Fontname

version 2.0, August 1995
Filenames for TEX fonts

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1 Introduction

This is Fontname 2.0, a naming scheme for (the base part of) external TeX font filenames. We make at most eight-character names from (almost) arbitrarily complex font names, thus helping portability of TeX documents. We point out some shortcomings of the scheme, and ways of dealing with them.

Please send additions, corrections, or other comments to me at `kb@cs.umb.edu`, or to the mailing list '`tex-fonts@math.utah.edu`'. Email '`tex-fonts-request@math.utah.edu`' to join the list.

Besides this document, the Fontname distribution includes various encoding files, mapping files, and utilities. See the file '`README`' for details. You can retrieve the most up-to-date version of these lists by anonymous ftp from the host '`ftp.cs.umb.edu`', in the directory '`pub/tex/fontname`'. This directory is mirrored on '`ftp.cdrom.com`', and on all CTAN hosts ('`ftp.shsu.edu`', '`ftp.dante.de`', '`ftp.tex.ac.uk`', and their mirrors) in the directory '`tex-archive/doc/fontname`'. For a list of CTAN mirrors, finger '`ctan@ftp.shsu.edu`'.

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1.1 History

The original inspiration for Fontname was Frank Mittelbach and Rainer Schoepf's article in *TUGboat* 11(2) (June 1990), which led to my article in *TUGboat* 11(4) (November 1990), pages 512–519. Mittelbach wrote another article criticizing the scheme below in *TUGboat* 13(1) (April 1992), pages 51–53; most of his points are well-taken, but I saw no alternative then, and see no alternative now. Others of his points are addressed in the appropriate sections below.

In August 1995, Fontname version 2 was released, concomitantly with a new release of the PostScript fonts for use with LaTeX and Dvips. After several years of experience, several modifications of the original distribution seemed desirable: more precise specification of encodings (see Section 2.4 [Variants], page 14), machine-readable mapping files (the '`*.map`' files in the distribution), and standardizing directory names as well as font filenames (included in '`supplier.map`' and '`typeface.map`').

In Fontname version 1, some encoding variant characters ('`0`', '`2`', etc.) have been reassigned to a '`7`' or '`8`' sequence (see Section 2.4 [Variants], page 14). Although this is an incompatible change, the advantages of (1) consistency in naming encoding variants, and (2) having some free variants makes it worthwhile. Also, not so coincidentally, new metrics for PostScript fonts in the Cork encoding were issued—same encoding, different metrics. So a new name served a practical purpose as well.

Many people have contributed to this work. In particular, I gratefully acknowledge Nelson Beebe, Barbara Beeton, Rocky Bernstein, Damian Cugley, Berthold K.P. Horn, Alan Jeffrey, Russell Lang, Pierre MacKay, Sebastian Rahtz, Tom Rokicki, and Jean Rivlin.

1.2 References

Related files and distributions:

- The TeX Directory Structure (TDS) standard, ('`jasper.ora.com:pub/twg-tds`', mirrored on CTAN sites) specifies a directory tree for all TeX library files. The directory names given in Section 2.1 [Suppliers], page 3 and Section 2.2 [Typefaces], page 4 are intended to mesh with that standard.

- The 'modes.mf' file ('ftp.cs.umb.edu:pub/tex/modes.mf') contains recommended directory names to segregate fonts by Metafont mode.
- The PSfonts distribution ('fonts/psfonts' on CTAN hosts) contains TeX support for many fonts, both commercially available and free.
- The Fontinst distribution ('fonts/utilities/psfonts' on CTAN hosts) supports quite general creation of virtual fonts, named according to the scheme given here.
- The Dvips translator (original from 'labrea.stanford.edu:pub/dvips*.tar.gz' and variation from 'ftp.cs.umb.edu:pub/tex/dvipsk.tar.gz') contains TeX support for the 35 standard PostScript fonts, plus additional freely available fonts. Dvips was the first real application of Fontname 1.
- The Dviljk processor ('ftp.cs.umb.edu:pub/tex/dviljk.tar.gz') contains TeX support for the fonts built into the LaserJet 4.
- 'Designing New Typefaces with Metafont', by Richard Southall, Stanford Computer Science Department Technical Report STAN-CS-85-1074, September 1985, for a comprehensive terminology of font design.

2 Filenames for fonts

We must limit ourselves to eight character names, for compatibility with DOS filesystems and the ISO 9660 standard used for CD-ROM distribution. Names may consist of only the letters (monocase), numerals, and underscore.

Here is the basic division of the eight characters (the spaces here are merely for readability):

S TT W [*V*...] [*N*] [*E*] [*DD*]

where

S represents the supplier of the font.

TT represents the typeface name.

W represents the weight.

V... represents the variant(s), and is omitted if both it and the width are normal. Many fonts have more than one variant.

N represents the encoding, and is omitted if the encoding is nonstandard. Encodings are subsumed in the section on variants (see Section 2.4 [Variants], page 14).

E represents the width ("expansion"), and is omitted if it is normal.

DD represents the design size (in decimal), and is omitted if the font is linearly scaled. Mittelbach in *TUGboat* 13(1) proposes using hexadecimal or base-36 notation. I don't think the increased range makes up for the unreadability of the common sizes (e.g., 10 pt fonts would have a suffix '`a`' (in hex), or '`j`' (in base 36)).

The weight, variants, and width are probably all best taken from the original name of the font, instead of trying to relate them to some external standard.

2.1 Suppliers

The *supplier* is the source of a font, typically a (digital) type foundry.

