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The Dutch and international 1990 T_EX conferences

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The fifth European T_EX conference was also the first T_EX Users Group Meeting in Europe, i.e. the first international meeting of the users group outside North-America. The conference was held at University College Cork, a university campus with a charming mix of old and new buildings among lawns and trees, in Ireland's second largest city.

The organizer of the conference, Peter Flynn, who works at the computer centre of University College Cork, had done a great job on organizing this big conference with about 175 attendees from 23 (!) different countries, with the notable exception of Japan. As for the social side of the conference: there was a get-together party after registration on Sunday evening, a dinner at the university restaurant on Monday, and on Tuesday an excursion to Blarney Castle, followed by dinner with live music and folk dancing in a restaurant nearby. Apart from this there was also plenty of opportunity to meet people and discuss various things during coffee, lunch or tea breaks. The programme was not overfull and there was more than enough time to discuss T_EX and related matters with T_EX users from all over the world.

Monday, September 10

After not-so-formal opening speeches by the Minister for Science & Technology of Ireland and the dean of University College Cork, the first international T_EX conference in Europe was a fact.

Erich Neuwirth (University of Vienna) had the honour (unpleasant task?) of giving the first talk. He showed that you can create quick-and-dirty databases with basic tools such as T_EX and the Unix tool *awk*. Erich seemed to advertise the use of *awk* by larger parts of the T_EX community: *awk* has been ported to the MS-DOS world and, apart from several commercial versions, there is a free version available from the Free Software Foundation.

In her talk on T_EX and hypertext, *Christine Detig* (University of Darmstadt) gave several definitions of hypertext, and discussed advantages and disadvantages of the hypertext approach. The conclusion of her talk was that the future of electronic publishing *could* be an inter-

woven electronic process with the following elements: (1) hypertext and logical markup, (2) T_EX for typesetting, (3) drivers for various screen and printer types. One criticism: discussions about 'hypertext' can only be useful if all people attending the talk have *seen* hypertext – describing it on paper or transparencies is certainly not enough to get an idea of what it is, or what it can be.

Les Carr (University of Southampton): 'Experiments with T_EX and hyperactivity'. Les Carr reported on work, done by Sebastian Raetz and him, based on the question: How can existing (T_EX) marked up copy be used in a hypertext system? Particularly amusing was the division of users/developers of these kinds of systems into the 'fluffies' and the 'technoids'.

Problems tackled include the use of T_EX to format text being displayed on screen in variable sized windows, embedding generic hypertext navigation tools in the source and using a single source to generate both printed and hypertext versions of a document.

The authors concluded with: 'It is clear that T_EX in a hyperactive world can only survive in a generic markup form such as L^AT_EX. Much of its power (such as pagination) is irrelevant in this context, and its implementation language will continue to put off many potential designers. But T_EX retains a raw beauty of its own, and if we decide that the hyper systems we build must have a formatting engine behind them, we are confident that T_EX will continue to be the first choice for many years to come.'

The talk by *Johannes Braams* (PTT Neher Laboratory), 'The Dutch National L^AT_EX effort' was a report on the work done by working group 13 of the Dutch T_EX Users Group. He discussed the development of a set of document styles that are compatible with the standard document styles of L^AT_EX, but have a layout that appeals more to Western-European tastes, and the work on 'internationalizing' L^AT_EX, i.e. adding tools to L^AT_EX that allow an author to switch between different languages, a project that bears the appropriate name 'Babel'.

Adrian Clark (Essex University): 'Documenting a T_EX archive'. The key issue addressed was: 'An archive

This interim report will finally be published in Malcolm Clark's favourite magazine: T_EXline.

is only as good as its documentation.’ Where is the archive? How to locate the software? How to get it across? The emphasis was put on the second question. Experience has it that *functionality* requests precede name requests. Keywords and help systems are the tools, along with the good old systematic index, provided there is a generally accepted one. The author reported about a proto system for automatically maintaining the ‘index’ of the archive, the help system etc. In order to have this kind of systems working, contributors must be persuaded to obey the submission rules: along with the software, documentation in a certain standard format must be supplied. Perhaps overlooked is the issue of a general accepted classification index. Even within the field of numerical software several indices are around.

