Polishing typesetting blocks

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one

uniting

making one
what was separated

result of uniting

result of uniting:
generating lots of energy

result of uniting:
explosion

result of uniting:
revolution

one half of an atomic bomb

the other half of an atomic bomb

explosion
after combining the pieces

uniting minds

result of uniting minds

result of uniting minds:
explosion

result of uniting minds:
revolution

GNU project
Richard Stallman

Linux kernel

Linus Torvalds

result: GNU/Linux system

explosion
after combining the pieces

internet

e-mail

www

changed everyday life
of milions of people

thousands of new ideas

common development of programs

Mozilla Firefox

quality

speed of development

other revolutions through uniting

aeroplane communication

mobile phones

EuroBachoTEX 2007

uniting in the field of programming

using other people's work

making pieces fit together

combining pieces

glue

a lot of great pieces
in the TEX related area

no explosion

no explosion!

no revolution

no revolution!

???

what is lacking?

what do we need
to make an explosion?

what do we need
to make a revolution?

answer

polishing blocks

Polishing blocks?

designing and building
palaces, pyramids, skyscrapers...

breaking too big blocks into pieces

separating groups of blocks
already tightly glued together

programming

using commands

using commands
of a programming language

C

C++

Python

Ruby

Lua

Metafont

Metapost

Megapost

TEX

TEX – a typesetting language

metaprogramming

using programs as programming blocks

UNIX pipes

UNIX scripts

DOS batch files

.tex – .dvi – .ps

.tex – .pdf

.mp – .eps

using parts of programs
as programming blocks

UNIX libraries

Windows DLL files

functionalities of programs

functionalities of programs
vs programs themselves

Metapost

new nice features

CMYK colors!

Asymptoth

Metapost based library

Asymptoth does not follow Metapost development

Megapost

greater precision

range limits removed

how to use Metapost/Megapost features separately?

input syntax

input syntax
(lexical scanner, macro expansion)

solving sets of algebraic equations

interpolation and extrapolation

MPlib

reusable METAPOST component library

yes! yes! yes!

TEX
breaking horizontal lists into lines

TEX
breaking vertical lists into pages

TEX hyphenation

TEX
breaking horizontal lists into lines

original TEX's algorithm

pdfTEX's
more sophisticated algorithm
(hanging punctuation etc.)

XeTEX's line breaking with Unicode characters and OpenType fonts

cannot be used exchangably

in XeTEX

XeTEX's Unicode support

cannot be used
in other versions of TEX

cannot be incorporated
into other programs

XeTEX's ability to use fonts installed in system

cannot be used
in other versions of TEX

cannot be incorporated
into other programs

XeTEX's Opentype support

cannot be used
in other versions of TEX

cannot be incorporated
into other programs

but XeTEX can use Graphite

Graphite
open source library
for font layout features

TEX's macro expansion mechanism

macros
and 37 other
expandable commands

could be used separately
in other programs

could be exchanged to
another macro mechanism

TEX macro packages

usualy designed
for one TEX dialect

plain TEX

LaTeX

ConTEXt

flexibility of use
of (most) macro packages

use the package

do not use the package

important TEX algorithms
could be expressed universally

in any dialect

think in terms
of building blocks

thin layer adjusting to a TEX dialect

example

Wednesday, 13:00

design and implementation of data structures in TEX

TEX dialect independent

what after polishing building blocks?

several “palaces”
are almost ready

example

TEX is much more sophisticated typesetting engine

...then the (X)HTML engine

.tex – … – .svg

TEX viewer already built into Firefox and Opera

and a plugin
to Internet Explorer

more sophisticated
TEX viewer
could be written in SVG

transformations on client side

scaling

rotation

one line program in JavaScript

result...

typographic quality web pages

served by

typographic servers

scyscrapers built out of
well polished building blocks