The *mpcolornames* package*

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The MetaPost format plain.mp provides only five built-in color names (variables), all defined in the RGB model: red, green and blue for the primary colors and black and white (Table 3). The *mpcolornames* package makes more than 500 color names from different color sets in different color models available to MetaPost. Color sets include X11, SVG, DVIPS and *xcolor* specifications.

Contents

1. Color model constants

Before discussing color names, lets have a look at some other constants that are provided by the *mpcolornames* package. MetaPost supports the CMYK and grey scale color models since version 1.000. At that time a new internal variable defaultcolormodel was introduced, whose value determines the color model of the black color used for drawing and filling in absence of a withcolor statement—either explicit or via drawoptions—and if the output format supports more than one color model (cf. section 9 of the MetaPost manual). Note, defaultcolormodel never triggers a color model conversion.

Do you remember what value of variable defaultcolormodel corresponds to the CMYK color model? And do you remember what color model corresponds to a value of 3?

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Table 1: Color model constants.

internal variable	value
nomodel	1
greyscalemodel	3
rgbmodel	5
cmykmodel	7

Memoizing these numbers, which you need to know only once in a while, isn't easy and in code they are less descriptive than names. For that reason, the *mpcolornames* package declares a few internal variables with the values shown in Table 1 that should help switching between color models.

2. Color sets

This package provides color names from four color sets in three different color models. Color definitions are taken from X11 (Table 4), SVG (Table 5) and DVIPS (Table 6) specifications as distributed by packages *color* and *xcolor*. Additionally, there is a small set of colors that are defined by package *xcolor* (Table 2). All color specifications have automatically been translated into MetaPost code by scripts.

Colors defined in the X11 and SVG specifications are in the RGB color space, i.e., the corresponding variables are of type rgbcolor. Colors defined in the DVIPS specification are in the CMYK color space, i.e., the corresponding variables are of type cmykcolor. The set of colors from the *xcolor* package are in the CMYK, RGB and grey scale color model. The corresponding variable identifiers have been augmented by a prefix cmyk_, rgb_ and grey_ that indicates the color model used. Variables are of type cmykcolor, rgbcolor and numeric, resp.

The package can be loaded by writing

```
input mpcolornames
```

in the MetaPost source file. After that, all color names defined in the above mentioned color specifications are available as (array) variables. This is possible, because the sets of color names defined in the color specifications are nearly disjoint. Only a few color names are defined in more than one color specification.

Array variables can be indexed the usual way. As long as the index is a constant number, brackets can be omitted. That way, color names, like e.g., VioletRed1 from X11 specification, can easily be used in MetaPost. If the index is a not a constant, brackets are mandatory. As an example, the color definitions of colors VioletRed1 to VioletRed4 can be output like this

```
input mpcolornames
for i=1 upto 4:
  show VioletRed[i];
endfor
end
```

and the result would look like

```
>> (1,0.244,0.59)
>> (0.932,0.228,0.55)
>> (0.804,0.196,0.47)
>> (0.545,0.132,0.32) )
```

3. SVG and DVIPS color name clash

There is a name clash between forty of the color names defined by the SVG and DVIPS specifications. The problem is that both specifications define colors in different color models, RGB for the SVG specification and CMYK for the DVIPS specification. Additionally, the visual impression of most colors with the same name varies quite drastically, e.g., for the name Lavender (see Figure 1). The set of clashing color names is listed in Table 7. Here is how name clashes are handled by the *mpcolornames* package: When loading the *mpcolornames* package, definitions of the SVG specification are processed after those of the DVIPS specification and hence, for the clashing names, definitions of the SVG specification "win." Note, the variable type of all clashing color names is therefore rgbcolor.

svgnames
dvipsnames

To control the active set of clashing color definitions two user macro are provided: svgnames and dvipsnames. Calling any of both macros re-applies all SVG or DVIPS color name declarations, overwriting all current definitions of the respective set. As an example, DVIPS definitions for all clashing color names can be activated in the preamble by loading the *mpcolornames* package as follows:

```
input mpcolornames
dvipsnames;
```

