# brighten

Brighten or darken colormap

## Syntax

```
brighten(beta)
brighten(h,beta)
newmap = brighten(beta)
newmap = brighten(cmap,beta)
```

## Description

`brighten` increases or decreases the color intensities in a colormap. The modified colormap is brighter if `0 < beta < 1` and darker if `-1 < beta < 0`.

`brighten(beta)` replaces the current colormap with a brighter or darker colormap of essentially the same colors. `brighten(beta)`, followed by `brighten(-beta)`, where `beta < 1`, restores the original map.

`brighten(h,beta)` brightens all objects that are children of the figure having the handle `h`.

`newmap = brighten(beta)` returns a brighter or darker version of the current colormap without changing the display.

`newmap = brighten(cmap,beta)` returns a brighter or darker version of the colormap `cmap` without changing the display.

## Examples

Brighten and then darken the current colormap:

```
beta = .5; brighten(beta);
beta = --.5; brighten(beta);
```

## Algorithm

The values in the colormap are raised to the power of gamma, where gamma is

$$\gamma = \begin{cases} 1 - \beta, & \beta > 0 \\ \dfrac{1}{1+\beta}, & \beta \leq 0 \end{cases}$$

`brighten` has no effect on graphics objects defined with true color.

## See Also

colormap, rgbplot

Color Operations for related functions

Altering Colormaps for more information