM T_EX as an alternative. EPM T_EX is an extension (by Jonathan Hacker and Rodney Korte) of the powerful (but little known) EPM OS/2-editor.

- *Spielplan* [Repertory]; pp. 60–63:

The international and national calendar, with the announcement of DANTE’97 in Munich, and an advertisement for a book (*Das T_EXikon* by Stefan Schwarz and Rudolf Potucek).

- *Adressen* [Addresses]; pp. 64–67:

Various addresses related to DANTE, the addresses of everyone who has contributed to this issue, and the addresses of the coordinators in charge of the various hardware platforms and other special topics.

(compiled by Peter Schmitt)

Calendar

1998

- Mar 22–24 **T_EX Northeast TUG Conference**, T_EX/L^AT_EX Now, Loews Hotel, New York City. For information, check the link from the TUG home page, <http://www.tug.org>, or write to the committee at tex-nyny@ccrwest.org.
- Mar 29– Apr 1 EuroT_EX '98, St. Malo, France. For more information, visit <http://www.ens.fr/GUTENBERG/manif/eurotex98/index.html> or contact Michele Jouhet (michele.jouhet@cern.ch).
- Apr 20–23 Workshop RLA2C: Speaker Recognition and its Commercial and Forensic Applications, Avignon, France. For information, see <http://lia.univ-avignon.fr/RLA2C>.
- Apr 21 DANTE T_EX–Stammtisch, K ln, Germany. For information, contact Daniel Schlieper (Daniel.Schlieper@uni-koeln.de) or visit <http://www.uni-koeln.de/themen/texmf/lokal/termine.html#stammtisch>. Fourth Tuesday, 20:00, ZPR Seminarraum (in basement), Weyertal 80, 50931 K ln.
- Apr 30– May 3 GUST 6th Annual Meeting, Bachotek, Poland: T_EX — A Standard for Scientific and Technical Publishing. For information, contact Jola Szelatyńska, mjsz@cc.uni.torun.pl.
- May 7 DANTE T_EX–Stammtisch at the Universität Bremen, Germany. For information, contact Martin Schröder (MS@Dream.HB.North.de; telephone +49-421-2239425). *Regular schedule*: First Thursday (if not a holiday), 18:00, Universität Bremen MZH, 28359 Bremen, 4th floor, across from the elevator.
- May 7 DANTE T_EX–Stammtisch at the Universität Karlsruhe, Germany. For information, contact Klaus Braune (braune@rz.uni-karlsruhe.de; telephone 0721/608-4031). *Regular schedule*: First Thursday (if not a holiday), 19:30, Rechenzentrum der Universität Karlsruhe, Zirkel 2, 3.0G Raum 316.
- May 12–15 EPS4SE-98: Electronic Publishing Systems for Science and Education, Pereslavl Zalesskii, Russia. For information, visit http://www.botik.ru/PSI/EmNet_NIS/EPS4SE_98.html.
- May 14 DANTE T_EX–Stammtisch, Berlin, Germany. For information, contact Rolf Niepraschk (niepraschk@ptb.de). Second Thursday, 19:00, Gaststtte “B rensch nke” near the U-Bahnhof, “Oranienburger Tor”.
- May 18 UK TUG, Oxford University Press: “Multiple use of digital documents”.
- May 26 DANTE T_EX–Stammtisch, K ln, Germany. (For details, see Apr 21.)
- Jun 3–5 SSP 20th Annual Meeting, Society for Scholarly Publishing, San Diego, California. For information, visit <http://www.edoc.com/ssp/> or write to ssp@resourcenter.com.
- Jun 4 DANTE T_EX–Stammtisch at the Universität Bremen, Germany. (For details, see May 7.)
- Jun 4 DANTE T_EX–Stammtisch at the Universität Karlsruhe, Germany. (For details, see May 7.)
- Jun 11 DANTE T_EX–Stammtisch, Berlin, Germany. (For details, see May 14.)
- Jun 23 DANTE T_EX–Stammtisch, K ln, Germany. (For details, see Apr 21.)
- Aug 17–20 **TUG '98** — The 19th annual meeting of the T_EX Users Group, Torun, Poland: “Integrating T_EX with the surrounding world”. For information see the call for papers, *TUGboat* 18(4), p.314, or visit <http://www.tug.org/tug-98/>.
- Sep 21 UK TUG annual general meeting, University Centre, Cambridge: “T_EX in its diversity”. For information, visit <http://www.tex.ac.uk/UKTUG/>.
- Oct 1–2 DANTE, 19th meeting, Katholische Universität Eichst tt, Germany. For information, contact dante98@ku-eichstaett.de.
- Oct 7–12 Frankfurt Book Fair, Frankfurt, Germany. For information, contact press@book-fair.com or visit <http://www.frankfurt-book-fair.com/>.

