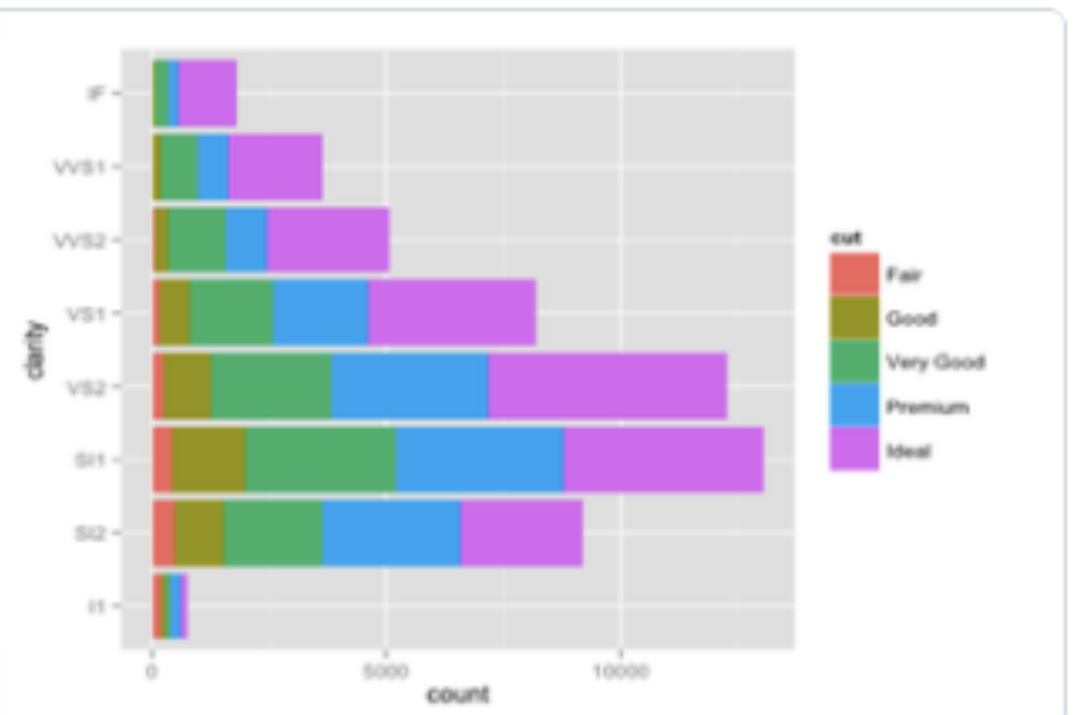
Color

1. link between data and color palette
2. perceptually uniform color spaces
3. color vision deficiency

Myfanwy
@Voovarb

guys. GUYS. I'm diving in Palau this week and I've found the #ggplot2 fish. #rstats

