

# Present and future of the TG Math Project: the report and some questions

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The Polish T<sub>E</sub>X User Group – GUST

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## Jackowocky

'Twas brillig and the slithy Poles  
Did gyre and gimble in the wabe  
All mimsy were the borogoves  
And the mome raths outgrabe

With apologies to Lewis Carroll (and Poland!)

— Chris Rowley

Hans Hagen, Jerzy B. Ludwichowski, Volker Schaa, "The New Font Project:  
T<sub>E</sub>X Gyre", TUGboat, Volume 27 (2006), No. 2  
<http://tug.org/TUGboat/Articles/tb27-2/tb87hagen-gyre.pdf>

# The “then” situation

## Introduction

- In early 2008 a proposal for TG Math fonts
- Main instigators – Hans Hagen & Volker RW Schaa
- The team initially: GUST e-foundry  
(<http://www.gust.org.pl/projects/e-foundry>):
  - Bogusław Jackowski
  - Janusz M. Nowacki
  - Piotr Strzelczyk
- Hans rounded up funding promisses from: NTG, TUG, Dante e.V., CSTUG, Gutenberg, TUG India, UK TUG and GUST.

# The “then” situation

From the proposal – situation

Both the Latin Modern and the T<sub>E</sub>X Gyre fonts as the result of the efforts of the T<sub>E</sub>X community are available in the Open Type Format and thus allow for typesetting texts in almost all Latin based scripts, but do not allow for typesetting advanced mathematics within the Open Type Format because of the missing metric information.

Moreover, employing mathematics typesetting features, though possible with the T<sub>E</sub>X engines and Latin Modern fonts, is not possible for **T<sub>E</sub>X Gyre fonts** as they **do not contain math glyphs and the respective metric information**.

# The “then” situation

From the proposal – challenge

The next important step should be the provision of support for typesetting of advanced mathematics. [...]

The T<sub>E</sub>X Gyre fonts do not contain glyphs required for mathematics and what is more important, there are no features allowing for their proper provision within the Open Type font format.

[...] Modern and easy typesetting requires Open Type Unicode fonts in order to allow handy access to [...] diacritical characters [...] T<sub>E</sub>X metric files which allow for only 256 glyphs per font impose restrictions which seem cumbersome to those who know the merits of using Open Type fonts.

[...] Open Type fonts, initially developed jointly by Adobe and Microsoft, have been standardized in March 2007 as the ISO Standard ISO/IEC 14496-22 and called the “Open Type Format”.

# The “then” situation

From the proposal – project staging

- I : inventory,
- II : math tools development,
- III : AMS compatible math symbols,
- IV : Unicode compatible math symbols,
- V : Unicode compatible math text fonts (mostly mappings).

where stages I and II should necessarily be interleaved and their outcome will determine the remaining stages in terms of scope (results), timing and required resources.

# The “then” situation

From the proposal – fonts planned

[...] Math support will be provided for all T<sub>E</sub>X Gyre families except for Chorus:

- T<sub>E</sub>X Gyre Adventor (ITC Avant Garde Gothic)
- T<sub>E</sub>X Gyre Bonum (ITC Bookman)
- T<sub>E</sub>X Gyre Cursor (Courier)
- T<sub>E</sub>X Gyre Heros (Helvetica)
- T<sub>E</sub>X Gyre Heros Condensed (Helvetica Condensed)
- T<sub>E</sub>X Gyre Pagella (Palatino)
- T<sub>E</sub>X Gyre Termes (Times)
- T<sub>E</sub>X Gyre Schola (New Century Schoolbook)

# The “now” situation

## The tools (stage 2)

- FFDKO (FontForge font development kit for OpenType)
- Metatype1 enhanced with OpenType Math support (still needs proper documentation)

# The “now” situation

OTF math fonts done (stage 4)

- Latin Modern <http://gust.org.pl/projects/e-foundry/lm-math/>  
as a bonus!
- T<sub>E</sub>X Gyre Pagella <http://gust.org.pl/projects/e-foundry/tg-math/>
- T<sub>E</sub>X Gyre Termes <http://gust.org.pl/projects/e-foundry/tg-math/>

# The “now” situation

Fonts to be done (stage 4)

- T<sub>E</sub>X Gyre Schola
- T<sub>E</sub>X Gyre Bonum

When? In 2013.

# The “now” situation

TG OTF math Fonts **not** to be done

- T<sub>E</sub>X Gyre Adventor
- T<sub>E</sub>X Gyre Heros
- T<sub>E</sub>X Gyre Heros Condensed

Why? Sans-serif font do not seem to yield themselves for typesetting mathematics. Perhaps sometimes, as an experiment. . . Also, sans-serif math doesn't fit into the “Unicode Support for Mathematics” (draft Unicode Technical Report #25 by Barbara Beeton, Asmus Freytag and Murray Sargent III). However, if there will be interest, the GUST e-foundry is willing to try.

# The future

## Projects in planning (1)

- OTF Math T<sub>E</sub>X Gyre Schola and Bonum (first of all, of course, and still within the original project),
- documenting and generalizing the tool chain (Metatype1, FFDKO)
- Improvements of the math font structure:
  - adding features (e.g., old-style numbers),
  - adding “staircase” (math) kerns, adding anchors (for positioning accents); the (research) problem is: how to automate these tasks?

# The future

## Projects in planning (2)

- DejaVu mono math: extending the text font with Unicode math symbols (without implementing the ‘math’ tables),
- DejaVu OTF Math, unless there is a twin project within the DejaVu group, perhaps funding can be joined. . .
- enhancing the repertoire of TG text fonts by some symbols (which ones? Hans mentioned, e.g., the ‘bullet’, but it is already present),
- a bold math companion font, probably TG Math Termes,
- a sanserif math font (DejaVu?) – as an experimental excursion into the sans-serif math fonts uncharted lands. . .

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A big thank you to all the LUGs for support so far,  
and to the audience for their patience.