

ConT_EXt

From PC–Write to ConT_EXt

easy speedy beauty

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abstract

A tale of more than 10 years of joy and struggle with T_EX followed by a period of bliss, of easy to use tools, quickly obtained results, and incredible possibilities from the coming of 4T_EX and ConT_EXt, narrated by nongurus.

keywords

Nonguru, 4T_EX, ConT_EXt.

Introduction

This is about typesetting by nonexpert users. T_EX sets type. T_EX does the work that professional typographers used to do, still do: produce printed books from type written copy delivered to them. But T_EX is not a person, T_EX is software. To ease the task for T_EX the copy writer inserts simple instructions with the copy text such as “switch to a larger font”, “this paragraph ends here”, “this line should go into a footnote”, such that T_EX does not have to fathom from the copy text that these situations occur right there in the text. Since almost every T_EX instruction is preceded by a backslash you might type instructions such as `\footnote{See bottom.}`¹ right in the middle of your text.

Typographers (judging from the few we met) are an independent bunch of professionals and they have individual preferences. So do publishing houses and writers. T_EX has been designed to be so flexible that it can mimic an individual typographer’s preferences. This is done by making a new T_EX from an as yet unbiased, pristine T_EX by asking it to imbibe and digest a pack of rules of conduct (aka macros), representing the ideas of an individual typographer about proper behavior. This feature makes T_EX incredibly versatile and powerful since it can, like an actor, change personality.

Whereas T_EX was designed primarily—as said—to typeset beautiful books many scientists rarely write books. Their principal output is manuscripts for papers in a journal. A format that facilitates paper publishing is L^AT_EX. It was especially designed (or so it seems to us) to ease the setting of tables, to include figures, to produce a list of references to other papers, in short, to facilitate everything needed to write papers.

Our early years

Years ago we were charmed into using T_EX because we found the thought irresistible that for ordinary scientists it was possible to produce papers almost in the form of the final product: professionally typeset even on needle printers, and very good looking on a LaserJet. We could continue to use our favorite shareware editor (PC–Write). We bought PC–Tex and received a set of floppies, a printed manual, and a good luck blessing. We had no knowledge, no experience, no guru in the neighborhood, no time, and almost no

1. What we just said is possibly not entirely correct.

patience. Yet within 6 month we had a setup that did what was desired, was promised. We edited `autoexec.bat` and `config.sys` and created batch files and even got the PC-TeX menu going with yet further configuration files. Although no longer needed we still keep one PC in the lab with this system since one never knows how the need for it arises when an old text suddenly becomes relevant again. We used L^AT_EX exclusively and bought several copies of Lamport's book. All this for a system that we didn't really need because journals at the time (though reluctantly) even accepted handwritten, thus true, manuscripts. Plain ASCII files were entirely acceptable. When we obtained a copy of P₁CT_EX together with a 386 update of PC-TeX we finally began to need the T_EX system since with P₁CT_EX it was possible to produce programmable, documented, updateable diagrams and figures of an almost bookprinter quality. Nothing convinces more than a beautiful graph.

Years later again we heard of the Dutch T_EX users group, NTG, and became members to hear gurus speak of T_EX, hoping for tips. Of the papers read enthusiastically at the meetings we understood little but this improved quickly, of the papers in the MAPS we understood some more, by rereading. Still, the "steep learning curve" that is often mentioned in relation to T_EX continued unabated. And then, out of the thin blue air we received the 4T_EX CDROM's and a small booklet explaining its installation and some of its features. We had no idea in a T_EX environment about the true meaning of the word "workbench", except in carpenter's terms, but then we found out. Installation from the CD was a breeze, almost no disk space was used, and suddenly we had everything T_EX available almost without knowing, thinking or reading. The learning curve was over, a thing of the past, the flatlands were reached, the possibilities expanded, and all of our favorites still available. Printing to any printer that was brought into the lab worked. Postscript output was no longer menacing. Yes, reader, you are so right, we were and continue to be T_EX-dummies² with only one desire: to obtain beautiful output. How it is done we didn't really even want to understand. We are, however, infinitely grateful to the good persons that made this possible to us.

