Don's Punk Anno 2008

How it started

- Long ago I ran into a funny font called Punk made by Don Knuth.
- It is a MetaFont, and therefore is a bitmap font.
- Nowadays . . . who uses bitmap fonts.
- I once made an outline variant using glyph containeds in pdfTeX, but that's not workable.
- When mplib showed up I decided to give it another try using virtual fonts.
- Taco converted the MetaFont file into something more MetaPost.
- I wrote a virtual font builder . . . and here we are.

How it works

- The MetaPost file is processed using the mfplain format.
- We generate some ten random instances of this font.
- The pictures are converted to PDF and stored in the MkIV font cache.
- At runtime a font is assembled from these pictures.
- As a bonus we add missing glyphs (composed characters like ỳ and ỹ).
- We use an attribute to signal that some text has to be punked.
- One of the node parsers picks up this signal and randomly chooses a font.
- The shapes end up in the stream as inline PDF code as result of the virtual font.

What we observe

- Virtual fonts have great potential.
- But this way the resulting file is rathed big.
- Using xforms saves bytes but is dead slow.
- The Type3 options of LuaTeX are dather minimal (read: absent).
- We need a proper pdf text stream that also can be searched.

What happens next

- The font needs some subtle finetuning.
- The font needs more characters, symbols and math.
- So at some point Punk Nova may show up.
- The MetaPost library needs to be made suitable for making fonts (kerning and such).
- LuaTeX has to be extended with proper automatic Type3 handling (Hartmut is already working on it).
- At some time in the future Taco will look into charstring generation.
- This kind of trickery will be present in the ConTeXt MkIV kernel.
- Eventually we can apply this mechanism to handwritten (script) fonts.

THE DETAILS

- THE FONT ITSELF: FUNKFONT.MP.
- THE CODE: M-FUNK.TEX.