NTS Update

Philip Taylor

This is a report on the inaugural meeting of the NTS[1] project group, held during the Autumn DANTE meeting at Kaiserslautern (Germany) on 23rd and 25th September, 1993.

Present: Joachim Lammarsch (DANTE President, and instigator of the NTS project); Philip Taylor (Technical co-ordinator, NTS project); Marion Neubauer (minutes secretary); Prof. Dr. Peter Breitenlohner, Mariusz Olko, Bernd Raichle, Joachim Schrod, Friedhelm Sowa.

Background: Although the NTS project has been in existence for approximately eighteen months, there has not previously been a face-to-face meeting of members of the core group; at the Spring meeting of DANTE Rainer Schöpf announced his resignation as technical co-ordinator, and Philip Taylor was invited by Rainer and Joachim to take over as co-ordinator, which he agreed to do.

Joachim Lammarsch opened the Autumn meeting by reviewing the history of the project and the rationale which lay behind its creation; each member of the group then briefly reviewed his or her particular area of interest in the project, after which the group received an extended presentation from Joachim Schrod on one possible approach to the realisation of NTS. The members of the group were broadly in support of the approach outlined by Joachim Schrod, and it was *agreed* that this should form the basis for discussions at the meeting.

The approach proposed by Joachim may be summarised as follows: TEX in its present form is not amenable to modification; the code, although highly structured in some ways, is also painfully monolithic in others, and any attempt to modify the present code in anything other than trivial ways is almost certainly doomed to failure. Accordingly, before attempting to modify TEX in any way, it is first necessary to re-implement it, the idea behind such re-implementation being to eliminate the interdependencies of the present version and to replace these with a truly modular structure, allowing various elements of the typesetting process to be easily modified or replaced. This re-implementation should be undertaken in a language suitable for rapid prototyping, such as the Common Lisp Object System ('CLOS'). The primary reason for the re-implementation is to provide modularisation with specified internal interfaces and thereby provide a

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[1] NTS: the 'New Typesetting System'

test bed, firstly to ensure that TEX has been properly re-implemented and subsequently to allow the investigation of new typesetting paradigms.

Once a working test bed has been created, and compatibility with existing TEX demonstrated, a second re-implementation will be undertaken; this re-implementation will have the same modular structure as the test bed but will be implemented with efficiency rather than extensibility in mind, and will be undertaken using a combination of literate programming and a widespread language with a more traditional approach, such as 'C++'. When this second version has also been demonstrated to be compatible with TEX, it will be made available to implementors around the world, the idea being to encourage people to migrate to NTS by demonstrating its complete compatibility with TEX. (The test bed will also be made available if there is interest shewn in its use.) Thereafter new ideas and proposals will be investigated using the test bed, and if found to be successful these will be re-implemented in the distribution version.

The main problem which the group identified with the approach outlined by Joachim was simply one of resources: in order to accomplish two re-implementations within a reasonable time-scale, it would be essential to use paid labour, it being estimated that each re-implementation would require a minimum of four man-months work to produce a prototype, and eight man-months to reach the production stage. As this is far beyond the ability of members of the group to contribute in the short term, it is clearly necessary to employ a small team (between two and four members) to carry out the re-implementations, under the guidance and supervision of one or more members of the core group. Initial costings suggested that this could not be accomplished within the present financial resources of the group, and accordingly it was *agreed* that Joachim Lammarsch should seek further financial support. Subsequent investigations shewed that a quite significant reduction in costs could be achieved if the programming team were sited in a central or eastern European country, particularly if the members of the team were also residents of the country; this approach is being investigated.

As it was obvious that no immediate progress could be made with Joachim Schrod's proposal, even though the group agreed that it represented an excellent philosophical approach, it was also *agreed* that the group needed to identify some fallback approaches, which could (a) be commenced immediately, and (b) would be of significant benefit to the TEX community at large. The group

identified two such projects, these being (1) the specification of a canonical TeX kit, and (2) the implementation of an extended TeX (to be known as e-TeX) based on the present WEB implementation. It was also *agreed* that Marek Ryćko & Bogusław Jackowski would be asked if they were willing to co-ordinate the first of these activities, and that Peter Breitenlohner would co-ordinate the second.

The ideas behind the two proposals are as follows.

(1) The canonical TeX kit: at the moment, the most that can be assumed of any site offering TeX is (a) iniTeX; (b) plain TeX; (c) LaTeX; and (d) at least sixteen Computer Modern fonts. Whilst these are adequate for a restricted range of purposes, it is highly desirable when transferring documents from another site to be able to assume the existence of a far wider range of utilities. For example, it may be necessary to rely on BibTeX, or on MakeIndex; it may be useful to be able to assume the existence of BM2FONT; and so on. Rather than simply say "all of these can be found on the nearest CTAN archive", it would be better if all implementations contained a standard subset of the available tools. It is therefore the aim of this project to identify what the elements of this subset should be, and then to liaise with developers and implementors to ensure that this subset is available for, and distributed with, each TeX implementation.

(2) Extended TeX (e-TeX): whilst the test bed and production system approach is philosophically very sound, the reality at the moment is that the group lacks the resources to bring it to fruition. None the less, there are many areas in which a large group of existing TeX users believe that improvements could be made within the philosophical constraints of the existing TeX implementation. E-TeX is an attempt to satisfy their needs which could be accomplished without a major investment of resources, and which can pursued without the need for additional paid labour.

Finally the group agreed to individually undertake particular responsibilities; these are to be:

Peter Breitenlohner: Remove any existing incompatibilities between TeX-XeT and TeX, with the idea of basing further e-TeX developments on TeX-XeT; liaise with Chris Thompson concerning portability of the code; produce a catalogue of proposed extensions to e-TeX.

Joachim Lammarsch: liaise with vendors and publishers in an attempt to raise money for the implementation of NTS proper; arrange a further meeting of interested parties; liaise with Eberhard Mattes concerning the present constraints on the unbundling of emTeX; negotiate with leading academics concerning possible academic involvement in the project.

Mariusz Olko: take responsibility for the multilingual aspects of e-TeX and NTS; discuss the possibility of siting the NTS programming team in Poland; discuss the possibility of academic involvement with leading Polish academics.

Bernd Raichle: endeavour to get TeX-XeT integrated into the standard UNIX distribution; prepare a list of proposed extensions to e-TeX; lead discussions on NTS-L.

Friedhelm Sowa: primary responsibility for finance; prepare proposals for a unified user interface and for unification of the integration of graphics; liaise with the Czech/Slovak groups concerning possible siting of the NTS programming team in the Czech Republic or Slovakia; discuss possible academic involvement with leading academics.

Philip Taylor: Overall technical responsibility for all aspects of the project; liaise with other potential NTS core group members; prepare and circulate a summary of the decisions of this and future meetings.

⋄ Philip Taylor
  The Computer Centre, RHBNC
  University of London, U.K.
  <P.Taylor@Vax.Rhbnc.Ac.Uk>

Software & Tools

Two Extensions to GNU Emacs that Are Useful when Editing TeX Documents

Thomas Becker

Introduction

One of the most outstanding features of the GNU Emacs editor is the fact that it is customizable in the best and widest sense of the word. In this note, we present two extensions to GNU Emacs that are particularly useful when editing TeX or LaTeX documents; these extensions were written by the author while typesetting a 574 page book