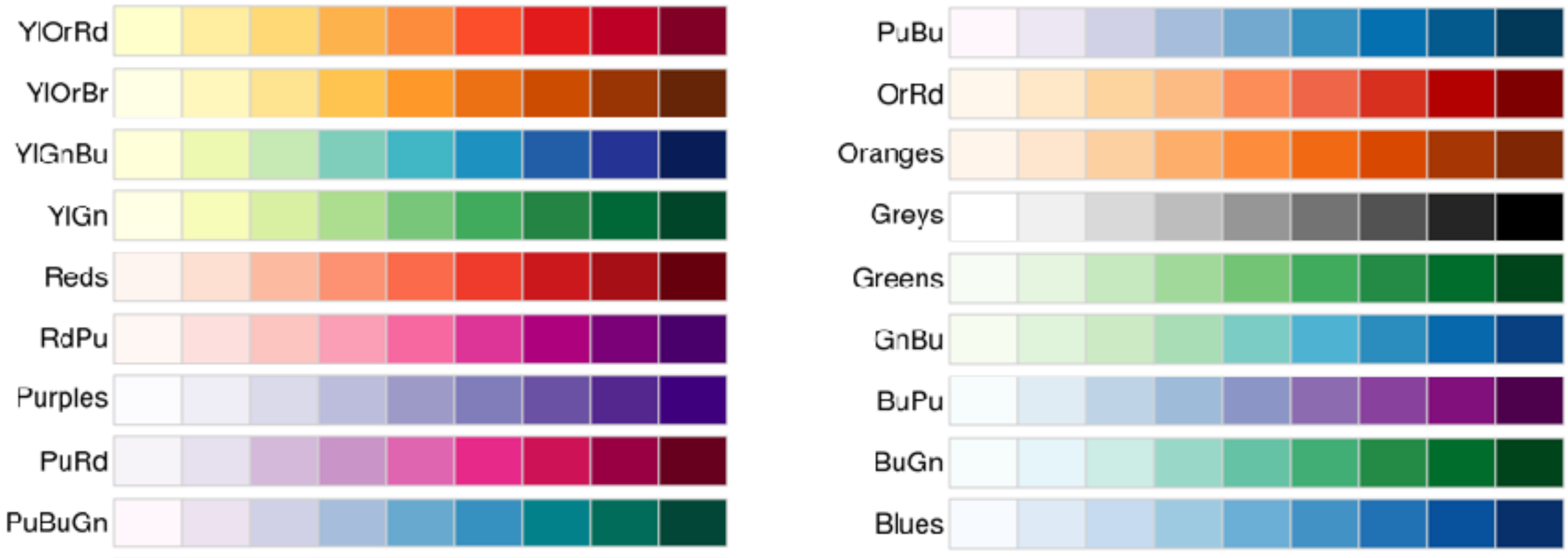


9:26 AM · Mar 25, 2015

112 RETWEETS **237** LIKES

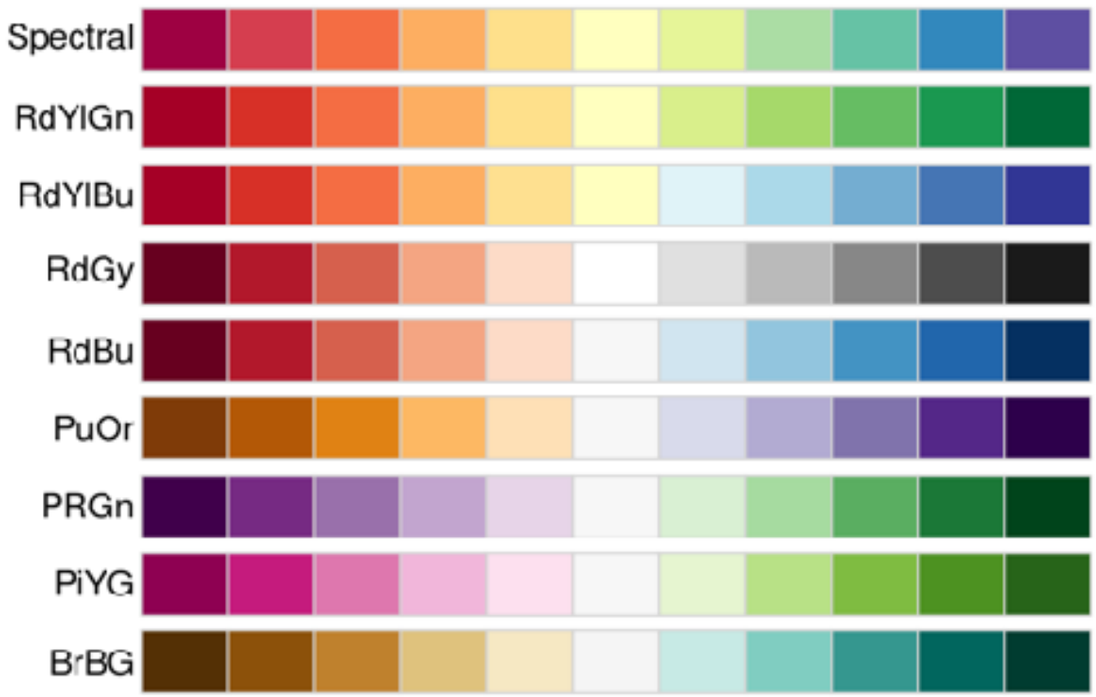
RColorBrewer Color Schemes

sequential



RColorBrewer Color Schemes

diverging



RColorBrewer Color Schemes

qualitative (for categorical data)

