which allows constructions such as

```
\loop ... \if... ... \else ... \repeat
\loop ... \ifcase ... \or ...
            \else ... \repeat
```

The final '\let\iterate\relax' throws away the token list for the body of the loop which could be quite long.

TeX in the Commercial Environment Setting Multi-Column Output

Elizabeth M. Barnhart

A little more than two years ago, **TV GUIDE** magazine started to investigate the possibility of using the TeX typesetting language to compose both the national feature and local program-listing sections of the magazine. The idea of vendor independence was one of the most attractive attributes of using this as our composition language.

Academic vs. the Commercial Environment

As we started to get more involved, we discovered that a large percentage of the TeX community consisted of academic users of TeX in colleges and universities around the country, but that few commercial typesetting applications were using TeX.

The academic user is usually involved with a relatively small quantity of output — from a few pages to perhaps several hundred pages. In contrast, **TV GUIDE** publishes over 100 editions in the United States and Canada for each weekly issue. The output comes to approximately 15,000 pages per week, presenting quite a different processing problem.

In the typical academic environment, one person might key in text through a word processor or PC editor and handle the style and output of the text by the inserting of typesetting commands directly into the text. In our environment, the same keystrokes are captured once, and may repeat in several areas and in many editions of the magazine. No one single person enters the text that makes up a page of the magazine. Editors for each local station gather the programming information and send it to the main office in Radnor, Pa. Output is handled by feeding items through pre-defined typesetting-specification files.

Specific Problems

Although TeX has many positive features, we have encountered some problems as we experiment with a variety of the type elements that compose **TV GUIDE**.

One problem is that TeX was designed for much wider columns than the ones called for by our typesetting specifications. We have been able to get around this with adjustments of the \tolerance and penalties that control the line breaking algorithm in TeX. It would be infeasible to use the TeX defaults for these penalties, which would require frequent interacting with the copy to eliminate the many "*overfull boxes*" that would occur.

Another problem is that TeX is a paragraph setting composition language; all other composition languages that our staff had been exposed to set type line by line. In line-by-line systems, once a line of type has been hyphenated and justified, it is closed and will not be changed; TeX can rework a paragraph completely differently when one word is eliminated. This has been presenting some problems in our environment, since knowing exactly where a line breaks is important to us. Our text often includes optional copy, and we need to know how lines will fit together if optional copy in the center of a paragraph is eliminated. Taking text measurements from the longest version of the copy has been our solution to this problem.

We have also encountered difficulties with the fact that when TeX produces a .dvi file, the fonts involved lose their identity. They are assigned a number in the font table contained in the "postamble" of the .dvi file. We need to be able to convert the text back to the original format, so we must be able to reconstruct the font calls made in the original text. We are experimenting with dealing with this problem by forcing system-specific font calls into the .dvi file using the \special command.

Another one of the big problems we have encountered is the complexity of defining page layouts with "output" routines. Each section of **TV GUIDE** is different and within those sections each page can be different. One example would be switching from a three-column to a two-column format within an article. Another layout requirement is leaving drops for photographs or artwork that occupy portions of more than one column of type. We are experimenting using \parshape commands within output routines to deal with this problem. We may find ourselves developing a front-end page

description language to make this usable in a production environment that has a short turn-around time.

Input/Output Example

There are many different sorts of typeset items that go into the production of **TV GUIDE** magazine, for example, features, prime-time grids, program listings, close-up articles, cable-movie guides, etc. One of the problems encountered in our type of application concerns the switching from a single column format to a two, three or more column format.

A multi-column format is presented here, that can handle output from one to five columns. For the sample page, the counts and dimensions referred to in the commented section of the macro file are defined as follows:

\global\dimen40=150pt	\hsize value.
\global\dimen50=477pt	\vsize value.
\global\dimen60=314pt	Width of all columns.
\global\count30=2	Number of columns.
\global\count70=1	Turn on outside rules.
\global\count71=1	Turn on inside rules.
\pageno=16	First page of the batch.
\def\startpage{\pageno=16}	Gets no running head.
\def\editdate{April 4, 1987}	For running heads.

These values will set 2-column pages with 150-point columns and rules to either side of the columns. Changing any one of these values will affect the output. For example, changing \count30 from a 2 to a 3 will change the output to 3-column pages. This will work without adjusting any of the other values.

