



# Fonts of Future

## Edifying Thoughts of Tobacco Smokers

Bogusław Jackowski

Marek Ryćko

BachTeX 2001



J.S. Bach's poem "Edifying Thoughts of a Tobacco Smoker" (Erbauliche Gedanken eines Tabakrauchers) is an example of a naïve yet charming and commendable philosophy. We borrowed the title from it, because our remarks concerning T<sub>E</sub>X fonts one can also consider naïve...



# *N<sub>T</sub>S* needs NFS

We firmly believe that “a new typesetting system” necessitates designing a “new font system,” i.e., a new model of fonts.

A new model of fonts may have an influence for the design of a “TNTS” – a “truly new typesetting system.”

This implies that a “TNTS” should include also a successor of a new METAFONT.



# What's wrong with the old model?

256 characters, 255 widths, 16 heights, 16 depths, 64 italic corrections, ligatures and kerns hard-wired into TFM files (difficult to control for a  $\text{T}_\text{E}\text{X}$  user), no information about the bounding box of a letter in a metric file (not speaking about the details of the outline of a character), fixed encoding, oversimplified `\accent` mechanism, no direct interface between  $\text{T}_\text{E}\text{X}$  and METAFONT, etc.



# What's wrong with the old model?

There is no such thing  
as “left italic correction”:

**mug *junk* chat**

mug {\it junk\} chat



# What's wrong with the old model?

There is no such thing as “character axis”:



# What's wrong with the old model?

Why does using fancy styles, such as swash letters, caps-small-caps, nautic digits, etc., mean switching fonts?  
There is no reason or rhyme in it.





## What's wrong with the old model?

Why have math symbols to be constructed out of pieces? In some applications a user must bother about it, e.g., if a given formula is to be cut out using a cutting plotter, but not only.

The illustration on the next page shows the results of non-continuous brace change: in the first formula the brace (built out of two chars) has proper size, in the second—the brace (single char) is too small.



# What's wrong with the old model?

$$x_i = \sigma \left( \sum_{j=1}^n w_{ij} x_j + u_i \right)$$

$$\min_{\pi} \left\{ J(\pi, x_0) = \lim_{N \rightarrow \infty} E_w \left( \sum_{k=0}^N \alpha^k \cdot g(x_k, u_k, w_k) \right) \right\}$$

$$= \sigma \left( \sum_{j=1}^n w_{ij} x_j + \lim_{N \rightarrow \infty} E_w \left( \sum_{k=0}^N \alpha^k \right) \right)$$



# Challenge (or benchmark)

Examples of tasks that seem to be unbeatable for contemporary typesetting systems:

- math
- calligraphy
- dance notation
- music notation







*Ceci n'est pas une pipe.*



René Magritte's pipe is actually not a pipe. Is our lecture actually a lecture about fonts of tomorrow?

