

The Strait Gate to T_EX

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Abstract

T_EX is the best ... It is 'ideal'! So why has it not gained the world? Because (1) it's not for everybody; and (2) this world is *REAL*, not ideal. There exist a real competition between T_EX and, say, Ventura.

This article shows how capabilities of TeX can be enhanced to a level surpassing 'professional' typesetting.

What this Article is About

For more than three years Ioffe Institute has prepared camera-ready copy for four physical journals (about 1000 A4 pages of 11pt text plus illustrations per month). plain T_EX with *CyrTUG* russification and local styles are used. This article is an attempt to generalize the experience of a small T_EX publishing bureau.

All speculations are *emphasized* for easy skipping.

Why T_EX?

The journals were published for years with metal type. In about 1991, the type became too old and the publisher ("Nauka") moved to DOS Ventura. It appeared that doing formulae with Ventura is a hard manual toil was quite toilsome and the editors (they are all from the Ioffe Institute) turned to our computing center, which had some experience with scientific publishing. Thus, from April 1993, the journals are produced using T_EX.

Problems

It would be strange if we did not encounter problems attempting to emulate metal type with T_EX.

Personnel education *NonT_EXnical people consider T_EX too complex for a human being without a university mathematical education.* Most our T_EX typists were mainframe operators before 1993.

Limitations of emT_EX Up to 1993, we used PCT_EX and TurboT_EX. These commercial implementations gently died in the Ioffe Institute after the appearance of wonderful emT_EX.

Only one part of emT_EX caused some problems — dvi drivers for DOS — they abort quite often on our documents that are filled with graphics and virtual fonts.

The main reason for using DVIPS is the inability of emT_EX to please our editors — it cannot do landscape tables.

Free software is... good or bad?

Bad. Because it is not debugged.

DVIPS supports emT_EX \specials, but sometimes PCX files are displayed as a black boxes (very rarely), and at other times raster graphics are distorted.

Good. Because we can debug it ourselves.

The availability of the source code for DVIPS made it possible to overcome the above errors.

DVIPS is slow Most graphics typed in the journals are hand drawings scanned to PCX format. DVIPS, preparing its PostScript output, unpacks them (expanding thee to four times) and codes them in hexadecimal (a 2-fold increase). The resulting gigantic file (30–50MB at 300 dpi resolution) can take from three to five hours to print. It is rather easy to estimate the resources needed for 600 or 1200 dpi (last year we got such devices).

After some experimenting, the algorithm of (rather) fast graphics decompression was coded in PostScript [1] and the compression counterpart was included in DVIPS. Now DVIPS works 1.5–2 times slower than emT_EX driver on the same file, and this coefficient does not grow with printer resolution. After CCITT 'FAX' compression [2] was implemented in DVIPS for the new PostScript Level 2 printers, it runs even faster than DVIHPLJ of emT_EX. Patches for DVIPS are available on request.

Lack of fonts *Good Cyrillic T_EX fonts are scarce.* Up until now, it was not a problem — the editors are happy with the Washington Cyrillic fonts.

Placement of illustrations *is not easy with T_EX.* Here Ventura (or Word, etc.) certainly wins. It seems to me that the problem cannot be solved within

T_EX—content (visual in this case) should not be generated automatically.

Prospects

We are planning to move to L^AT_EX.

We are beginning to use PostScript fonts. Problems with screen preview in e_mT_EX are solved using ps2pk program. Matching different fonts and their adaptation to DVIPS is done with quite simple AWK scripts.

Conclusions

The ex-Soviet desktop publishing market is rather strange. It seems that the only professional typesetting software available here is free T_EX. Its 'freeness' is imaginary of course—you must spend (at least your time) on personnel education, software debugging and tuning, etc.

References

- [1] Adobe, *Postscript Language Reference Manual*, Addison-Wesley, 1990.
- [2] Brown, Wayne and Barry Shepherd, *Graphic File Formats*, Prentice-Hall, 1994.