You should use the supplier letter which matches the supplier you obtained the font from, not the original source; for example, Avant Garde was designed by Herb Lubalin for ITC, but Adobe also sells it. The name of the font that you get from Adobe should start with '`p`'. This is because font resellers typically make modifications to the original design.

Notes on specific suppliers:

'`f`' For fonts that are distributed without any specific attribution to the creator, or by individuals.

'`r`' obsolete; specifies raw fonts, in the old distribution of Dvips. New fonts should never use '`r`'. (The right thing to do is specify the correct encoding, variant, or whatever the font's characteristics actually are.)

'`z`' for fonts that just don't fit well into the naming scheme. The '`z`' should be followed by the real supplier letter.

Here is the table from the file '`supplier.map`'. It is organized alphabetically by abbreviation. Each line consists of an abbreviation, directory name, and comment.

9	unknown	
a	autologi	Autologic
b	bitstrea	Bitstream
c	cg	Compugraphic
d	dtc	Digital Typeface Corporation
e	apple	Apple
f	public	freely distributable (e.g., public domain)
g	gnu	Free Software Foundation
h	bh	Bigelow & Holmes
i	itc	International Typeface Corporation
k	softkey	SoftKey
l	linotype	Linotype
m	monotype	Monotype
n	ibm	IBM
o	corel	Corel
p	adobe	Adobe (‘p’ for PostScript)
r	-	raw (for [obsolete] use with virtual fonts)
s	sun	Sun
u	urw	URW
z	-	bizarre (fontname is nonstandard)

2.2 Typefaces

For our purposes, a *typeface* is a collection of related fonts.

We sometimes use the same typeface abbreviation for fonts with different supplier names, where we know (usually by inspection) that the fonts truly are the same. This helps conserve abbreviations.

Notes on specific typefaces:

‘ad’
‘gm’ To explain a common confusion: ‘ad’ is Adobe Garamond (with a ‘FontName’ of ‘AGaramond’). This is quite different from the ‘Garamond’ typeface distributed by Adobe, which is actually ITC Garamond. (Garamond No. 3 (‘f3’), Simoncini Garamond (‘ig’), and Stempel Garamond (‘eg’) are still other variations on the Garamond theme.)

‘lh’
‘ls’
‘lx’
‘r1’ These abbreviations for Lucida typeface subfamilies, et al., solve a problem with names getting too long, or help conserve variant abbreviations. See Section 2.4 [Variants], page 14. Ideally, they would not exist.

‘ns’
‘nt’
‘tm’ Suppliers like to offer as many variations on the Times New Roman design as they do Garamond. Adobe has ‘Times’, ‘TimesNewRoman’, and ‘TimesNewRomanPS’. Although this last has been used by other foundries (e.g., Monotype) for a Times variation

exactly compatible with Adobe's '`Times`', Adobe itself also offers it, so we must have abbreviations for all three.

'`pi`' For all pi fonts. Since names of pi fonts are rather arbitrary, it is not useful to try to assign typeface abbreviations to all of them. Instead, we use the supplier letter, '`pi`', an arbitarily-assigned three-digit number, a weight and (if necessary) a variant. For example, '`mpi001r`'. Pi font '`001`' for one supplier has nothing to do with pi font '`001`' for another.

