The PMW-Music Font

Author: Philip Hazel   07 July 2025

Introduction

This document describes the font that contains the musical characters used by the music typesetting system known as *Philip's Music Writer* (PMW). It is a freestanding font whose use is not confined to PMW. It is available in two formats, as a PostScript Type 1 font and also as an OpenType font. A separate document describes how it was created and how it is maintained. The definitions of the characters in the font are copyright material.

Use within PMW

PMW itself uses the font for the music images that it generates. A PMW user can also gain access to any character in the font by means of a text string. Certain common characters are available via escape sequences, and any character can be accessed by reference to its character number. It is also possible to switch directly to the music font inside a string, so that ordinary ASCII characters can be used to represent music characters.

For example, the musical sharp sign is character number 37 in the font. It can be included in a string in a PMW source file in any of the following ways:

```
"\*#\"       using a provided escape sequence
"\*37\"      using the character number
"\mu\%"      using the ASCII character in the music font
```

Details of the syntax of PMW text strings are given in the PMW manual.

Organization of the font

The baseline of the font, in the typographic sense, coincides with the bottom line of a musical stave. Most of the characters in the font print 'on the baseline'. This means that the major portion of the character is above the line, though there may be a small 'descender' below it, just as for a conventional text font. The exceptions to this rule are those characters which can be used in combination to form musical notes. For example, the quaver tail character appears well above the baseline, in just the right position to join on to the stem of a quaver printed at the baseline.

Each character has a width, which is the amount by which the current output position is moved to the right after that character. In fact, PMW does not itself make use of many of these widths, so they have been set to values which are reasonable when the font is used in a textual manner. For example, the widths of notes are such that they can immediately be followed by a horizontal dot. From within PMW, constructions such as

```
"\*c\ = 45"
"\*m.\ = 20"
```

can be used to specify specific metronome markings, and these appear with reasonable spacing.

A number of characters are defined with no content; they just move the current output position. This makes it possible to output characters at different positions from within a single string. In the PostScript Type 1 font, which was the original format, there are empty characters that move up, down, left, and right. Also in the Type 1 font, four of the printing characters move the current point vertically. They are the three forms of 'vertical tilde', and the tremolo slash.

Unfortunately, this flexibility is not available in OpenType fonts, where only one direction of movement is supported. When OpenType support was added, PMW was changed to emulate any up, down, or leftwards movements instead of relying on the font mechanism. This means that use of the music font from within PMW is unchanged, whichever version of the font is used. However, if the OpenType font is used by any other program, only rightwards movement is supported.

Many characters in the font correspond to printing characters in ASCII and so can be encoded as single characters in a string. No attempt has been made to make the musical characters correspond in any way to the ASCII graphics.

A number of musical characters are available in parts as well as in a complete form. For example, the crotchet and minim note heads, upward and downward note stems, quaver and semi-quaver tails can be output independently. This makes it possible to output chords, to extend the semiquaver characters with as many extra tails as necessary, and to adjust the stem lengths of notes for beaming or if they are off the stave. Complete 'assembled' characters are available for notes with standard note heads as a convenience. For other shapes of note head, only the parts are provided.

Dimensions

The dimensions that are listed in what follows are given as a multiple of the font's point size. For example, if a 10-point font is used, a character whose width is listed as 1.5 will be 15 points wide.

Non-printing characters

The fourteen non-printing characters are shown below. Note that leftwards and vertical movements apply only to the Type 1 version of the font.

ascii	octal	decimal	hex	action
space	040	032	20	moves right by 0.75
v	166	118	76	moves down by 0.1
w	167	119	77	moves down by 0.4
x	170	120	78	moves up by 0.4
y	171	121	79	moves left by 0.1
z	172	122	7A	moves right by 0.1
{	173	123	7B	moves left by 0.33
|	174	124	7C	moves down by 0.2
}	175	125	7D	moves right by 0.55
~	176	126	7E	moves up by 0.2
	271	185	89	moves left by 0.42 and up by 0.4
	272	186	8A	moves left by 0.76 and down by 0.4
	273	187	8B	moves up by 1.2
	274	188	8C	moves down by 1.2

Examples of the ways in which these characters can be used are given in the section *Using the font* below.