Perceptually uniform color spaces

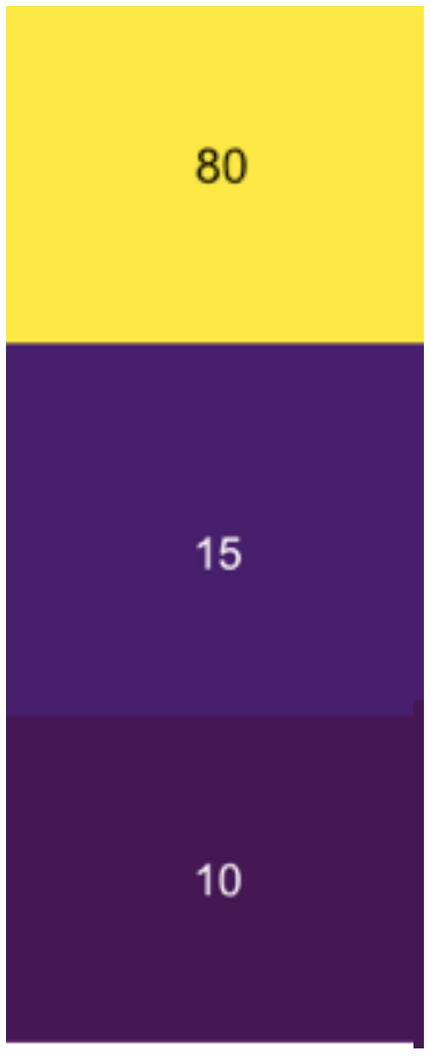
- don't blur important distinctions in the data
- don't add distinctions that don't exist in the data

`viridis` package

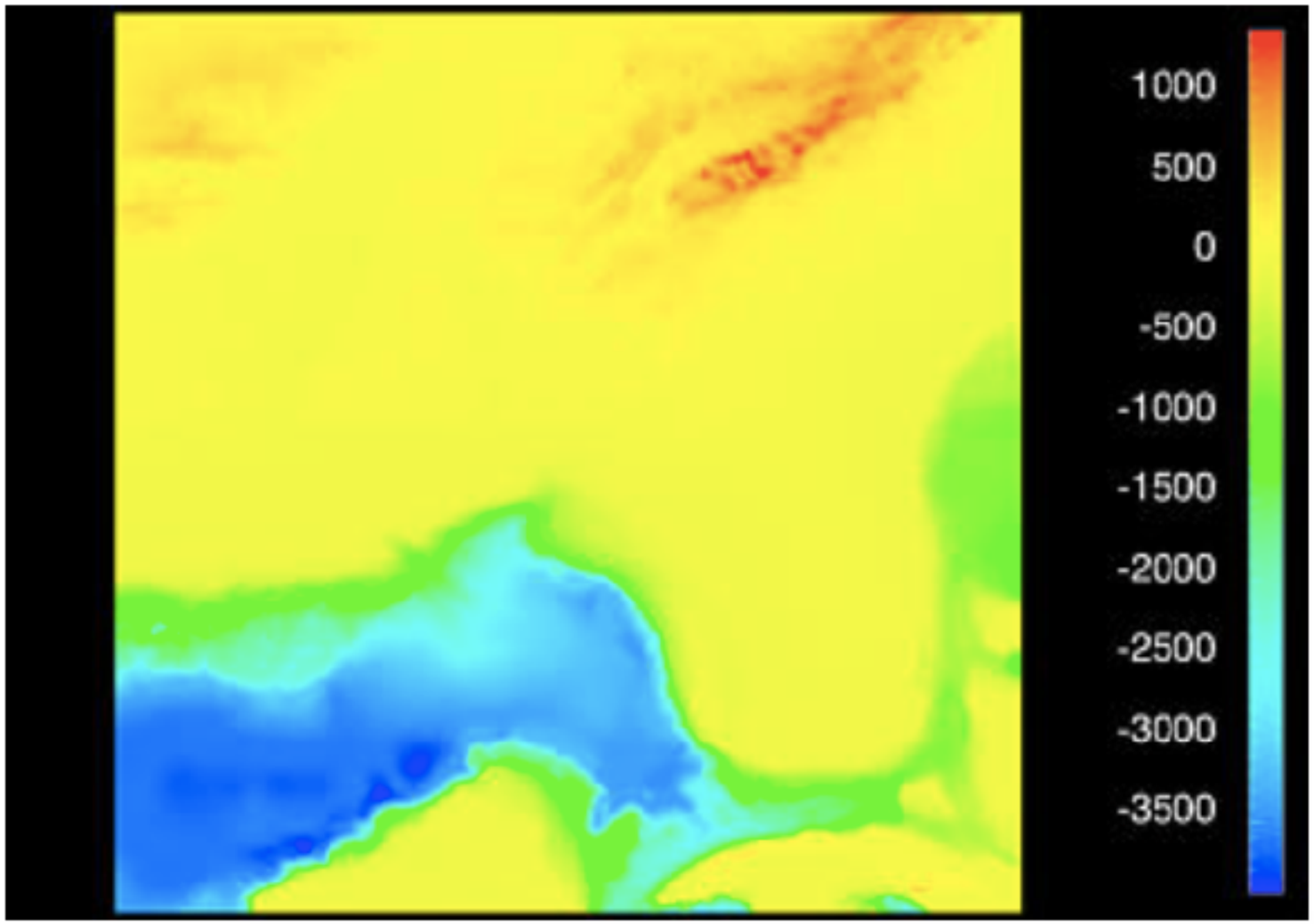
tl;dr
Use the color scales in this package to make plots that are pretty, better represent your data, easier to read by those with colorblindness, and print well in grey scale.