During the lively discussion after the presentation, useful ideas about what users would like to see were proposed, ranging from:

- the ideal situation, just your own local archive ‘at the corner’ with *virtually* everything,
- to documentation requirements (time stamps, version indication, minimal tests, quality, refereeing, etc.).

Nelson Beebe mentioned the synchronisation effort of the various archives and the TUGlib project. These projects have the same kind of problems.

Tuesday, September 11

Thomas Kneser (GWD Göttingen), the first speaker on Tuesday morning, presented an adaptation of the work of Thomas Reid to a L^AT_EX context. Thomas Reid has developed macros that allow to have paragraphs of text to ‘wrap around’ figures. Thomas Kneser showed that these macros can be successfully adapted to the L^AT_EX case. However, in some cases a certain amount of cheating is necessary to get the desired result.

In his talk, ‘The document style designer as separate entity’, *Victor Eijkhout* (T_EXTechniek) discussed the need for a separation of all tasks in a T_EX-based system in three ‘layers’: (i) the author, who uses a document style prepared for a certain class of documents, (ii) the document-style designer, who creates a document style from a T_EX-based toolbox, and (iii) the T_EX expert who creates and maintains the toolbox. He argued the need for a programmable toolbox, so that the style designer could write T_EX macros without programming in T_EX; this point was illustrated with examples from a format the speaker developed.

‘QuickDraw, PostScript, T_EX’ by *Tim Murphy* (Trinity College Dublin) was a rather confusing talk. Afterwards I was unable to summarize what it was he had tried to tell us. A lot, I know, but it lacked coherence. What I did pick up was this: he loves GRIF, but hates SGML, for reasons that are still unknown to me. He appeared to be in favour of the work, done by a Euromath committee, on defining a complete syntax of mathematical formulae for GRIF. He advocated the basic idea of GRIF of letting

a document be generated by a context-free grammar.

M. Maclenan (South Bank Polytechnic) considered himself to be very new to T_EX and definitely not an expert, but he showed some very interesting T_EXnical stuff. At the South Bank Polytechnic there arose the need for a tool for drawing circuit diagrams for text books. P₁CT_EX, although it requires a lot of memory and is rather slow, can produce impressive full-page circuit diagrams. The speaker showed that a form of object-oriented programming can help a lot. In the discussion after the presentation, speaker and audience came to the conclusion that an interesting extension – and a possible time-saver – would be a collection of symbols and parts of diagrams created with METAFONT. Another future development could be integration of T_EX with a CAD package: extract a list of (x, y) coordinates from the CAD programme and use this as input to a T_EX macro package.

The talk by *Rainer Schöpf* (University of Heidelberg), ‘Towards L^AT_EX 3.0’, was a list of ideas for the new version of L^AT_EX. He outlined some ideas for a future version of L^ATeX, but cautioned that none of these ideas were definite yet. Much importance will be given to the style designer interface.

For about a year now, Frank Mittelbach and Rainer Schöpf, have been discussing ideas – mostly via electronic mail – for a new version of L^AT_EX with a group of T_EX, L^AT_EX and document-style experts in Europe and the United States. A proposal for the new design and a few prototype parts of the new package are expected shortly.

The presentation of *Brian Hamilton Kelly* (Cranfield Institute of Technology) was the last one before the visit to Blarney castle in the afternoon. His presentation focused on a new public domain implementation of T_EX 3.0 and METAFONT 2.0 for VAX/VMS. The distribution contains normal and ‘big’ versions of T_EX, L^AT_EX and SliT_EX. Useful facilities: T_EX’s e option really works, T_EX, L^AT_EX and SliT_EX now available as VMS command verbs. It has recently been extended by Don Hosek and is now also the DECUS implementation.

Wednesday, September 12

Malcolm Clark (Imperial Cancer Research Fund Labs), was kindly asked to change the title of his presentation, ‘Post Congress Tristesse’, even though most attendees didn’t understand why. His presentation was a very enlightening one for those T_EXies interested in doing book projects with T_EX. The topic of his talk was the process of making the proceedings of the T_EX’88 conference at Exeter ready for publication. To discourage anyone with ideas of being an editor in the near future, here’s a list of the problems Malcolm described:

- variations in medium (disk, electronic mail and even paper)
- character coding (ASCII, EBCDIC)

- late submission (please wait—wait some more—nag— threaten to print just the abstract)
- input form (plain T_EX, L^AT_EX). In the end, everything was converted to plain T_EX with additional macros to reproduce a layout similar to the layout of Addison-Wesley's computer science series.
- a professional indexer was hired to compile the index afterwards: the result was bad.

