



Equal Font Metrics

Hans Hagen

The Palatino fonts that ship with T_EX distributions originate at URW. The most direct way to generate the metrics that T_EX feels comfortable with is to use AFM2TFM, but there are other means as well. The name of the file that contains the normal glyphs (pictures) is uplr8a.pfb, while the encoding specific metrics are defined in for instance uplr8t.tfm. However, there is also a file named pplr8t.tfm that serves the same encoding subset.

At PRAGMA ADE we prefer to use the original metrics, if only because we cannot be sure what happens with derived ones. Taking the original metrics uplr8a.afm as starting point we can generate whatever encoding we like. The CONTEXT specific files are prefixed by the name of the encoding vector. Such metric files are generated by for instance T_EXFONT. In this note we will stick to pre-built metrics.

When users want to use the Palatino metrics that come with distribution, they can choose between the u and p ones. The number of supported encodings is limited (for instance, the texnansi metrics are seldom distributed). You get the original URW metrics (prefixed by u) with:

```
\usetypescript[berry][ec]
```

The p variants (somehow related to Adobe) are chosen by:

```
\usetypescript[adobekb][ec]
```

Contrary of what some people may want you to believe, these metrics do differ! Some of the differences can be due to the fact that the number of heights and depths within a font is limited. However, since we deal with the same subset of glyphs, one does not expect this. In this document we will demonstrate this. We leave it up to the reader to decide how to act on this. In the example below, the left sample uses uplr8t.tfm, the right hand one pplr8t.tfm. Both samples use a quote by E.R. Tufte.

We thrive in information–thick worlds because of our marvelous and everyday capacity to select, edit, single out, structure, highlight, group, pair, merge, harmonize, synthesize, focus, organize, condense, reduce, boil down, choose, categorize, catalog, classify, list, abstract, scan, look into, idealize, isolate, discriminate, distinguish, screen, pigeonhole, pick over, sort, integrate, blend, inspect, filter, lump, skip, smooth, chunk, average, approximate, cluster, aggregate, outline, summarize, itemize, review, dip into, flip through, browse, glance into, leaf through, skim, refine, enumerate, glean, synopsisize, winnow the wheat from the chaff and separate the sheep from the goats.

We thrive in information–thick worlds because of our marvelous and everyday capacity to select, edit, single out, structure, highlight, group, pair, merge, harmonize, synthesize, focus, organize, condense, reduce, boil down, choose, categorize, catalog, classify, list, abstract, scan, look into, idealize, isolate, discriminate, distinguish, screen, pigeonhole, pick over, sort, integrate, blend, inspect, filter, lump, skip, smooth, chunk, average, approximate, cluster, aggregate, outline, summarize, itemize, review, dip into, flip through, browse, glance into, leaf through, skim, refine, enumerate, glean, synopsisize, winnow the wheat from the chaff and separate the sheep from the goats.

The question may arise why these two paragraphs typeset so differently. The following table provides some answers.

slot	uplr8t	pplr8t	Δ width	Δ height	Δ depth
1	˘	˘		-0.359990	
2	ˆ	ˆ		-0.359990	
3	˜	˜		0.065000	
4	¨	¨		0.065000	
5	˝	˝		0.050050	
6	˚	˚		0.050050	
7	ˇ	ˇ		-0.359990	
8	˘	˘		0.065000	
10	˙	˙		0.065000	
11	˘	˘		0.049990	
12	˘	˘		0.149980	-0.140000
13	˘	˘			-0.140000
16	˝	˝		0.050050	
17	˝	˝		0.050050	
18	˝	˝			-0.140000
27	ff	ff	0.229980	0.049990	
28	fi	fi		0.049990	
29	fl	fl		0.049990	
30	ffi	ffi	0.229980	0.049990	
31	ffl	ffl	0.229980	0.049990	
33	!	!		0.050050	
34	"	"		0.050050	
35	#	#		0.050050	
36	\$	\$		0.049990	
37	%	%		0.050050	
38	&	&		0.050050	
39	'	'		0.050050	
40	((0.049990	
41))		0.049990	
42	*	*		0.050050	
43	+	+		0.010010	
44	,	,			-0.140000
47	/	/		0.049990	
48	0	0		0.050050	
49	1	1		0.050050	
50	2	2		0.050050	
51	3	3		0.050050	
52	4	4		0.050050	
53	5	5		0.050050	
54	6	6		0.050050	
55	7	7		0.050050	
56	8	8		0.050050	

slot	uplr8t	pplr8t	Δ width	Δ height	Δ depth
57	9	9		0.050050	
59	;	;			-0.140000
60	<	<		0.010010	0.029950
62	>	>		0.010010	0.029950
63	?	?		0.050050	
64	@	@		0.050050	
65	A	A		0.050050	
66	B	B		0.050050	
67	C	C		0.050050	
68	D	D		0.050050	
69	E	E		0.050050	
70	F	F		0.050050	
71	G	G		0.050050	
72	H	H		0.050050	
73	I	I		0.050050	
74	J	J		0.050050	0.000060
75	K	K		0.050050	
76	L	L		0.050050	
77	M	M		0.050050	
78	N	N		0.050050	
79	O	O		0.050050	
80	P	P		0.050050	
81	Q	Q		0.050050	0.000060
82	R	R		0.050050	
83	S	S		0.050050	
84	T	T		0.050050	
85	U	U		0.050050	
86	V	V		0.050050	
87	W	W		0.050050	
88	X	X		0.050050	
89	Y	Y		0.050050	
90	Z	Z		0.050050	
91	[[0.049990	0.000060
92	\	\		0.049990	
93]]		0.049990	0.000060
94	^	^		0.050050	
96	'	'		0.050050	
98	b	b		0.049990	
100	d	d		0.049990	
102	f	f		0.049990	
104	h	h		0.049990	
105	i	i		0.050050	
106	j	j		0.050050	
107	k	k		0.049990	
108	l	l		0.049990	

slot	uplr8t	pplr8t	Δ width	Δ height	Δ depth
123	{	{		0.049990	0.210040
124				0.049990	
125	}	}		0.049990	0.210040
126	~	~		-0.060070	-0.060060
128	Ǻ	Ǻ		0.025020	
129	Ą	Ą		0.050050	-0.140000
130	Ć	Ć		0.064940	
131	Č	Č		0.064940	
132	Ď	Ď		-0.370000	
133	Ě	Ě		-0.370000	
134	Ę	Ę		0.050050	-0.140000
135	Ĝ	Ĝ		0.064940	
136	Ĺ	Ĺ		-0.370000	
137	Ł	Ł		0.050050	
138	Ł	Ł		0.050050	
139	Ń	Ń		-0.370000	
140	Ň	Ň		-0.370000	
142	Ŕ	Ŕ		0.064940	
143	Ŗ	Ŗ		-0.370000	
144	Ř	Ř		-0.370000	
145	Ś	Ś		0.064940	
146	Ş	Ş		0.064940	
147	Ş	Ş		0.050050	
148	Ţ	Ţ		-0.370000	
149	Ţ	Ţ		0.050050	
150	Ů	Ů		0.064940	
151	Ű	Ű		0.064940	
152	Ÿ	Ÿ		0.025020	
153	Ž	Ž		-0.370000	
154	Ž	Ž		0.064940	
155	Ž	Ž		0.025020	
156	IJ	IJ		0.050050	0.000060
157	İ	İ		0.025020	
158	đ	đ		0.049990	
159	š	š		0.050050	
160	ă	ă		0.065000	
161	ą	ą			-0.140000
162	ć	ć		-0.359990	
163	č	č		-0.359990	
164	d'	d'		0.049990	
165	ě	ě		-0.359990	
166	ę	ę			-0.140000
167	ğ	ğ		0.065000	
168	í	í		0.064940	
169	ı	ı		0.049990	

slot	uplr8t	pplr8t	Δ width	Δ height	Δ depth
170	ł	ł		0.049990	
171	ń	ń		-0.359990	
172	ň	ň		-0.359990	
174	ǒ	ǒ		0.050050	
175	ř	ř		-0.359990	
176	ř	ř		-0.359990	
177	ś	ś		-0.359990	
178	š	š		-0.359990	
180	ť	ť		0.050050	
182	ů	ů		0.050050	
183	ů	ů		0.050050	
184	ÿ	ÿ		0.065000	
185	ź	ź		-0.359990	
186	ż	ż		-0.359990	
187	ż	ż		-0.359990	
188	ij	ij	-0.150010	0.050050	
191	£	£		0.050050	
192	À	À		0.064940	
193	Á	Á		0.064940	
194	Â	Â		0.064940	
195	Ã	Ã		0.025020	
196	Ä	Ä		0.025020	
197	Å	Å		0.064940	
198	Æ	Æ		0.050050	
199	Ç	Ç		0.050050	
200	È	È		0.064940	
201	É	É		0.064940	
202	Ê	Ê		0.064940	
203	Ë	Ë		0.025020	
204	Ì	Ì		0.064940	
205	Í	Í		0.064940	
206	Î	Î		0.064940	
207	Ï	Ï		0.025020	
208	Ð	Ð		0.050050	
209	Ñ	Ñ		0.025020	
210	Ò	Ò		0.064940	
211	Ó	Ó		0.064940	
212	Ô	Ô		0.064940	
213	Õ	Õ		0.025020	
214	Ö	Ö		0.025020	
215	Œ	Œ		0.050050	
216	Ø	Ø		0.050050	
217	Ù	Ù		0.064940	
218	Ú	Ú		0.064940	
219	Û	Û		0.064940	