http://bids.github.io/colormap/ http://matplotlib.org/users/colormaps.html

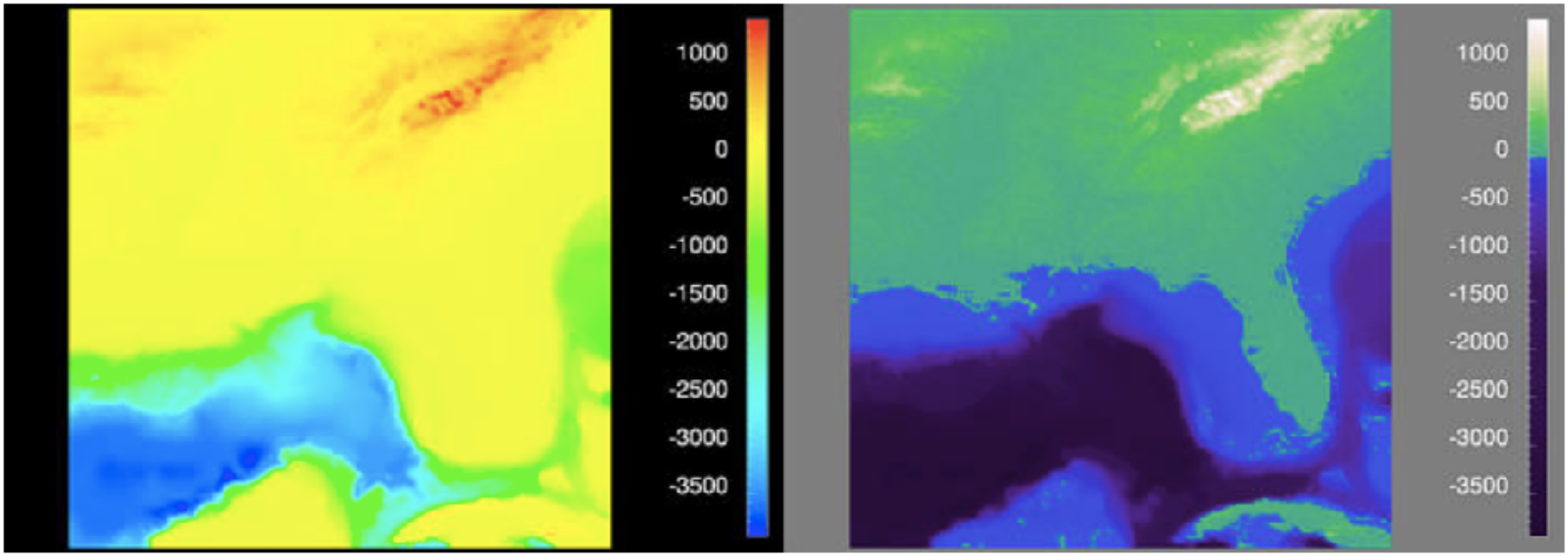
Perceptually uniform color space



viridis



Source: Krysten Thyng, "Custom Colormaps for Your Field"



Source: Krysten Thyng, "Custom Colormaps for Your Field"

Viridis Color Schemes

viridis

Continuous data

OR: _fill_

VIRIDIS

+ scale_color_viridis()

RCOLORBREWER

+ scale_color_distiller(palette = "PuBu")

~~[+scale_color_brewer(palette = "PuBu").~~ Error: Continuous value supplied to discrete scale]

~~[+scale_color_continuous(palette = "PuBu")~~ Error in f(..., self = self) : attempt to apply non-function]

CREATE YOUR OWN

+ scale_color_gradient(low = "white", high = "red")

+ scale_color_gradient2(low = "red", mid = "white", high = "blue", midpoint = 50)

+ scale_color_gradientn(colours = c("red", "pink", "lightblue", "blue"))

Discrete data

VIRIDIS

~~+ scale_color_viridis()~~ Error: Discrete value supplied to continuous scale

+ scale_color_viridis(discrete = TRUE)