An important decision: do you referee papers or include all of them? The speaker's view was that you should not edit or referee a paper: if someone wants to present work with T_EX or METAFONT, he or she should be free to do so. Removing syntactical errors is acceptable, any further editing of the English – or almost English – isn't.

A matter of style: who determines the layout, the editor or the author? Answer: the editor, so the authors should not markup (too much). In some cases plain ASCII is better than **T_EX.

Finding a publisher: Addison-Wesley (not interested), Springer (no contacts with them), John Wiley & Sons (never publish proceedings). Finally Ellis-Horwood published the proceedings. Advantages of E-H: no control, you can do whatever you like as editor. Disadvantages: you have to do everything, upto and including producing the bromide!

Conclusions:

- Publishers like it when authors do all the work *for them*, which is a really funny view!
- Publishers should not accept 300 dpi camera-ready copy, since this is without exception of appalling quality.
- Computer Modern is an excellent font at 1270 dpi, but looks horrifying at 300 dpi. Books produced from low-resolution output are no advertisement for the high quality of T_EX's typesetting.
- Adobe and other font producers still have to come up with a nice font that includes math!
- Copy editors are essential. However, some publishers accept manuscripts in electronic form, or even offer the possibility of electronic mail submission, and then eliminate technical editing from the publication process.
- Working with other amateurs on any project means sooner or later that they withdraw as soon as other things become more important.
- Expect no thanks.
- It's fun!

'T_EX & SGML' by *Kees van der Laan* (University of Groningen) was a talk that could have been more interesting if more people in the audience would have had some experience with SGML. It is not enough to give the following description: 'SGML is a meta-language that is a means to express your thoughts on the entire lifecycle of documents', that serves as a standard for tagging and interchanging documents, and that provides a mechanism for representing special characters, tables,

and mathematical and chemical formulae, using ASCII coding. The speaker has recently investigated the problems with conversion of material coded in T_EX or L^AT_EX to SGML, especially mathematical formulae and tables.

If SGML becomes a household word in electronic publishing and publishers provide their authors with *document type definitions* (dtd's), authors have to be aware at all times of this dtd and the tags, entities and attributes it defines. The publishers need standardized general-purpose dtd's or SGML experts who develop new dtd's.

Another problem of using SGML for the coding of mathematical formulae and tables is the apparent impossibility of separating form from content.

Publishers and other users of SGML often state that one of the advantages of SGML is that it allows one to store information such that it can be used for other purposes later on. One of the conclusions of the speaker was that re-usage is maybe not that important since scientists tend to continually rewrite and update their articles and books. Another conclusion was that the meta-ness of SGML is a strong point of SGML, but at the same time also one of its weakest points.

Olivier Nicole (INRA) presented another use of the P₁CT_EX package. He used it to printing graphs that were generated by the statistical package S. From both talks on P₁CT_EX at this conference it became clear that it is a very useful and powerful package: the P₁CT_EX macro package can be found in several electronic archives, and there is a very good manual available. However, it is very slow, you need a big version of T_EX and a 10 kb t_ex file can result in a d_vi file that is ten times as large!

The rest of the day was devoted to font design with METAFONT and various applications of such fonts.

Alan Hoenig (CUNY) presented a solution to the problem of labelling figures in T_EX documents. His message was: graphics are no longer a problem for T_EX (?), but the problem is to get labels in the figures that use the same font as the text. The basic strategy is the following: create a picture with METAFONT, write the coordinates of points to be labelled as fontdimen's to the t_fm file. In the T_EX document you pick up the *x* and *y* coordinates from the \fontdimen's.

METAFONT lacks read and write operations, so (ab)using the t_fm file for this purpose is the easiest solution. Furthermore, writing a parser in T_EX to decode information in the log file of a METAFONT run would be, to say the least, cumbersome.

Final remark: to make it easier to use METAFONT for creating all sorts of pictures, one needs a macro package 'on top' of it, similar to L^AT_EX 'on top of' T_EX.