More recently, publishing on the world wide web became popular and browsing and indexed searches of a document. Furthermore higher and higher demands were placed on the quality of (electronic) instruction manuals with the desire for animated pictures, the inclusion of voice, of abundant color. Did we have to return to medieval software? No. Just in time we learned of a new T_EX system that facilitates all this and all of the above and more: ConT_EXt. We learned of ConT_EXt at an NTG meeting and liked its potential immediately, even though to us it sounded almost impossible to have a printable T_EX document turned into browseable, clickable pages on screen with no greater effort than adding a few instructions at the start of the document. Yet it was demonstrated.

Making a User's Guide

Our lab developed a portable 24-hour continuous blood pressure recorder called Portapres (Fig. 1). An increasing number of colleagues wanted to obtain copies of that device. Soon there were so many copies made that personalized user instructions became impossible. In response, a User's Guide was created with lots of 'how-to-do-it' pictures, specification tables, lists of warnings and error messages, lists of published references, table of contents, table of key words, tutorial chapters, etc. It was created in Word. Yes. Simply, because it was there, and we wanted to build experience with WYSIWYG. The Guide took a year to produce as a part-time effort including the design of many hand crafted pictures. It was a huge file on disk. In printed form it was wellcomed

2. Dummy's Ok these days, even a marketing jewel.

and certainly well accepted by our users but a problematic aspect was that the process to create it was undocumented. The Guide itself was the (miserly) documentation of the process. Recently, in a MAPS article by Taco Hoekwater, he said that these systems are called “output only”. Such productions could well be submitted to the Journal of Irreproducible Results. And documentation demands were increasing in view of obtaining CE marking, needed later for being able to produce devices for others. What to do?

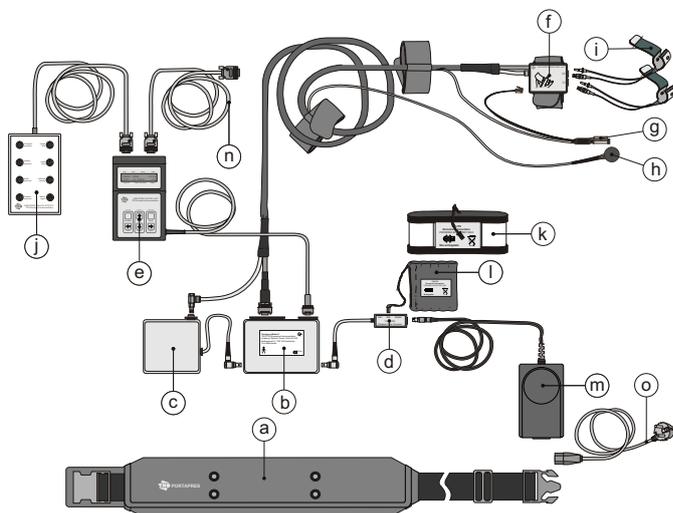


Figure 1 The component parts of a Portapres battery fed, 24-hour continuous, finger blood pressure recorder.

Instead of starting a new learning curve with a new and to us unfamiliar system immediately, we decided to delay and to call the authors of ConT_EXt at Pragma in Hasselt. They agreed to a meeting and we showed our Portapres manual and asked them if it could be converted to ConT_EXt with a printed and a downloadable manual and with a screen version in the bargain. After a brief pause for inspection and a few probing questions the answer was that it could. Then we asked if they could do it for us and they would. Our Word document was mostly automatically translated into ConT_EXt understandable ASCII, but inclusion of the many pictures was another matter. They were line drawings in CorelDRAW and had to be converted to encapsulated Postscript (eps) files which was not too difficult. But how could we have known about the “bounding box”, the distortion of color, the proper inclusion of fonts in pictures. Once this box was understood and all the pictures bounded and boxed and otherwise done with, we received more or less final versions of the three output forms requested in portable document format (pdf), plus all the sources.

