# Queries

## Public Domain SGML Tools Wanted

I'm interested in determining what TEX-to-SGML (and vice-versa) translators are available in the public domain, or any other public domain tools that could serve as a starting point for such translators (i.e., TEX-to-troff?). I'm familiar with some of the commercial packages (i.e., ArborText's Publisher) providing document import/export capability, but am specifically seeking public domain materials.

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Editor's note: A public domain parser has been developed under the auspices of the National Institute of Standards and Technology (NIST), but at this time it is incomplete; it also does not understand TEX. No other prospects had turned up by press time. However, a group known as the "Text Encoding Initiative" is composed largely of humanities scholars who are interested in such tools, and any information on the subject is likely to be made public on their discussion list, TEI-L@UICVM.Bitnet.

## Reporting TEX's Hyphenations

Is there a macro (or a version of TEX) which can create a file containing a complete list of hyphenated words in a document? For work with rather long texts it would be desirable and it also should help in improvements of national hyphenation tables.

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Editor's note: To our knowledge, there isn't any version of TEX that will produce such a list automatically, and though it's undoubtedly possible to create a macro to do this, none is known at present. However, we discovered quite by accident a technique that may be of help: setting \hsize to some ridiculously small value will have the effect of reporting the entire text to consist of overfull boxes. Since the hyphenations are shown in such reports, the information sought will included. Unfortunately, some words will be broken at these hyphenation points, and would have to be reconstructed. Another technique that might be worth tinkering with is to save up each paragraph as a token string and send it through \showhyphens{...}; we didn't have time to try it out, though.

A technique for printing out a word with hyphens assigned by TEX is given by the macro \printhyphens in the file for the *TUGboat* hyphenation list report; this file, TBOHYF.TeX, can be found at labrea.Stanford.edu in the directory /tex/tugboat and also at other TEX archives.

# Letters

## Response to Victor Eijkhout

I thank Victor Eijkhout for his knowledgeable and generally favorable review of the book *TEX for the Impatient* that I wrote with Karl Berry and Kathryn Hargreaves (*TUGboat* **11**(4), Nov 1990, p. 572). I particularly appreciate his comments about the book being written very clearly and the information in it being readily accessible, since those were primary goals for us when we wrote it. I'm also pleased that he feels that the book would make it easier for new users to learn TEX. I do want to respond, however, to a few of his comments.

He mentions being perturbed by small errors in the book and cites two of them:

1. *"The delimiters around* \..withdelims *commands don't grow as the authors claim."* In fact, we made no such claim; our description on page 201 simply states that a construct is surrounded by delimiters. It says nothing about how big they are.

2. *"The remarks about the depth (height) of a* \vbox *(*\vtop*) on pages 52 and 161/2 are at odds."* True, but the discrepancy is pretty minor; the difference shows up only in the case

where the first or last item in the vertical list is a whatsit. TeX would probably be better off, in fact, if a \write at the start of the vertical list of a \vtop had no effect on the height of the \vtop.

*TeX for the Impatient* has a great many references to particular pages of *The TeXbook*. Eijkhout concludes from this that *TeX for the Impatient* is not aimed at aspiring hackers. I'd agree that the book is not sufficient by itself for TeX hackers—we didn't intend it to be. We expect that hackers will use it in conjunction with *The TeXbook*, and we say as much in our preface.

Used this way, *TeX for the Impatient* largely compensates for *The TeXbook*'s well-recognized shortcomings. *The TeXbook* is indispensable as the definitive source of information on TeX, but a big problem with *The TeXbook* is that it's very hard to retrieve information from it. Essential topics appear in odd places, e.g., the description of registers in the middle of the chapter on *How TeX Makes Lines into Pages*. The index has so many references under each entry that it's hard to locate the definitive one, and the one that's marked as definitive often gives just the syntax of a command, not its semantics. Part of our reason for often referring to *The TeXbook* was to make *TeX for the Impatient* useful as a guide to *The TeXbook* as well as a guide to TeX.

In my own work I use both books. I refer to *TeX for the Impatient* for quick answers to most questions and to *The TeXbook* for things such as the details of particular algorithms and the definitions of the plain TeX macros. Even though I was the principal author of *TeX for the Impatient*, I don't claim to remember everything that's in it!

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## Response to Paul Abrahams

Paul Abrahams mentions two instances where my review cited errors in *TeX for the Impatient*; his explanations do not remove the problems.