RCOLORBREWER

+ scale_color_brewer(palette = "PuBu")

~~[+scale_color_discrete(palette = "PuBu~~") Error in f(..., self = self) : attempt to apply non-function]

+ scale_fill_grey()

CREATE YOUR OWN

+ scale_color_manual(values = c("red", "yellow", "blue"))

Color Vision Deficiency

approx. 8% of men, 0.5% of women have some form

missing or deficient cones:

protanopia (red)

deuteranopia (green)

tritanopia (blue)

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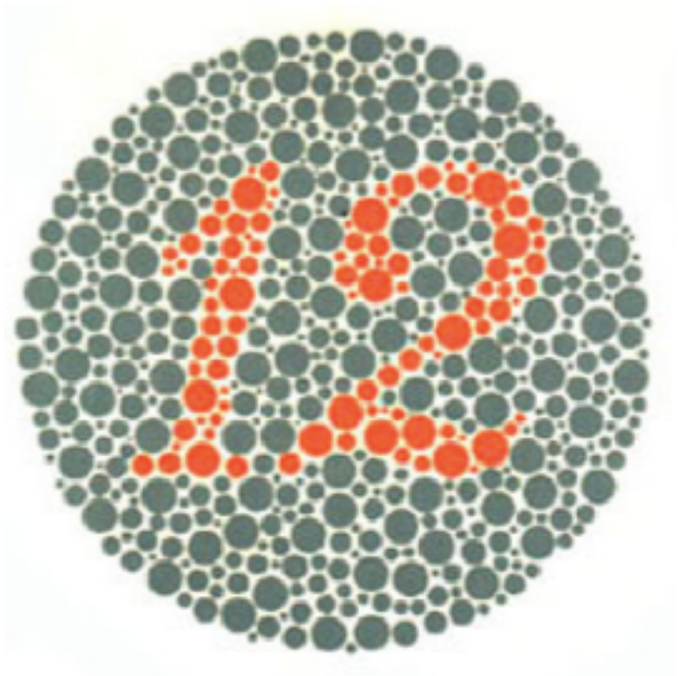
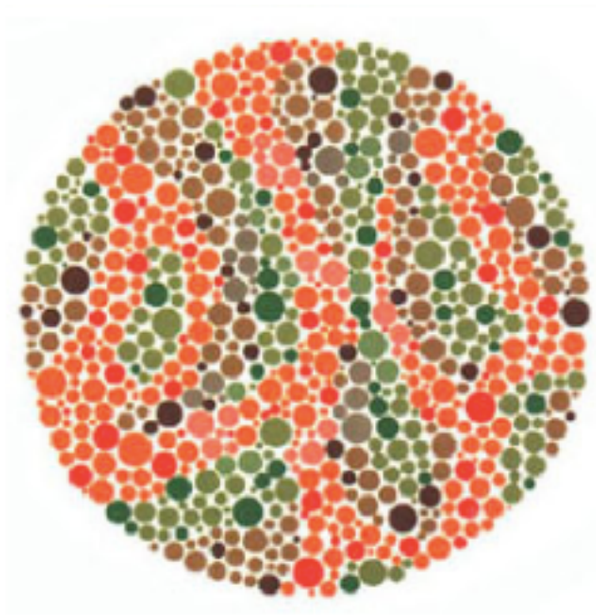
Ishihara Test

tests for protonopia, deuternopia





http://unlimitedmemory.tripod.com/sitebuildercontent/sitebuilderfiles/ishihara38.pdf

How to make CVD friendly graphs

- Use palettes that have already been tested

(see viridis help, + scale_color_colorblind() in ggthemes)