'Typesetting Old German' by *Yannis Haralambous* (Université de Lille) was one of the nicest talks of the entire conference. It was awarded the prize for best presentation at this conference. The speaker started out

by observing that many people believe that old (early) music can be best enjoyed when played on old instruments. If you draw a parallel with reading old texts: these can maybe be enjoyed more when they have been printed with old typefaces. The speaker showed pages from the Gutenberg 42-line bible and a book by C.Ph.E. Bach. To re-create these texts, the speaker has designed METAFONT fonts for Gotisch, Schwabacher, Fraktur and ornamented capital letters – the ornamented capitals where beautiful and extremely well done, enough for a big round of applause. While working on the Fraktur it turned out that the old designers applied Bezier curves without knowing it: a lot of the curves can be specified by only a few pen positions.

As an aside the speaker has also created an Arabic font, of which he also showed examples. His next project will probably Renaissance Greek, where you need a font with ± 400 ligatures.

Mícheál Ó Searcóid began his presentation ‘Irish letter forms with METAFONT’ with a short history of writing in Ireland. Elizabeth I ordered the design of an Irish typeface, modelled after written letter forms. Use of this typeface started around 1571. Through history there have been several re-designs. After the historical introduction, the speaker showed an example of modern Irish letter forms, created with METAFONT.

The next presentation, on ‘An international phonetic alphabet’, was by *Dean Guenther* (Washington State University) and *Janene Winter*. Dean is manager of the project and Janene was the METAFONT specialist. The project was started because of frequent requests from the humanities departments. At first, some papers were published with Computer Modern fonts and handwritten phonetic symbols. Later on, phonetic symbols were created as bitmaps. However, these only looked good with Almost Modern Roman, so a new font was needed when people started using CM. There were lots of obstacles: MF-84 came when Janene had just learned MF-79, there was no help on campus, there was no previewer. But the result is an IPA font, to be precise: a 128-symbol subset of one of the varieties of IPA.

Since Janene now works for the AMS, the work on the IPA project has unfortunately stopped. At the State University of Washington a different IPA project has started, partially based on the work done at WSU.

Adrian Clark (Essex University): ‘Halftone output from T_EX’.

Thursday, September 13

Nico Poppelier (Elsevier Science Publishers): ‘SGML & T_EX in scientific publishing’. This presentation was non-technical. The speaker’s idea was not to discuss the ‘What and how?’, but the ‘What and why?’. What can SGML mean to a publisher, i.e. what role can it play? SGML and T_EX can be a nice combination, but so can combinations of SGML with other sophisticated

text-processing systems and/or typesetting systems.

The speaker also discussed

- some of the advantages of L^AT_EX over plain T_EX, both for journal and for book publishing, and
- other uses of T_EX within Elsevier Science Publishers, namely as the back-end of a database-publishing system

The presentation by *Amy Henrickson* (T_EXnology), ‘Getting T_EXnical’ was a 30-minute crash course in T_EX macro writing. A series of useful techniques, lots of examples, a few basic and a few not-so-basic T_EX tricks. Interesting talk, but with a very high pace.

Frank Mittelbach (EDS, Rüsselsheim) intended to give a talk ‘New BibT_EX requirements’ instead of having an open discussion with this title, as was announced in the program. The main points of Frank were that

- BIBT_EX is not suitable for applications in the humanities or, e.g., for books with bibliographies in every chapter
- BIBT_EX does not fit well with L^AT_EX 3.0
- adapting BIBT_EX to other languages than English is not always possible

He proposed several major changes to BIBT_EX; the complete list is too big to be repeated here, but the paper will appear in the proceedings.

The title of the presentation by *Angela Barden* (City of Cork Vocational Education Committee) was intriguing: ‘Purchasing pain with all that joy’. It turned out to be an interesting, and sometimes amusing, examination of several books on T_EX. The speaker, who is a teacher of reading skills, examined the following books:

- ‘The T_EX book’ by Don Knuth. It tells lies and jokes (even in the index, where it is out of place), hides information in exercises, contains exercises that are too difficult, the often confusing dangerous bends, and conflicting instructions. On the whole, a user-unfriendly book.
- ‘The Joy of T_EX’ by Michael Spivak. The first exercise in the book was pointless, so why do the others? And the answer given in the back was wrong and unintelligible. The term ‘macro’ is never defined. ‘Maybe it helps mathematicians, but not me’, was the speaker’s conclusion.
- The PC-T_EX manual, by the same author. A page-numbering scheme and a confusing structure. For example: there is an appendix A and an appendix F, but no other appendices. The speaker abandoned the book at an early stage.
- ‘L^AT_EX user’s guide and reference manual’, by Leslie Lamport. The speaker was grateful to the author for his straightforward way of presenting information. No tedious exercises, a no-nonsense way of writing, clear concise prose.
- ‘T_EX for the impatient’, by Abrahams, Hargreaves and Berry. Not radically different from the other books. A dull layout, an enormous amount of print

on a page, turgid style, but not as bad as the other books.

- ‘A gentle introduction to T_EX’, by Michael Doob. Not a bad book, but unfortunately there are exercises.

Advice for future books: tell no jokes, be careful about the imagery you use (if T_EX has eyes, mouth and stomach, what is the analogon of `\shipout`?), use shading or another technique to distinguish input from output, use illustrations to clarify concepts, separate text book from manual, give more examples, don’t hide information in exercises.

In his presentation ‘T_EX in schools, just say no’, *Konrad Neuwirth* argued against teaching T_EX in schools. There doesn’t seem to be a class where T_EX would be appropriate: it doesn’t teach you anything about math, writing math or physics reports with T_EX in class takes more time than the usual 50–60 minutes, and as an instrument in teaching aesthetics T_EX is also questionable, since most T_EX documents look horrible to a trained eye. Furthermore: T_EX is not the most user-friendly of programs.

Philip Taylor’s talk ‘Improving the æsthetics of mixed font documents’ was an account of the work on the book ‘Principles of nutritional assessment’, which was recently published by Oxford University Press. According to the speaker, Don Knuth’s final exhortation in the T_EX book, ‘Go forth and create masterpieces of the publishing art’, has developed into ‘Go forth and create horribly looking books that shriek T_EX(L^AT_EX)!’

Letting T_EX typeset a book with a pleasing design, using Postscript fonts (Times Roman) for text and Computer Modern for math, and with lots of tables and illustrations turned out to be a far from trivial task. The resulting book was passed around during the presentation and proved to be an attractive book, impeccably reproducing the sort of looks one expects from the Oxford University Press, where it was published. One small criticism: Philip had forgotten to turn on `\frenchspacing`.

After a rather long introduction on the history of various page patterns and the document types in which they occur, the next speaker, *Alan Wittbecker* (DEC), came

down to business: ‘ArchiT_EX as an international page pattern maker’. ArchiT_EX is a macro package that he developed to re-create the variety of page patterns he described, using T_EX. For that, a rectangular grid is put ‘on top of the page’. To every intersection point of the grid a box of text can be attached.

The last presentation of the conference was ‘Integration of graphics into T_EX’, by *Friedhelm Sowa*. The idea behind the speaker’s approach is to convert the output of graphics packages, in this case files in `tif` format, to T_EX’s `pk` files. A picture is divided into tiles of certain dimensions, and the tiles are converted to characters in a T_EX-type font. T_EX is then used to glue the tiles together to produce the original picture. The speaker discussed various methods of obtaining half-tone pictures, with varying number of grey shades and with or without error distribution, and showed several examples.

Birds-of-a-feather sessions

The organisers of a T_EX conference had a golden moment when they came up with the idea of bof. The idea is simple: on every day of the conference programme the organization allocate one or more time slots of, say, half an hour. Anyone with ideas for a discussion can allocate a time slot and . . . just go ahead! In other words: the programme provides time especially for informal or improvised discussions.

At the Cork conference, there were birds-of-a-feather sessions, or bof’s, on graphics, the future of T_EX, and L^AT_EX 3.0. The bof on the future of T_EX was especially interesting, since it became a three-hour discussion that resulted in a petition to the board of TUG and Don Knuth, signed by some 25–30 concerned TUG members.

One of the major problems at present is the fact that the creators of T_EX, L^AT_EX, B_IB_TE_X and MakeIndex have, for various reasons, decided to stop working on their programs. In some cases they have announced that they consider their programs as mature, i.e. will not develop them any further. This is a matter of great concern to many TUG members and to the board of TUG as well.