Here is the table, from the file '`typeface.map`'. It is organized alphabetically by abbreviation. Each line consists of an abbreviation and directory name, possibly followed by PostScript '`FontName`'s and/or a comment in roman. The '`FontName`' may be preceded by a letter *s* and a '`:`', as in '`b:Dutch`'. In that case, the *s* is a supplier abbreviation, and we've used that abbreviation for the given '`FontName`' from that supplier.

```
a1 arial        Arial
a2 amasis       Amasis
a3 adlib        AdLib
a4 altgoth2     AlternateGothicNo2
a5 allegro      Allegro
a6 amelia       Amelia
a7 amertext     AmericanText
a8 aurora       Aurora
a9 adsans       Adsans b:Humanist970BT
aa aachen       Aachen
ab aboeckli     ArnoldBoecklin
ac acaslon      ACaslon                              Adobe Caslon
ad agaramon     AGaramond                            Adobe Garamond
ag avantgar     AvantGarde m:MAvantGardeGothicPS
ah ashleysc     AshleyScript
ai abadi        Abadi
al albertus     Albertus b:Flareserif821BT
am amercana     Americana b:Americana
ao atqolive     AntiqueOlive b:Incised901BT
ap apollo       Apollo
aq antiqua      Antiqua u:URWAntiqua
ar arcadia      Arcadia
as aldus        Aldus
at atypewri     AmericanTypewriter
au auriol       Auriol b:Freeform721
av avenir       Avenir
az azdzgrot     AkzidenzGrotesk b:Gothic725BT
b0 blackoak     Blackoak
b1 blado        Blado
b2 binnyos      BinnyOldStyle
b3 braggado     Braggadocio
b4 bison        Bison b:Brush738BT
b5 binghams     BinghamScript b:Freehand591BT
```

```
b6 block       Block b:Gothic821
b7 bernhard    Bernhard BernhardModern
b8 blippo      Blippo
b9 bremen      Bremen
bb bembo       Bembo b:Aldine401BT
bc banco       Banco
bd bodoni      Bodoni
be bell        Bell
bf biffo       Biffo
bg benguiat    Benguiat
bh bauhaus     Bauhaus
bi birch       Birch
bk bookman     Bookman m:MBookmanPS
bl belwe       Belwe
bn bernard     Bernard
bo balloon     Balloon
bp bodocamp    BodoniCampanile b:Modern735
br berling     Berling b:Revival565BT
bs bakersig    BakerSignet
bu brush       Brush
bv baskervi    Baskerville
bw broadway    Broadway
by berkeley    Berkeley
c0 carolina    Carolina
c1 calisto     Calisto
c2 casln224    CaslonTwoTwentyFour
c3 caslon3     CaslonThree
c4 chicago     Chicago
c5 casln540    CaslonFiveForty
c6 clarion     Clarion
c7 compacta    Compacta
c8 calvert     Calvert
c9 codex       Codex b:Calligraphic421BT
ca caslon      Caslon
cb cooper      Cooper
cc cascade     Cascade b:Freehand471BT
cd clarendo    Clarendon
ce centenni    Centennial
cf clearfac    Clearface
cg charlema    Charlemagne
ch charter     Charter
ci candida     Candida
cl cloister    Cloister
cm cm          Computer Modern
cn century     Century
co cochin      Cochin
cp copperpl    Copperplate
cq cheq        Cheq
```

```
cr courier      Courier m:MCourierPS m:CourierTwelveMT
cs cntursbk     CenturySchoolbook
ct cheltenh     Cheltenham
cu centuros     CenturyOldStyle
cv clairvx      Clairvaux
cw cottonwd     Cottonwood
cx caxton       Caxton
cy city         City b:SquareSlabserif711BT
cz choc         Choc b:Staccato555BT
d0 davida       DavidaBold
dc domcasl      Dom DomCasual DomDiagonal
dd ducberry     DucDeBerry
de dellarob     DellaRobia
di diotima      Diotima b:Calligraphic810BT
dl dolores      Dolores
dr doric        Doric
ds dorchesc     DorchesterScript
e0 embassy      Embassy
e1 empire       Empire
ea lectra       Electra b:Transitional521BT
ec applecha     e:AppleChancery
ee egyptian     Egyptian EgyptianExtended
ef egyptien     EgyptienneF
eg stgaramo     StempelGaramond b:OriginalGaramondBT
eh engsft       Engschrift
ei esprit       Esprit
ek eckmann      Eckmann b:Freeform710
el ellingtn     Ellington
en engraver     Engravers
eo amerigo      Amerigo b:AmerigoBT
er eras         Eras
es eurostil     Eurostile b:Square721BT
et ehrhardt     Ehrhardt
eu euler        Euler
ex exclsior     Excelsior
f0 flemishs     FlemishScript
fa formata      Formata
fe forte        Forte
ff fairfld      Fairfield b:Transitional551BT
fg frankgth     FranklinGothic
fi figaro       Figaro
fl flora        Flora
fn fenice       Fenice
fo folio        Folio
fq frizquad     FrizQuadrata
fr frutiger     Frutiger b:Humanist777BT
fs falstaff     Falstaff
ft fettefrk     FetteFraktur Fraktur
```