- Use a CVD simulator

www.vischeck.com

http://www.color-blindness.com/coblis-color-blindness-simulator/

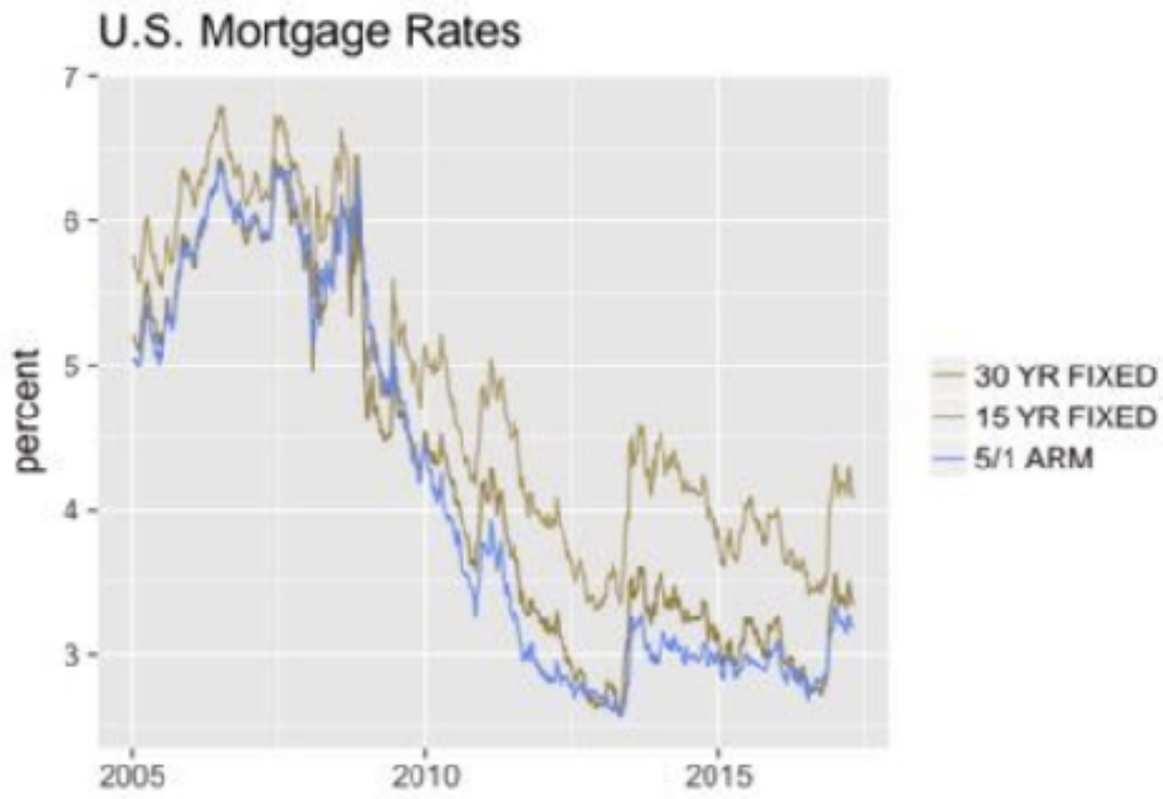
- Use high contrast

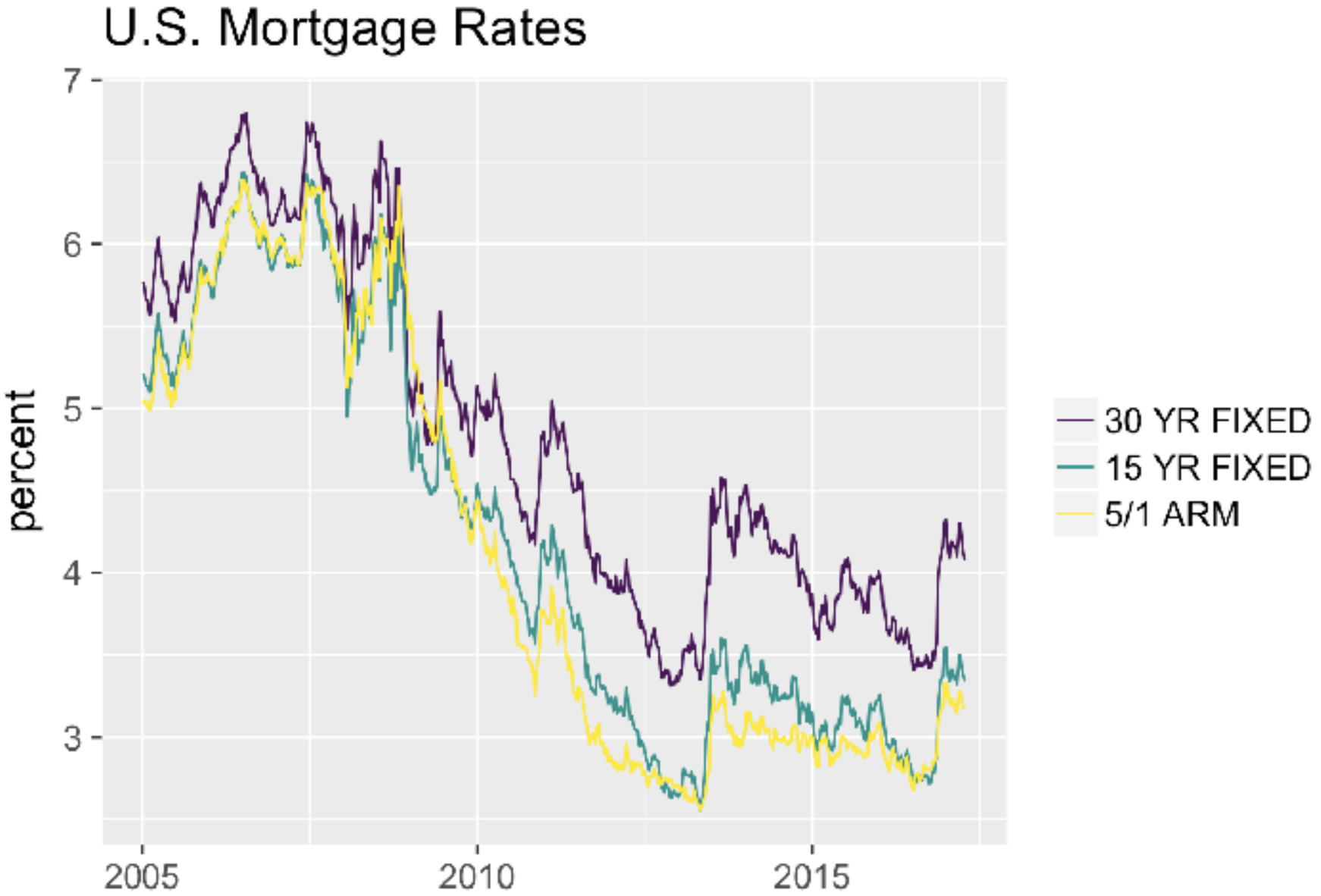
