A New Typesetting System: Is It Really Necessary?

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Abstract

It was difficult for me to decide how to prepare this talk and in which function I should give it — as an individual, as a member of the University of Heidelberg, as a Special Director of the TUG Board of Directors (there was already a talk scheduled to be given by Christina Thiele as President of TUG), or as the president of DANTE e.V. I decided to give my talk as the president of DANTE.

NTS — is it really necessary? The answer is obvious — YES!

There are two reasons why NTS is necessary; on the one hand there are technical reasons and on the other, political reasons. Concerning the technical aspects, there were many things to be taken into account: Frank Mittelbach and David Salomon proposed a lot of design changes to Donald Knuth, and there were an increasing number of demands for the TEX Users Group to become active. I do not wish to discuss technical issues because Phil Taylor will give a talk on this subject and he is far better qualified to do the job. My talk is concerned with political reasons for NTS. I will try to show why the NTS project is necessary and what has been done over the last two years, especially during the last few months.

We need the NTS-project and it is easier to understand this need if we have a closer look at the TEX world. First, we have the TEX Users Group, which was founded more than fourteen years ago; it claims to be the international TEX organization and currently has about 2,500 members. Besides TUG, we have the following organizations in Europe (in alphabetical order): DANTE e.V., GUTenberg, the Nordic Group, NTG, UKTEXUG, and now several groups in Eastern Europe. I think these groups together have more members than the TEX Users Group. Most of these members are not members of TUG, but they use TEX too. It is not known how many people currently use TEX worldwide, and it is impossible to estimate how many people would use TEX if it was more user friendly. We can say that the TEX Users Group provides very good support in North America, but I think this support has not been really satisfactory for Europeans. Also, the membership fee for the

TEX Users Group is especially high for members of Eastern Europe.

Unfortunately, we also have problems in Europe; for instance, the problem of different languages. There was some support from Donald Knuth to make TEX more flexible, but the solution was very difficult. At the 1990 meeting in Cork, we decided that we needed a standard for the now-called DC-fonts (I even named it "Cork Standard"). The "Cork Standard" is now under discussion. It is not actually a standard anymore and it is obvious that it is controversial.

We tried to establish a European TEX Organization (ETO), but we ran into the same problems as big politics. And a small problem became a big problem: a common language. We have different languages in Europe and it was not easy to agree on a common language. I am glad this type of problem does not occur with local members. But we have one thing in common worldwide, we have a joining element: TEX. And I think the important point is that we never forget this.

We have tried to make TEX attractive for the TEX community and the TEX members, and all have worked together: journals like "*TUGboat*" and "*TEX and TUG NEWS*", or journals for local users in different languages such as "Die TEXnische Komödie" or "Cahiers GUTenberg", the journal of NTG and a lot of other journals. Sometimes these are difficult to read, for me, because they are in Czech or Polish or ..., but that's Europe! We have worldwide discussion lists like INFO-TEX or in Europe TEX-EURO, and we have local lists for local groups: TEX-D-L, GUT, TEX-NL, ..., we have lists for special items, and we have digests like TEXhax and UKTEX. We have user

groups and we have many possibilities for communication; but, do we really use these opportunities?

We have a very good software distribution. The distribution is done by the TEX Users Group, by local groups and by the new Comprehensive TEX Archive Network (CTAN). CTAN is a TUG-sponsored project, under the Technical Council, and represents the work of George Greenwade, Sebastian Rahtz and others and the management of the three largest software servers in the world — the TEX network. I think it is the biggest service for any kind of software worldwide.

But we have a big problem: TEX is getting out of date. TEX is now more than 15 years old. I say that ten years ago, it was the best typesetting system worldwide. Today it is the grandfather of the typesetting systems; other typesetting systems have learned from TEX. Other typesetting systems often incorporate many features of TEX, like the hyphenation algorithm, the page-breaking algorithm, kerning, ligatures, and many other things. We find functions for typesetting mathematical formulas in these other systems. TEX is free and commercial vendors have had the chance to use TEX algorithms. There are other systems in use today: Word, WinWord, Word-Perfect, Framemaker and others. I do not believe they are as good as TEX, but almost. They provide a better user interface — which is really important — and they do one thing which we will never be able to do: they do advertising! We have never had the money to advertise.

What will happen? The result is that more and more users are deciding to leave the TEX world and start using other systems. There are a lot of people who do not consider the advantages of using TEX. So, we lose users and that means we lose members. This trend has been painfully obvious to user groups — especially the TEX Users Group, which is the oldest. You can see the decreasing number of TUG members and I believe that local groups will begin to suffer the same decrease. Decreasing membership means a decreasing income, which leads to financial problems. If we have financial problems, the services we offer decrease; the members get angry and do not renew their membership. What is the result? Again, a decreasing number of members, decreasing income and even worse service due to financial problems. A vicious cycle! And in the end we have no user groups.

What can we do? The answer is very simple: improve TEX! Make TEX more user friendly! Make TEX more attractive! This is not possible because TEX is frozen by Donald Knuth. We have to live with TEX in its present state, and this is not the state we want.

The consequences are obvious. We need a new typesetting system. This is easy to say, but there is no Donald Knuth to do the work and so therefore we need *all* the people who are able to do such a work. Together we have a chance to create such a new typesetting system. It is also very important that the development be done worldwide, because only a worldwide system is acceptable as the successor of TEX. TEX is the same worldwide. When I write a text in Germany and send it to the US, I can be sure that if the text is printed, it will produce the same output. I know for a fact that a lot of mathematicians use TEX only for communication to send mathematical formulas back and forth from Germany to the US because it is the only way to send formulas via electronic mail. TEX is the translator.

