New Typesetting Language and System Architecture

Karel Skoupý
Switzerland
skoupy@inf.ethz.ch

Abstract

The TEX input language is quite flexible for manipulation of the document's contents, but it is too limited for efficient work with its actual typesetting (layout). Use of a more general programming language was already proposed by Frank Mittelbach in 1990. Significant inconveniences of the existing TEX programming capabilities are also experienced in development of ConTEXt by Hans Hagen.

There are two kinds of problems. One is the oversimplified type system of TEX, which doesn't support structured and user defined types; also, the control structures might be richer, although this is probably not critical. The second problem is that the set of TEX primitives is not complete: for example, there is no `\lastrule` or `\lastspecial`. These problems usually lead to unreliable workarounds for complex programming tasks like multicolumn typesetting.

In my new project I plan to provide an alternative and more viable language for typographic programming. It will also support a unified model of text and graphics, an another part of the project.

The project also aims to provide a modular system architecture which separates the language and the typesetting engine. The architecture is intended to support multiple languages: TEX compatibility mode, Scheme with typographic primitives, ... This future typesetting system will be composed of flexible components which can support multiple input (TEX, XML) and output (DVI, PostScript, PDF) formats and different font types.