



## POLIGRAF: *from T<sub>E</sub>X to printing house*

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### ABSTRACT.

The macro package POLIGRAF was for the first time presented at the Polish T<sub>E</sub>X Users' Group meeting "BachoTeX'96". Users' suggestions and remarks have been taken into account leading to this new, completely re-worked version.

To my joy POLIGRAF has been received with significant interest. It turned out that a number of people use T<sub>E</sub>X for preparing publications for professional printing. Unfortunately, I must confess that the 1996 version had a number of shortcomings.

First, the full functionality of POLIGRAF was only available with the PLAIN format, which I use daily. My lack of L<sup>A</sup>T<sub>E</sub>X knowledge caused L<sup>A</sup>T<sub>E</sub>X users, who form a majority, quite a number of problems.

Second, I attempted to solve too many issues at once. For example, I unnecessarily attempted to deal with assembling of print sheets. Now I know that there exist better and less error prone means to this end.

Third, the colour separation mechanism was too extensive and thus became too complicated. In the meantime, in parallel to my work the `cmk-hax.tex` package has been under development by my colleagues from the BOP company in Gdańsk. I came to the conclusion that this is a far better solution than the one proposed in the first version of POLIGRAF.

### THE DISTRIBUTION

Currently the package consists of three files:<sup>1</sup>

- ◇ `poligraf.sty`—the main macros,
- ◇ `crops.pro`—a required header file to be used with the DVIPS program.
- ◇ `separate.pro`—an optional header file to be used with the DVIPS program<sup>2</sup>.

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<sup>1</sup>The package is to be found on the ftp server `ftp.gust.org.pl/GUST/contrib/poligraf.zip` and the "T<sub>E</sub>XLive 6" CD-ROM.

<sup>2</sup>Additionally, the `cmk-hax.tex` package is required for colour separation.

## IN EVERYDAY PRACTICE THE CROPS.PRO FILE SUFFICES

The majority of documents typeset with  $\text{T}_{\text{E}}\text{X}$  or other DTP systems is printed using a desktop printer. On the other hand, if quality and size of the edition matter, more and more publications are being printed by professional offset print shops. For such purposes the document pages or print sheets should contain additional elements required by the printers. These are for example registration marks, crop marks, colour steps and colour bars.

In the current version of the POLIGRAF package this task is realised by the header file `crops.pro`, input by the DVIPS program<sup>3</sup>.

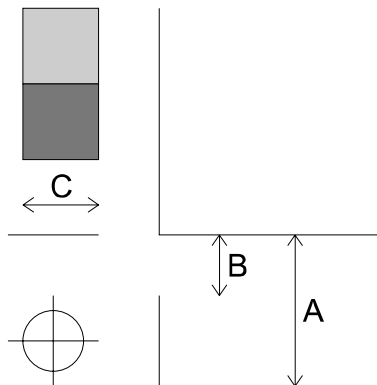
The `foo.dvi` file generated with any  $\text{T}_{\text{E}}\text{X}$  format (`PLAIN`, `LATEX2 $\epsilon$` , `A $\mathcal{M}$ ST $\text{E}$ X`, etc.) is run through DVIPS,

```
dvips -h crops.pro foo.dvi
```

producing a `foo.ps` file with all the necessary elements.

The user may change the default values of the parameters. It suffices to change the values of some variables found in the first few lines of the file.

- ◇ `cropmarksize`—the size of the corner crop marks (A in the figure). The construct fits into a square hence only one dimension is necessary. The unit of measure is millimetres. The proposed default is 10 mm.
- ◇ `cropmarkdistance`—the distance of the crop marks from the page field (B). The unit of measure is millimetres. The proposed default distance is 3 mm.
- ◇ `barsize`—the size of the square fields (C), out of which the colour steps and colour bars are built. The unit of measure is millimetres. I propose the side of the squares to be 5 mm.



<sup>3</sup>The DVIPS program is distributed with its own `crop.pro` or `crop.lpr` header files. These are not satisfactory as they do not create all elements required by printers.

- ◇ `colorbars`—the switch controlling the range of control objects to be put onto the print sheet:
  - 0 : no colour strips, e.g. for print sheet assembling,
  - 1 : all colour strips,
  - 2 : only colour steps,
  - 3 : only colour bars.
- ◇ `mirror`—mirroring of whole print sheets including the colour strips and bars as well as registration and crop marks. No other mirroring methods should be used if this switch is on.
- ◇ `labeloff`—supresses the output of the T<sub>E</sub>X and POSTSCRIPT page numbers and the name of the separated colour.
- ◇ `xoffset` or `yoffset`—offset of the whole page including the marks and bars relative to the POSTSCRIPT co-ordinate origin.

Please note that the T<sub>E</sub>X source file should define the format of the print sheet. Problems arise if this is neglected.