fu futura	Futura	
fx felixttl	FelixTitling	
fy flyer	Flyer	
g0 gando	Gando	
g1 gothic13	GothicThirteen	
g3 garamon3	GaramondThree b:AmercianGaramondBT	Garamond No. 3
g4 gymodern	GoudyModern	
g5 gycatalg	GoudyCatalogue	
g6 gorilla	GorillaITC	
g9 ugaramon	GaramondRetrospective	
gb gothicbb	GothicBBB	
ge geneva	e:Geneva	
gg garthgra	GarthGraphic	
gj granjon	Granjon b:ElegantGaramondBT	
gl galliard	Galliard	
gm garamond	Garamond	
go gyoldsty	GoudyOldStyle	
gp glypha	Glypha	
gq grotesq	Grotesque u:URWGrotesk	
gr gloucest	Gloucester	
gs gillsans	GillSans m:GillAltOneMT b:Humanist521BT	
gt goudytxt	GoudyText	
gu guardi	Guardi	
gv giovanni	Giovanni	
gy goudy	Goudy	
h0 handelgo	HandelGothic	
hb hobo	Hobo Tramp	
hc herculnm	Herculanum	
hd headline	Headline	
hg hiroshig	Hiroshige	
hi hvinsera	HelveticaInserat b:Swiss921BT	
hm charme	Charme	
hn hvneue	HelveticaNeue	
ho horleyos	HorleyOldStyle	
hr hvround	HelveticaRounded	
hs hnseati	Hanseatic B:Swiss924BT	
ht hoeflert	e:HoeflerText	
hv helvetic	Helvetica u:NimbusSans b:Swiss721BT b:Monospace821BT b:Swiss911BT d:Sans Newton n:SonoranSansSerif	
hw schadow	Schadow	
hx huxleyvr	HuxleyVertical	
i0 commscr	CommercialScript	
i1 impress	Impress	
i2 impuls	Impuls	
ia insignia	Insignia	
ic impact	Impact	
if inflex	Inflex	
ig scgaramo	SimonciniGaramond b:ItalianGaramond	
ii imprint	Imprint	

```
il caecilia     Caecilia
im imago        Imago
in industri     Industria
io ionic        Ionic b:News701BT
ip impressm     Impressum
is italnos      ItalianOldStyle
it italia       Italia
iw ironwood     Ironwood
iy iowanold     IowanOldStyle
jf jeffersn     Jefferson b:Freehand575BT
jn janson       Janson
jo joanna       Joanna
jp juniper      Juniper
kb kabel        Kabel
kg bankgoth     BankGothic
kl klang        Klang
kr korinna      Korinna
ks kuenstsc     KuenstlerScript
ku kaufmann     Kaufmann
l0 latin        Latin
l1 liberty      Liberty
l2 libra        Libra
l3 lucia        Lucia
l4 lucian       Lucian
lb lubaling     LubalinGraph
lc lucida       Lucida
lf life         Life
lg lettrgth     LetterGothic ISILGothic
lh lubright     LucidaBright
li latin        Latin
ln lino         Lino
lo lithos       Lithos
ls lucsans      LucidaSans
lt lutetia      Lutetia
lw leawood      Leawood
lx lucidfax     LucidaFax
ly lydian       Lydian
m0 monospac     Monospace
m1 monolisc     MonolineScript
m2 metro        Metro b:Geometric415BT
m3 mirarae      Mirareae
m4 mrearl       MisterEarl
m5 murrayhl     MurrayHill
m6 mittlsft     Mittelschrift
ma mandate      Mandate b:Freehand521BT
mc monaco       e:Monaco
md meridien     Meridien
me mercursc     MercuriusScript
```

```
mg marigold     Marigold
mh machine      Machine
mi medici       Medici
ml melior       Melior b:ZapfElliptical711BT
mn minion       Minion
mo modern       Modern b:Modern20BT
mp memphis      Memphis b:GeometricSlab703BT
mq mesquite     Mesquite
mr madrone      Madrone
ms mistral      Mistral b:Staccato222BT
mt minister     Minister
mv malvern      Malvern
mx maximus      Maximus
mz amazone      Amazone
n0 normande     Normande
na newaster     NewAster
nb nbaskerv     NewBaskerville
nc ncntrsbk     NewCenturySchlbk
nd ncaledon     NewCaledonia
nf nofret       Nofret
ng newsgth      NewsGothic
ni nimrod       Nimrod
nk neograph     Neographik
nl neuland      Neuland b:Informal011BT
nm nimbus       Nimbus
nn nclarend     NewClarendon
np nsplanti     NewsPlantin
nr nberolin     NewBerolina
ns timesnps     TimesNewRomanPS
nt timesnew     TimesNewRoman m:TimesNR n:SonoranSerif
nu nuptial      Nuptial
nv novarese     Novarese
nz neuzeits     NeuzeitS b:Geometric706BT
o0 oldreadf     OldDreadfulNo7
o1 oranda       Oranda
o2 orbitb       OrbitB
o7 oldsty7      OldStyleSeven
oa ocra         OCR-A
ob ocrb         OCR-B
oc concorde     Concorde
oe oldengli     OldEnglish b:English157
oi ondine       Ondine Mermaid b:FormalScript421BT
om omnia        Omnia
on corona       Corona
op optima       Optima d:Optimum b:ZapfHumanist601BT Omega
or orator       Orator
os oldstyle     OldStyle
ot coronet      Coronet b:Ribbon131BT
```

ov	octavian	Octavian
ox	onyx	Onyx
oy	olympian	Olympian l:OlympicLH
oz	ozhandcr	OzHandicraft
p0	poplar	Poplar
p1	palacesc	PalaceScript
p2	pepita	Pepita
p3	palette	Palette b:Brush445BT
p4	pioneer	PioneerITC
p5	piranesi	Piranesi
pa	parkave	ParkAvenue
pb	ptbarnum	PtBarnum
pd	placard	Placard
pe	prestige	PrestigeElite
pf	profile	Profile Profil b:Decorated035BT
pg	peignot	Peignot b:Exotic350BT
ph	photina	Photina
pi	pi	pi fonts—see text and '*.map' files
pl	palatino	Palatino d:Palton b:ZapfCalligraphic801BT Palmspring
pn	plantin	Plantin b:Aldine721BT
po	ponderos	Ponderosa
pp	perpetua	Perpetua b:Lapidary333BT
pq	postatqa	PostAntiqua
ps	parisian	Parisian
pt	present	Present
px	popplpfx	PopplPontifex
py	playbill	Playbill
pz	poliphil	Poliphilus
qr	quorum	Quorum
r0	romana	Romana
r1	rotis	RotisSemi
ra	raleigh	Raleigh
ro	rotis	Rotis
rm	carmina	Carmina
rp	reporter	Reporter
rq	russelsq	RussellSquare
rs	arrus	Arrus
rt	carta	Carta
ru	runic	Runic
rv	revue	Revue
rw	rockwell	Rockwell Slate b:GeometricSlab712BT
ry	ryumin	Ryumin
s0	sanmarco	SanMarco
s1	scotchro	ScotchRoman
s2	script	Script
s3	seagull	Seagull
s4	shotgun	Shotgun ShotgunBlanks
s5	snell	Snell

```
s6 stuyvesa     Stuyvesant
s9 scriptor     Scriptoria
sb sabon        Sabon b:ClassicalGaramondBT
sc slimbach     Slimbach
sf serifa       Serifa
sg serifgth     SerifGothic
sh shannon      Shannon
sk skia         e:Skia
sl stencil      Stencil
sm spectrum     Spectrum
sn spartan      Spartan
so sonata       Sonata
sp serpenti     Serpentine
sr snellrnd     SnellRoundhand
ss stschnei     StempelSchneidler
st stone        Stone
sv souvenir     Souvenir
sw swing        Swing
sx syntax       Syntax
sy symbol       Symbol m:MSymbolPS
t0 tango        Tango
t1 thunderb     Thunderbird
t2 typo         TypoUpright
tb bebodoni     BBodoni                                   Berthold Bodoni
te timeseur     TimesEuropa
tf tiffany      Tiffany
tg tradegth     TradeGothic
ti techphon     TechPhonetic
tj trajan       Trajan
tk tekton       Tekton
tl castella     Castellar
tm times        Times u:NimbusRoman b:Dutch801BT
to torino       Torino b:Industrial736BT
tp tempo        Tempo
tv trumpmed     TrumpMediaeval b:Kuenstler480BT
tw twentyc      TwentiethCentury
ty typewrit     Typewriter
ub babodoni     BauerBodoni
ug bengugth     BenguiatGothic
uh cushing      Cushing
ul universa     Universal
um umbra        Umbra
un univers      Univers b:ZurichBT
ur centaur      Centaur b:Venetian301BT
ut utopia       Utopia
uw usherwoo     Usherwood
uy universi     University
v0 vineta       Vineta
```

```
va activa       Activa
vc vectora      Vectora
vd vandijck     VanDijck
vj veljovic     Veljovic
vl versaill     Versailles
vr vagrnd       VAGRounded
w0 weddingt     WeddingT
wb walbaum      Walbaum
wd weideman     Weidemann
wg wlklgth      WilhelmKlingsporGotisch
wi wingding     Wingdings
wk wilke        Wilke
wn windsor      Windsor
ws weiss        Weiss
ww willow       Willow
ym stymie       Stymie
za zantiqua     ZAntiqua
zc zapfchan     ZapfChancery m:ZapfChanceryPS
zd zapfding     ZapfDingbats m:ZapfDingbatsPS
zg neuzeitg     NeuzeitGrotesk
zt zeitgeis     Zeitgeist
```

