

Hochschule
München
University of
Applied Sciences

Fakultät für Informatik und Mathematik

News from the HINT Project

Martin Ruckert

TUG 2023

Bonn, July 14, 2023

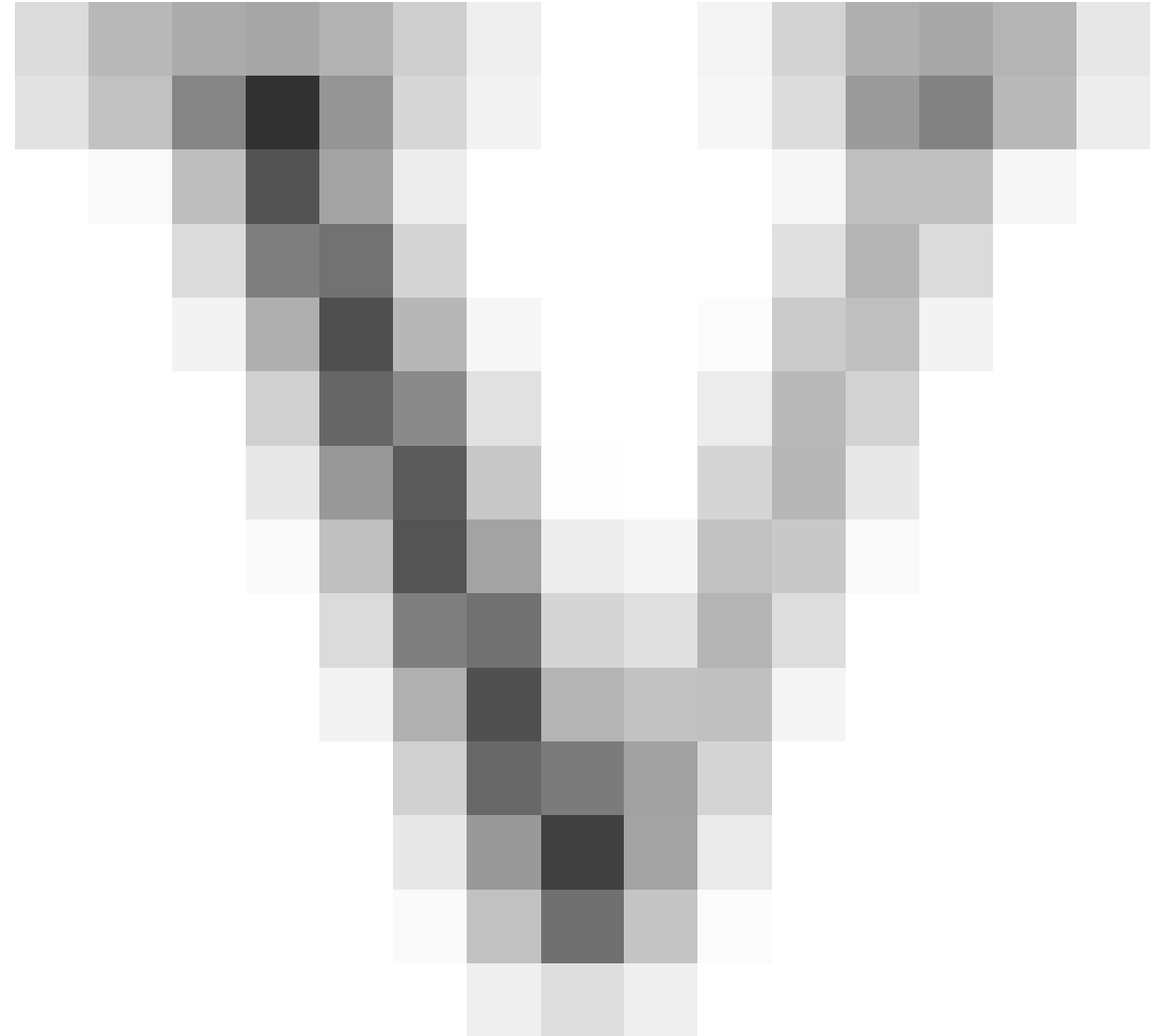


Displaying Glyphs

Better Rendering of Glyphs was a major part of the recent work on the HINT file viewers.

General Procedure:

1. Decode File header
2. Decode Glyph into bitmap
3. For each pixel
 - a. Map pixel center to source position in the bitmap.
 - b. Compute pixel's gray value by interpolating the four pixels surrounding the source position.



