Editorial comments

Barbara Beeton

Changing of the guard: Robin Laakso retiring as TUG Executive Director

For 24 years, Robin has been on her perch in Portland, Oregon, supporting all that TUG is involved in as Executive Director. This has included, but was not limited to, keeping the books, financial and membership records, paying the bills, filing the tax returns, organizing conferences either in cooperation with local organizers or solo (the 2010 conference in San Francisco was a notably successful example), sending materials to and answering questions from members, performing any tasks requested by the board, and overall representing TUG and TEX creditably to the outside world.

Robin attended a number of TUG conferences during her tenure, getting to know members face-to-face. Her last was the 2023 meeting in Bonn, where a photo on page 316 of the proceedings[1] shows her presenting tokens of appreciation to the local organizers (Ulrike and Gert Fischer), as TUG President Boris Veytsman looks on.

Robin has been a good and loyal friend to me as well as a dependable source of information and even a nag when required. All who have known her in this position will miss her, and wish her well in her future pursuits.

Robin's successor is her daughter Sophia, who behind the scenes has assisted Robin with renewals, conference materials, and other tasks, so she is ideally suited to take over the office. Sophia graduated summa cum laude from Oregon State University and has worked for the last several years at the Oregon Historical Society. She will start with the title of Office Manager. We are glad to have Sophia at TUG!

Errata: *TUGboat* 44:2

In my article "What every (LA)TEX newbie should know", the example redefining the command `\i` (shown on page 165) did not have the intended result. Here's another try.

Single-letter commands are also bad candidates for (re)definition by users, as many of them are predefined as accents or forms of letters not usual in English text; `\i` might very well occur with (or without) an accent in a references list. For (a bad) example, consider the author Haïm Brezis:

```
\renewcommand{\i}{\ensuremath{\sqrt{-1}}}
Brezis, Ha\"{\i}m
```
$\Longrightarrow$ Brezis, Ha¨$\sqrt{-1}$m

[1] tug.org/TUGboat/tb44-2/tb137abstracts.pdf

The example failed because the specified encoding, `T1`, "normalizes" accented letters, nullifying any attempt to redefine the old commands. This test file will demonstrate what happened.

```
\documentclass{article}
% with T1 enabled, \"\i yields accented i,
% not bad sqrt:
%\usepackage[T1]{fontenc}
\begin{document}
\renewcommand{\i}{\ensuremath{\sqrt{-1}}}
Brezis, Ha\"{\i}m
\end{document}
```

Errata: *TUGboat* 44:3

More than one article in the last issue was corrupted by gremlins, either technical or caused by editorial slipup, or both. We regret the confusion. When possible, corrections have been applied online. Suggestions are given below for possible manual adjustments to the paper version.

- **Janusz Bień, "Towards an inventory of old print characters".** Wrong "old" characters were typeset in several places, one the result of a problem with the default font renderer, and the others for reasons associated with Unicode availability. The detailed explanation is given in a separate erratum by the author, which appears both later in this issue and online in a separate file associated with the original issue.[2]

- **Production notes.** The issue TOC lists "Production notes" on page 449, but opening the paper issue or the complete online issue to that page finds the last page of "The treasure chest", followed immediately by a book review. The intended production notes, which happen not to be specific to the issue, remain online as a separate file[3] and appear on paper in the present issue.

- **George Matthiopoulos, "A short history of Greek type design".** This article (pages 336–353) is illustrated by 61 plates. Unfortunately, owing to a slipup in production, two plate numbers, 8 and 56, are repeated, resulting in erroneous cross references in the text. (The `\label`–`\ref` mechanism wasn't used, eliminating that check.) The two plates with the first instance of the cited plate numbers were packed into `\vbox`es to allow more reliable placement on the page, forgetting that within such a box the value of an automatically stepped counter will be local.