Was this a wasted effort? Not at all. Although it took more (boxing) time than we originally expected we now own and have in use three versions of the User’s Guide, one in our own paper size for the printed, bound manual, one in A4 paper size for remote printing over the Web with little space wasted and, most important of all, a screen version (Fig. 2). That version not only looks good but includes all the controls for browsing and searching that one can desire, and allows enlargements of pictures to obtain a closer look at some of the graphic details not visible on paper. In addition, by looking at the sources we learned much about programming such documents in a structured way which seems a strong feature of ConT_EXt. We learned much about ConT_EXt and how it is used by experts. We learned about unexpected features of ConT_EXt such as the inclusion of Quicktime movies and blastable sound tracks (with a single instruction). By applying

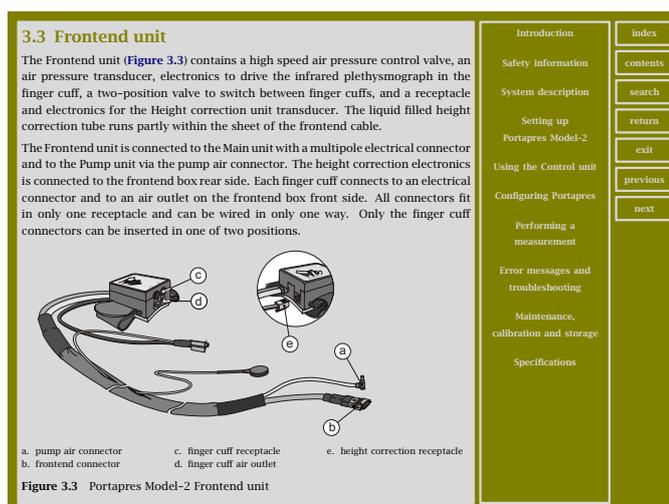


Figure 2 Page of the screen version of the Portapres User's Guide. To the right are two 'view control' columns. Blue colored words in the document are also clickable.

these principles and newly acquired techniques we learned to rely on ConT_EXt more than we ever dared do on L^AT_EX. ConT_EXt seems to have a logic built-in more similar to the way we think and everything falls in position. ConT_EXt reassures us.

Not soon thereafter we had to produce yet another User's Guide for a new blood pressure recorder, in little time. So one of us (further called I), encouraged by the previous experience asked his son if he could do the ConT_EXt work and the graphics while I was typing the texts. (Developing biomedical instrumentation with us often seems in a sweat shop hurry with entire families tied in.) This he refused outright. He had seen so much trouble with Windows that he objected even to 4T_EX on his PC. But if he could do it in Word he was prepared and ready. When I said no he challenged me to produce the cover of the manual, he in Word, I in ConT_EXt.

I accepted the challenge. Within 3 minutes he had a nice looking front page (Fig. 3) which included the already available picture as a bitmap. Within two days of trial and error and reading manuals and the magnificent 4T_EX5 book and some emails to Pragma I had done the same in ConT_EXt. Had my son won? I like to think not. When, days later, I asked him to do it again a slightly different page layout resulted. The Word-way was essentially undocumented. Never before did we realize the need for self-documenting methods more. What in science is the standard, on the current Microsoft PC seems the exception.

After transforming the pictures to portable network graphics (png) format for inclusion in ConT_EXt documents (discovering that and details took most of the time) the remainder of the more than 100 page User's Guide took less than three weeks (19 days to be precise) full time. I did the texts and the ConT_EXt instructions, my son did the "comics" (Fig. 4), the graphics and modifications. No minor task since almost half of the pages has a figure. It's not a production as advanced as Pragma had produced for us for the Portapres Guide but we met the deadline with time to spare. First user's reactions are positive and authors and readers both like the looks of the document.