Regarding whether or not delimiters grow, he is correct that no such claim is made on page 201; instead, it appears on page 58 with the definition of "delimiter": "However, TeX performs the adjustment only if the delmiter appears in a 'delimiter context' ... (see pp. 201, 204)." Maybe "Even though I was the principal author of *TeX for the Impatient*, I don't claim to remember everything that's in it!" can be used as attenuating circumstance.

As to differences between the depth (height) of a \vbox (\vtop), the discrepancy ("the difference shows up only in the case where the first or last item in the vertical list is a whatsit") is minor but important. I might not have known this fact if some rather befuddled user hadn't asked me what on earth was going on when he wrote

    \def\caption#1{\hbox{\hbox{ ... }\vtop{#1}}

and subsequently used this as

    \caption{\label{...} ...}

and found the text dropping a line because of the \label command. So it does occur in practice.

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## TeX in Schools: Why Not?

In the March issue of *TUGboat*, Konrad Neuwirth claims that there is no place for TeX in schools. He claims, "No, there is no place where TeX fits into schools. It is too big, too powerful."

My experience is that nothing is too powerful for schools. In fact, one of the biggest problems with schools in America (and, it seems, worldwide) is that people underestimate the intellectual capabilities of young people.

We have been using TeX at Woburn High School in Woburn, Massachusetts, for about five years, and its popularity is growing with both faculty and students. Before describing what we do with TeX let me first say that we *don't* write programs in it. I don't ask my students to write a TeX program to filter primes from a list. Neither do I ask them to write a Logo program to format a paper. Different tools have different uses.

Here's how TeX has been used by the faculty:

- Two of us put together a series of over 100 problem sets in linear algebra. We took years of handwritten and poorly typed worksheets, and, at a rate of one per day, formatted them in TeX. These sets were bound and passed out to students as workbooks, and the reaction from students has been quite positive. Not having to decipher our handwriting is one less hurdle for them.

- We conducted a TeX based course for the faculty. The goal of the course was simple: Each week, teachers brought an exam or problem set to format, and we developed the TeX constructions as they were needed (we used the $\mathcal{A}\mathcal{M}\mathcal{S}$-TeX macros). The teachers produced some very nice materials.

Students have also been using TeX:

- I teach a directed study course in mathematics. One of the goals of the course is for students to write up their work and put together a journal that contains their papers. Last year we used TeX for the first time, and the students were quite proud of the appearance of the journal. This year's students have already begun writing up their work.

- This year we initiated a technical word processing course. Students studied a variety of systems, including a WYSIWYG system for mathematical typing, and they studied TeX. Next year the course plans to spend even more time on TeX.

Is TeX too hard for students? Of course not. Using the $\mathcal{A}\mathcal{M}\mathcal{S}$-TeX macros, students quickly get used to the rhythm of composing formulas. Here's what one of my students, Jason Gerry, has to say:

During the past school year I have been working with TeX. I have found TeX to be a very interesting and exciting program. I feel that learning the basics of TeX does not take that much time and I see no reason for TeX not to be used in a school environment. TeX may not be appropriate for all areas of school or for all students. Just as you do not teach assembly language programming to a beginning programmer, you would not teach TeX to a beginning math student or a beginning word processor.

In our school, we have taken TeX in two routes. The first is offered to the advanced mathematics students involved in the independent study course here at Woburn High School. Here, we use TeX in the generation of reports

and papers that need the high quality appearance of TeX. The students in this course are very adept at learning new things and TeX is a program that is understood by these students very quickly. Another route we are taking is through the Business Education Department at Woburn High School. Here students learn TeX along with Word Perfect and TechWriter. By doing this they get to see the high quality output of TeX compared to other systems and can appreciate the work they put in a TeX document better. Last semester in this course we concentrated on imitating pages from engineering textbooks using TeX. We got used to using some of the easier to moderate TeX codes and using special TeX formats, including the $\mathcal{A}\mathcal{M}\mathcal{S}$-TeX macro package and LaTeX. This course was set up so that you could go at your own pace which made many students very proficient at TeX.

TeX does take more time than an ordinary word processor, and that is a problem with our 43 minute period system here at Woburn High, but the creation of many batch files and easy to follow menus set up by our teachers have taken some of the time out of TeXing a document.

I feel that TeX does have a place in school, if and only if you take it for what it is, a tool for creating high quality documents.

Don't forget, young people take to programming languages much faster than adults. I even have an untested conjecture that the kind of mental visualization required to envision a typeset page from TeX code helps students with mathematical abstractions.

Many of us who teach and study in schools are growing tired of the attitude that we should confine ourselves to toy environments. We are quite capable of reading real books, of doing real mathematics, of using real computers, and of formatting our work with real typesetting systems.

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