

A CFF font program with no sfnt around it

This heading is set in NimbusSans-Regular.otf with its wrapper removed - 54928 bytes of CFF table, embedded with -data. The file on disk is 82264 bytes; what is left after the cut has no cmap, no hmtx, no name, no head and no OS/2.

What is left, and where it is read from

The left column is what the bare program answers; the right one is the table of the .otf that used to answer the same question and is no longer there.

Question	The bare CFF answers	Read from	The sfnt read
PostScript name	NimbusSans-Regular	Name INDEX	name
Family	Nimbus Sans	Top DICT FamilyName	name
Glyphs	855	CharStrings INDEX	maxp
Units per em	1000	Top DICT FontMatrix	head
Italic angle	0	Top DICT ItalicAngle	post
Stem width	93	Private DICT StdVW	estimated
Cap height	729	the H charstring	OS/2 sCapHeight
Glyph names	855	charset	post
Widths	855	the charstrings	hmtx
Own encoding	149	Encoding	cmap
Embedding permission	none stated	-	OS/2

The stem width is the one number the TrueType road cannot read and has to estimate from the weight class; a CFF states it. The embedding permission is the one this format has nowhere to put, so font info answers it as not stated rather than as permission 0 - an absent permission is not permission. The cap height is the one no CFF states at all, and Table 122 asks the descriptor for it: it is read off the top of the H. From the FontBBox, where the A ring reaches, this face declared 1075 for capitals of 729.

One face, three containers, one measurement

Nimbus Sans Regular is here three times over: as an .otf, whose widths come from hmtx by glyph number; as a .t1, whose widths come from the AFM beside it by glyph name; and as the bare CFF, whose widths come from nowhere but the charstrings. Three readers, one face - so the three numbers have to agree, and a charstring read wrongly is the only thing that could separate them.

Rechnung	bare CFF 16.0796 mm	.otf 16.0796 mm	.t1 16.0796 mm
Hamburgefonstiv	bare CFF 26.6629 mm	.otf 26.6629 mm	.t1 26.6629 mm
AVATAR 12,34 EUR	bare CFF 32.3497 mm	.otf 32.3497 mm	.t1 32.3497 mm

What the missing wrapper costs

A bare CFF goes into the file as /FontFile3 with /Subtype /Type1C - a Type 1-equivalent font program, which is addressed by single bytes through WinAnsiEncoding, exactly as a .pfb is. That reaches 218 byte positions. The same outlines inside the .otf are addressed by glyph number and reach 854 characters. The face has the glyphs either way; what the bare file lost is the table that says which character they belong to. Where the .otf exists, embed the .otf.

Große Wäsche kostet 12 € - Café, Fußnote, Œuvre, Ångström

Set in the bare CFF, and half of it outside ASCII. Copy the line because the /Encoding written beside the program says which glyph name each byte stands for, which is the job the missing cmap used to do.

What a refusal answers with

a text file offered as a font -> SOURCE

a CFF2, the variable-font format -> UNSUPPORTED

a TrueType collection -> UNSUPPORTED

A script that tries a file through several readers retries on SOURCE and gives up on DAMAGED. That is the whole reason the two do not share a code.