

Samples of common T_EX font encodings

Scott Pakin
scott+pkfh@pakin.org

March 24, 2009

The `pkfix-helper` program occasionally needs help from the user in selecting an appropriate TFM file to match a Type 3 font found in a PostScript document. This document assists with the task of identifying fonts by presenting character-by-character comparisons of all 256 character positions in a selection of common T_EX fonts. The following encodings are represented:

- T_EX text (e.g., *cmr10*)
- T_EX math italic (e.g., *cmmi10*)
- T_EX math symbols (e.g., *cmsy10*)
- L^AT_EX symbols (e.g., *lasy10*)
- T_EX math extension (e.g., *cmex10*)
- Adobe standard encoding (e.g., *rptmr*)
- Adobe symbol encoding (e.g., *rpsyr*)
- extended T_EX font encoding (e.g., *ecrm1000*)
- T_EX text companion symbols (e.g., *tcrm1000*)

To use the tables that appear below, first produce “before” and “after” font sheets using `pkfix-helper`’s `--ps` and `--tex` options. (See the `pkfix-helper` documentation for details.) For each font in which the “after” characters are completely different from the “before” characters—as opposed to merely the wrong selection

of font size, weight, or slant—make a note of the font that `pkfix-helper` announced it had selected. Find the table and column in which the “before” symbol exists and the “after” symbol is associated with the font selected by `pkfix-helper`. The font associated with the “before” symbol is what should be specified in a `--force` option to `pkfix-helper`. For example, consider the observations shown in Figure 1. We find that the “after” character, “ η ”, is associated with *cmmi10* (the same typeface used for *cmmb10* but in book weight) at character position 17. The “before” character, “ \equiv ”, is also present in position 17 and is associated with *cmsy10*. Therefore, we know we need to re-run `pkfix-helper` with the `--force="Fj=cmsy10 @ 1.2X"` option to force it to associate document font *Fj* with *cmsy10* instead of *cmmb10*.

The font size may need adjusting. In the preceding example, `--force="Fj=cmsy9"` produces less mismatch for *cmmb10 @ 1.2X* than does `--force="Fj=cmsy10 @ 1.2X"` (mismatch=0.00106 vs. mismatch=4.43701). Making such a determination still requires human involvement. A suggested approach is to observe that `--force="Fj=cmsy10 @ *"` causes `pkfix-helper` to select a scaling factor of 0.92918X for a scaled font size of $0.92918 \times 10 \text{ pt.} = 9.2918 \text{ pt.}$ Noting that *cmsy9.tfm* exists and assuming that the document source did not specify a fractional scaling of the font, we can hypothesize that unscaled *cmsy9* is the font actually utilized in the document.

pkfix-helper: Processing Fj ... done (cmmb10 @ 1.2X, mismatch=0.00073)			
--ps file:	Fj:	\equiv	
--tex file:	Fj:	η	

Figure 1: Sample observations of `pkfix-helper` output and output files

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
<i>cmr10</i>	Γ	Δ	Θ	Λ	Ξ	Π	Σ	Υ	Φ	Ψ	Ω	\mathfrak{f}	\mathfrak{f}	\mathfrak{f}	\mathfrak{f}	\mathfrak{f}
<i>cmmi10</i>	Γ	Δ	Θ	Λ	Ξ	Π	Σ	Υ	Φ	Ψ	Ω	α	β	γ	δ	ϵ
<i>cmsy10</i>	—	·	×	*	÷	◇	±	≡	⊕	⊖	⊗	⊙	⊙	○	◦	●
<i>lasy10</i>		◁	≤	▷	≥											
<i>cmex10</i>	()	[]	⌊	⌋	⌈	⌋	{	}	⟨	⟩			/	\
<i>rptmr</i>																
<i>rpsyr</i>	˘	˙	ˆ	˜	¨	˜	˚	˘	˘	˘	˘	˘	˘	˘	˘	˘
<i>ecrm1000</i>	˘	˙	ˆ	˜	¨	˜	˚	˘	˘	˘	˘	˘	˘	˘	˘	˘
<i>tcrm1000</i>	˘	˙	ˆ	˜	¨	˜	˚	˘	˘	˘	˘	˘	˘	˘	˘	˘

