HSV vs HSL: Which is better?

结论：没有结论。这是个老话题了，这两个空间试图将 RGB 分开为人类可以感知的维度，但为了减小运算量，都导致他们有一些缺点。

感觉维基百科上 Disadvantages 那一节写的很好。

首先亮度，这幅图非常好，展示了各个空间对亮度的分解情况，HSV 和 HSL 都挺一般的。

Fig. 13a. Color photograph (sRGB colorspace).

Fig. 13b. CIELAB *L** (further transformed back to sRGB for consistent display).

Fig. 13c. Rec. 601 luma *Y′*.

Fig. 13d. Component average: "intensity" *I*.

Fig. 13e. HSV value *V*.

Fig. 13f. HSL lightness *L*.

而在饱和度上，这两个空间更有问题，一些很不同的颜色却有着相同的饱和度。

> Though none of the dimensions in these spaces match their perceptual analogs, the *value* of HSV and the *saturation* of HSL are particular offenders. In HSV, the blue primary ■ and white □ are held to have the same value, even though perceptually the blue primary has somewhere around 10% of the luminance of white (the exact fraction depends on the particular RGB primaries in use). In HSL, a mix of 100% red, 100% green, 90% blue – that is, a very light yellow □ – is held to have the same saturation as the green primary ■, even though the former color has almost no chroma or saturation by the conventional psychometric definitions. Such perversities led Cynthia Brewer, expert in color scheme choices for maps and information displays, to tell the American Statistical Association:

此外，这三个维度也并不是完全独立的，改变一个可能会引起 RGB 的不均匀变化。比如下面的图，第二张图仅仅改变了色调，第三张图是改变之后还要让图片的 CIE-L 不变。能发现，改变色调，让人眼感知的亮度也降低了。

Fig. 21a. Color photograph.

Fig. 21b. HSL/HSV hue of each color shifted by −30°.

Fig. 21c. Hue shifted but CIELAB lightness (L^*) kept as in the original.

Fig. 21d. Hue shifted in CIELch(ab) color space by −30°.

从各个软件也能看出，这两空间都有人用，而且 Photshop 这种是两个空间都用了，一个用在颜色选择，一个用在颜色调整上。

- Applications that use HSV (HSB):
  - Apple Mac OS X system color picker (has a color disk for H/S and a slider for V)
  - Xara Xtreme
  - Paint.NET (has a color disk for H/S and a slider for V)
  - Adobe graphic applications (Illustrator, Photoshop, and others)
- Applications that use HSL:
  - The CSS3 specification
  - Inkscape (starting from version 0.42)
  - Macromedia Studio
  - Microsoft Windows system color picker (including Microsoft Paint)
  - Paint Shop Pro
  - ImageMagick
- Applications that use both HSV and HSL:
  - Pixel image editor (starting from Beta5)
  - Pixia
  - Bryce
  - The GIMP (HSV for color selection, HSL for image color adjustment)
  - Photoshop (HSV for color selection, HSL for image color adjustment)

File:Gimp

The GIMP colors wit color whe