One can switch back and forth between SVG and DVIPS definitions by repeatedly calling macros dvipsnames and svgnames within one figure. A better alternative, however, is to call these macros within a group, since both macros save the set of clashing identifiers w. r. t. the current group before setting the new definitions into effect. As an example, Figure 1 has been drawn with the following code:

Figure 1: Color Lavender with DVIPS and SVG definitions within one figure.

```
input mpcolornames
dvipsnames;
picture disc; disc := image(fill fullcircle scaled 50);
beginfig(1);
  draw disc withcolor Lavender;
  begingroup
    svgnames;
    draw disc shifted (75,0) withcolor Lavender;
  endgroup;
  draw disc shifted (150,0) withcolor Lavender;
endfig;
end
```

4. Related packages

Package *mfpic* distributes a file dvipsnam.mp that contains the same color definitions from the DVIPS specification that this package provides. For backwards compatibility, package *mfpic* converts all colors into the RGB color model for MetaPost version that don't support the CMYK color model. Be careful when using both packages in parallel!

Happy TEXing!
Stephan Hennig

A. Proof tables

The following proof tables are sorted by color model.

A.1. Color names for multiple color models

Table 2: RGB, CMYK, and grey scale colors from LaTeX package *xcolor*.

Taken from file xcolor.sty v1.0i as distributed by LaTeX package *xcolor* (19 colors, with augmented names).

rgb_red	cmyk_red	grey_red
rgb_green	cmyk_green	grey_green
rgb_blue	cmyk_blue	grey_blue
rgb_brown	cmyk_brown	grey_brown
rgb_lime	cmyk_lime	grey_lime
rgb_orange	cmyk_orange	grey_orange
rgb_pink	cmyk_pink	grey_pink
rgb_purple	cmyk_purple	grey_purple
rgb_teal	cmyk_teal	grey_teal
rgb_violet	cmyk_violet	grey_violet
rgb_cyan	cmyk_cyan	grey_cyan
rgb_magenta	cmyk_magenta	grey_magenta
rgb_yellow	cmyk_yellow	grey_yellow
rgb_olive	cmyk_olive	grey_olive
rgb_black	cmyk_black	grey_black
rgb_darkgray	cmyk_darkgray	grey_darkgray
rgb_gray	cmyk_gray	grey_gray
rgb_lightgray	cmyk_lightgray	grey_lightgray
rgb_white	cmyk_white	grey_white

A.2. RGB color names

Table 3: Default RGB colors in MetaPost.

Taken from file plain.mp 1.004 as distributed by MetaPost (5 colors).

black white red green blue

Table 4: RGB colors from X11 specification.

Taken from file x11nam.def v2.11 as distributed by LaTeX package *xcolor* (317 colors).

AntiqueWhite1
AntiqueWhite2
AntiqueWhite3
AntiqueWhite4
Aquamarine1
Aquamarine2
Aquamarine3
Aquamarine4
Azure1
Azure2
Azure3
Azure4
Bisque1
Bisque2
Bisque3
Bisque4
Blue1
Blue2
Blue3
Blue4
Brown1
Brown2
Brown3
Brown4
Burlywood1
Burlywood2
Burlywood3
Burlywood4
CadetBlue1
CadetBlue2
CadetBlue3
CadetBlue4
Chartreuse1
Chartreuse2
Chartreuse3
Chartreuse4
Chocolate1
Chocolate2
Chocolate3
Chocolate4
Coral1
Coral2
Coral3
Coral4
Cornsilk1
Cornsilk2
Cornsilk3
Cornsilk4
Cyan1
Cyan2
Cyan3
Cyan4
DarkGoldenrod1
DarkGoldenrod2
DarkGoldenrod3
DarkGoldenrod4
DarkOliveGreen1
DarkOliveGreen2
DarkOliveGreen3
DarkOliveGreen4
DarkOrange1
DarkOrange2
DarkOrange3
DarkOrange4
DarkOrchid1
DarkOrchid2
DarkOrchid3
DarkOrchid4
DarkSeaGreen1
DarkSeaGreen2
DarkSeaGreen3
DarkSeaGreen4
DarkSlateGray1
DarkSlateGray2
DarkSlateGray3
DarkSlateGray4
DeepPink1
DeepPink2
DeepPink3
DeepPink4
DeepSkyBlue1
DeepSkyBlue2
DeepSkyBlue3
DeepSkyBlue4
DodgerBlue1
DodgerBlue2
DodgerBlue3
DodgerBlue4
Firebrick1
Firebrick2
Firebrick3
Firebrick4
Gold1
Gold2
Gold3
Gold4
Goldenrod1
Goldenrod2
Goldenrod3
Goldenrod4
Green1
Green2
Green3
Green4
Honeydew1
Honeydew2
Honeydew3
Honeydew4
HotPink1
HotPink2
HotPink3
HotPink4
IndianRed1
IndianRed2
IndianRed3
IndianRed4
Ivory1
Ivory2
Ivory3
Ivory4
Khaki1
Khaki2
Khaki3
Khaki4
LavenderBlush1
LavenderBlush2
LavenderBlush3
LavenderBlush4
LemonChiffon1
LemonChiffon2
LemonChiffon3
LemonChiffon4
LightBlue1
LightBlue2
LightBlue3
LightBlue4
LightCyan1
LightCyan2
LightCyan3
LightCyan4
LightGoldenrod1
LightGoldenrod2
LightGoldenrod3
LightGoldenrod4