Try Vischeck on Your Image Files

Your Results:

Original Image

Deuteranope Simulation

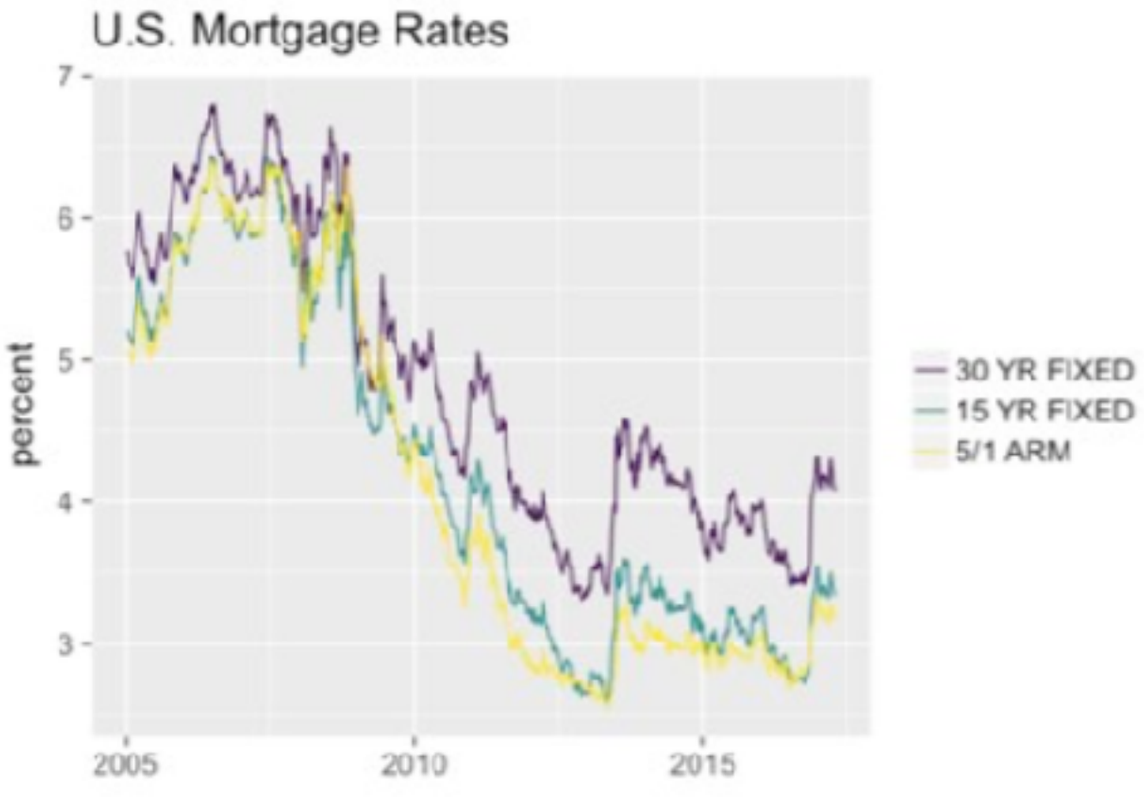



U.S. Mortgage Rates
7
6
5
4
3
percent
2005
2010
2015
30 YR FIXED
15 YR FIXED
5/1 ARM