2.3 Weights

The *weight* of a font specifies its boldness. Arranged from lightest to heaviest (more or less):

hairline, extra light, light
book, regular, medium
demibold, semibold, bold, extra bold, heavy
black, ultra, poster

Here is the table, from the file '`weight.map`'. It is organized alphabetically by abbreviation. Each line consists of an abbreviation and any parts of a PostScript '`FontName`' which use that abbreviation.

```
a Thin Hairline
b Bold
c Black
d Demi
h Heavy Heavyface
j ExtraLight
k Book
l Light
m Medium
p Poster
r Regular Roman
s Semibold
u Ultra UltraBlack
x ExtraBold ExtraBlack
```

2.4 Variants

Variants include typeface variations (e.g., italic, sans serif), and font encodings (e.g., Adobe standard, TEX text).

A fontname may require multiple variants. To resolve the worst ambiguities, we specify that any encoding variant (`7`, `8`, or `9`, see below) come last and any other numeral variant come first (to avoid confusion with a design size). We recommend but do not require that the other variants be given in alphabetical order. (It's not required because it's too painful to implement the sorting in TEX, and many existing names already have non-alphabetized variants.)

The letterspacing possibilities introduced by `fontinst` and virtual fonts have not yet become sufficiently widespread to make standardization beneficial. Likewise for the many possible ways to generate small caps fonts.

Notes on specific variants, both old and new:

'`1`'
'`4`'
'`6`'
'`b`' These variants ('semisans', 'bright', 'semiserif', and 'fax') were used only for single typefaces, so to conserve variant abbreviations, they now have typeface abbreviations instead. Also, for '`b`', to avoid too-long names; and for the others, to avoid variant vs. design-size ambiguities.

'`g`'
'`h`'
'`j`' Since these variants were not actually used in any font names, they are now obsolete and may be reassigned in the future.

'`5`'
'`7`'
'`8`'
'`9`' These characters begin a two-character *encoding variant*. Generally, '`7`' is for 7-bit encodings, '`8`' is for 8-bit encodings, and '`9`' is for expertised encodings (see the '`x`' item below), but this is not an absolute rule.

For a font to be named with a certain encoding variant, it's not necessary that all the characters appear in precisely the same positions as in the encoding definition. It's enough that the usual TEX macros work. In practice, this means that it's ok for a font to be labelled '`7t`' if the only difference from Computer Modern is that the ligatures and the '`lslash`' and '`Lslash`' characters are different, since it's impossible to access or change the ligature table from TEX. Standard PostScript fonts don't have an '`lslash`' character the way Computer Modern does, but they do have the '`Lslash`' and '`lslash`' characters themselves, so the usual TEX `\lslash` and `\Lslash` macros can be made to work via ligatures. See the file '`T1.etx`' file in the `fontinst` distribution for details.

If a name does not contain a specific encoding variant, its encoding is unspecified. For example, some of the fonts distributed with Dvips(k) have names like '`ptmr`' for '`Times-Roman`'; they are in the default Afm2tfm encoding, which is close to (but not the same as) the TEX text encoding. Similarly, the TFM files distributed with Dvilj(k) for the builtin LaserJet 4 fonts have names like '`cunm`', since these fonts, while compatible with TEX text, contain many additional characters.

‘9’ This is needed only because ‘x’ followed by a two-character regular variant makes some names too long. That is, ‘9t’ is equivalent in meaning to ‘x7t’.

‘k’
‘z’ These variants (indicating Greek and Cyrillic fonts, respectively) are obsolete; future fonts in different scripts should be assigned an appropriate encoding abbreviation. These are not currently standardized, due to ignorance of the appropriate encodings. Please send suggestions for abbreviations to the address in Chapter 1 [Introduction], page 1.