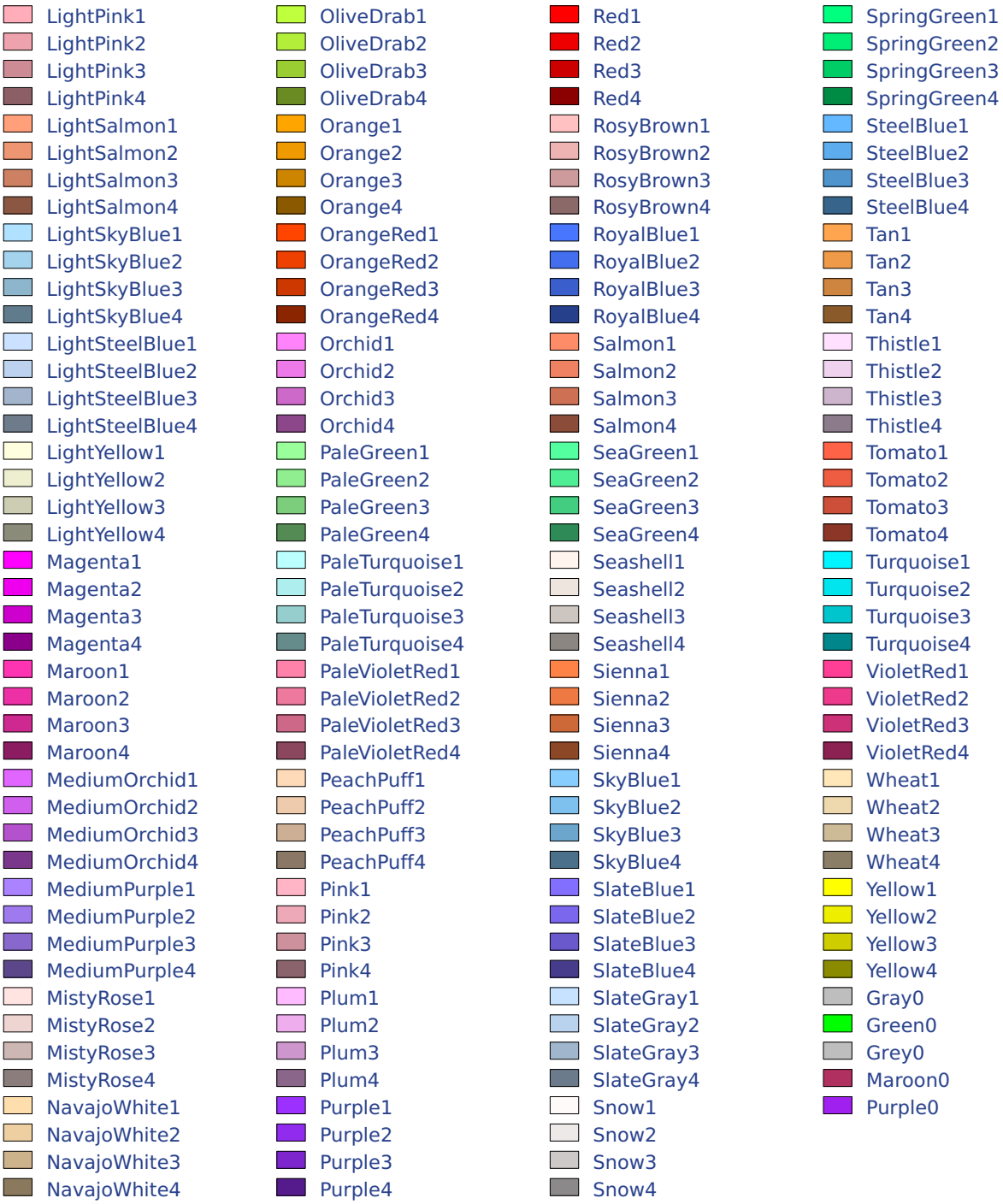
LightPink1
LightPink2
LightPink3
LightPink4
LightSalmon1
LightSalmon2
LightSalmon3
LightSalmon4
LightSkyBlue1
LightSkyBlue2
LightSkyBlue3
LightSkyBlue4
LightSteelBlue1
LightSteelBlue2
LightSteelBlue3
LightSteelBlue4
LightYellow1
LightYellow2
LightYellow3
LightYellow4
Magenta1
Magenta2
Magenta3
Magenta4
Maroon1
Maroon2
Maroon3
Maroon4
MediumOrchid1
MediumOrchid2
MediumOrchid3
MediumOrchid4
MediumPurple1
MediumPurple2
MediumPurple3
MediumPurple4
MistyRose1
MistyRose2
MistyRose3
MistyRose4
NavajoWhite1
NavajoWhite2
NavajoWhite3
NavajoWhite4
OliveDrab1
OliveDrab2
OliveDrab3
OliveDrab4
Orange1
Orange2
Orange3
Orange4
OrangeRed1
OrangeRed2
OrangeRed3
OrangeRed4
Orchid1
Orchid2
Orchid3
Orchid4
PaleGreen1
PaleGreen2
PaleGreen3
PaleGreen4
PaleTurquoise1
PaleTurquoise2
PaleTurquoise3
PaleTurquoise4
PaleVioletRed1
PaleVioletRed2
PaleVioletRed3
PaleVioletRed4