	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
<i>cmr10</i>	ı	ı	˘	˙	˘	˘	˘	˘	˘	˘	˘	˘	˘	˘	˘	˘
<i>cmmi10</i>	ζ	η	θ	ι	κ	λ	μ	ν	ξ	π	ρ	σ	τ	υ	φ	χ
<i>cmsy10</i>	×	≡	⊆	⊇	≤	≥	⊂	⊃	≈	≈	⊂	⊃	⊂	⊃	⊂	⊃
<i>lasy10</i>																
<i>cmex10</i>	()	()	[]	⌊	⌋	⌈	⌋	{	}	⟨	⟩	/	\
<i>rptmr</i>																
<i>rpsyr</i>	“	”	„	«	»	—	—		◊	◊	ı	ı	ı	ı	ı	ı
<i>ecrm1000</i>	“	”	„	«	»	—	—		◊	◊	ı	ı	ı	ı	ı	ı
<i>tcrm1000</i>	“	”	„	«	»	—	—		◊	◊	ı	ı	ı	ı	ı	ı

	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
<i>cmr10</i>	˘	!	”	#	\$	%	&	’	()	*	+	,	-	·	/
<i>cmmi10</i>	ψ	ω	ε	ϑ	ϖ	ϑ	ς	φ	⊂	⊂	⊂	⊂	⊂	⊂	⊂	⊂
<i>cmsy10</i>	←	→	↑	↓	↔	↗	↘	≈	⊂	⊂	⊂	⊂	⊂	⊂	⊂	⊂
<i>lasy10</i>																
<i>cmex10</i>	()	[]	⌊	⌋	⌈	⌋	{	}	⟨	⟩	/	\	/	\
<i>rptmr</i>		!	”	#	\$	%	&	’	()	*	+	,	-	·	/
<i>rpsyr</i>		!	∀	#	∃	%	&	∃	()	*	+	,	-	·	/
<i>ecrm1000</i>	˘	!	”	#	\$	%	&	’	()	*	+	,	-	·	/
<i>tcrm1000</i>	˘	!	”	#	\$	%	&	’	()	*	+	,	-	·	/

	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
<i>cmr10</i>	0	1	2	3	4	5	6	7	8	9	:	;	i	=	i	?
<i>cmmi10</i>	o	1	2	3	4	5	6	7	8	9	·	,	<	/	>	*
<i>cmsy10</i>	/	∞	∈	∋	△	▽	/	ı	∇	∃	⊂	∅	ℝ	ℝ	⊂	⊂
<i>lasy10</i>	∪	⊗	□	◇							~	~	□	□		
<i>cmex10</i>	()	[]	⌊	⌋	⌈	⌋	⌈	⌋	⌈	⌋	⌈	⌋	⌈	⌋
<i>rptmr</i>	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
<i>rpsyr</i>	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
<i>ecrm1000</i>	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
<i>tcrm1000</i>	o	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?

	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
<i>cmr10</i>	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
<i>cmmi10</i>	∂	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>	<i>F</i>	<i>G</i>	<i>H</i>	<i>I</i>	<i>J</i>	<i>K</i>	<i>L</i>	<i>M</i>	<i>N</i>	<i>O</i>
<i>cmsy10</i>	\aleph	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	\mathcal{E}	\mathcal{F}	\mathcal{G}	\mathcal{H}	\mathcal{I}	\mathcal{J}	\mathcal{K}	\mathcal{L}	\mathcal{M}	\mathcal{N}	\mathcal{O}
<i>lasy10</i>																
<i>cmex10</i>	\backslash	\int	\lrcorner	\lrcorner	\langle	\rangle	\sqcup	\sqcup	\mathfrak{f}	\mathfrak{f}	\odot	\odot	\oplus	\oplus	\otimes	\otimes
<i>rptmr</i>	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
<i>rpsyr</i>	\cong	A	B	X	Δ	E	Φ	Γ	H	I	ϑ	K	Λ	M	N	O
<i>ecrm1000</i>	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
<i>tcrm1000</i>														U		○

