NAME

pnmtotiffcmyk − convert a portable anymap into a CMYK encoded TIFF file

SYNOPSIS

pnmtotiffcmyk [**Compargs**][**Tiffargs**][**Convargs**][*pnmfile*]

Compargs:

[**−none** | **−packbits** | **−lzw** [**−predictor** *n*]]

Tiffargs:

[**−msb2lsb** | **−lsb2msb**] [**−r owsperstrip** *n*]
[**−lowdotrange** *n*] [**−highdotrange** *n*]
[**−knormal** | **−konly** | **−kremove**]

Convargs:

[[**−default**][**Defargs**]| **−negative**]

Defargs:

[**−theta** *deg*] [**−gamma** *n*] [**−gammap** *-1*| **−gammap** *n*]

DESCRIPTION

Reads a portable anymap as input. Produces a CMYK encoded TIFF file as output. Optionally modifies the colour balance and black level, and removes CMY from under K.

OPTIONS

The order of most options is not important, but options for particular conversion algorithms must appear after the algorithm is selected (**−default**,**−negative**). If no algorithm is selected then**−default** is assumed and the appropriate options (**−theta**,**−gamma**,**−gammap**) can appear anywhere.

−none,**−packbits**,**−lzw**,**−predictor**

Tiff files can be compressed. By default LZW decompression is used, but (apparently) some readers cannot read this, so you may want to select a different algorithm (**−none**,**−packbits**). For LZW compression, a **−predictor** value of 2 forces horizontal differencing of scanlines before encoding; a value of 1 forces no differencing.

−msb2lsb,**−lsb2msb**

These flags control fill order (default is **-msb2lsb**).

−rowsperstrip

This sets the number of rows in an image strip (data in the Tiff files generated by this program is stored in strips - each strip is compressed individually). The default gives a strip size of no more than 8 kb.

−lowdotrange,**−highdotrange**

These options set tag values that may be useful for printers. They have not been tested.

−knormal,**−kremove**,**−konly**

These options modify the values written to the Tiff file after the conversion calculations (described below) are completed. They are useful only for testing and debugging the code.

−kremove sets the black (K) layer to zero while **−konly** sets all inks to the black value.

−default,**−negative**

−negative selects a simple algorithm that generates a colour negative. None of the following options apply to this algorithm, which is included as an example in the source to help implementors of other conversions. **−default** is not needed, unless it is used to countermand a **−negative** on the same command line. The default conversion from RGB to CMYK can be modified by altering the options listed below.

The CMYKTiff web site includes tests on the conversion parameters. The test images illustrate the command line options in practice and may make the following explanation clearer.

-theta *deg*

The basic conversion from RGB to CMY uses C = 1-R, M = 1-G, Y = 1-B. **−theta** pro vides a simple correction for any colour bias that may occur in the printed image because, in practice, inks do not exactly complement the primary colours. It rotates the colours by the amount given (*deg*) in degrees. Unless you are trying to produce unusual effects you will need to use small values (try generating three images at -10, 0 (the default) and 10 degrees and seeing which has the best colour balance.

−gamma *n*

The black (K) component of the image is calculated as min(C,Y,M). **−gamma** applies a gamma correction to this level. In other words, the final black level is K (normalised to the range 0 to 1) raised to the *n*th power. In practice this means that a value greater than 1 makes the image lighter and a value less than 1 makes the image darker. The range of allowed values is 0.1 to 10.

−gammap *n*

This option controls the removal of CMY under K. If *n* is -1 then no removal occurs and C, M, Y and K are calculated as above. This means that, when printed, dark areas contain all four inks, which can make high contrast areas, like lettering, appear fuzzy.

By default, when **−gammap** is not given on the command line, the colours are reduced in dark areas by subtracting the black level. The value subtracted is calculated with the same gamma correction given by **−gamma**. Hopefully this will reduce fuzziness without changing the appearance of the image significantly.

If **−gammap** *n* is given, with n between 0.01 and 10, then black is still subtracted, but the subtracted value is calculated using *n* rather than any value supplied with **−gamma**. For example, it may be best to only subtract black from the coloured inks in the very darkest regions. In that case, *n* should be a large value, such as 5.

BUGS

This program is not self-contained. It must be used with NetPbm and libtiff must be available (libtiff is included in the 1mar94 release of NetPbm).

SEE ALSO

pnmtotiff(1), tifftopnm(1), pnm(5)

AUTHOR

Much of the code (and man page!) uses ideas from other pnm programs, written by Jef Poskanzer (thanks go to him and libtiff maintainer Sam Leffler). A small section of the code - some of the tiff tag settings - is derived directly from pnmtotiff, by Jef Poskanzer, which, in turn, acknowledges Patrick Naughton with the following text: