LaTeX in Real-World Math Typesetting: NFSS vs. NFNF

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Wednesday July 23, 2003

Abstract The New Font Selection Scheme (NFSS) in LaTeX enabled much more flexible managing of fonts. Handling of math fonts and text fragments within math was also enhanced. However, the available choice of math fonts is too limited to satisfy standard requirements of many major scientific publishers to set math in virtually arbitrary fonts.

To meet such requirements for typesetting a number of major journals and a considerable number of books that are heavy in math (from the point of view of typesetting), we developed a strategy of attacking the problem from two sides at the same time. A new font-loading scheme, based on NFSS, is employed in conjunction with custom-adapted math fonts. Within math, the main focus is on fonts intended to play the role of the cmmi* fonts from the Computer Modern family (italic variables plus Greek). Extensive work on kerning and spacing, as well as enriching the math font families available, was the key to allow complex math formulas to be typeset easily in various font styles and to look good.

An additional twist comes from a quite common requirement for special styles in section titles, table- and figure captions, table body, abstract, etc. A typical example of such kind requires the abstract to be all bold, section titles to be bold sans-serif, whereas table- and figure captions should be sans-serif bold-condensed. All of those elements can contain formulas. Setting math in such circumstances can be quite tricky. We show that our font scheme, combined with a satisfactory solution to NFNF (**N**eed **F**or **N**ew **F**onts) can succesfully accomplish those tasks.

A number of samples illustrate this font-system at work. We show a number of other enhancements within this system, both on the font-loading side and in the fonts themselves. Some other real-life situations in math typesetting that tend to be neglected in academic discussions are also presented.