

F. R. Gantmacher and M. G. Krein [1950], *Oscillation Matrices and Kernels and Small Vibrations of Mechanical Systems* (Russian), State Press for Technical Literature, Moscow-Leningrad, *Oszillationmatrizen, Oszillationkerne und Kleine Schwingungen Mechanischer Systeme*, Akademie-Verlag, Berlin, 1960, German translation.

Portability

The source language of Tib is standard C. It was written on a VAX mainframe operating under Unix, but some attention has been paid to portability. A day was spent with Nelson Beebe at the University of Utah going over changes necessary to bring it up on a non-Unix system. These changes mostly consisted of simplifying file names (over the objections of some Unix devotees), and isolating and documenting system-dependent parts (such as a file sort). Although I have not tried it, I see no particular reason why Tib should not work on a micro. The programs are not particularly big. It might be that large 'word-definition' files should not be used on a micro; the time Tib consumes setting them up might be prohibitive.

Availability

The Tib package of source files, macros and documentation consists of 85 files using about 640K. Included are step-by-step instructions for installation, a list of things non-Unix users should note, a plain T_EX source file for a 22 page manual, and some demonstration and test files. The package has been given to Rick Furuta for inclusion with the Unix T_EX distribution. It is also available for transporting via *ftp* from *eneevax.umd.edu*. Login anonymously, change to the subdirectory *pub/tib*, and copy everything. A third possibility is to get in touch with me about copying a tape. If there is enough interest that it is worth making future versions, they will be announced in the *TUGboat*.

Packed File Format Update

Tomas Rokicki

Some errors in my description of the packed file format and a bug in one of the conversion programs have been brought to my attention in the past year by John Crawford, Wayne Sewell, and others. This note addresses these problems and lists the changes made to the programs. The new, updated programs are on the current distribution tape; they are also available via anonymous FTP from SU-Score.EDU in the directory <TEX.MF>.

The first clarification concerns the number of no-op bytes allowed at the end of a packed file. In my original description, I stated that the postamble command was 'followed by just enough no-op commands to make the file a multiple of four bytes long.' For those machines which write binary files in larger blocks, this is inconvenient; thus, I have changed this to allow any number, including zero, of no-op bytes at the end. I have also removed a check for the number of no-op bytes from `pktype`.

The second problem relates to the design size; in the description of the format, I state that the units are $1/2^{16}$ points. Actually, they are in the same units as in the generic font and font metric files: FIXes, or $1/2^{20}$ points.

Finally, in `gftopk`, the minimum bounding box of a character glyph was being calculated incorrectly on the right side. Occasionally an extra row of blank pixels was left in the character. This should not adversely affect any programs; the TFM width and escapement values are still correct, as is the positioning of the reference point. The only manifestation of the problem is in slightly (less than a percent, usually) larger packed files than are absolutely necessary.

All further corrections as listed below pertain to the new version numbers and the change from the old Almost Modern fonts to the new Computer Modern fonts. The following changes should be made in the WEB sources rather than the change files, as they are updates and not system dependent fixes.

Changes to gftopk:

```

@x
% Version 1.2 fixed one_fourth bug 23 January 1985 TGR.
\def\versiondate{16 August 1985}
@y
% Version 1.2 fixed one_fourth bug 23 January 1986 TGR.
% Version 1.3 fixed bounding box calculations and some documentation.
7 September 1986 TGR
\def\versiondate{7 September 1986}
@z

@x
\font\ninerm=amr9
\let\mc=\ninerm % medium caps for names like SAIL
\font\tenss=amss10 % for 'The METAFONTbook'
@y
\font\ninerm=cmr9
\let\mc=\ninerm % medium caps for names like SAIL
\font\tenss=cmss10 % for 'The METAFONTbook'
@z

@x
\centerline{(Version 1.2, \versiondate)}
@y
\centerline{(Version 1.3, \versiondate)}
@z

@x
@d banner=='This is GFtoPK, Version 1.2' {printed when the program starts}
@y
@d banner=='This is GFtoPK, Version 1.3' {printed when the program starts}
@z

@x
followed by just enough |pk_no_op| commands to make the file a multiple
of four bytes long; zero through three are usual, but four are also allowed.
@y
followed by enough |pk_no_op| commands to make the file a multiple
of four bytes long. Zero through three bytes are usual, but any number
is allowed.
@z

@x
the design size of the file in  $1/2^{16}$  points, and the checksum of the
@y
the design size of the file in  $1/2^{20}$  points, and the checksum of the
@z

@x
max_m := min_m + max_m - 1 ;
@y
max_m := min_m + max_m - 1 - extra ;
@z