‘m’
‘v’
‘y’ These math-related variants remain for the sake of typeface-specific math encodings, e.g., Lucida. Fonts that specifically use the Computer Modern math encodings should use ‘7m’, ‘7v’, and ‘7y’.

‘r’ Included only if no other variants, including encodings, apply, and either the width (see Section 2.5 [Widths], page 16) is not ‘r’ or a design size is present. I.e., ‘r’ is only used as a placeholder. When the normal version of the typeface is sans serif (e.g., Helvetica), ‘r’ should be used when necessary, not ‘s’. Use ‘s’ only when the typeface family has both serif and sans serif variants.

‘s’
‘t’ Mittelbach in *TUGboat* 13(1) suggests that these variants (for ‘sans’ and ‘typewriter’) should be identified as part of the typeface name, because there are few typeface families with these variants. I feel that since they are logically variants, it’s best to name them that way. But ‘LucidaSans’ (see Section 2.2 [Typefaces], page 4) is an exception, to avoid too-long names.

‘x’
‘8x’ ‘8x’ indicates a font in the ‘Expert’ encoding itself. ‘x’ indicates an *expertised* font, i.e., a composite (i.e., virtual) font that includes characters from an ‘8x’ font.

Fontname 1 assignments are shown in brackets in the following table, from the file ‘variant.map’. It is organized alphabetically by abbreviation. Each line consists of an abbreviation and either any parts of a PostScript ‘FontName’ which use that abbreviation or the PostScript ‘Encoding’ name.

```
[0=>8a] Adobe standard encoding
obsolete [1 SemiSans]
[2=>7c] encoding with changed characters only; Adobe's 'Dfr'
[3=>7f] Fraction
[4 fax; now typeface 'lx', Lucida Fax]
5 escape for (presently) phonetic encodings
obsolete [6 SemiSerif]
7 escape for (mostly) 7-bit encodings
8 escape for (mostly) 8-bit encodings
9 escape for (presently) expert encodings
[9=>7d] oldstyle digits; Adobe's 'OsF'
a Alt Arrows Alternative                [was alternate encoding]
[b bright; now typeface lh, Lucida Bright]
c small caps, small text
d Display Titling Caption Headline
```

`e Engraved Copperplate Elite`	
`f Fraktur Gothic OldEnglish Handtooled`	('gothic' can also be sans)
obsolete [g grooved (as in the IBM logo)]	
obsolete [h shadow]	
`i Italic Kursiv Ital`	text italic
obsolete [j invisible]	
`k Greek`	obsolete
`l Outline OpenFace Blanks`	
`m MathItalic`	math italic
`n Informal Fashion`	
`o Oblique Obl`	slanted
`p Ornament`	
[q=>8t Cork (TeX extended) encoding]	
`r` roman or sans; often omitted, see text	
`s Gothic`	sans serif
`t Monospace`	fixed-width typewriter
`u` unslanted italic	
`v MathExtension`	
`w Script Handwritten Swash Calligraphy Cursive Tango`	
`x` built with Adobe expert encoding [was expert-encoded]	
`y MathSymbol`	
`z Cyrillic`	obsolete
`5a PhoneticAlternate`	
`5i PhoneticIPA`	
`5s` sil-IPA	
`7a A`	alternate characters only
`7c Dfr`	changed characters only
`7d` oldstyle digits; Adobe's '`OsF`'	
`7f Fraction`	
`7m TeXMathItalicEncoding`	see '`texmital.enc`'
`7t` TeX text encoding (as in Computer Modern Roman)	
`7v TeXMathExtensionEncoding`	see '`texmext.enc`'
`7y TeXMathSymbolEncoding`	see '`texmsym.enc`'
`8a StandardEncoding`	Adobe standard encoding
`8m` Macintosh standard encoding	
`8r TeXBase1Encoding`	see '`8r.enc`'
`8t CorkEncoding`	see '`cork.enc`'
`8u XT2Encoding`	cmtt + Latin 2, see '`xl2.enc`'
`8w` Windows 3.1 ANSI encoding	
`8x Expert`	expert encoding
`8z XL2Encoding`	cmr + Latin 2, see '`xl2.enc`'
`9e` expert + Cork	
`9t` expert + TeX text	

2.5 Widths

The *width* of a font specifies the compression or expansion of the font. Arranged from narrowest to widest (more or less):

ultra compressed, extra condensed, compressed, condensed, narrow
regular
extended, expanded, wide

Expansion or compression of fonts is sometimes done automatically (as by the PostScript `scale` operator), and sometimes done by humans. In the latter case, the human will also presumably choose a font name including 'Extended' or 'Expanded' or 'Condensed' or 'Narrow' or whatever, according to their own preferences, and the abbreviation can follow along. When creating a new synthetically expanded or compressed font for use with TeX, e.g., with Afm2tfm or `fontinst`, use '`n`' and '`e`'.

Here is the table, from the file '`width.map`'. It is organized alphabetically by abbreviation. Each line consists of an abbreviation and any parts of a PostScript '`FontName`' which use that abbreviation.

```
c Condensed Cond
e Expanded
n Narrow
o UltraCondensed
p Compressed Compact
q ExtraCompressed ExtraCondensed
r Regular Normal Medium (usually omitted)
t Thin
u UltraCompressed
w Wide
x Extended Elongated
```

3 Long names

Eight characters is not enough to unambiguously represent all fonts. To do that, we have to allow ourselves arbitrarily long names. Although we certainly cannot use such names for the files themselves, we could still use them in TeX documents given a simple mapping file, as discussed below.