PeachPuff1
PeachPuff2
PeachPuff3
PeachPuff4
Pink1
Pink2
Pink3
Pink4
Plum1
Plum2
Plum3
Plum4
Purple1
Purple2
Purple3
Purple4
Red1
Red2
Red3
Red4
RosyBrown1
RosyBrown2
RosyBrown3
RosyBrown4
RoyalBlue1
RoyalBlue2
RoyalBlue3
RoyalBlue4
Salmon1
Salmon2
Salmon3
Salmon4
SeaGreen1
SeaGreen2
SeaGreen3
SeaGreen4
Seashell1
Seashell2
Seashell3
Seashell4
Sienna1
Sienna2
Sienna3
Sienna4
SkyBlue1
SkyBlue2
SkyBlue3
SkyBlue4
SlateBlue1
SlateBlue2
SlateBlue3
SlateBlue4
SlateGray1
SlateGray2
SlateGray3
SlateGray4
Snow1
Snow2
Snow3
Snow4
SpringGreen1
SpringGreen2
SpringGreen3
SpringGreen4
SteelBlue1
SteelBlue2
SteelBlue3
SteelBlue4
Tan1
Tan2
Tan3
Tan4
Thistle1
Thistle2
Thistle3
Thistle4
Tomato1
Tomato2
Tomato3
Tomato4
Turquoise1
Turquoise2
Turquoise3
Turquoise4
VioletRed1
VioletRed2
VioletRed3
VioletRed4
Wheat1
Wheat2
Wheat3
Wheat4
Yellow1
Yellow2
Yellow3
Yellow4
Gray0
Green0
Grey0
Maroon0
Purple0

