

Warnings

The PLAIN Truth: `\buildrel`

Barbara Beeton

Changes to PLAIN.TeX, though infrequent, are usually somewhat inscrutable. This column will attempt to illustrate with (relatively) simple examples the reasons for some of the changes that have occurred since T_EX was “frozen” at version 1.0.

`\buildrel`

All changes to `\buildrel` have taken place where the * appears in this “generic” definition:

```
\def\buildrel#1\over#2{\mathrel
  {\mathop{**#2}\limits^{#1}}}
```

A handy little tester for this macro is built right into PLAIN:

```
\def\doteq{\buildrel\textstyle.\over=}
```

Let’s use this, plus a simple variation with `x` replacing `=`, to show the change history.

- (1) The original definition contained nothing but the argument within the `\mathop`.

$$a \doteq b \dot{x} c$$

This works well enough for `\doteq`, but it’s just luck—single characters within `\mathop` have their baselines altered so that they align vertically with the axis (rule 13, *The T_EXbook* Appendix G, pp. 443-444).

- (2) The next iteration inserted `\null`.

$$a \doteq b \dot{x} c$$

`\null` is type Ord, which generates space when adjacent to a symbol of type Rel.

- (3) `\hskip0pt` eliminates this space:

$$a \doteq b \dot{x} c$$

however, it requires 3 words of memory, to accommodate stretch and shrink, which aren’t needed here.

- (4) `\kern0pt` accomplishes the same thing, using only 2 words of memory.

$$a \doteq b \dot{x} c$$

This is presumably the “final” word on the subject.

(To be continued)

Macros

Announcement of L^AT_EX Version 2.09

Leslie Lamport

The end is in sight. L^AT_EX Version 2.09 is now available. This is the final, last, terminal, ultimate version. No more new features. Bugs will be fixed as usual. Some time soon, after people have had a chance to find bugs, this version will be renumbered to be Version 3.0, which sounds much more final than 2.09.

The L^AT_EX manual is now in production, and Addison-Wesley should have it in your local bookstore around the middle of October. Meanwhile, LERRATA.TEX will tell you what has changed. There’s not too much that’s new in Version 2.09. However, there are a lot of changes in the procedure for obtaining and setting up new versions, so read on.

The primary source of L^AT_EX files is now the <TEX.LATEX> directory on SU-SCORE. My new Arpanet address is lamport@decwrl. (I assume that people will be able to figure out what to append to this address when the net is fully fragmented.)

Users who read the new manual will have some new expectations. Installers will have to see that they are met, or they’ll have some unhappy customers. The file LATEX.INS describes what must be done, but here’s a short description.

The primary innovation is a *Local Guide*—a document that gives the site-specific information they need for using L^AT_EX. The file LOCAL.TEX contains the L^AT_EX input to produce the document in use at DEC’s System Research Center in Palo Alto. The installer must modify this document for their site and arrange for its distribution. (It would be really neat if university book stores could provide the *Local Guide* along with the L^AT_EX manual.) Since LOCAL.TEX is written for an Ultrix system, it will be fairly easy to modify it for an Ultrix or Unix site.

There are also two short files that provide quick introductions to L^AT_EX. The shorter, SMALL.TEX, covers only the most elementary things. It contains a pointer to on-line documentation of how to use L^AT_EX at the specific site. The installer must modify that pointer and create the pointed-at documentation. The file SAMPLE.TEX is a more complete tutorial.

Another goodie that's in this release is the `proc` document-style option. It produces double-column conference proceedings format on $8\frac{1}{2} \times 11$ paper. (Instead of sending in your camera-ready copy on those large sheets that they reduce by 25%, you can produce it on a high-quality output device and send it to them at its actual size.)

It has come to my attention that some installers have modified the standard document styles. **THIS IS STRICTLY FORBIDDEN.** The only changes to these styles that should be made are those necessitated by the use of different fonts. If you don't have a font that's called for in the standard style, do the best you can. If this produces noticeably different results, mention the difference in the *Local Guide*. Users expect the standard styles to produce the same output at different sites. If you must create local styles, give them different names and describe them in the *Local Guide*. The new manual describes what happens when `SAMPLE.TEX` is run with some modifications. Users will be unhappy if changes to the document style produce different results than is claimed in the book.

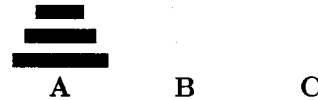
Speaking of document styles... before creating a document style for anyone else to use, talk to a typographic designer. People with no training in design who do their own formatting invariably do a rotten job. This is discussed in the new manual.

Enjoy.

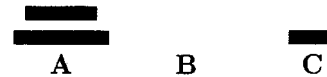
A Solution to the Tower of Hanoi Problem Using `TEX`

Bruce Leban

Here is a solution to the classic Tower of Hanoi problem using `TEX`. This solution actually produces a printed solution to the problem illustrating the states of the stacks at each stage. Examination of this program may be instructive in understanding the operations of `TEX`'s macro packages.



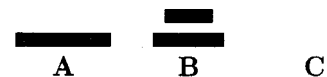
Move from 1 to 3:



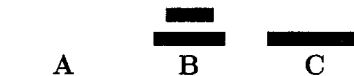
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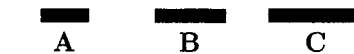
Move from 3 to 2:



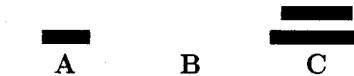
Move from 1 to 3:



Move from 2 to 1:



Move from 2 to 3:



Move from 1 to 3:

