

4. Distribution via e-mail. I will put the VM/CMS change files at the different servers. The change files will be available using FTP from labrea (36.8.0.47) and from LISTSERV@WSUVM1 (Washington State University). In Europe you can order the files from LISTSERV@DHDURZ1 (Uni. Heidelberg). The new DANTE FTP server at the University of Stuttgart/Germany (129.69.1.12) will also contain a copy of the complete distribution tape.
5. Last but not least I will open the distribution list TEX-IBM hosted at LISTSERV@DHDURZ1 for all T<sub>E</sub>X users at IBM mainframes. I hope this will help make information better and above all faster to access.

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## Q & A

### Report from the Question and Answer Session

Barbara Beeton

There was a new twist to the question and answer session at the T<sub>E</sub>Xas A&M TUG meeting. Tom Reid, a T<sub>E</sub>Xnician at A&M, set up a mail drop for advance questions, and arranged for receipts to be distributed to a small group of volunteer screeners. The address was publicized in the "usual" places — T<sub>E</sub>Xhax, UKT<sub>E</sub>X, T<sub>E</sub>X-Euro, and a few others. Questions didn't exactly come streaming in, but enough arrived to give us a good start.

The questions received at the mail drop were augmented by a few more gleaned from T<sub>E</sub>Xhax, UKT<sub>E</sub>X and GUT. Answers were drafted by Michael Doob (one of the volunteers), Ron Whitney, and myself, and the questions and concise versions of the answers turned into slides. This summary is an edited composite of pre-meeting answers and discussion from the session itself.

I think this format was moderately successful, and hope that a similar arrangement can be made for next year; a repeat should be even more successful, as people will be more familiar with the procedure, and will realize when seeing this summary that questions posed to that forum haven't simply dropped into a black hole.

Thanks particularly to Tom and Michael, and to the folks who sent in the questions.

Herewith the questions, their sources, and answers.

#### Q 1. Christina Thiele

In making up a sort of letterhead, the idea is to have some text to the left, to the right, and in the middle, all of different font styles and sizes. Here is what I tried.

```
\line{left\hfil middle\hfil right}
\line{more\hfil and more\hfil even more}
Even where I fudged, things don't centre properly.
left           middle           right
more          and more        even more
```

How can this be fixed?

Answer. You have to remember that the stuff in the middle should be centered with respect to the outside boundaries, not just given equal space on either side to separate it from whatever is on the left and right.

```
left           middle           right
more          and more        even more
```

This can't be done using just one box (`\line`), but there are two easy ways to get the effect you want with several nested boxes.

The first approach uses two full-width text boxes, superimposed on one another with an `\rlap`.

```
\line{\rlap{\line{\hfil middle\hfil}}%
left \hfil right}
\line{\rlap{\line{\hfil and more\hfil}}%
more \hfil even more}
```

You get the same result using one full-width box and two lapped boxes at the ends.

```
\line{\rlap{left}\hfil middle\hfil
\llap{right}}
\line{\rlap{more}\hfil and more\hfil
\llap{even more}}
```

Note that the "main" full-width box is always outside the others. It is possible to have the boxes side-by-side rather than nested, but to do so, one must remember that in vertical mode, an `\hbox` will not switch into horizontal mode, so adjacent `\hboxes`

would be set one above another rather than in the same line, unless an explicit mode-changing command (`\noindent`, `\leavevmode`) were also used. It's easier to avoid those complications by nesting.

### Q 2. Reinhard Wonneberger

Who is going to rewrite `MakeIndex` in `WEB`?

*Answer.* `MakeIndex` was created in C, and has not been rewritten in any other language. To implement it in `WEB` would indeed make it more widely usable than it is now. We have not found a volunteer yet, but are looking for one.

### Q 3. Jim Diamond

What is the purpose of the `\kern-\dimen@` in the `\ifr@ggedbottom` section of `\pagecontents` on page 364 of the *The T<sub>E</sub>Xbook*?

*Answer.* Let us start with the cited definition of `\pagecontents`:

```
\def\pagecontents{%
  \ifvoid\topins\else\unvbox\topins\fi
  \dimen@=\dp255 \unvbox255
  \ifvoid\footins
  \else % footnote info present
    \vskip\skip\footins \footnoterule
    \unvbox\footins
  \fi
  \ifr@ggedbottom \kern-\dimen@ \vfil
\fi}
```

`\dimen@` is set to the depth of `\box255` before it is unboxed. This will be positive (if the last box within it—presumably the last line of text—has positive depth) or zero.