Table 5: RGB colors from SVG specification.

Taken from file svgnam.def v2.11 as distributed by LaTeX package *xcolor* (151 colors).

AliceBlue
AntiqueWhite
Aqua
Aquamarine
Azure
Beige
Bisque
Black
BlanchedAlmond
Blue
BlueViolet
Brown
BurlyWood
CadetBlue
Chartreuse
Chocolate
Coral
CornflowerBlue
Cornsilk
Crimson
Cyan
DarkBlue
DarkCyan
DarkGoldenrod
DarkGray
DarkGreen
DarkGrey
DarkKhaki
DarkMagenta
DarkOliveGreen
DarkOrange
DarkOrchid
DarkRed
DarkSalmon
DarkSeaGreen
DarkSlateBlue
DarkSlateGray
DarkSlateGrey
DarkTurquoise
DarkViolet
DeepPink
DeepSkyBlue
DimGray
DimGrey
DodgerBlue
FireBrick
FloralWhite
ForestGreen
Fuchsia
Gainsboro
GhostWhite
Gold
Goldenrod
Gray
Green
GreenYellow
Grey
Honeydew
HotPink
IndianRed
Indigo
Ivory
Khaki
Lavender
LavenderBlush
LawnGreen
LemonChiffon
LightBlue
LightCoral
LightCyan
LightGoldenrod
LightGoldenrodYellow
LightGray
LightGreen
LightGrey
LightPink
LightSalmon
LightSeaGreen
LightSkyBlue
LightSlateBlue
LightSlateGray
LightSlateGrey
LightSteelBlue
LightYellow
Lime
LimeGreen
Linen
Magenta
Maroon
MediumAquamarine
MediumBlue
MediumOrchid
MediumPurple
MediumSeaGreen
MediumSlateBlue
MediumSpringGreen
MediumTurquoise
MediumVioletRed
MidnightBlue
MintCream
MistyRose
Moccasin
NavajoWhite
Navy
NavyBlue
OldLace
Olive
OliveDrab
Orange
OrangeRed
Orchid
PaleGoldenrod
PaleGreen
PaleTurquoise
PaleVioletRed
PapayaWhip
PeachPuff
Peru
Pink
Plum
PowderBlue
Purple
Red
RosyBrown
RoyalBlue
SaddleBrown
Salmon
SandyBrown
SeaGreen
Seashell
Sienna
Silver
SkyBlue
SlateBlue
SlateGray
SlateGrey
Snow
SpringGreen
SteelBlue
Tan
Teal
Thistle
Tomato
Turquoise
Violet
VioletRed
Wheat
White
WhiteSmoke
Yellow
YellowGreen

A.3. CMYK color names

Table 6: CMYK colors from DVIPS specification.

Taken from file dvipsnam.def v3.0i as distributed by LaTeX package *color* (68 colors).

GreenYellow	RubineRed	RoyalPurple	Emerald
Yellow	WildStrawberry	BlueViolet	JungleGreen
Goldenrod	Salmon	Periwinkle	SeaGreen
Dandelion	CarnationPink	CadetBlue	Green
Apricot	Magenta	CornflowerBlue	ForestGreen
Peach	VioletRed	MidnightBlue	PineGreen
Melon	Rhodamine	NavyBlue	LimeGreen
YellowOrange	Mulberry	RoyalBlue	YellowGreen
Orange	RedViolet	Blue	SpringGreen
BurntOrange	Fuchsia	Cerulean	OliveGreen
Bittersweet	Lavender	Cyan	RawSienna
RedOrange	Thistle	ProcessBlue	Sepia
Mahogany	Orchid	SkyBlue	Brown
Maroon	DarkOrchid	Turquoise	Tan
BrickRed	Purple	TealBlue	Gray
Red	Plum	Aquamarine	Black
OrangeRed	Violet	BlueGreen	White

B. Color name clashes

Table 7: Color names clashing in SVG (left) and DVIPS (right) specifications.

Aquamarine	Fuchsia	NavyBlue	SkyBlue
Black	Goldenrod	Orange	SpringGreen
Blue	Gray	OrangeRed	Tan
BlueViolet	Green	Orchid	Thistle
Brown	GreenYellow	Plum	Turquoise
CadetBlue	Lavender	Purple	Violet
CornflowerBlue	LimeGreen	Red	VioletRed
Cyan	Magenta	RoyalBlue	White
DarkOrchid	Maroon	Salmon	Yellow
ForestGreen	MidnightBlue	SeaGreen	YellowGreen