The next issue is what to call the new system; its name cannot be TEX because TEX was named by Donald Knuth and he has announced that he is not willing to give this name away. The AMS is holder of the TEX trademark. They feel obliged to respect Knuth's decision that any program which does not meet his requirements can be called simply "TEX". The work has to be done without Donald Knuth because for him the story of TEX is over.

How to start? What have we done? Now a little bit of history. After the Cork meeting it was obvious that nothing would be done by the TEX Users Group because the TUG board was under reconstruction. I was glad that I — as the president of DANTE e.V. — had the chance to initiate the development of such a new typesetting system. I spent quite some time considering how to proceed, and decided to announce the idea worldwide using the different communication lists. It was never planned as a project of DANTE e.V., nor as a project which would be under the control of any other group. I feel no specific group has the ability to direct such a project. If we finally decide that we need a "board" to direct the project, it must be one which represents all existing groups — all existing TEX users worldwide.

The announcement was a huge success. I received lots of mail from all over the world containing many good ideas and announcements that people would like to help. Unfortunately, there was no official statement from any existing user group, suggesting that it did not seem important enough to a user's group. At the 1992 general meeting in Hamburg, the members of DANTE e.V. voted to support the project. This is important because this project needs money. And I needed the members of DANTE e.V. to agree to provide some money.

We established a moderated discussion group and called it NTS-L. The aim of this list was to discuss all aspects of the new project. List subscribers have seen a lot of good ideas, a lot of nonsense, and a lot of things that have no chance of becoming part of the new typesetting system — in other words, a lot of interesting things! We reviewed these ideas in a group headed by Dr. Rainer Schöpf, a process which took nearly nine months.

But we had problems too. Dr. Schöpf was engaged in another project and did not have enough time to fulfill his job as a technical leader. Searching for a solution, we found Phil Taylor and I was very glad that such an expert in TeX was willing to act as the new technical director. Please refer to his paper in these Proceedings.

What will happen in the future? I do not know. There are some questions, some of which I believe are really important.

One of the questions was what company would be interested in the new typesetting system? Before the 1992 meeting in Portland, I had spent some time in the US and had visited some companies. I spoke to Lance Carnes, president of Personal TeX, and with Doug Garnett from Blue Sky Research, and it became clear that they did not like the idea. They have developed their software, and a new typesetting system would force them to develop new software. On the other hand, it was clear to all of them (and I think David Kellerman, the president of Northlake Software, said it very precisely) that we have two possibilities: we can either support TeX or we can leave the TeX world. And that is true. It was felt that we would get support from companies, but not at this time, because a system 'under consideration' is not a thing a company will support, but later.

The next question was what publisher would support it? Before I started the project, it was clear to me that we also would need support from publishers. I had talks with Addison-Wesley (Germany), Springer Verlag (Germany) and International Thomson Publishing (Germany), and they all promised support because they saw that it would be necessary for something to be done in this direction.

There was another question that I knew would come up. What would Donald Knuth say about this project? I visited Donald Knuth in San Francisco before the meeting in Portland in 1992, and spent some hours talking with him about the project.[1] I explained why we need this project and that we did not have the intention of destroying TeX. He understood

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[1] The meeting was arranged by Peter S. Gordon from Addison-Wesley Publishing Company.

that the project was necessary and he provided a lot of hints on how to set up such a project. On the other hand, he said that, for him, TeX is enough. For his use, TeX does all he needs. He had written a typesetting system for his books and the typesetting is done by TeX in a wonderful way. He said very clearly that the typesetting project was finished for him.

What was new for me was that he did not write TeX alone, but there had been a group of students supporting him. He wrote most of the code of the program himself, but he always had people to discuss difficulties. He thought it was a good idea that we were a group and said it was possible to have a group for such a project. He gave his best wishes. He did not say he was not interested, but he would not work for it.

Some technical questions now arise. Will it be free? It will be freeware for non-commercial use, just like TeX. Commercial use has to be discussed — there is no consideration in this direction at this time. Who will pay for it? (Very important question!) DANTE e.V. will fund the start of the project. Perhaps other groups will decide to support the project financially. In Europe we may have an opportunity to get support from the European Community; we can try to develop this project as an EC project. Perhaps we can get support from companies: publishing companies, software companies. I think we have enough money for the first steps.

The last questions are: who needs the system? Who will use it? I think *we* will use the system, because for everyone who says that TeX is not enough, it is the only chance we have. We need this system for the remaining years of the 20th century and possibly for the beginning of the next. Or, you could say, we all need the system if we are interested in keeping our community alive.

Now we come to the end and this is the beginning: NTS — is it really necessary? I will say it again: YES!

Joachim Lammarsch

was invited for the talk, and it is uncommon in Germany that your employer pays in such cases. So I thank Dr. Peter Sandner, the director of my Computing Center, for funding my journey. My last thanks go to Malcolm Clark and Chris Rowley, who gave me some hints on how to give a talk and I think that I made use of these hints. The most important item was to speak slowly, so that all non-native English speakers would be able to understand me. Because I am not a native speaker either, it was no problem for me to speak slowly!