- Oct 25 NTG, Graphics and TeX course, Utrecht,
 Netherlands. For information, visit
 <http://www.ntg.nl/bijeenkomsten.html>.
- Oct 30 – TypeCon '98, Society of
Nov 1 Typographic Aficionados,
 Westborough, Massachusetts.
 Principal speaker: Matthew Carter.
 For information, contact Bob Colby
 (sota@tjup.truman.edu) or visit
 <http://tjup.truman.edu/sota>.
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1999

- Feb ?? DANTE '99, 20th meeting, "10 years of
 DANTE e.V.", Ruprecht-Karls-Universit t
 Heidelberg, Germany.

For additional information on TUG-sponsored events listed above, contact the TUG office (+1 503 223-9994, fax: +1 503 223-3960, e-mail: tug@tug.org). For events sponsored by other organizations, please use the contact address provided.

cessitating being very careful when running Nelson Beebe’s article (page).

The use of the EM fonts also provided amusement during the course of production. The fonts are proprietary, and so were not made available to the general population at SCRI. This necessitated running a special initialization file, which I tried to do in only one window. Previewing articles is done preferably using `xdvi`, but we had no `pk` fonts, and I used `gv` (which only ran on two platforms) or `ghostview`. Dare I mention the countless times I would attempt to run `xdvi` on an article that already had the EM fonts added?

We include an Erratum regarding the misprinting of Ross Moore’s “High Quality Labels on Included Graphics, using \Xy-pic ”, found in *TUGboat*, 18(3), pages 159–163. What appeared perfectly using XDVl and GS did not reproduce on paper, and with the author’s aid, we determined that the `\UsePSframes` command was required to activate the correct code to go with the local driver. Another one of those little “cross-platform” wrinkles that make life so interesting.

Output The final camera copy was prepared at SCRI on the following UNIX platforms: IBM rs6000’s running AIX v4.1.4.0, and v4.2 using the *TeX Live* setup (Version 3), which is based on the *Web2c* \TeX implementation version 7.2 by Karl Berry and Olaf Weber. PostScript output at 600dpi, using outline fonts, was produced using Radical Eye Software’s `dvips(k)` 5.78, using the `dvips -Pem` option and printed on a QMS 860 printer.

Coming In Future Issues We apologize for the absence of the installment of Boguslaw Jackowski’s manual on “`METAFONT`: practical and impractical applications”—it is still in the hands of the reviewer.

In future issues, we expect to present some of the presentations at the \TeX Northeast conference, held in New York City, March 22–24, 1998.

◇ Mimi Burbank
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Late-Breaking News

Production Notes

Mimi Burbank

TeX Live 3 Rules!

This issue is being completely typeset using the Type 1 EM fonts, kindly provided by Berthold Horn. For more information on these fonts, see the article on page .

The production of this issue has been delayed for several reasons—awaiting the delivery of the **TeX Live3** CD-ROM, as well as some production difficulties, minor problems with installation of new utilities together with the appropriate system upgrades—for a dozen platforms.

I’m (sometimes) grateful there are multiple platforms here at SCRI, because for one of the articles, I was only able to run it on one platform because of an obscure, system-defined definition for the local X term setup. The comedy of errors has also consisted of power-outages, server overloads, the presence of four different versions of `awk`, ne-

Announcements

TeX Merchandising — An Announcement

Martin Schröder

Motivation

Wouldn't it be nice to drink your coffee from a mug with TeX the lion on it or something like an `overfull/underfull\ vbox`, wearing a T-Shirt which proudly announces to the world that TeX is the system where you get what you want and not what you see, or having a friendly TeX lion plush doll sitting at your desk and watching over your TeXts? The TeX community lacks visibility like this to the public eye, because there is no merchandising. If you don't go to a TeX conference you might have never seen a TeX T-Shirt. The Linux and BSD communities have their mascots (the penguin and the daemon) and have plush dolls of them; we do have TeX and META, but no plush dolls or anything. I want to develop merchandising to get some nice things, make some money for user groups and raise the public awareness of TeX.

Projects

We are working on or thinking of the following projects:

- Plush dolls like TeX the lion, META the lioness and the small computer which makes TeX and META run (and which still needs a name— suggestions?)
- Mugs
- T-Shirts
- Bags
- Umbrellas
- Phone cards
- Key tags
- Ear-drops
- Ties and tie clips
- Paper
- Pencils
- Mouse pads
- ...



The Legal Department

TeX is a trademark of the American Mathematical Society (AMS). METAFONT is a trademark of Addison Wesley Longman (AWL). *Computers & Type-setting* is a series by Donald E. Knuth, published by AMS and AWL with drawings by Duane Bibby.

I have permission from AWL to use the drawings from the books as long as the money goes to TeX user groups, and informal permission from the AMS. And I'm working on an agreement with Duane Bibby.

Mailing list

If you want to help creating this wonderful TeX merchandising, visit <http://www.dream.hb.north.de/merchandising/index.html> or join the mailing list by sending e-mail to majordomo@hb.north.de with the following body

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subscribe tm
```

Organization

This project is an independent working group and will only be associated with the TeX user groups by being associated with the chair for independent TeX research projects from TUG.

The user groups are welcome to participate (and may be needed to finance and distribute the merchandise), but the idea of TeX merchandising should not be associated with any particular user group.

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