Displaying Glyphs

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Improvements:

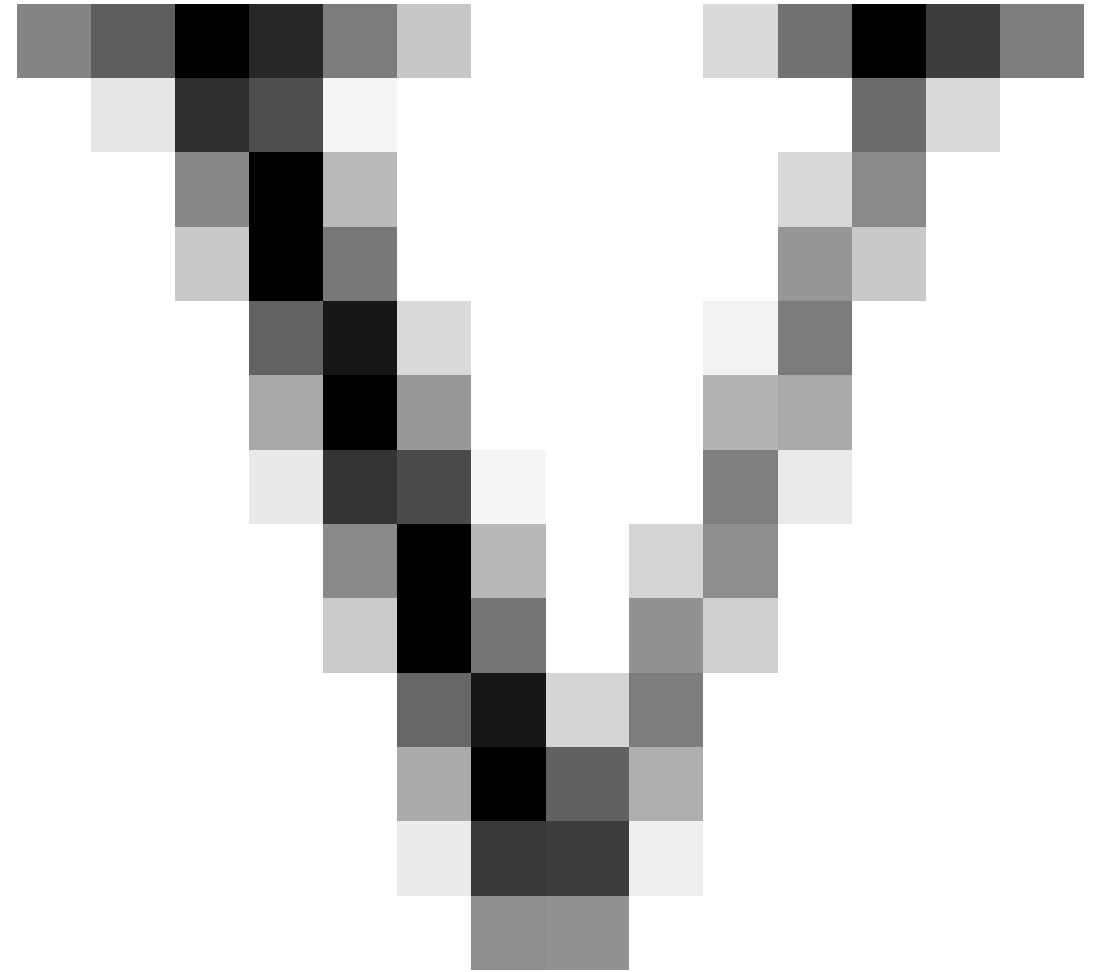
1. Outline Fonts

Video Clip 1

2. Rounding of Glyph Positions

Video Clip 2

- a. vertical: Observe the top strokes of the V.
- b. horizontal: Observe the thin right stroke of the V.

