The ycolor package

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The ycolor package provides some useful tools for working with colors. The package serves as an extension of the xcolor packages. All options are passed to this package.

1 Modifying Brightness and luminance of Colors

In order to yield proper colored as well as black/white prints, the brightness or Luminance property of colors can be used. For further information see the Wikipdie article on the HSB and HSL color spaces: http://en.wikipedia.org/wiki/HSV_color_space

1.1 The defbcolor Command

Use \defbcolor{NewCol}{OrgCol}{Brightness} to define a color NewCol which has the same hue and saturation like OrgCol but a modified Brightness. Note that Brightness is number between 0 and 1.

In Figure 1 several colors for the Brightness levels $\{0.0, 0.1, \cdots, 1.0\}$ are depicted. Additional their black/white counterpart can be seen.

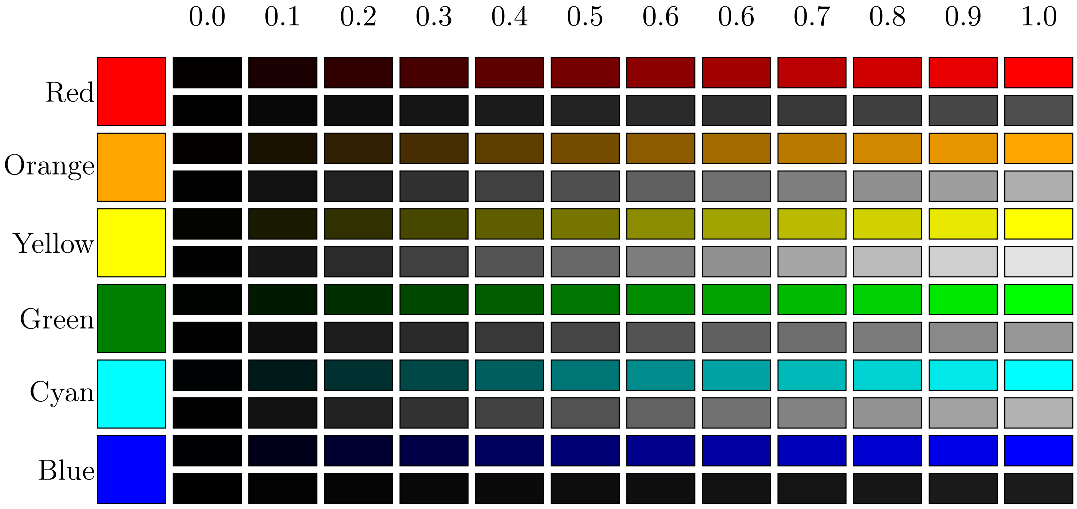


Figure 1: Several colors for different Brightness levels

1.2 The deflcolor Command

Use \defbcolor{NewCol}{OrgCol}{Luminance} to define a color NewCol which has the same hue and saturation like OrgCol but a modified Luminance. Note that Luminance is number between 0 and 1.

In Figure 2 several colors for the Luminance levels $\{0.0, 0.1, \cdots, 1.0\}$ are depicted. Additional their black/white counterpart can be seen.

