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DISPLAY OF A FONT IN TABLE FORM

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baselineskip and lineskip are turned off to get them out of the way. vsize is increased to the size of my Versatec page. The output routine is redefined mostly to turn off the page numbering but advancecount is retained so that the page numbers displayed on the terminal will advance.

The character 0 from cms10 is boxed so that its height and width will be available. spike defines an empty vbox which is used to assure that the horizontal rows are tall enough for the row number to fit without overfilling. cell is the basic box that holds one character, centered with a vertical rule on its right border. label uses the height of box8 which may be different for each row and centers the octal tag rather than putting it on the same baseline as the rest of the row. The box width of 35pt is used to allay fears that the labels would not all turn out the same width and must be known later anyway. The 1em of skip is inside the brackets and thus taken from cms10. seprow is used to add 2pts to the top and bottom of each cell.

cellrow saves the row of eight cells in box8 so that label can use ht8 for vertical centering. The spike is used to guarantee a minimum height. The height before boxing will be the maximum of this and the tallest character plus the 2pts from seprow. The boxing will cause a box of zero depth with the final height also including the maximum depth plus another 2pts from the second seprow and the height of the hrule.

This is probably the best place to point out what I really wanted was for the height above the highest character to equal the depth below the baseline. As it is, there is 2pt above the highest character and 2pt below the deepest. I probably wouldn't have given up except that cmr30 was already pretty tight on the page and page breaking was not appetizing. Actually when it was working this well I was pretty relieved.

1col labels the top, again in cms10. chw, colw and setw are used to find the maximum width of any character in the font. getw takes the maximum over the set of characters in the font, the width of the 0 used in labeling the columns, and 1em in the font (maybe unnecessary) then sets the variable unit to $1\frac{5}{8}$ this value. The 1vu is used as the width of each character cell.

Finally, table is defined to use the given character to define the font, set the font and build the table. The hbox has glue to center if possible but to left justify with right overfilling forgiven if necessary. The font name is included in cms10. The top label and the top rule for the font cell set are followed by the sixteen cellrows.

Editor's note: The two tables which follow were pasted up from Varian copy generated at the Math Society. A few changes were necessary: new letter codes were assigned to the two fonts because of conflicts with codes already assigned to preloaded fonts; cmr28 does not exist at the Society, so cmr30 was substituted.

We discovered after looking at the first output that this routine neatly illuminates probable errors in a couple of METAFONT descriptions. In the cmr30 table, row '000 has too much depth, and character '121, "Q", has no depth where one would have expected it. On checking the METAFONT descriptions, we found that the depth of the "Q" has disappeared (presumably accidentally—it was present in the original published description of the Computer Modern family), and that character '002, "Θ", has always been assigned a depth equal to that of a comma.

cmathx

	0	1	2	3	4	5	6	7
'000	(	)	[	]	⌊	⌋	⌈	⌉
'010	{	}	⟨	⟩	|	‖	/	/
'020	(	)	(	)	[	]	⌊	⌋
'030	⌈	⌉	{	}	⟨	⟩	/	/
'040	(	)	[	]	⌊	⌋	⌈	⌉
'050	{	}	⟨	⟩	/		⋊	⋉
'060	(	)	[	]	⌊	⌋	|	|
'070	(	)	(	)	{	}	'	'
'100	(	)	|	|			⊔	⊔
'110	∮	∮	⊙	⊙	⊕	⊕	⊗	⊗
'120	Σ	Π	∫	∪	∩	⊎	∧	∨
'130	Σ	Π	∫	∪	∩	⊎	∧	∨
'140	◯	◯	○		∾	∾	∿	∿
'150								
'160	√	√	√	√	√	|	⌈	
'170	▸	⤳	⌢	⌢	⌣	⌣	G	⌘

cmr30

	0	*1*	*2*	*3*	*4*	*5*	*6*	*7*
'000	Γ	Δ	Θ	Λ	Ξ	Π	Σ	Υ
'010	Φ	Ψ	Ω	l	J	`	´	^
'020	ˇ	˘	¯	¨	˜	→	˝	°
'030	¸	˙	⌢	ß	æ	œ	Æ	Œ
'040	ø	!	”	´	ft	%	&	’
'050	(	)	*	+	,	-	.	/
'060	0	1	2	3	4	5	6	7
'070	8	9	:	;	<	=	>	?
'100	Ø	A	B	C	D	E	F	G
'110	H	I	J	K	L	M	N	O
'120	P	Q	R	S	T	U	V	W
'130	X	Y	Z	[	“	]	—	—
'140	‘	a	b	c	d	e	f	g
'150	h	i	j	k	l	m	n	o
'160	p	q	r	s	t	u	v	w
'170	x	y	z	ff	fi	fl	ffi	ffl

Font Table Macros

```
\input basic
\baselineskip 0pt \lineskip 0pt
\vsize 7.3 in

\output{\vbox{\hrule width1em\vskip0.4in\page\vskip0.4in
\hrule width1em}\advcount0}

\save9\hbox{\sl 0}
\def\spike{\hbox to 0pt{\vbox to 1ht9{}}}
\def\cell#1{\hbox to 1vu{\hfill\char`#1\hfill}\vrule}
\def\label#1{\vbox to 1ht8{\vfill
   \hbox to 35pt{\hfill\sl `#10\hskip1em}\vfill}\vrule}

\def\seprow{\def\m{\hskip 1vu{}\vrule height 2pt}\hbox{\m\m\m\m\m\m\m\m}}
\def\cellrow#1{\save8\vbox{\seprow\hbox{\spike\!
              \cell{#10}\cell{#11}\cell{#12}\cell{#13}\!
              \cell{#14}\cell{#15}\cell{#16}\cell{#17}\!
              \hfill}\seprow\hrule}\hbox{\label{#1}\box8}}

\def\lcol#1{\hbox to 1vu{\hfill{\sl #1}\hfill}\hskip .4pt}
\def\chw#1{\hbox{\char`#1}}

\def\colw#1{\vbox{\chw{#10}
               \chw{#11}
               \chw{#12}
               \chw{#13}
               \chw{#14}
               \chw{#15}
               \chw{#16}
               \chw{#17}}}

\def\setw#1{\vbox{\colw{#10}
               \colw{#11}
               \colw{#12}
               \colw{#13}
               \colw{#14}
               \colw{#15}
               \colw{#16}
               \colw{#17}}}

\def\getw{\save0\vbox{\setw0\setw1\hbox to 1wd9{}
         \hbox to 1em{}}\varunit1.625wd0}

\def\table#1#2{\font #1=#2 \:#1\getw\null\vfill
\hbox to 6in{\hskip0pt plus1000cm\!
\vbox{\hbox{\hskip35pt{\sl #2}\hfill}
      \vskip20pt
      \hbox{\hskip35pt\lcol0\lcol1\lcol2\lcol3\lcol4\lcol5\lcol6\lcol7}
      \vskip 4 pt
      \hbox{\hskip35pt\vbox{\hrule width 8vu}\vbox{\hrule width 3.6pt}}
      \cellrow{00}\cellrow{01}\cellrow{02}\cellrow{03}
      \cellrow{04}\cellrow{05}\cellrow{06}\cellrow{07}
      \cellrow{10}\cellrow{11}\cellrow{12}\cellrow{13}
      \cellrow{14}\cellrow{15}\cellrow{16}\cellrow{17}}\!
\hskip0pt plus1000cm minus1000cm}\vfill\eject}

\table G{cmathx}               % \table A{cmathx}
\table N{cmr30}                % \table B{cmr28}

\end
```