The macro file shown addresses only one aspect of the typeset page, but the sample page shown illustrates how each page must be tailored to cut rules for photographs, use \parshapes to leave areas to drop in photos and have figure-caption text inserted. The handling of these problems is not discussed in the macro-file listed below.

The TeX input would have to be refined to include these details before being used in a production environment. Below is a sample of TeX input for a multi-column output routine.

We are in the beginning stages of adopting TeX into the editorial system that collects the feature and program text that makes up the magazine. We invite other commercial TeX users to discuss problems and solutions of their typesetting problems in the *TUGboat* and would like to know if there is interest in establishing a commercial TeX users group.

Multi-Column Macros

```
%
% COLRHRF.MAC
% Multi-column layout for 1 to 5 columns,
% with 2-piece running heads that switch
% for odd and even pages, and an outside
% edge folio for a running foot.
%
% To use this macro-file, the following
% definitions must be inserted at the top
% of your input file:
%
% \global\dimen40=00pt (Becomes \hsize value)
% \global\dimen50=00pt (Becomes \vsize value)
% \global\dimen60=00pt
% \global\count30=1   (Used for 1 to 5 columns)
% \global\count70=1   (rule on [1], off [0])
% \global\count71=1   (rule on [1], off [0])
% \pageno=1   (Set to first page number wanted)
%
% (''startpage'' will not get a running head)
% \def\startpage{\pageno=1}
%
% The next definition is fed into
% the running head calls in the output.
%
% \def\editdate{ }
%
\newdimen\fullhsize
\newdimen\pagewidth
%
% ''fullhsize'' is the full page width
% including the space between the rules
% and the text, and the gutter space
% between columns.
%
\fullhsize=\dimen60
\pagewidth=\fullhsize
\hsize=\dimen40          % Column Width
\vsize=\dimen50          % Page Depth
\def\fullline{\hbox to \fullhsize}
\def\space{\ }
\def\TVG{{\bf TV\GUIDE}}
\def\arrow{{\sy\char65}}
%
% The tolerance is defined very high for
% narrow columns, it allows more hyphenation
% and bigger word-spacing.
%
\tolerance=10000
\doublehyphendemerits=0
\finalhyphendemerits=10000
\hyphenpenalty=100
%
% These are in-house TV Guide fonts and
% must be changed if you want to use
% this macro file.
```

```
%
\font\helvlight=tvg8hlr at 8pt
\font\helvlightit=tvg8hls at 8pt
\font\runlight=tvg7hlr at 7pt
\font\sy=tvg7pi at 7pt
%
% Running head layout definitions
% ''Blankheadline'' is used for the
% starting page. Only lefthand turnover
% pages get a ''continued'' line.
%
\def\bheadline{{\hsize=\dimen60
 \leftline{\quad }}}
\def\blankheadline{{\baselineskip=7pt
 \vskip0pt\bheadline}}
%
\def\lheadline{{\hsize=\dimen60
 \leftline{\quad \runlight continued}}}
\def\leftheadline{{\baselineskip=7pt\vskip0pt
 \lheadline}}
%
\def\rheadline{{\hsize=\dimen60
 \leftline{\quad }}}
\def\rightheadline{{\baselineskip=7pt
 \vskip0pt\rheadline}}
%
% Running feet layout definitions.
%
\def\lfootline{\hsize=\dimen60
 \line{\quad \runlight \folio\hfill
 TV GUIDE \editdate\quad}}
\def\leftfootline{{\baselineskip=7pt
 \vskip 7pt{\runlight \lfootline}}}
\%
\def\rfootline{\hsize=\dimen60
 \line{{\quad \runlight TV GUIDE \editdate
 \hfill \folio\quad }}
\def\rightfootline{{\baselineskip=7pt
 \vskip 7pt{\runlight \rfootline}}}
%
% Define a BOX to hold each column while
% building the page.
%
\let\lr=A \newbox\onecolumn \newbox\twocolumn
\newbox\threecolumn \newbox\fourcolumn
\def\columnbox{\leftline{\pagebody}}
\def\midrule{\hfil\vrule width0.5pt\hfil}
\def\openrule{\vrule width0.5pt\hfil}
\def\closerule{\hfil\vrule width0.5pt}
%
\ifnum\count30=1
\output={
 \oneformat \global\let\lr=A
 \ifnum\outputpenalty>-20000
 \else\dosupereject\fi}
%
```

```
\else\ifnum\count30=2
\output={\if A\lr