Printing characters

The printing characters are displayed below, together with their character codes. A few of them have been moved vertically so that they line up in this table. There is a later illustration that shows all the characters in their natural positions on a stave. Only two stave characters are shown here, because the others are too wide to fit in the table. In the actual fonts, the character names are prefixed with 'PMW' so as to avoid confusion with standard names (for example, 'PMWcomma').

asc	oct	dec	hex	width	char	name	comment
!	041	33	21	1.5		trebleclef	
"	042	34	22	1.5		bassclef	
#	043	35	23	1.5		altoclef	
$	044	36	24	1.0		star	piano end pedal sign
%	045	37	25	0.6		sharp	

2

&	046	38	26	0.6	⤬	doublesharp	
'	047	39	27	0.5	♭	flat	
(	050	40	28	0.45	♮	natural	
)	051	41	29	0.0	⌒	tfermata	top fermata
*	052	42	2A	0.66	■	brest	breve rest
+	053	43	2B	0.66	▬	sbrest	semibreve rest
,	054	44	2C	0.66	▬	mrest	minim rest
-	055	45	2D	0.66	⅃	crest	crotchet rest
.	056	46	2E	0.59	⅄	qrest	quaver rest
/	057	47	2F	0.0	⌣	bfermata	bottom fermata
0	060	48	30	3.5	▭	longrest	many bars rest
1	061	49	31	1.34	‖○‖	breve	
2	062	50	32	0.84	○	semibreve	
3	063	51	33	0.84	♩	uminim	
4	064	52	34	0.84	♩	dminim	
5	065	53	35	0.84	♩	ucrotchet	
6	066	54	36	0.84	♩	dcrotchet	
7	067	55	37	1.2	♪	uquaver	
8	070	56	38	0.84	♪	dquaver	
9	071	57	39	1.2	♬	usquaver	
:	072	58	3A	0.84	♬	dsquaver	
;	073	59	3B	0.0	⟍	usqtail	repeatable tail
<	074	60	3C	0.0	⟋	dsqtail	repeatable tail
=	075	61	3D	0.0	—	ledger	
>	076	62	3E	0.0	·	vdot	vertical dot (above note)
?	077	63	3F	0.4	·	hdot	horizontal dot
@	100	64	40	0.6	⎮	barsingle	

A	101	65	41	0.76	‖	bardouble	
B	102	66	42	0.76	❘	barthick	
C	103	67	43	1.0	≡	stave1	
D	104	68	44	1.0	—	pstave1	percussion stave
E	105	69	45	0.0	⟩	uqtail	up quaver tail
F	106	70	46	10.0		stave10	long stave
G	107	71	47	10.0		pstave10	long percussion stave
H	110	72	49	0.0	⟩	dqtail	down quaver tail
I	111	73	49	0.6	⁝	repeatdots	
J	112	74	4A	0.0	❘	ustem	upward note stem
K	113	75	4B	0.0	❘	dstem	downward note stem
L	114	76	4C	0.84	●	cnh	crotchet etc. note head
M	115	77	4D	0.84	○	mnh	minim note head
N	116	78	4E	0.6	,	comma	musical comma
O	117	79	4F	0.0	⩗	mordent	
P	120	80	50	0.0	⩗⩗	dmordent	double mordent
Q	121	81	51	0.0	⩗	imordent	inverted mordent
R	122	82	52	0.0	⩗⩗	dimordent	double inverted mordent
S	123	83	53	0.0	∞	turn	
T	124	84	54	0.0	‾	hbar	horizontal bar accent
U	125	85	55	0.0	>	accent1	
V	126	86	56	1.0	//	caesura	
W	127	87	57	0.0	⋀	accent2	
X	130	88	58	0.0	⋁	accent3	
Y	131	89	59	0.0	ˏ	accent4	
Z	132	90	5A	0.0	ˏ	accent5	
[	133	91	5B	0.6	⁝	bardotted	dotted bar line