	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
<i>cmr10</i>	P	Q	R	S	T	U	V	W	X	Y	Z	[“]	^	·
<i>cmmi10</i>	<i>P</i>	<i>Q</i>	<i>R</i>	<i>S</i>	<i>T</i>	<i>U</i>	<i>V</i>	<i>W</i>	<i>X</i>	<i>Y</i>	<i>Z</i>	\mathfrak{b}	\mathfrak{b}	\mathfrak{d}	\smile	\frown
<i>cmsy10</i>	\mathcal{P}	\mathcal{Q}	\mathcal{R}	\mathcal{S}	\mathcal{T}	\mathcal{U}	\mathcal{V}	\mathcal{W}	\mathcal{X}	\mathcal{Y}	\mathcal{Z}	\cup	\cap	\oplus	\wedge	\vee
<i>lasy10</i>																
<i>cmex10</i>	Σ	Π	\int	\cup	\cap	\oplus	\wedge	\vee	Σ	Π	\int	\cup	\cap	\oplus	\wedge	\vee
<i>rptmr</i>	P	Q	R	S	T	U	V	W	X	Y	Z	[\]	^	_
<i>rpsyr</i>	Π	Θ	P	Σ	T	Y	ς	Ω	Ξ	Ψ	Z	[\therefore]	\perp	$_$
<i>ecrm1000</i>	P	Q	R	S	T	U	V	W	X	Y	Z	[\]	\wedge	$_$
<i>tcrm1000</i>								Ω				\llbracket	\backslash	\rrbracket	\uparrow	\downarrow

	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111
<i>cmr10</i>	‘	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
<i>cmmi10</i>	ℓ	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>e</i>	<i>f</i>	<i>g</i>	<i>h</i>	<i>i</i>	<i>j</i>	<i>k</i>	<i>l</i>	<i>m</i>	<i>n</i>	<i>o</i>
<i>cmsy10</i>	\vdash	\dashv	\lrcorner	\lrcorner	\lrcorner	\lrcorner	{	}	\langle	\rangle		\parallel	\updownarrow	\updownarrow	\backslash	\wr
<i>lasy10</i>																
<i>cmex10</i>	Π	Π	\wedge	\wedge	\wedge	\sim	\sim	\sim								
<i>rptmr</i>	‘	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
<i>rpsyr</i>	$_$	α	β	χ	δ	ϵ	ϕ	γ	η	ι	φ	κ	λ	μ	ν	\omicron
<i>ecrm1000</i>	‘	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
<i>tcrm1000</i>	\backslash		*	o o	+								$\text{\textcircled{e}}$	ω	$\text{\textcircled{a}}$	$\text{\textcircled{c}}$

	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127
<i>cmr10</i>	p	q	r	s	t	u	v	w	x	y	z	$_$	$_$	$_$	$_$	$_$
<i>cmmi10</i>	<i>p</i>	<i>q</i>	<i>r</i>	<i>s</i>	<i>t</i>	<i>u</i>	<i>v</i>	<i>w</i>	<i>x</i>	<i>y</i>	<i>z</i>	\mathfrak{z}	\mathfrak{z}	\mathfrak{z}	\mathfrak{z}	\mathfrak{z}
<i>cmsy10</i>	$\sqrt{}$	Π	∇	\int	\sqcup	\sqcap	\sqsubseteq	\sqsupseteq	\S	\dagger	\ddagger	\P	\clubsuit	\diamond	\heartsuit	\spadesuit
<i>lasy10</i>																
<i>cmex10</i>	$\sqrt{}$	$\sqrt{}$	$\sqrt{}$	$\sqrt{}$	$\sqrt{}$	\lrcorner	\lrcorner	\parallel	\uparrow	\downarrow	\curvearrowright	\curvearrowleft	\curvearrowright	\curvearrowleft	\uparrow	\downarrow
<i>rptmr</i>	p	q	r	s	t	u	v	w	x	y	z	{		}	~	
<i>rpsyr</i>	π	θ	ρ	σ	τ	υ	ϖ	ω	ξ	ψ	ζ	{		}	~	
<i>ecrm1000</i>	p	q	r	s	t	u	v	w	x	y	z	{		}	~	
<i>tcrm1000</i>												{		}	~	=

	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143
<i>cmr10</i>																
<i>cmmi10</i>																
<i>cmsy10</i>																
<i>lasy10</i>																
<i>cmex10</i>																
<i>rptmr</i>																
<i>rpsyr</i>																
<i>ecrm1000</i>	Ä	Å	Ć	Č	Ď	Ě	Ǝ	Ǧ	Ł	Ł	Ł	Ń	Ň	Đ	Œ	Ř
<i>tcrm1000</i>	ˆ	ˆ	ˆ	ˆ	†	‡	‖	‰	•	°C	\$	¢	ƒ	¢	W	℞