3.1 A fontname mapping file

At the moment, most implementations of TeX look up a TFM file (as part of the `\font` command), by searching for a file with the name given by the user (possibly in any of series of directories). But if we looked TFM names up first in *another* file (or set of files), which specifies the actual filename, the fontname given in the TeX source file could be almost anything at all, of any length.

In version 5.851d of Web2c, I implemented this mapping file. Each file '`texfonts.map`' in a search path is read for abbreviations. The file has a straightforward format: each line specifies the filename and the TeX name for one font, separated by whitespace. Extra information on the line is ignored; then more information could be specified for the benefit of DVI-reading programs in the same file. Comments start with `%` and continue to the end of the line.

Besides allowing long names, this sort of mapping file has other benefits. TeX source or DVI files can be more easily transported, because the font names in a particular file can be made work on every system. Also, when combined with a consistent naming scheme, macros could be written to access any of a number of fonts. Right now, each font family has to have specialized macros written to deal with it.

Incidentally, Professor Knuth has approved this as a legitimate "system-dependent" extension; a TeX with such a feature can still be called "TeX".

3.2 A naming scheme for long names

Once we allow ourselves long names, we can construct a naming scheme to handle arbitrary fonts without much difficulty. Here is one proposal, based on the X Window System font naming conventions.

supplier`-`*family*`-`*weight*`-`*variants*`-`*width*`-`*encoding*`--`*size*

The *supplier* is the usual `Adobe`, `Autologic`, etc., as well as `unknown`, `public`, or `bizarre`—this last meaning the rest of the name is nonstandard. If the *supplier* is missing, i.e., the name starts with a `-`, "public domain" is assumed. For fonts made by individuals, the initials of the designer would probably make a good *supplier*.

The *family* is `ComputerModern` or `Times` or whatever.

Everything else is optional. The `--` before the *size* lets one specify a name with, say, a weight and variants, but then skip the *width* and *encoding*, but still be able to give a size.

The *weight* and *width* are as described earlier.

If there is more than one variant, they are separated with some character other than '`-`', say '`=`':

```
B+H-Lucida-Bold-Sans=Typewriter--10
```

The *encoding* is what Metafont calls the `font_coding_scheme`—the layout of the characters in the font. For example, '`Cork`' or '`ISOLatin1`' or '`AdobeAlternate`'.

Names are case-sensitive, for consistency with the rest of TEX and with PostScript, etc. Spaces cannot be used in the name, to make it easier for TEX to parse. Likewise, characters with default category codes other than 11 (letter) or 12 (other) should not be used.

Another possibility is to forget all the above, and simply use the vendor's name (perhaps prefixed by the vendor): '`Adobe-Times-Roman`', say.

Appendix A Examples

The examples you probably are most interested in are the files '`adobe.map`', '`bitstrea.map`', and '`monotype.map`' in the distribution. They contain a comprehensive list of fonts from those suppliers together with the corresponding names. They're omitted here because the files are so large. The vastly shorter '`.map`' files for Apple, DTC, and Linotype are included, however, for the sake of example. The larger files follow the same pattern.

A.1 Standard PostScript fonts

Abbreviated names for the 35 standard PostScript fonts. An encoding variant, such as '`8a`' for the Adobe '`StandardEncoding`', is omitted.

'pagk' '`AvantGarde-Book`'

'pagko' '`AvantGarde-BookOblique`'

'pagd' '`AvantGarde-Demi`'

'pagdo' '`AvantGarde-DemiOblique`'

'pbkd' '`Bookman-Demi`'

'pbkdi' '`Bookman-DemiItalic`'

'pbkl' '`Bookman-Light`'

'pbkli' '`Bookman-LightItalic`'

'pcrb' '`Courier-Bold`'

'pcrbo' '`Courier-BoldOblique`'

'pcrr' '`Courier`'

'pcrro' '`Courier-Oblique`'

'phvb' '`Helvetica-Bold`'

'phvbo' '`Helvetica-BoldOblique`'

'phvbrn' '`Helvetica-NarrowBold`'

'phvbon' '`Helvetica-NarrowBoldOblique`'

'phvr' '`Helvetica`'

'phvro' '`Helvetica-Oblique`'

'phvrrn' '`Helvetica-Narrow`'

'phvron' '`Helvetica-NarrowOblique`'

'pncb' '`NewCenturySchlbk-Bold`'

'pncbi' '`NewCenturySchlbk-BoldItalic`'

'pncri' '`NewCenturySchlbk-Italic`'

'pncr' '`NewCenturySchlbk-Roman`'

‘pplb’ ‘Palatino-Bold’

‘pplbi’ ‘Palatino-BoldItalic’

‘pplri’ ‘Palatino-Italic’

‘pplr’ ‘Palatino-Roman’

‘psyr’ ‘Symbol’

‘ptmb’ ‘Times-Bold’

‘ptmbi’ ‘Times-BoldItalic’

‘ptmri’ ‘Times-Italic’

‘ptmr’ ‘Times-Roman’

‘pzcmi’ ‘ZapfChancery-MediumItalic’

‘pzdr’ ‘ZapfDingbats’

A.2 Apple fonts

The ‘apple.map’ file has abbreviations for Apple fonts.

```
eecr     AppleChancery
eger     Geneva
ehtr     HoeflerText
emcr     Monaco
epi001   Zeal
eskr     Skia
```