 \global\setbox\onecolumn=\columnbox
 \global\let\lr=B
 \else \twoformat \global\let\lr=A\fi
 \ifnum\outputpenalty>-20000
 \else\dosupereject\fi}
%
\else\ifnum\count30=3
\output={\if A\lr
 \global\setbox\onecolumn=\columnbox
 \global\let\lr=B
 \else\if B\lr
 \global\setbox\twocolumn=\columnbox
 \global\let\lr=C
 \else \threeformat \global\let\lr=A
 \fi\fi
 \ifnum\outputpenalty>-20000
 \else\dosupereject\fi}
%
\else\ifnum\count30=4
\output={\if A\lr
 \global\setbox\onecolumn=\columnbox
 \global\let\lr=B
 \else\if B\lr
 \global\setbox\twocolumn=\columnbox
 \global\let\lr=C
 \else\if C\lr
 \global\setbox\threecolumn=\columnbox
 \global\let\lr=D
 \else \fourformat \global\let\lr=A
 \fi\fi\fi
 \ifnum\outputpenalty>-20000
 \else\dosupereject\fi}
%
\else\ifnum\count30=5
\output={\if A\lr
 \global\setbox\onecolumn=\columnbox
 \global\let\lr=B
 \else\if B\lr
 \global\setbox\twocolumn=\columnbox
 \global\let\lr=C
 \else\if C\lr
 \global\setbox\threecolumn=\columnbox
 \global\let\lr=D
 \else\if D\lr
 \global\setbox\fourcolumn=\columnbox
 \global\let\lr=E
 \else \fiveformat \global\let\lr=A
 \fi\fi\fi\fi
 \ifnum\outputpenalty>-20000
 \else\dosupereject\fi}
\fi\fi\fi\fi\fi
%
```

```
% The output routines test for the
% starting-page value and do not put a
% running head on that page. All subsequent
% lefthand pages will get a running head.
% The running foot layout flips as you go
% from odd page numbers to even page numbers.
%
% The output routines also test to see if
% you want to put rules between the columns
% (\count71) and/or before and after the
% first and last column (\count70).
%
\def\oneformat{\shipout\vbox{
 \ifnum\startpage\blankheadline
 \else \ifodd\pageno\rightheadline
 \else \leftheadline\fi\fi
 \nointerlineskip
 \fullline{\ifnum\count70=1\openrule
 \else\hfil\fi
 \columnbox\ifnum\count70=1\closerule
 \else \ hfil\fi}
 \ifodd\pageno\rightfootline
 \else \leftfootline\fi
 \vfill}\advancepageno}
%
\def\twoformat{\shipout\vbox{
 \ifnum\startpage\blankheadline
 \else \ifodd\pageno\rightheadline
 \else \leftheadline\fi\fi
 \nointerlineskip
 \fullline{\ifnum\count70=1\openrule
 \else\hfil\fi
 \box\onecolumn\ifnum\count71=1\midrule
 \else\hfil\fi
 \columnbox\ifnum\count70=1\closerule
 \else \hfil\fi}
 \ifodd\pageno\rightfootline
 \else \leftfootline\fi
 \vfill}\advancepageno}
%
\def\threeformat{\shipout\vbox{
 \ifnum\startpage\blankheadline
 \else \ifodd\pageno\rightheadline
 \else \leftheadline \fi\fi
 \nointerlineskip
 \fullline{\ifnum\count70=1\openrule
 \else\back hfil\fi
 \box\onecolumn\ifnum\count71=1\midrule
 \else\back hfil\fi
 \box\twocolumn\ifnum\count71=1\midrule
 \else\back hfil\fi
 \columnbox\ifnum\count70=1\closerule
 \else \hfil\ fi}
 \ifodd\pageno\rightfootline
 \else \leftfootline\ fi
 \vfill}\advancepageno}
```

```
%
\def\fourformat{\shipout\vbox{
 \ifnum\startpage\blankheadline
 \else \ifodd\pageno\rightheadline
 \else \leftheadline\fi\fi
 \nointerlineskip
 \fullline{\ifnum\count70=1\openrule
 \else\hfil\fi
 \box\onecolumn\ifnum\count71=1\midrule
 \else\back hfil\fi
 \box\twocolumn\ifnum\count71=1\midrule
 \else\back hfil\fi
 \box\threecolumn\ifnum\count71=1\midrule
 \else\back hfil\fi
 \columnbox\ifnum\count70=1\closerule
 \else \hfil\ fi}
 \ifodd\pageno\rightfootline
 \else \leftfootline\fi
 \vfill}\advancepageno}
%
\def\fiveformat{\shipout\vbox{
 \ifnum\startpage\blankheadline
 \else \ifodd\pageno\rightheadline
 \else \leftheadline\fi\ fi
 \nointerlineskip
 \fullline{\ifnum\count70=1\openrule
 \else \hfil\ fi
 \box\onecolumn\ifnum\count71=1\midrule
 \else \hfil\fi
 \box\twocolumn\ifnum\count71=1\midrule
 \else \hfil\fi
 \box\threecolumn\ifnum\count71=1\midrule
 \else \hfil\fi
 \box\fourcolumn\ifnum\count71=1\midrule
 \else \hfil\fi
 \columnbox\ifnum\count70=1\closerule
 \else \hfil \fi}
 \ifodd\pageno\rightfootline
 \else\leftfootline \fi
 \vfill} \advancepageno}
%
```