T<sub>E</sub>X itself does not care about the sheet on which the publication is printed. Essential are the text width and height and the location of its upper left corner. The sheet format is used by DVIPS, which determines it using the information specified in the T<sub>E</sub>X source, for example:

```
\special{papersize=xmm,ymm}
```

If the sheet size is not specified in the source file, DVIPS uses the default value from the `config.ps` file, usually A4, which might not be what was expected.

Even with the sheet size specified in the source file, DVIPS may provide for surprising effects by "rounding" to a default format within an undefined tolerance. The following option

```
-t unknown
```

switches the formats off<sup>4</sup>. In this way one can make sure that the given sheet size will be used.

#### FROM WITHIN THE T<sub>E</sub>X FILE

DVIPS header files provide for independence of the T<sub>E</sub>X format, but not all users regard them as a convenient tool. A "real" T<sub>E</sub>X'er prefers to have full control over the publication from within the source file and this is why I wrote the new `poligraf.sty`. The `.sty` extension shows that now L<sup>A</sup>T<sub>E</sub>X users, who constitute the majority of T<sub>E</sub>X users, are being supported.

To start using POLIGRAF the following invocation in the source file suffices:

```
\input poligraf.sty
```

<sup>4</sup>In some of the older DVIPS versions this option was incorrectly defined.

or in LATEX

```
\usepackage{poligraf}
```

This will cause the previously described `crops.pro` file to be inserted into the output file. Additionally the default values of its parameters may be overridden through the use of  $\TeX$  directives of same names.

By using `poligraf.sty` one does not need to alter `crops.pro`, only the source file might need editing. Moreover, all of the parameters controlling the crop and registration marks as well as the colour bars and steps are saved in the source file, thus ensuring that the document will always have the same appearance.

### COLOUR SEPARATION

The printing process requires that the publication be separated into the basic printing colours, i.e., cyan, magenta, yellow and black.

Normally this would be done by image setters. However, many users prepare the separations themselves. A reason for this could be the desire to judge the effects before the final image setting without incurring the cost. One could also produce uncomplicated separations using a laser printer and transparencies.

As has been said before, colour separations may be obtained with the proven macro package `cmk-hax.tex` with its excellent choice of options. The package can be used not only for colour separation but also for manipulating the colours of individual objects.

Colour separations are achievable with the use of the following commands:

- ◇ `\Separate\CYAN`—separate cyan,
- ◇ `\Separate\MAGENTA`—separate magenta,
- ◇ `\Separate\YELLOW`—separate yellow,
- ◇ `\Separate\BLACK`—separate black,
- ◇ `\NoOverPrintBlack`—the standard behaviour of POLIGRAF is to overprint black paint on previously printed colours—this suppresses such behaviour.

The use of the `\Separate` command instructs  $\TeX$  to input the `cmk-hax.tex` package.

### COLOUR SEPARATION AT THE COMMAND LINE

Colour separation may also be achieved with the help of the header file `separate.pro`. This file has been created with the help of the `cmk-hax.tex` program. Several variables control its behaviour. For example, one can select the desired colour of the separation. The following command line

```
dvips -h separate.pro foo.dvi
```

produces the required POSTSCRIPT file. If the separation has to contain the print sheet's graphic elements the command

```
dvips -h separate.pro -h crops.pro foo.dvi
```

should be issued. The header files should be specified in the order shown.

Several file editing cycles are required to generate all colour separations. A more convenient solution is offered through the use of the four separation files: `cyan.pro`, `magenta.pro`, `yellow.pro` and `black.pro`. A batch file or a shell script might be created to generate all colour separations in a single action. The use of the header files `crops.pro` and `separate.pro` without the use of `poligraf.sty` allows one to process the `dvi` file directly. Sometimes this might be the way of choice with T<sub>E</sub>X formats I have not tested. Surprises might lurk there.

#### WHAT IS MISSING FROM THE NEW POLIGRAF?

The main reason for POLIGRAF to be re-written was the urge to have an easy to use program for as many T<sub>E</sub>X formats as possible. Several commands present in the previous version are missing from the new POLIGRAF:

- ◇ `\Language\Polski` and `\English`: were rarely used.
- ◇ `\Twoside`, `\Landscape`, `\LeftMargins`, `\TopMargins`: standard T<sub>E</sub>X solutions can be used instead.
- ◇ `\Hoffset`, `\Voffset`: have been replaced by `\xoffset` and `\yoffset`.
- ◇ `\ScrAngle`, `\ScrFrequency`, `\Rasterize`: the functionality is provided by the `cmyk-hax.tex` package.
- ◇ `\Hline`, `\Vline`, `\ShowGrid`, `\MargLines`: the same information is available from programs like `ps-view` and `gs-view`.
- ◇ `\beginLocalRaster`, `\endLocalRaster`: this is outside the scope of POLIGRAF.

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