slot	uplr8t	pplr8t	Δ width	Δ height	Δ depth
220	Ü	Ü		0.025020	
221	Ý	Ý		0.064940	
222	Ɔ	Ɔ		0.050050	
223	Šš	Šš		0.050050	
224	à	à		-0.359990	
225	á	á		-0.359990	
226	â	â		-0.359990	
227	ã	ã		0.065000	
228	ä	ä		0.065000	
229	å	å		-0.254940	
232	è	è		-0.359990	
233	é	é		-0.359990	
234	ê	ê		-0.359990	
235	ë	ë		0.065000	
236	ì	ì		-0.359990	
237	í	í		-0.359990	
238	î	î		-0.359990	
239	ï	ï		0.065000	
240	ð	ð		0.049990	
241	ñ	ñ		0.065000	
242	ò	ò		-0.359990	
243	ó	ó		-0.359990	
244	ô	ô		-0.359990	
245	õ	õ		0.065000	
246	ö	ö		0.065000	
249	ù	ù		-0.359990	
250	ú	ú		-0.359990	
251	û	û		-0.359990	
252	ü	ü		0.065000	
253	ý	ý		-0.359990	
254	ƒ	ƒ		0.049990	
255	ß	ß		0.049990	

As you can see in this table, the width of the ligatures differ, and it is this difference that is the cause of the different line breaks. You can imagine what happens when one has typeset a document using one instance and after a while reprocesses the document using the other. It becomes even more puzzling when the u instance miraculously is replaced by the p one without notice. Especially in semi-automatic typesetting jobs where some decisions are made by the user this can be disastrous. Consider the case where placement of floats is optimized, something that often needs to be done with side floats and marginal floats.

The table also shows differences in heights and depth. A first opinion may be that this does not hurt, but it really does hurt when one is finetuning the typography, which often happens on for instance cover pages. Of course one can avoid problems

by acting on the current heights and depths of characters (or words or sentences), but as soon as one uses ex based measures, we are in trouble. Also, sometimes characters like (are used to determine the maximum height and depth of lines, and indeed, these have different dimensions in both shown metric instances. Although T_EXies like to talk about struts, DTPers prefer talking in X or H height.

If we disable those ligatures, we get the same output for both sets of metrics.

We thrive in information–thick worlds because of our marvelous and everyday capacity to select, edit, single out, structure, highlight, group, pair, merge, harmonize, synthesize, focus, organize, condense, reduce, boil down, choose, categorize, catalog, classify, list, abstract, scan, look into, idealize, isolate, discriminate, distinguish, screen, pigeonhole, pick over, sort, integrate, blend, inspect, filter, lump, skip, smooth, chunk, average, approximate, cluster, aggregate, outline, summarize, itemize, review, dip into, flip through, browse, glance into, leaf through, skim, refine, enumerate, glean, synopsisize, winnow the wheat from the chaff and separate the sheep from the goats.

We thrive in information–thick worlds because of our marvelous and everyday capacity to select, edit, single out, structure, highlight, group, pair, merge, harmonize, synthesize, focus, organize, condense, reduce, boil down, choose, categorize, catalog, classify, list, abstract, scan, look into, idealize, isolate, discriminate, distinguish, screen, pigeonhole, pick over, sort, integrate, blend, inspect, filter, lump, skip, smooth, chunk, average, approximate, cluster, aggregate, outline, summarize, itemize, review, dip into, flip through, browse, glance into, leaf through, skim, refine, enumerate, glean, synopsisize, winnow the wheat from the chaff and separate the sheep from the goats.

We thrive in information–thick worlds because of our marvelous and everyday capacity to select, edit, single out, structure, highlight, group, pair, merge, harmonize, synthesize, focus, organize, condense, reduce, boil down, choose, categorize, catalog, classify, list, abstract, scan, look into, idealize, isolate, discriminate, distinguish, screen, pigeonhole, pick over, sort, integrate, blend, inspect, filter, lump, skip, smooth, chunk, average, approximate, cluster, aggregate, outline, summarize, itemize, review, dip into, flip through, browse, glance into, leaf through, skim, refine , enumerate, glean, synopsisize, winnow the wheat from the chaff and separate the sheep from the goats.

We thrive in information–thick worlds because of our marvelous and everyday capacity to select, edit, single out, structure, highlight, group, pair, merge, harmonize, synthesize, focus, organize, condense, reduce, boil down, choose, categorize, catalog, classify, list, abstract, scan, look into, idealize, isolate, discriminate, distinguish, screen, pigeonhole, pick over, sort, integrate, blend, inspect, filter, lump, skip, smooth, chunk, average, approximate, cluster, aggregate, outline, summarize, itemize, review, dip into, flip through, browse, glance into, leaf through, skim, refine , enumerate, glean, synopsisize, winnow the wheat from the chaff and separate the sheep from the goats.

The following pages show the glyphs where the width, height and/or depth differs. Keep in mind that even very small differences (say .5 points on 10 points) can make a huge difference.

































































































































































































































































































































































































































