



METATYPE1

software for creation
PostScript fonts
in Type 1 format
making use of METAPOST
(and AWK, T1utils, perl)

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[...] I'd like to create professional types, I have a few concepts and I hope to have them scanned soon. Alas, I don't know what to do next. I don't know which resolution I should use, which aspects are important. I haven't found a Polish translation of METAPost. I wish that their quality were good enough to use them with plotters. Please help. I ask also for help in encoding, since I don't know how to code ligatures, capital letters, etc. The font has (so far) only one variant, there are no italic letters and such characters as (c), TM, degrees, etc.

(An excerpt from a letter to the JNS Team)

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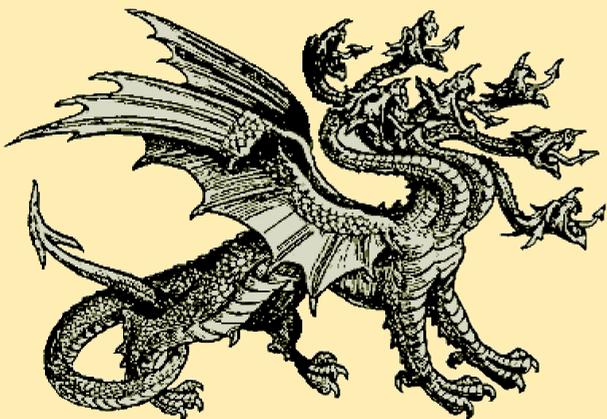
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- encoding information

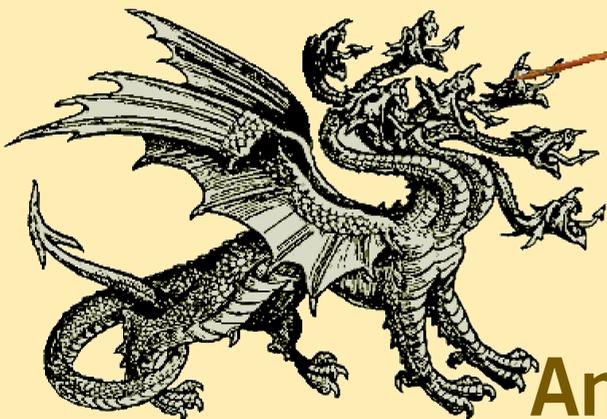
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- metric information: dimensions, italic correction, kerning, interletter spacing (tracking), interword spacing, interline spacing, slant angle, characteristic dimensions (quad)...
- encoding information
- information about ligatures and other information about groups of characters, for example, in T_EX the information concerning `charlist` characters and `extensible` characters

This is font!

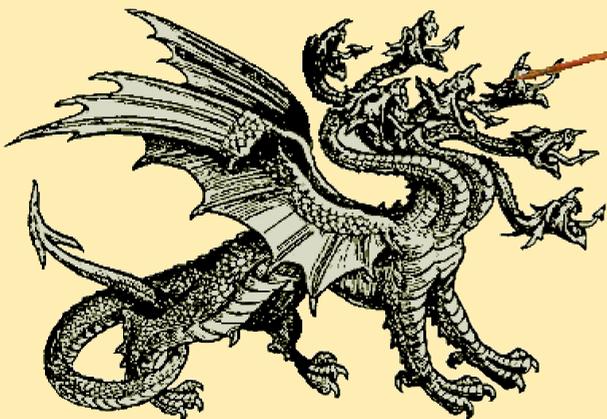


This is font!



And this is METAFONT!

This is font!



... or METAPOST!

Types of fonts

- **Bitmap**

TEX: TFM+GF, TFM+PK

Windows: FON

- **Outline**

TEX: MF, AFM+PFB* or AFM+PFA*

Windows: PFM+PFB, TTF**

* PostScript font Type 1

** Windows font TrueType

What is PostScript font?

What is PostScript font in Type 1 format?

What is PostScript font in Type 1 format?

- Metric file: AFM (text file; basic format) or PFM (binary; contains less information than AFM; to be used in Windows)
- PFB file (binary) or PFA (ASCII) containing programs that describe the shapes of characters, hint information, and supplementary information (a bit messy, for example, copyrights, interline, etc.)

METAFONT

(structured output)

0	6	C	I	O	U
1	7	D	J	P	V
2	8	E	K	Q	W
3	9	F	L	R	X
4	A	G	M	S	Y
5	B	H	N	T	Z

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METAPOST

(unstructured output)



METAPOST

(unstructured output)

0	6	C	I	O	U
1	7	D	J	P	V
2	8	E	K	Q	W
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METATYPE1: what is it?

- METAPOST: generates TFM i EPS files; EPS files contain the information about character shapes and extra information (passed in comments) needed for creating a proper font (e.g., hints).
- AWK: collects all the stuff generated by METAPOST and makes a text equivalent of PFB (“raw” file) and AFM file, orders hint information, and, moreover, tries to make subroutines out of repeating pieces of code. Also, generates files for dvips (`psfonts.map` and `*.enc`).
- `t1asm` from `T1utils` package: converts the “raw” PFB file, generated by AWK, into a genuine PFB one.
- `perl`: generates PFM file out of PFM one.

To and fro

An important element of METATYPE1 is the software for converting Type 1 fonts into METAPOST sources.

It employs the same tools: AWK and T1utils (program t1disasm).

The resulting sources are non-parametric; still, in some cases it is easier to edit an METAPOST source than the original point, especially from the point of view of font consistency.

It works!

We've tried... And really!
Antykwa Półtawskiego may serve as an example programmed from scratch in METAPOST language. Recently released fonts (based on URW collection) were created by converting first PostScript files into METAPOST ones, and next – after very many manual interventions – from METAPOST sources were generated the resulting Type 1 fonts.

Nobody is perfect

Alas! The METATYPE1 package has a few drawbacks. First, and most importantly, its documentation is missing. Moreover, mainly because of it – the package has not yet been released. In other words, it does not exist...

Bright future

But it will! We plan to release the METATYPE1 package at the 12th European TeX Conference, which will be held in Kerkrade in the Netherlands (24th–27th September, 2001).