First, note that `\pagecontents` is called only in `\pagebody`:

```
\def\pagebody{\vbox to\vsiz
  {\boxmaxdepth\maxdepth \pagecontents}}
```

If `\r@ggedbottom` is false, the last baseline will be vertically justified by adding (vertical) glue within the page so that the last baseline is at the bottom of the page, that is, at `\vsiz`. (If the page is sufficiently full, this additional glue may be less than the depth of the last line, `\dimen@`.) But if `\r@ggedbottom` is true, glue is added following the page box and the footnote to fill the space between the last baseline and the bottom of the page. The depth of the last line, `\dimen@`, is now included in the height of the material being set to `\vsiz`. Without the negative kern the page could actually be bigger than `\vsiz` if `\dimen@` is positive.

### Q 4. Aidan Delaney (from T<sub>E</sub>Xhax)

How can a L<sup>A</sup>T<sub>E</sub>X `\caption` be modified so that, instead of

Figure 3.1: Structural trends in the Celtic Sea area  
(after Gardiner & Sheridan, 1981)

it will produce

Figure 3.1: Structural trends in the Celtic Sea area  
(after Gardiner & Sheridan, 1981)

*Answer.* `\@makecaption` (in the document style files) is the macro that does the work. Here is the modified definition from `report.sty`.

```
\long\def\@makecaption#1#2{
  \vskip 10pt
  \setbox\@tempboxa\hbox{#1: #2}
  \ifdim \wd\@tempboxa >\hsiz
    \setbox\@tempboxa\hbox{#1: }% new
    \leavevmode % new
    \hangindent\wd\@tempboxa % new
    \copy\@tempboxa #2\par % change
  \else \hbox to\hsiz
    {\hfil\box\@tempboxa\hfil}
  \fi}
```

Of course, this works only on the first paragraph, but it's usually considered bad form to have really long, multi-paragraph captions.

### Q 5. Larry Denenberg

We wish to provide a `\ruledinsert` macro similar in function to `\topinsert` with the difference that the insertions are set off from one another by rules. In addition, the final such insertion is to be followed by a fairly hefty skip (say 24pt). Here is a "sample page" showing the desired output.

```
<headline>
horizontal rule
<first insert>
horizontal rule
<second insert>
horizontal rule
\vskip 24pt
<rest of page>
```

This arrangement is complicated by the fact that normal `\topinserts` may also occur in the document; when this occurs, all normal `\topinserts` come first, followed by a rule, then by the `\ruledinserts`. The document may also contain footnotes.

*Answer.* `\topinserts` are already a distinct class in plain T<sub>E</sub>X, tested in the output routine (*The T<sub>E</sub>Xbook*, p. 364), as are footnotes. A new class should be established for `\ruledinsert`. Multiple

The right column will be split when the equation

$$a^n = b^n + c^n + d^n + e^n + f^n + \dots + z^n$$

appears in the left column. Splitting must occur with horizontal rules to separate a split column from the dis-material that spans the entire page.

played equation that appears within it. These rules are affected if the

split appears on the top or bottom of a page. The columns must be balanced and may include single column

Figure 1. Q 6: Two-column IEEE format

insertion classes, when properly defined, will not conflict with one another. Rules are not doubled between adjacent `\ruledinserts`; instead a structural analysis can consider the rule above each to be part of the insert, and the final rule to be a function of the output routine. Then definitions can be modeled on the plain code for `\topinsert`:

```
\newinsert\ruledins
\skip\ruledins=24pt
\def\ruledinsert{\@ins
  (horizontal rule) (vertical skip)}
\def\endruledinsert{\egroup
  \insert\ruledins{\box0
  \nobreak (vertical skip)}\endgroup }
```

Note that a `\ruledinsert` has its own terminator, here called `\endruledinsert`. The `\endinsert` provided by plain already covers so many cases that it isn't a good idea to add anything more.

The insertion is placed on the page in an extension of plain's `\pagecontents`:

```
\def\pagecontents{
  \ifvoid\topins\else\unvbox\topins\fi
  \ifvoid\ruledins
  \else\unvbox\ruledins
  \hrule width\hsize
  \vskip\skip\ruledins
  \fi
  ...}
```

Additional parameters should also be provided, as they are for `\topinsert`; see *The T<sub>E</sub>Xbook*, p. 363.