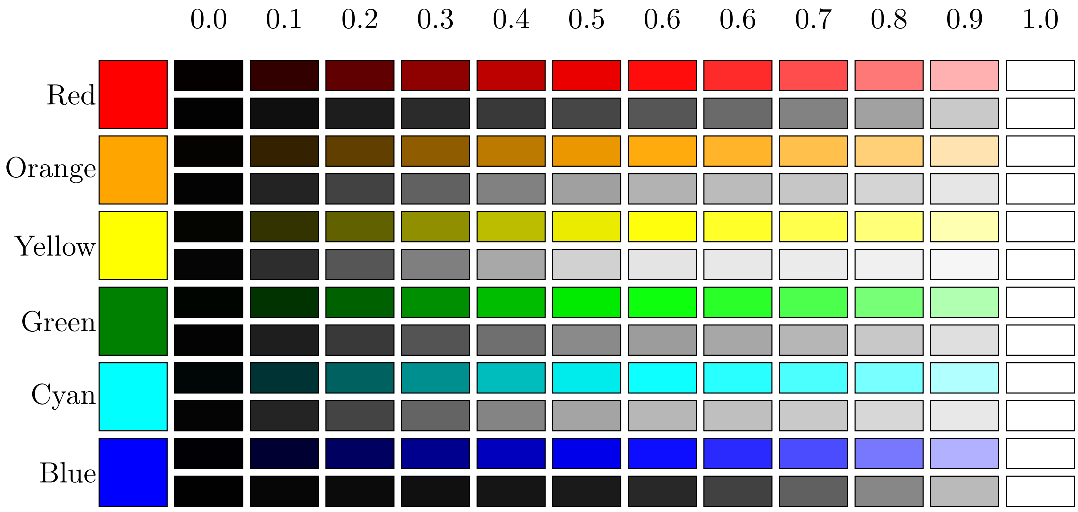


Figure 2: Several colors for different Luminance levels

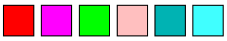
2 Definition of Global Colors and Colors in the aux-File

2.1 Global Definition of Colors

Use \globalizecolor to make a color globally available. As an alternative, you can use \gdefinecolor, \gprovidecolor, \gcolorlet, \gdefbcolor, and \gdeflcolor to directly define global color. The possibilities are demonstrated in the following example:

```
% Defintion of colors in a group
\bgroup
   \colorlet{globalizedcolor}{red}
   \globalizecolor{globalizedcolor}
   \gdefinecolor{gdefinecolor}{rgb}{1,0,1}
   \gprovidecolor{gprovidecolor}{rgb}{0,1,0}
   \gcolorlet{gcolorlet}{pink}
   \gdefbcolor{gdefbcolor}{cyan}{.7}
   \gdeflcolor{gdeflcolor}{cyan}{.7}
\egroup

% The colors are still available
\begin{tikzpicture}
   \draw[fill=globalizedcolor] (0.0,0) rectangle ++(.4,.4);
   \draw[fill=gdefinecolor]    (0.5,0) rectangle ++(.4,.4);
   \draw[fill=gprovidecolor]   (1.0,0) rectangle ++(.4,.4);
   \draw[fill=gcolorlet]       (1.5,0) rectangle ++(.4,.4);
   \draw[fill=gdefbcolor]      (2.0,0) rectangle ++(.4,.4);
   \draw[fill=gdeflcolor]      (2.5,0) rectangle ++(.4,.4);
\end{tikzpicture}
```

This is the corresponding output 

2.2 Definition of Colors in the aux–File

Occasionally, color might by used before they are defined. This can be achieved by writing the color definition in the aux–file. To that end, the commands \colortoaux, \adefinecolor, \aprovidecolor, \acolorlet, \adefbcolor, and \adeflcolor are available. Note, that during the first compilation, the colors are eventually not yet available. To avoid error message, use the package option hideerrors to get a warning. The possibilities are demonstrated in the following example:

```
% Use color before they are defined
\begin{tikzpicture}
   \draw[fill=colortoaux]      (0.0,0) rectangle ++(.4,.4);
   \draw[fill=adefinecolor]    (0.5,0) rectangle ++(.4,.4);
   \draw[fill=aprovidecolor]   (1.0,0) rectangle ++(.4,.4);
   \draw[fill=acolorlet]       (1.5,0) rectangle ++(.4,.4);
   \draw[fill=adefbcolor]      (2.0,0) rectangle ++(.4,.4);
   \draw[fill=adeflcolor]      (2.5,0) rectangle ++(.4,.4);
\end{tikzpicture}
```

```
% Define the color afterwars
\colorlet{colortoaux}{Green}
\colortoaux{colortoaux}
\adefinecolor{adefinecolor}{rgb}{0,0,1}
\adprovidecolor{aprovidecolor}{rgb}{1,1,0}
\acolorlet{acolorlet}{YellowGreen}
\adefbcolor{adefbcolor}{Green}{.7}
\adeflcolor{adeflcolor}{Green}{.7}
```

This is the corresponding output 🟩 🟦 🟨 🟩 🟩 🟩