\	134	92	5C	1.0	/	caesura1	single-line caesura
]	135	93	5D	0.0	*8*	little8	for use with clefs
^	136	94	5E	1.0	𝄴	C	'common' time
_	137	95	5F	1.0	𝄵	cut	'cut' time
`	140	96	60	0.4	~	tilde	suitable for following *tr*
a	141	97	61	0.0	♀	thumba	
b	142	98	62	0.0	♂	thumbb	
c	143	99	63	1.5	⨁	ds1	
d	144	100	64	1.5	𝄪	ds2	
e	145	101	65	0.0	⊓	downa	down bow, above note
f	146	102	66	0.0	⊔	downb	down bow, below note
g	147	103	67	0.0	V	upa	up bow, above note
h	150	104	67	0.0	∧	upb	up bow, below note
i	151	105	69	0.0	∞	iturn	inverted turn
j	152	106	6A	0.55	7̵	seven	
k	153	107	6B	0.76	4̵	four	
l	154	108	6C	0.84	◆	hcnh	harmonic crotchet note head
m	155	109	6D	0.84	◇	hmnh	harmonic minim note head
n	156	110	6E	0.84	×	xnh	cross-shaped note head
o	157	111	6F	0.0	|	xustem	up stem for cross
p	160	112	70	0.0	|	xdstem	down stem for cross
q	161	113	71	0.0	'	fustem	up stem fragment, 0.2 to 0.4
r	162	114	72	0.0	'	fdstem	down stem fragment, 0 to -0.2
s	163	115	73	0.5	6̓	six	
t	164	116	74	0.55	˙	gdot	dot for guitar grid
u	165	117	75	0.55	°	gring	circle for guitar grid

166–176 (118–126) (76–7E) are 'characters' that effect movement only

177	127	7F	-		unassigned	
200	128	80	0.6	√	tick	
201	129	81	0.0	╱	uacc	accaciatura bar
202	130	82	0.0	╲	dacc	
203	131	83	0.0	▦	grid	for guitar chords
204	132	84	0.6	∣	barshort	
205	133	85	0.0	‖	breath	after Frans Bruggen
206	134	76	0.0	∘	vring	
207	135	87	0.0	+	cross	
210	136	88	0.8	𝑡𝑟	trill	
211	137	89	0.6	∣	scaesura	
212	138	8A	0.6	│	lcaesura	
213	139	8B	0.35	[	sbra	for accidentals
214	140	8C	0.35	]	sket	
215	141	8D	0.35	(	rbra	
216	142	8E	0.35	)	rket	
217	143	8F	0.5	╱	rep	for repetition
220	144	90	0.0	∴	repdots	for use with rep
221	145	91	0.0	↝	vtilde	moves up 0.4 (Type 1)
222	146	92	0.0	◢	trem	tremolo bar, moves up 0.4 (Type 1)
223	147	93	1.0	○	circ	
224	148	94	1.0	⌽	cutcirc	
225	149	95	0.0	⌣	slur1	
226	150	96	0.0	⌣	slur2	
227	151	97	0.0	↗	up	
230	152	98	0.0	↘	down	
231	153	99	1.0	Ɔ	iC	inverted 'common' time