A.3 DTC fonts

The ‘dtc.map’ file has abbreviations for DTC (Digital Typeface Corporation) fonts.

```
dhvcrc  SansBlackCondensed-DTC
dhvcoc  SansBlackCondensed-Oblique-DTC
dhvmrx  SansExtended-Medium-DTC
dhvrrx  SansExtended-Regular-DTC
dhvroc  SansExtended-RegularOblique-DTC
dhvxrc  SansExtraBlackCondensed-DTC
dhvlrx  SansLightExtended-DTC
dhvhrc  SansThinCondensed-DTC
dhvhoc  SansThinCondensed-Oblique-DTC
dnbb    NewBaskerville-Bold-DTC
dnbbi   NewBaskerville-BoldItalic-DTC
dnbri   NewBaskerville-RomanItalic-DTC
dnbr    NewBaskerville-Roman-DTC
dopr    Optimum-Roman-DTC
dopb    Optimum-Bold-DTC
dopbo   Optimum-BoldItalic-DTC
doro    Optimum-RomanItalic-DTC
dpll    Palton-Light-DTC
```

A.4 Linotype fonts

The '`linotype.map`' file has abbreviations for Linotype fonts.

lenb	EngraversLH-BoldFace
lpi001	OlympicLH-Pi
ltgbrx	TradeGothicLH-BoldExtended
ltgrrx	TradeGothicLH-Extended
lvcc	VectoraLH-Black
lvcci	VectoraLH-BlackItalic
lvcb	VectoraLH-Bold
lvcbi	VectoraLH-BoldItalic
lvcri	VectoraLH-Italic
lvcl	VectoraLH-Light
lvcli	VectoraLH-LightItalic
lvcr	VectoraLH-Roman
lpi002	WarningLH-Pi
lpi003	AudioLH-Pi
lcfcs	ClearfaceGothicLH-Black
lcfbs	ClearfaceGothicLH-Bold
lcfls	ClearfaceGothicLH-Light
lcfms	ClearfaceGothicLH-Medium
lcfrs	ClearfaceGothicLH-Roman
lpi004	EECLH-Pi
lffb	FairfieldLH-Bold
lffbi	FairfieldLH-BoldItalic
lffbc	FairfieldLH-BoldSC
lffbd	FairfieldLH-CaptionBold
lffhd	FairfieldLH-CaptionHeavy
lffld	FairfieldLH-CaptionLight
lffmd	FairfieldLH-CaptionMedium
lffh	FairfieldLH-Heavy
lffhi	FairfieldLH-HeavyItalic
lffhc	FairfieldLH-HeavySC
lffl	FairfieldLH-Light
lffli	FairfieldLH-LightItalic
lfflc	FairfieldLH-LightSC
lffm	FairfieldLH-Medium
lffmi	FairfieldLH-MediumItalic
lffmc	FairfieldLH-MediumSC
lffbiw7d	FairfieldLH-SwBoldItalicOsF
lffhiw7d	FairfieldLH-SwHeavyItalicOsF
lffliw7d	FairfieldLH-SwLightItalicOsF
lffmiw7d	FairfieldLH-SwMediumItalicOsF

Appendix B Legal issues

This section owes a great deal to Charles Bigelow (co-designer with Kris Holmes of the Lucida typeface family, among others), who has generously answered our many queries about fonts and the law around the world with remarkable patience and understanding. (But he is naturally not responsible for any errors here, much less our opinions.)

Fonts have always been treated rather strangely under the law, as befits their rather strange nature: letterforms are indivisibly both *useful* and *artistic*. In most countries—in all countries until recently—utility has taken precedence; i.e., it has been legal to copy fonts without permission or fee.

In any case, to the best of my knowledge, the situation in those countries which have adopted any sort of typeface protection is as follows:

United States

Typeface designs can be patented, but not copyrighted. Only a few designs have been patented. (Lucida and Stone are the only ones I know of. I don't know what the grounds were for patenting Stone, but Lucida had some novel features in its design which make it reasonable to patent, given the acceptance of the patent system in the first place.)

Particular programs which instantiate a font can be copyrighted just as any other computer program can. This is arguably wrong, since font programs are nothing but a description of the shapes, possibly with some simple hints, and there's only one basic way to describe the shapes in any given language. Thus, the creativity lies in making the shape right, not in making the computer program right, so it would seem that to be consistent, the copyright laws should protect the design, not the program—the opposite of the current situation.

Germany

Typeface designs have been copyrightable as original works of art since 1981. As a result, many (perhaps most) designs have been copyrighted there. The law is not retroactive, but German courts have upheld the intellectual property rights of designers of earlier fonts as well: In one case the heirs of Paul Bauer (designer of Futura) won a suit against the Bauer foundry for arbitrarily discontinuing a portion of their royalties.

England

A copyright law passed in 1989 covers typeface designs first published in England (or published in Britain within 30 days of its publication elsewhere), and it *is* retroactive. It's unclear how far back the law extends, but Times Roman, designed in the late 1920's and 1930's by Stanley Morison and cut by Victor Lardent for Monotype is probably covered. This does not mean GNU (for example) cannot have a Times Roman; it just means we cannot start with an English version, as the law does not forbid importing foreign versions of English typefaces.

France

The Romain du Roi typeface designed by Philippe Grandjean in 1702 for the French royal family is protected, and perhaps other such "royal" designs. There is no protection for designs in general.

In 1973 the international Vienna treaty on typeface design protection was proposed. France ratified it in 1974 or 1975, and Germany in 1981. The English law might constitute ratification, but this has not been settled. In any case, since at least four countries have to ratify it before it takes effect (and even then it takes effect only in those countries which ratify it), it is still of no consequence for now.

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