```

```

@x
@d preamble_comment == 'GFtoPK 1.2 output'
@y
@d preamble_comment == 'GFtoPK 1.3 output'
@z

```

Changes to pktopx:

```

@x
\def\versiondate{15 August 1985}
%
\font\ninerm=amr9
@y
% Updated documentation, 2.3 version: 7 September 1986
\def\versiondate{7 September 1986}
%
\font\ninerm=cmr9
@z

```

```

@x
\centerline{(Version 2.2, \versiondate)}
@y
\centerline{(Version 2.3, \versiondate)}
@z

```

```

@x
@d banner=='This is PKtoPX, Version 2.2'
@y
@d banner=='This is PKtoPX, Version 2.3'
@z

```

```

@x
followed by just enough |pk_no_op| commands to make the file a multiple
of four bytes long; zero through three are usual, but four are also allowed.
@y
followed by enough |pk_no_op| commands to make the file a multiple
of four bytes long. Zero through three bytes are usual, but any number
is allowed.
@z

```

```

@x
the design size of the file in  $1/2^{16}$  points, and the checksum of the
@y
the design size of the file in  $1/2^{20}$  points, and the checksum of the
@z

```

Changes to pktype:

```

@x
\def\versiondate{16 August 1985}
%
\font\ninerm=amr9
@y
% Documentation updated, 2.2 version, 7 September 1986
\def\versiondate{7 September 1986}
%
\font\ninerm=cmr9
@z

@x
\centerline{(Version 2.1, \versiondate)}
@y
\centerline{(Version 2.2, \versiondate)}
@z

@x
@d banner=='This is PKtype, Version 2.1'
@y
@d banner=='This is PKtype, Version 2.2'
@z

@x
followed by just enough |pk_no_op| commands to make the file a multiple
of four bytes long; zero through three are usual, but four are also allowed.
@y
followed by enough |pk_no_op| commands to make the file a multiple
of four bytes long. Zero through three bytes are usual, but any number
is allowed.
@z

@x
the design size of the file in  $1/2^{16}$  points, and the checksum of the
@y
the design size of the file in  $1/2^{20}$  points, and the checksum of the
@z

@x
if j > 4 then abort('Too many no-ops at end of file') ;
@y
@z

```

Changes to pxtopk:

```

@x
\def\versiondate{15 August 1985}
%
\font\ninerm=amr9
@y
% Documentation updated (2.3) : 7 September 1986
\def\versiondate{7 September 1986}
%
\font\ninerm=cmr9
@z

@x
\centerline{(Version 2.2, \versiondate)}
@y
\centerline{(Version 2.3, \versiondate)}
@z

@x
@d banner=='This is PXtoPK, Version 2.2'
@y
@d banner=='This is PXtoPK, Version 2.3'
@z

@x
followed by just enough |pk_no_op| commands to make the file a multiple
of four bytes long; zero through three are usual, but four are also allowed.
@y
followed by enough |pk_no_op| commands to make the file a multiple
of four bytes long. Zero through three are usual, but any number
is allowed.
@z

@x
the design size of the file in  $1/2^{16}$  points, and the checksum of the
@y
the design size of the file in  $1/2^{20}$  points, and the checksum of the
@z

@x
@d preamble_comment == 'PXTOPK 2.2 output'
@y
@d preamble_comment == 'PXTOPK 2.3 output'
@z

```