Design

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Contents

1 Color

1.1 Color Model

https://www.nceas.ucsb.edu/~frazier/RSpatialGuides/colorPaletteCheatsheet.pdf

> R can use many different color models, but often uses a #**R**ed, **G**reen, **B**lue model with the amount of each color indicated in Hexadecimal, 00 to FF, notation.

1.2 Three Types Of Palettes

http://colorbrewer2.org/

```
library(RColorBrewer)
```

```
display.brewer.pal(7, "Set1")  # qualitative
```

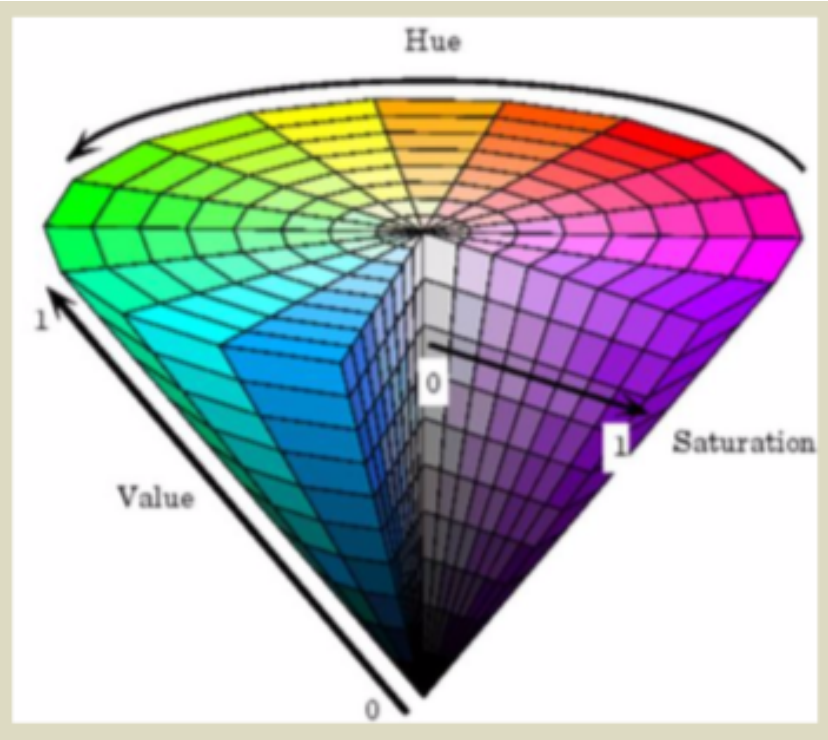


Figure 1: color wheel

```
display.brewer.pal(7, "YlOrRd")  # sequential
```

Set1 (qualitative)

```
display.brewer.pal(7, "Spectral")  # diverging
```

YlOrRd (sequential)

```
display.brewer.all()  # all palettes
```

Spectral (divergent)

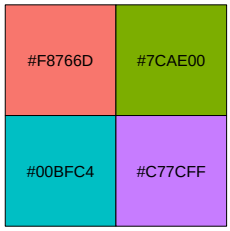

YlOrRd
YlOrBr
YlGnBu
YlGn
Reds
RdPu
Purples
PuRd
PuBuGn
PuBu
OrRd
Oranges
Greys
Greens
GnBu
BuPu
BuGn
Blues
Set3
Set2
Set1
Pastel2
Pastel1
Paired
Dark2
Accent
Spectral
RdYlGn
RdYlBu
RdGy
RdBu
PuOr
PRGn
PiYG
BrBG

1.3 Where Do The Colors in `ggplot` Come From?

Equally spaced around the color wheel.

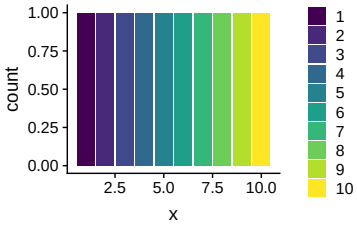
```
library(scales)

show_col(hue_pal()(4))
```



1.4 Many Many Color Options

e.g. Viridis, which is designed to be *perceptually uniform*.



2 Fonts

2.1 Three Major Types of Fonts

- San Serif e.g. Arial, Helvetica
- Serif Fonts e.g. Times New Roman
- `Monospaced Fonts` e.g. `Courier` (good for code).

2.2 Font Rules

Don't have `too many` fonts!

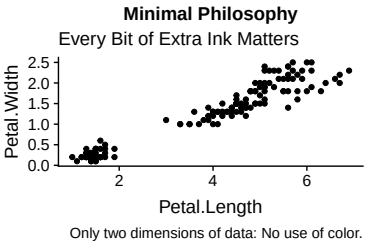
Interesting Font for Heading

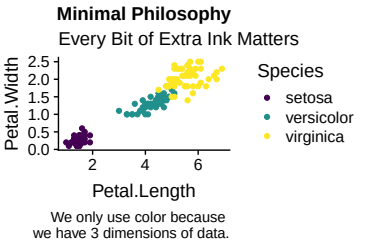
Standard San Serif or Serif Fonts for text.

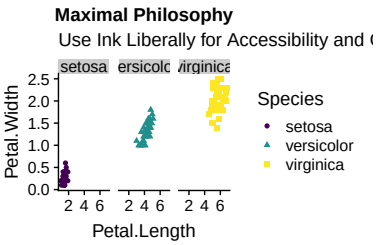
3 Cognition

3.1 Dimensions of Data

```
## [1] "Sepal.Length" "Sepal.Width"
## [3] "Petal.Length" "Petal.Width"
## [5] "Species"
```

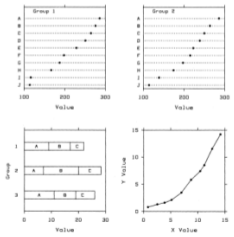






3.2 Some Geometries Are Easier To Understand Than Others

"The Most Important Thing" via John Rauser



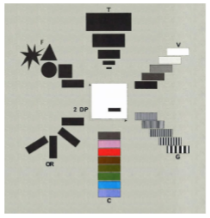


Table 1. Ordering elementary tasks by accuracy, according to theoretical arguments and experimental results. Graphs should exploit tasks as high in the ordering as possible. The tasks are ordered from most accurate to least.

Rank	Aspect judged
1	Position along a common scale
2	Position on identical but nonaligned scales
3	Length
4	Angle Slope (with θ not too close to 0, π/2, or π radians)
5	Area
6	Volume Density Color saturation
7	Color hue