

PostScript-Colour Parameters and 1-Minus-Relation (IMR) of *rgb* and *cmyk*

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01 Colour parameters setgray, setrgbcolor, and setcmykcolor in PostScript.
02
03 k setgray with  $0 \leq k \leq 1$  defines colours in the space DeviceGray.
04 For  $k=0$  the colour is black, for  $k=1$  the colour is white.
05 For  $0 \leq k \leq 1$  a grey colour is defined between black and white.
06
07 r g b setrgbcolor with  $0 \leq r, g, b \leq 1$  defines colors in the space DeviceRGB.
08 For  $r=g=b=0$  the colour is black, for  $r=g=b=1$  the colour is white.
09 For  $0 \leq r, g, b \leq 1$  many colours including greys are defined.
10
11 c m y k setcmykcolor mit  $0 \leq cmyk \leq 1$  defines colours in the space DeviceCMYK.
12 If  $k=0$  and  $c=m=y=1$  the colour is black, for  $c=m=y=0$  the colour is white.
13 If  $c=m=y=0$  and  $k=1$  the colour is black, for  $k=0$  the colour is white.
14 For  $0 \leq c, m, y \leq 1$  and  $k=0$  many colours including greys are defined.
15
16 For  $0 \leq c, m, y \leq 1$  and  $k=0$  the minimum of  $\{c, m, y\}$  can be changed by k.
17 In this case the new parameters of setcmykcolor are  $\{c-k, m-k, y-k, k\}$ .
18 Lines 16 and 17 define the 1-Minus-Relation for the cmyk values.
19 The 1-Minus-Relation for values of rgb and cmky0 is  $r=1-c, g=1-m, b=1-y$ .
    
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Lines 03 to 14: parameters of *setgray*, *setrgbcolor*, and *setcmykcolor*.
 Lines 16 to 19: 1-Minus-Relation between $\{c,m,y,0\}$, $\{c,m,y,k\}$, and $\{r,g,b\}$.

Frame File PostScript Code for 1-Minus-Relation (IMR) to *setrgbcolor* and line 05 to 07 for change of *setgray* to *setrgbcolor* and line 09 to 13 for change of *setcmykcolor* to *setrgbcolor*

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01 %!PS-Adobe-3.0 EPSF-3.0, 1MR for change to setrgbcolor
02 /1MR-0000 {%BEG procedure 1MR-0000
03 %1MR-Transform of setgray and setcmykcolor to FFM_setrgbcolor
04
05 /setgray {%BEG procedure setgray to setrgbcolor
06   dup dup FFM_setrgbcolor
07   } def %END procedure setgray to setrgbcolor
08
09 /setcmykcolor {%BEG procedure setcmykcolor to setrgbcolor
10 /FFM_k exch def /FFM_y exch def /FFM_m exch def /FFM_c exch def
11 FFM_k 0 eq {1 FFM_c sub 1 FFM_m sub 1 FFM_y sub FFM_setrgbcolor}
12   {1 FFM_k sub dup dup FFM_setrgbcolor} ifelse
13   } def %END procedure setcmykcolor to setrgbcolor
14
15 } def %END procedure 1MR-0000
16 %%Trailer %END 1-Minus-Relation (1MR) to setrgbcolor
    
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Remarks:
 The FF_PS code includes: */FFM_setrgbcolor* {*setrgbcolor*} bind def
 Then *setgray* and *setcmykcolor* is changed to standard *setrgbcolor*