#### Q 6. Steven Smith

I am looking for a sophisticated T<sub>E</sub>X or L<sup>A</sup>T<sub>E</sub>X double-column macro capable of the following:

- i. Double/single column capability on the same page. (L<sup>A</sup>T<sub>E</sub>X starts a new page every time its format is switched from `\doublecolumn` to `\singlecolumn`.)

- ii. The ability to split the column opposite a large displayed equation, as illustrated in Figure 1.

This format mimics that of many IEEE journals.

Is there an `IEEE.sty` L<sup>A</sup>T<sub>E</sub>X style file anywhere? Have any T<sub>E</sub>X hackers attacked this problem?

*Answer.* A non-L<sup>A</sup>T<sub>E</sub>X solution to this problem was described in some detail in a paper presented at last year's annual meeting. See the proceedings: *Inserts in a multiple-column format*, by Gary Benson, Debi Erpenbeck, and Janet Holmes, *TUGboat* 10, no. 4, pp. 727-742.

We haven't found any L<sup>A</sup>T<sub>E</sub>X style file.

#### Q 7. Guy Metcalfe

It is fairly common in experimental science to prepare large tables of data. When the width of a table is greater than 1 page then the typesetter usually rotates the table 90 degrees so that it fits along the page to be read from top to bottom [*sic*] rather than left to right. I find this impossible to do in T<sub>E</sub>X/L<sup>A</sup>T<sub>E</sub>X, especially if the table needs then to be split over more than 1 page.

How can I handle tables both wide and long?

*Answer.* An unextended implementation of T<sub>E</sub>X can handle only horizontal setting from left-to-right. However, some output device drivers do have the ability to "paste in" segments of material prepared separately and accessed via the `\special` command. Although this usually means "graphics", a `.dvi` file should also be a suitable candidate, as long as the rotation is a multiple of 90°.

The characteristics of your device driver should be checked to see if it can handle rotated inserts. This suggestion will be conveyed to the device driver standards committee for possible inclusion in a future extension of the standards beyond level 0.

If one wishes to keep such a table in the same file as the rest of the paper, it would be possible to write macros that would write out the table code to

another file and leave blank pages or advance the page counter in the appropriate place.

### Q 8. Mark Moline

Is it possible to access the width of a given field within an `\halign` construction. For example, can one determine the width of column 3 and use that dimension within the `\halign`?

*Answer.*  $\TeX$ 's alignment structures don't provide a direct way of determining the width of a particular column or cell. An ad hoc technique for obtaining a useful value is to determine the widest entry in the column, save it in a named box before beginning the alignment, and use the width of that box.

### Q 9. Chris Hand (from GUT list)

While preparing a recent compte-rendu GUT with  $\LaTeX$ , the line

```
\subsection{Journ\'{e}e
  \<<{europ\'{e}enne}>>
  \ du lundi 14 mai}
```

caused  $\TeX$  to write a line of 509 characters into the `.aux` file. The macros for the guillemets were responsible for much of the length. (When these macros were replaced by others that used the

guillemets in the font `mcyr10`, the problem went away.)

$\TeX$  reported

```
[...]
[3] [4] [5] [6] (#tz020859.aux
Unable to read an entire line---bufsize=500
and then terminated.
```

Why does  $\TeX$  write lines so long that it can't read them?

Is the only solution to recompile  $\TeX$  with an enlarged `bufsize`?

*Answer.* The preferred technique of avoiding long lines in an `.aux` file is to expand only those control sequences whose expansions will change before the `.aux` file is read in; this includes, of course, section headings, page numbers, and the like. However, control sequences within section heading text should usually *not* be expanded.

The next generation of  $\LaTeX$  is expected to suppress this level of expansion automatically. For the present, if you are using  $\LaTeX$ , `\fragile` can be inserted before any control sequence that shouldn't be expanded in a string being written out to an `.aux` file.

`\noexpand` and `\string` function in relatively comparable ways in non- $\LaTeX$  environments.

## Participants

at the  
11th Annual TUG Meeting  
June 17-20, 1990  
College Station, Texas

Exhibitors are indicated by \*

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