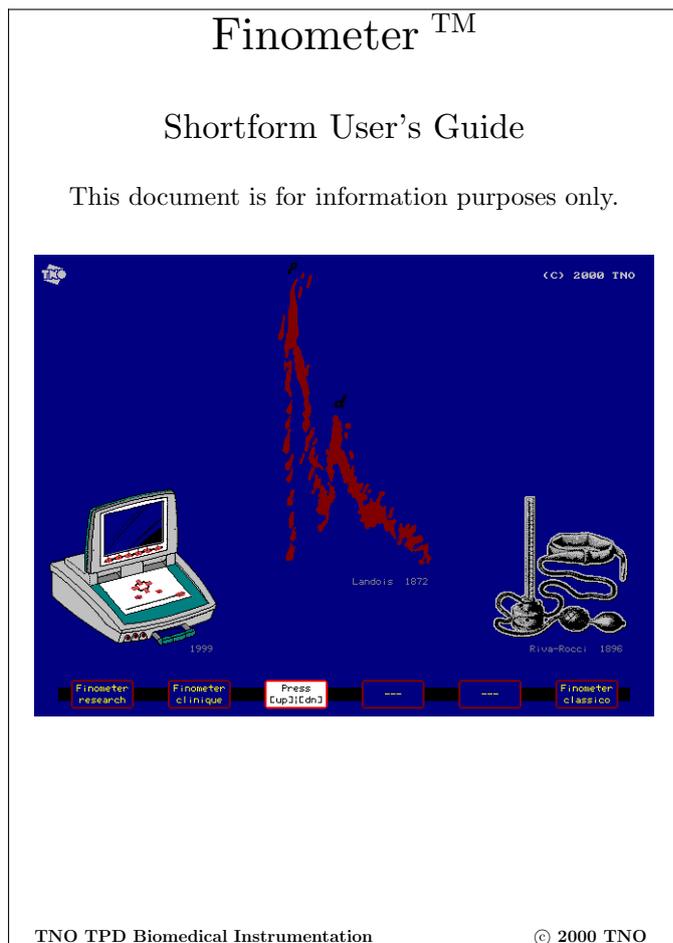


Figure 3 Front page of the Finometer User's Guide. The pulsation in the middle is probably the first blood pressure oscillations ever published (by Landois in 1872). The hollow needle of a syringe was stuck into an artery of a dog and a paper strip moved where the blood droplets hit the table.

The ConT_EXt advantage

Is the one year for a first Guide in Word and the three weeks for a second Guide of similar size and complexity in ConT_EXt a fair comparison? It is not. For the Guide in ConT_EXt we could use some of the pictures and texts of the earlier Portapres Guide. The second Guide was written by the interface designer himself with for him little left to learn about it. For the second Guide we had the example of the first one in terms of content, (CE) demands and outline. The second Guide was essentially produced by two persons, full time, the first by one person part time. But all these factors do not explain the production time factor of 50:3 or 16 times. The use of ConT_EXt, we estimate, may have saved us a factor of 2 to 4 in hours spent and weeks to the final product. For a group that is interested in T_EX mainly as a tool to achieve blood pressure device goals that is a really significant factor.

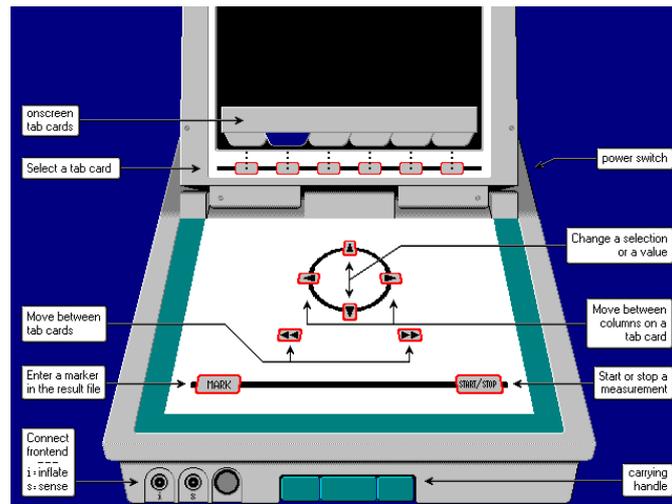


Figure 4 Layout of the Finometer front panel. This graphic is an instruction slide displayed on the device's color LCD screen and is a page in the manual.

Conclusion

One may wonder what lies beyond ConT_EXt but for the present time we feel that ConT_EXt offers all, perhaps more than all, we need. We developed a confidence in ConT_EXt and now use it almost exclusively, also to write our other publications, except when internationally the other side doesn't know ConT_EXt. Then we use L^AT_EX or, when there is no other option, plain ASCII, even Word. ConT_EXt is nearly free of charge but that's not the reason. The reason is that it is easy to use (we have never been to three week ConT_EXt courses), well documented, powerful, reliable, but above all delivers documented, repeatable beauty.