[2] tug.org/TUGboat/tb44-3/bien-rubricella-errata.pdf

[3] tug.org/TUGboat/tb44-3/tb138prod.pdf

doi.org/10.47397/tb/45-1/tb139beet

The problem has been corrected in the online files for the issue, but the erroneous plate numbers are preserved in the printed issue. This can be amended with a manual correction: Starting on page 344, change "plate 8" to "plate 9", and continue, assigning consecutive values, ending with 61. The references will then be correct, since they were hard-coded in the source.

The (effective) end of comp.text.tex

The comp.text.tex newsgroup has been popularly accessed through Google Groups for many years. But Google has announced that, as of 22 February 2024, they will no longer accept Usenet content in Google Groups. Although Usenet still exists, it becomes ever harder to find active servers (especially ones not overrun with spam). You may want to use one of the many other available methods to seek or provide TEX help, such as those listed at tug.org/begin.html#help.

DEK — Puzzles and ChatGPT

A December article in the *New York Times*, "Need a home for 80,000 puzzles? Try an Italian castle",[4] recounts a visit by George and Roxanne Miller (owners of the puzzle-filled castle) to Don Knuth's home in Stanford, California. Don and Mr. Miller had met at a puzzle party years before, and hypothetical puzzles described by Mr. Miller had attracted Don by their mathematical underpinnings. (Algorithms underlying some of these puzzles appear in *TAOCP*.) This led to collaboration on several new puzzles, and a years-long friendship.

Another article[5] contains actual puzzles to be solved, along with (don't look!) the solutions.

Don has also experimented with ChatGPT, describing his experience on his website at Stanford.[6] His questions were simple and straightforward, testing both factual information and ability to emulate various textual styles. As might be expected, where the relevant information had not been included in the training, the "answers" were either evasive or incorrect, or both. But they were expressed in a most literate and often impressive style — likely to be accepted by someone not knowledgeable in the subject area. The potential consequences are terrifying.

Re ChatGPT: this has been my own opinion until recently; however, I've learned that there *are* valid uses for the tool as long as one sticks to areas that are likely to be covered in the tool's training corpus, and carries on a "conversation", fine-tuning the questions to obtain a valid and useful response. I will try to conscript the user who taught me the technique to submit a future article.

An admirable use of AI

The article "AI reads text from ancient Herculaneum scroll for the first time" appeared in *Nature*[7] in October 2023.

The eruption of Vesuvius that buried Pompeii in AD 79 also affected nearby Herculaneum. A library in a villa survived the eruption, but the parchment scrolls held there were carbonized, rendering them unable to be unrolled to read the contents without destroying them. Images were obtained by applying powerful X-ray techniques, which are able to distinguish the ink of the text from the carbonization. A 21-year-old computer science student from the University of Nebraska applied machine learning techniques to detect the first word in an unopened scroll — Greek "porphyras", purple. This breakthrough promises to lead the way to recovering the lost texts of a number of Greek philosophers.

Face/Interface conference at Stanford

On 2 December 2023, a group of font designers, most of them working with languages represented by non-Latin alphabets, gathered for a conference presenting their work in the digital world. With opening and closing keynotes by Chuck Bigelow, the principal in Stanford's short-lived digital typography program (closely associated with the TEX Project), the conference was the kick-off event celebrating Stanford's new SILICON (Stanford Initiative on Language Inclusion and Conservation in Old and New Media) project.[8]

A personal overview of the conference by a member of Stanford's Digital Humanities staff is available online.[9] But I am waiting for an announcement that the actual talks are posted; that has been promised, and is eagerly anticipated.

A longer report on the conference appears in this issue, 7–10.

Accessibility for MathML

"MathML" is short for "Mathematical Markup Language", a member of the family of markup languages intended to direct the formatting of material online and in print.