232	154	9A	1.0	ꝺ	icut	inverted 'cut' time
233	155	9B	1.58	‖◐‖	unibreve	unison breve
234	156	9C	0.0	ꞁ	accent6	
235	157	9D	0.35	⟨	srbra	for use with 8
236	158	9E	0.35	⟩	srket	ditto
237	159	9F	0.33	⌐	angle1	
240	160	A0	0.33	⌐	angle2	
241	161	A1	0.33	⌐	angle3	
242	162	A2	0.33	∟	angle4	
243	163	A3	1.4	℘ℯ𝒹.	ped	
244	164	A4	0.0	⩑	uvtilde	moves up 0.4 (Type 1)
245	165	A5	0.0	⩒	dvtilde	moves up 0.4 (Type 1)
246	166	A6	0.0	⌢	nail	
247	167	A7	0.333	꜒	angle5	
250	168	A8	0.333	꜓	angle6	
251	169	A9	1.0	⸗	stave21	
252	170	AA	1.0	⸗	stave31	
253	171	AB	1.0	≣	stave41	
254	172	AC	1.0	≣	stave61	
255	173	AD	1.5	‖	hclef	percussion clef
256	174	AE	1.5	℮:	oldbassclef	
257	175	AF	1.5	Ⱪ	oldaltoclef	
260	176	B0	0.0	⌠	bratop	top of system bracket
261	177	B1	0.0	⌡	brabot	bottom of system bracket
262	178	B1	1.0	ⱳ	direct	indicates pitch without duration
263	179	B3	0.55	ꝭ		
264	180	B4	0.75	△	major	major chord sign (jazz notation)

7

265	181	B5	0.675	○	dimsh	diminished chord sign
266	182	B6	0.675	∅	hdimsh	'half diminished' chord sign
267	183	B7	0.055	×	gcross	for guitar grid
270	184	B8	0.0	—	ledger2	thicker ledger line

271–274 (185–188) are 'characters' that effect movement only

275	189	BD	0.424	♯	halfsharp1	half sharp, Egyptian style
276	190	BE	0.6	♯	halfsharp2	half sharp, Turkish style
277	191	BF	0.5	♭	halfflat1	half flat, Egyptian style
300	192	C0	0.5	♭	halfflat2	half flat, Turkish style
301	193	C1	0.6	'	icomma	inverted musical comma
302	194	C2	0.0	'	accent7	
303	195	C3	0.0	'	accent8	
304	196	C4	0.0	∽	rturn	
305	197	C5	0.0	∽	irturn	
306	198	C6	0.0	⌒	thcirc	top half circle
307	199	C7	0.0	⌣	bhcirc	bottom half circle
310	200	C8	0.84	●	rcnh	round filled notehead
311	201	C9	0.84	○	rmnh	round open notehead
312	202	CA	0.0	＜	accent9	flipped for right-to-left

Long versions of the special staves – up here for historical reasons

367	247	F7	10.0		stave210	
370	248	F8	10.0		stave310	
371	249	F9	10.0		stave410	
372	250	FA	10.0		stave610	

Using the font

This section contains some notes on the characters in the music font, and how they might be used within text strings in PMW, for example in footnotes or other commentary that requires musical notation.

Clefs

The clefs all have the same width and are all slightly indented, as is conventional. The 'little8' character (number 93) is designed to be used with the clef signs.

Stem extenders and extra tails

The stem characters (74 and 75) can be used to extend note stems by appropriate raising or lowering, and extra tails can be added to quavers with extended stems. All these characters have a printing width of zero, and should therefore appear before the main character. The correct distance to move up or down is 0.4. For example,

`"\mu\~~J;||9"` outputs

Using non-standard notehead shapes requires the notes to be assembled from the appropriate parts. When using the cross-shaped note head (character 110), the special shortened stem characters (111 and 112) should be used. When using diamond-shaped note heads (characters 109 and 110) the ordinary stems should be used. However, they do not extend quite far enough down to the note heads; this can be remedied by adding the appropriate stem fragment character (161 or 162). Thus, for example,

`"\mu\onpnJqmKrm"` outputs

Chords

Simple overprinting of notes can be used for chords where the minimum interval is greater than a second. The separate note head characters (76 and 77) can be used for outputting chords of adjacent crotchets or minims. One 'font backspace' is the distance to move left:

`"\mu\3{~M"` outputs

Slurs

The two slur characters (149 and 150) are not used by PMW. They are provided for use when tied notes are required in a text string. The first is the correct length for tying two successive note characters; the second is longer, being the correct length when the first note is followed by a dot. Neither has any typographic width, and so should be output before the notes to which they refer.

Font characters on a stave

9

The characters are shown here without any vertical adjustment to their positions, but horizontal white space has been inserted between them.

⸘ ⸘ ⸘