	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159
<i>cmr10</i>																
<i>cmmi10</i>																
<i>cmsy10</i>																
<i>lasy10</i>																
<i>cmex10</i>																
<i>rptmr</i>																
<i>rpsyr</i>																
<i>ecrm1000</i>	Ř	Ś	Š	Ş	Ť	Ț	Ũ	Ȫ	Ÿ	Ž	Ž	Ž	IJ	İ	đ	§
<i>tcrm1000</i>	G	P	£	R	?	↓	đ	™	‰	¶	B	№	%	e	o	§ _{SM}

	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
<i>cmr10</i>																
<i>cmmi10</i>																
<i>cmsy10</i>																
<i>lasy10</i>																
<i>cmex10</i>																
<i>rptmr</i>		ı	ç	£	/	¥	f	§	¤	'	“	«	<	>	fi	fl
<i>rpsyr</i>		Ÿ	'	≤	/	∞	f	♣	♦	♥	♠	↔	←	↑	→	↓
<i>ecrm1000</i>	ă	ȧ	ć	č	ď	ě	ę	ğ	ı	İ	ı	ı	ı	ı	ö	ı
<i>tcrm1000</i>	{	}	¢	£	¤	¥	ı	§	¨	©	¸	©	¬	®	®	—

	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191
<i>cmr10</i>																
<i>cmmi10</i>																
<i>cmsy10</i>																
<i>lasy10</i>																
<i>cmex10</i>																
<i>rptmr</i>		—	†	‡	·		¶	•	,	„	”	»	...	‰	—	ı
<i>rpsyr</i>	°	±	”	≥	×	∞	đ	•	÷	≠	≡	≈	...		—	ı
<i>ecrm1000</i>	ř	±	š	§	ı	μ	ı	ı	ı	ı	ı	ı	ı	ı	ı	ı
<i>tcrm1000</i>	°	±	2	3	'	μ	¶	•	ı	ı	ı	ı	ı	ı	ı	ı

	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
<i>cmr10</i>																
<i>cmmi10</i>																
<i>cmsy10</i>																
<i>lasy10</i>																
<i>cmex10</i>																
<i>rptmr</i>		`	´	^	˘	-	˘	·	¨		°	˙		˜	˙	˘
<i>rpsyr</i>	À	Á	Â	Ë	Ä	Å	Æ	Ç	È	É	Ê	Ë	Ì	Í	Î	Ï
<i>ecrm1000</i>	À	Á	Â	Ã	Ä	Å	Æ	Ç	È	É	Ê	Ë	Ì	Í	Î	Ï
<i>tcrm1000</i>																

	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
<i>cmr10</i>																
<i>cmmi10</i>																
<i>cmsy10</i>																
<i>lasy10</i>																
<i>cmex10</i>																
<i>rptmr</i>	—	∇	®	©	™	∏	√	·	¬	^	∨	↔	⇐	↑	⇒	↓
<i>rpsyr</i>	Ɔ	Ñ	Ò	Ó	Ô	Õ	Ö	Œ	Ø	Ù	Ú	Û	Ü	Ý	Þ	ß
<i>ecrm1000</i>	Ɔ	Ñ	Ò	Ó	Ô	Õ	Ö	Œ	Ø	Ù	Ú	Û	Ü	Ý	Þ	ß
<i>tcrm1000</i>							×									

	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
<i>cmr10</i>																
<i>cmmi10</i>																
<i>cmsy10</i>																
<i>lasy10</i>																
<i>cmex10</i>																
<i>rptmr</i>		Æ		^a	™	Σ	ƒ		Ł	Ø	Œ	°				
<i>rpsyr</i>	◊	‹	®	©	™	Σ	ƒ		Ł	Ø	Œ	°	Ł	ƒ	ƒ	
<i>ecrm1000</i>	à	á	â	ã	ä	å	æ	ç	è	é	ê	ë	ì	í	î	ï
<i>tcrm1000</i>																

	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255
<i>cmr10</i>																
<i>cmmi10</i>																
<i>cmsy10</i>																
<i>lasy10</i>																
<i>cmex10</i>																
<i>rptmr</i>		æ	ƒ	ƒ		ı	ı		ı	ø	œ	ß	ı	ı	ı	
<i>rpsyr</i>		›	ƒ	ƒ		ı	ı		ı	ø	œ	ß	ı	ı	ı	
<i>ecrm1000</i>	ð	ñ	ò	ó	ô	õ	ö	œ	ø	ù	ú	û	ü	ý	þ	ß
<i>tcrm1000</i>							÷									