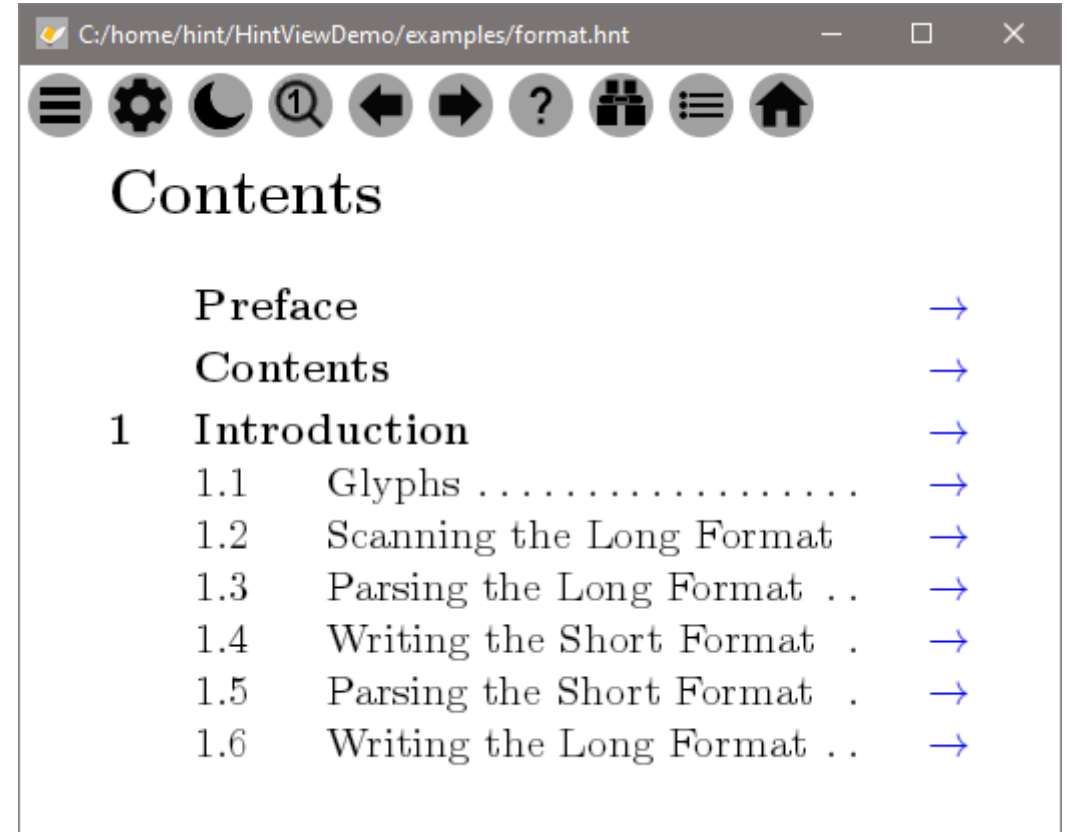


Links, Labels, and Outlines

Navigating electronic documents needs special support.

- Links
- Labels
 - require special page generation:
 - Two good page breaks.
 - Floating content.
 - “Home” label.
- Outlines
- LaTeX support

Video Clip 3



TeX Macros for Variable Pages

Writing TeX documents for variable page sizes can benefit from macros that use vertical boxes to break paragraphs into lines.

Two examples:

- Centering text:
Using left- and rightskip.
- Advanced positioning:
Side by side Left, Center, Right text.

Video Clip 4

Video Clip 5



Searching

HINT documents can be converted into plain text strings.

Problems:

- Ligatures
- Hyphenation and page breaks
- Glue and Kern

Application:

- Searching
- Outlines

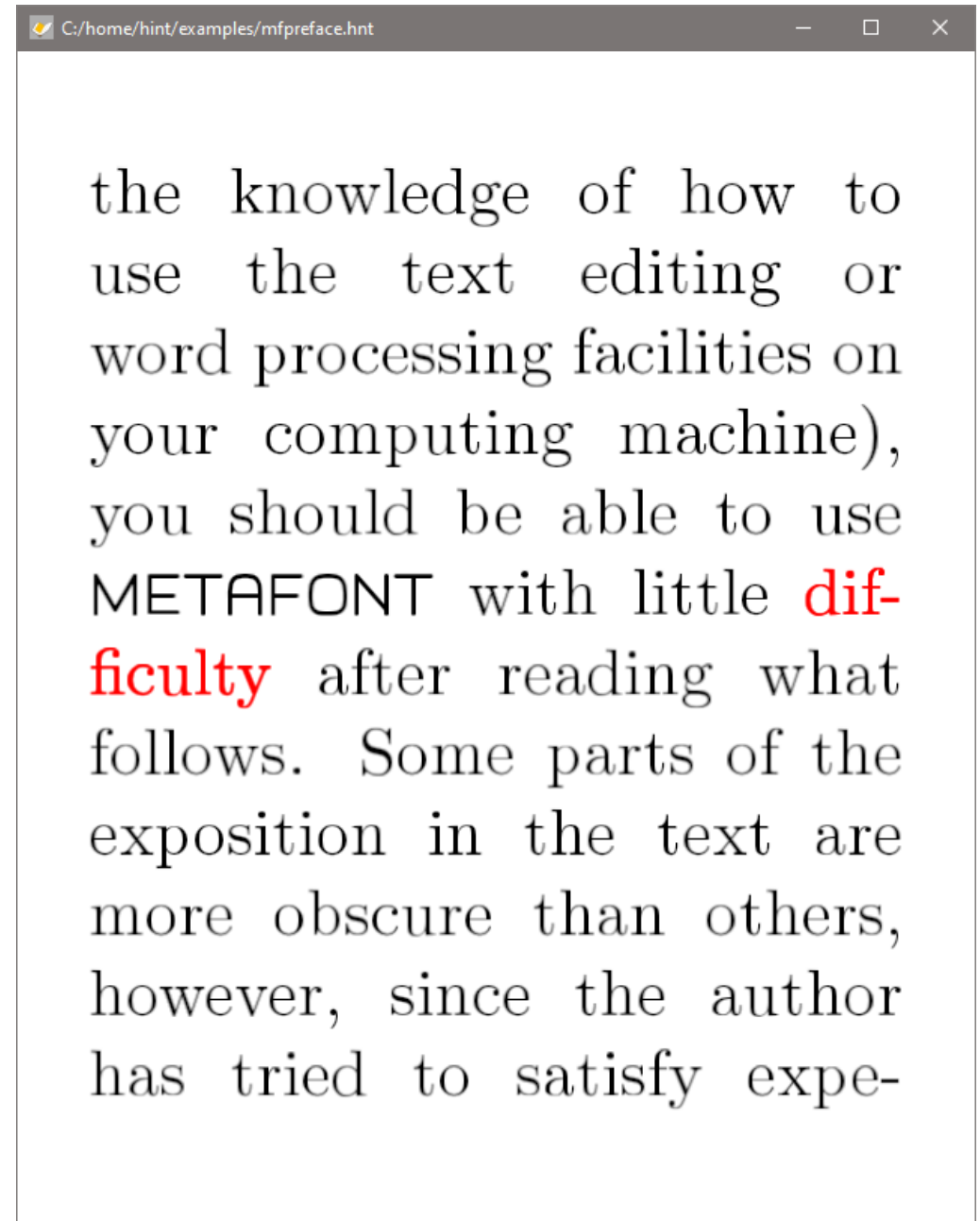
Video Clip 6

Not yet implemented:

- UTF8 character encoding
- Text to Speech Conversion



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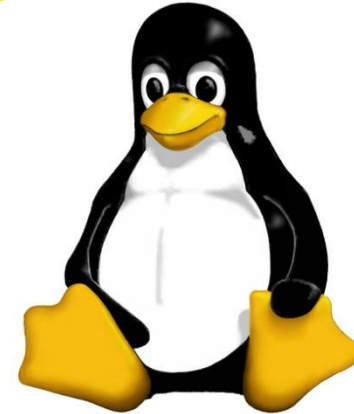
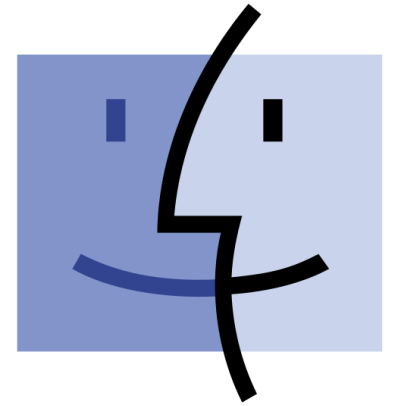


Operating System Support

HINT viewers are available for all major Operating systems.

- Linux
- Windows
- Android
- MacOS
- iOS

All the above applications share a common backend written in C and a common renderer written in OpenGL.



Resources

- The HINT project home page
<http://hint.userweb.mwn.de/>
- The HINT repository on github
<https://github.com/ruckertm/HINT/>
- The HINT video collection
<http://hint.userweb.mwn.de/hint/video/>