VV2400
Article Name: The Stoppers

to the bullpen because they had lost their best stuff. Today's relievers, however, are a different breed: young, cocky, talented and flamboyantly successful. They run every step of the way from the bullpen to the mound to let the batter know they can't wait to face his pitiful self. Both they and the batter know theirs is the most important job on every major league team. And they are paid accordingly. Donnie Moore, the Angels' portly fastballer, is the highest paid on his club at $1 million a year; Dan Quisenberry, the Royals' laconic submariner, is second only to George Brett on his club. Greg Harris of the Rangers and Goose Gossage of the Padres are the second highest paid on their teams: Willie Hernandez of the Tigers is his team's third highest paid, and Dave Righetti of the Yankees is the fifth highest on his team.

They are paid all that money to stop the opposition's rallies. Often, they appear in less than 80 innings a season, and yet those are the most important 80 innings each team plays. The game is in the balance when they come in. Righetti, for example, appeared in 74 games last year, winning eight and saving 46, a major-league record. That means he had a significant influence on 54 of the second-place Yankees' 90 victories. "Without Rags," says Hall of Famer Whitey Ford, "we would have finished fifth."

In most cases, relievers have been bred to their task from their very first minor-league pitch. They have special talents and strange temperaments that make them unique among baseball players. They are ephemeral creatures noted more for brief flashes of brilliance rather than for plodding efficiency. They see their job in terms of a single inning at most, a single batter, even a single pitch. Often that's all they need, one special pitch.

Righetti, Moore, the Cubs' Lee Smith, and even Gossage, in his twilight years, rely primarily on exploding fastballs in a crunch. Quisenberry and the Phillies' Kent Tekulve deliver their ace in the hole—a rising, then sinking fastball—with an underhand delivery which, according to Quiz, "resembles the motion a mother uses to reach down and spank a baby." Hernandez was only a journeyman left-hander when he developed an almost unhittable screwball that made him equally effective against right-handed batters and left-handers. Roger McDowell, the Mets' young stopper, relies on a pitch that is both a good fastball and a great sinker. He typifies the new breed of relievers. He stands primly on the mound with his feet together, a pink-faced, unemotional youth who looks like a choirboy or maybe a Yuppie stockbroker going about his business as if the conclusion is foregone. A ground-ball double play.

"Relieving is a serious business now," says Righetti. "There's no more of that fooling around on the mound or in the bullpen like a few years ago." Righetti is referring to relievers of 10 years ago, who, according to Whitey Ford, "were a little flaky then." He is referring to the young Gossage who kept a pet goose in the bullpen, and to Sparky Lyle, who once appeared on the first day of spring training with a leg cast to his hip to terrify the Yankee brass. There was Al Hrabosky, the Mad Hungarian, with his Fu Manchu mustache and his stalking and imprecations on the mound, and, of course, there was the irrepressible Tug McGraw of the Phillies, who, when asked if he preferred Astroturf to grass, said, "I don't know, I never smoked Astroturf."

Such antics are a thing of the past for today's big-bucks relievers who go about their job in a more controlled manner.

"That doesn't mean they're not emotional types," says Rangers' manager Bobby Valentine. "They have to be. →

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Figure 1. Page of **TV GUIDE** set using `COLRHRF.MAC`