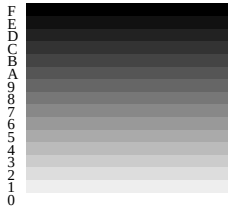
PSL1-program code: color image and separations with 4 basic colors CMYN

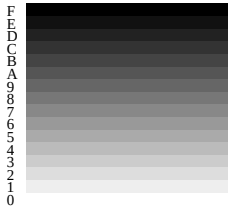
```
%!PS-Adobe-3.0 d2:[rr.p9f]B7251-7n.eps/B9481-8N.eps   12.2.96
%%BoundingBox: 72 90 226 204
/Times-Roman findfont dup length dict  begin
{1 index /FID ne {def} {pop pop} ifelse }forall
/Encoding ISOLatin1Encoding def currentdict end
/Times-ISOL1 exch definefont pop
/FS {findfont exch scalefont setfont} bind def
/MM {72 25.4 div mul} def /str {8 string } bind def
%%EndProlog

72 90 translate 0.01 MM 0.01 MM scale
/ausz 4 def          %color separation 0=C, 1=M, 2=Y, 3=N, 4=F
/recfi {/heigth exch def /width exch def /ys exch def /xs exch def
        xs ys moveto width 0 rlineto
         0 heigth rlineto width neg 0 rlineto closepath
 ausz 0 eq { pop pop pop 1 exch sub setgray          %C
            060 135 {pop} setscreen fill } if
 ausz 1 eq { pop pop 1 exch sub setgray pop          %M
            060 090 {pop} setscreen fill } if
 ausz 2 eq { pop 1 exch sub setgray pop pop          %Y
            060 000 {pop} setscreen fill } if
 ausz 3 eq { 1 exch sub setgray pop pop pop          %N
            060 045 {pop} setscreen fill } if
 ausz 4 eq { setcmyk_olvcolor
            060 135 {pop} 060 090 {pop} 060 000 {pop} %F
            060 045 {pop} setcolorscreen fill} if} bind def
 ausz 3 ge {0.0 0.0 0.0 0.5 0 0 5400 4000 recfi}
           {0.0 setgray 0 0 moveto 5400 0 rlineto 0 4000
            rlineto -5400 0 rlineto closepath stroke} ifelse
 ausz 3 ge {1.0 setgray 300 /Times-ISOL1 FS 100 3600 moveto
 (basic colors, mixed colors, area coverage) show } if
/xyw {4000 12 div} bind def /xw {5 xyw mul} bind def
/x01 {5 xyw mul} bind def /y0 {1.2 xyw mul} bind def
/x02 {10 xyw mul} bind def
/colors1          %CMYN color rows from bottom to top
[{1.0 0.0 0.0 0.0} {0.0 1.0 0.0 0.0} {0.0 0.0 1.0 0.0}
 {0.0 1.0 1.0 0.0} {1.0 0.0 1.0 0.0} {1.0 1.0 0.0 0.0}
 {1.0 1.0 1.0 0.0} {0.0 0.0 0.0 0.0} {0.0 0.0 0.0 1.0}] bind def
/colors2
[{0.5 0.0 0.0 0.0} {0.0 0.5 0.0 0.0} {0.0 0.0 0.5 0.0}
 {0.0 0.5 0.5 0.0} {0.5 0.0 0.5 0.0} {0.5 0.5 0.0 0.0}
 {0.5 0.5 0.5 0.0} {0.0 0.0 0.0 0.0} {0.0 0.0 0.0 0.5}] bind def
0 1 8 {/i exch def colors1 i get exec
       x01 i xyw mul y0 add xw xyw recfi} for
0 1 8 {/i exch def colors2 i get exec
       x02 i xyw mul y0 add xw xyw recfi} for
ausz 3 ge {1.0 setgray 300 /TimesI-ISOL1 FS
/N8 (C     M     Y     O=M+Y L=C+Y V=C+M C+M+Y W     N     ) def
0 1 8  {/nr exch def nr xyw mul y0 add x01 1300 sub exch
moveto 40 0 N8 nr 6 mul 6 getinterval ashow}for 300 /Times-Roman FS
x01 400 add  y0 300 sub moveto (100) show 30 0 rmoveto (%) show
x02 600 add  y0 300 sub moveto (70) show 30 0 rmoveto (%) show} if

showpage
```

NE340−7, B8_27



% <</HalftoneType 3 /Width 24 /Height 24 /Thresholds
% in middle 7 × 5 "10", 13 × 5 "20", 24 × 5 "30", etc.
% >> sethalftone; without raster cell threshold data using "%"

NE341−1, B8_28_1



<</HalftoneType 3 /Width 24 /Height 24 /Thresholds
% in middle 7 × 5 "10", 13 × 5 "20", 24 × 5 "30", etc.
% >> sethalftone; %<<, >> see PSL2−hand book, page 361>> sethalftone; %<<, >> see PS

NE341−2, B8_28_2

PC-operating systems for Intel 486 product name and graphic software

manufact.	NeXT	Microsoft	IBM
product name	NeXT-step V.3.3	Windows NT V.3.1	OS/2 V.2.1
scope	300 MByte	100 MByte	40 MByte
storages	16 MByte	12 MByte	8 MByte
graphic software	Display-PostScript	Graphic G.I.(GDI)	Presentat. M.(PM)

NE341−3, B8_30_1

manufacturer, hardware, operating system and Adobe-PostScript

manu-facturer	Hardware	operating system	Post-Script
Digital	VAX,AXP	OSF/1	Level 2
IBM	RISC 6000	AIX	Level 2
Sun	SPARC	Solaris	Level 2
Adobe	SPARC	X-Window	Level 2
NeXT	Intel, Motorola	Mach	Level 2

NE341−4, B8_30_2

colorness and value in CIEBased*ABC*

*−color *ABC**	value *ABC*	color space eg. device coordinates
	XYZ	CIE 1931 *XYZ* linear color measure
*Lab**		CIELAB 1976 *L*a*b** CIELAB measurement
	OLV RGB	linear color space *OLV* linear scanner, image setter
*OLV** *RGB**		Btx-color space *OLV** nonlinear space *RGB** qradrat./logarithm. scanner

NE341−5, B8_31_1

CIEBased*ABC*-device independent CIELAB −> PostScript −> devices-coordinates internal coordinates

PostScript Level 2

$$\begin{pmatrix} A^* = L^* \\ B^* = a^* \\ C^* = b^* \end{pmatrix} \longrightarrow \begin{pmatrix} X \\ Y \\ Z \end{pmatrix} \nearrow \begin{pmatrix} R^*_{TV} \\ G^*_{TV} \\ B^*_{TV} \end{pmatrix} \text{ color monitor}$$

$$\begin{pmatrix} X \\ Y \\ Z \end{pmatrix} \searrow \begin{pmatrix} C^*_{PR} \\ M^*_{PR} \\ Y^*_{PR} \end{pmatrix} \text{ color printer}$$

NE341−6, B8_31_2

CIEBased*ABC*−color space in PSL2 color rendering $XYZ_{aim} - XYZ_{real}$

PSL2-program	Soft-ware	out-put	mea-sure
X_{aim}	L	−> L^* −> L	X_{real}
Y_{aim}	−> M	−> M^* −> M	−> Y_{real}
Z_{aim}	N	−> N^* −> N	Z_{real}
matrix1 3 × 3	decode1 {0.5 exp}	decode2 {2.0 exp}	matrix2 3 × 3

NE341−7, B8_32_1