[4] www.nytimes.com/2023/12/29/science/puzzles-mechanical-miller.html

[5] www.ageofpuzzles.com/Masters/DonaldEKnuth/DonaldEKnuth.pdf

[6] www-cs-faculty.stanford.edu/~knuth/chatGPT20.txt

[7] www.nature.com/articles/d41586-023-03212-1

[8] silicon.stanford.edu

[9] digitalhumanities.stanford.edu/face-interface-2023/

MathML has two distinct components: Presentation MathML (visual layout) and Content MathML, which encodes mathematical semantics without regard for layout and is targeted mainly at computational systems such as Mathematica and Sage. MathML was released as a W3C recommendation in 1998, and standardized by ISO/IEC in 2015. This has been adopted as part of HTML5. Presentation MathML is implemented in major desktop browsers.

The input vocabulary of MathML, unlike that of (original) TEX, is not "native" to a mathematician, although both define how symbols are to be arranged on a surface. The MathML vocabulary, however, is more compatible with that of existing markup languages than is (LA)TEX, and is consequently the preferred form of input for most screen readers; however, ambiguities in possible interpretation need to be resolved, for example, does $|X|$ denote a norm, an absolute value, or something else? That is the direction of the current effort.

The W3C MathML Working Group generally meets weekly by Zoom, and makes the minutes of their meetings available to others interested in the project via an "open" mailing list: `www-math@w3.org`. A subscription can be requested by sending the message `subscription request` to

`www-math-request@w3.org`

It needs to be approved before activation, but acceptance should be without controversy. An archive of the list is held at `lists.w3.org/Archives/Public/www-math/`.

Current activity of the group is concentrated on defining how a MathML-encoded concept can be expressed unambiguously. As an example, what is the best way to voice this expression so that a listener will best understand what is intended:

$$(x, y)$$

marked up as

```
<mrow intent='open-interval($x,$y)'>
  <mo>(</mo>
  <mi arg='x'>x</mi>
  <mo>,</mo>
  <mi arg='y'>y</mi>
  <mo>)</mo>
</mrow>
```

or the same with

```
intent='ordered-pair($x,$y)'
```

Thanks are due to David Carlisle for clarifying the activities of the working group and providing the example markup.

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https://tug.org/TUGboat

Bibliography of Niklaus Wirth (1934–2024)

Nelson H. F. Beebe

The renowned computer scientist Niklaus Wirth passed away on January 1, 2024. After 26 days of intense work, on January 30 I checked in as version 1.00 this bibliography of his works:

`https://math.utah.edu/pub/bibnet/authors/w/wirth-niklaus.bib, wirth-niklaus.html, ...`

(Further changes will bump the version number to 1.01, 1.02, ...)

The document preamble has a brief resume of Wirth's career, and (not so briefly) discusses the use of Pascal in the rewriting of TEX and METAFONT that led to the 1982 release, and also credits Barry Smith for his work on a polished implementation on the Apple Macintosh. The other languages with which Wirth was involved are also discussed.

My extensive literature searches give me some confidence that I have located almost everything that Niklaus Wirth published in his 58 years of academic activity, but book chapters and technical reports are always hard to find, so a few more might yet surface. I don't have access to a curriculum vitae for him; that may turn up in the future, and permit a cross check of what I have already found in the literature. Contributions welcome!

If we go back to 1980 and ask what programming language Don Knuth could have chosen for the rewrite from SAIL, it seems clear with 44 years of hindsight that Pascal was really the *only choice*, despite its many shortcomings. The bibliography preamble discusses those misfeatures, and gives references to entries later in the file. Brian Kernighan's famous article, "Why Pascal is not my favorite programming language", was worth rereading. I have my own list of gripes about Pascal after using it extensively in the 1980s on DECsystem-20 machines running TOPS-20.

In short, we very likely would not have TEX, METAFONT, and the worldwide TEX community without Niklaus Wirth and Pascal, and that would have made a huge difference in my own professional life. This bibliography is my personal tribute to Niklaus Wirth, with deep thanks for the influence he has had on me. He and I never got to meet in person, and the first view that I ever had of him was earlier this month, watching recent video interviews that are listed in the bibliography. Because of his many years at Stanford and Xerox PARC, I'm sure that he and Don Knuth knew each other well.

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