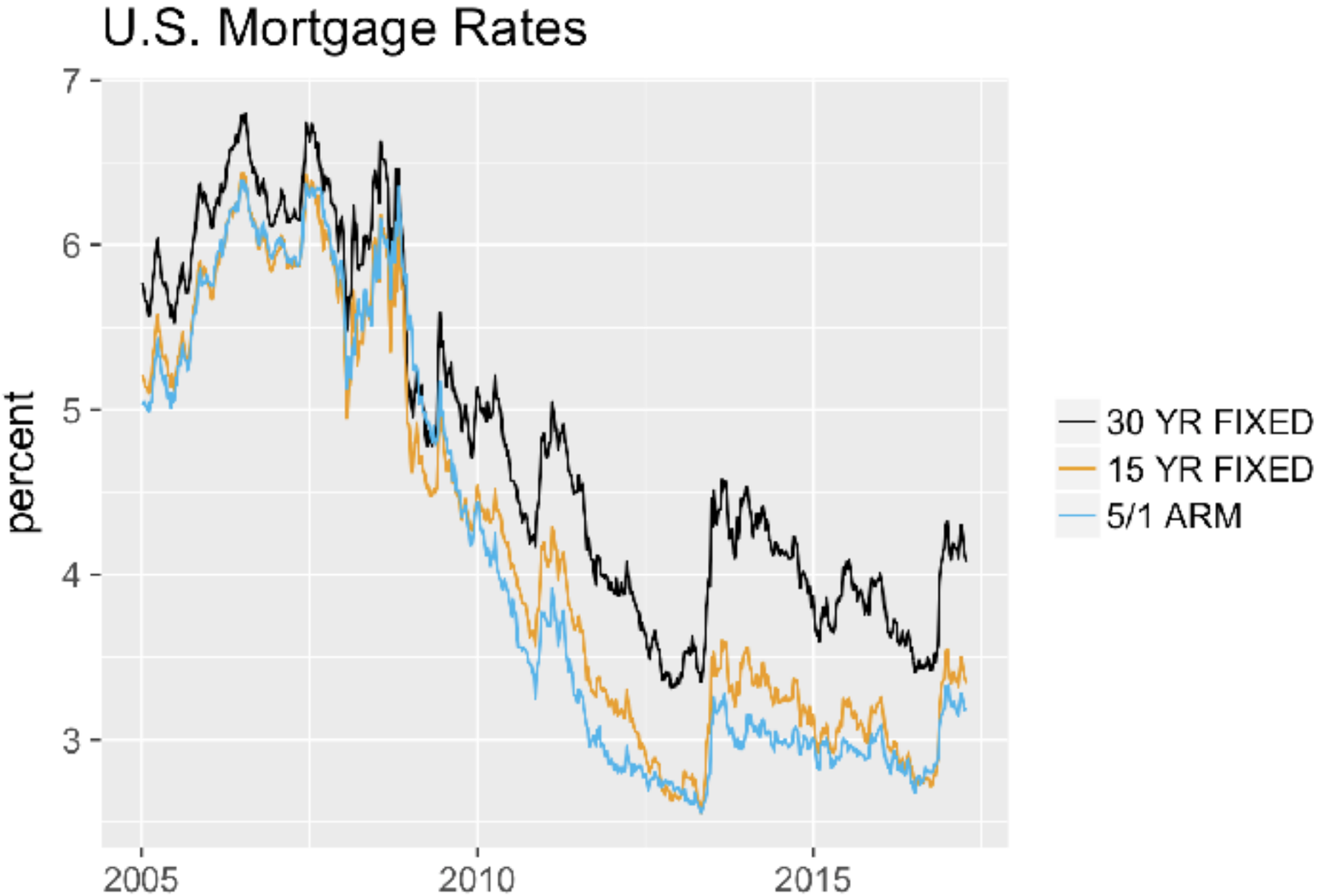
Try Vischeck on Your Image Files

Your Results:

Original Image



Deuteranope Simulation




```
ggthemes:  + scale_color_colorblind()
```

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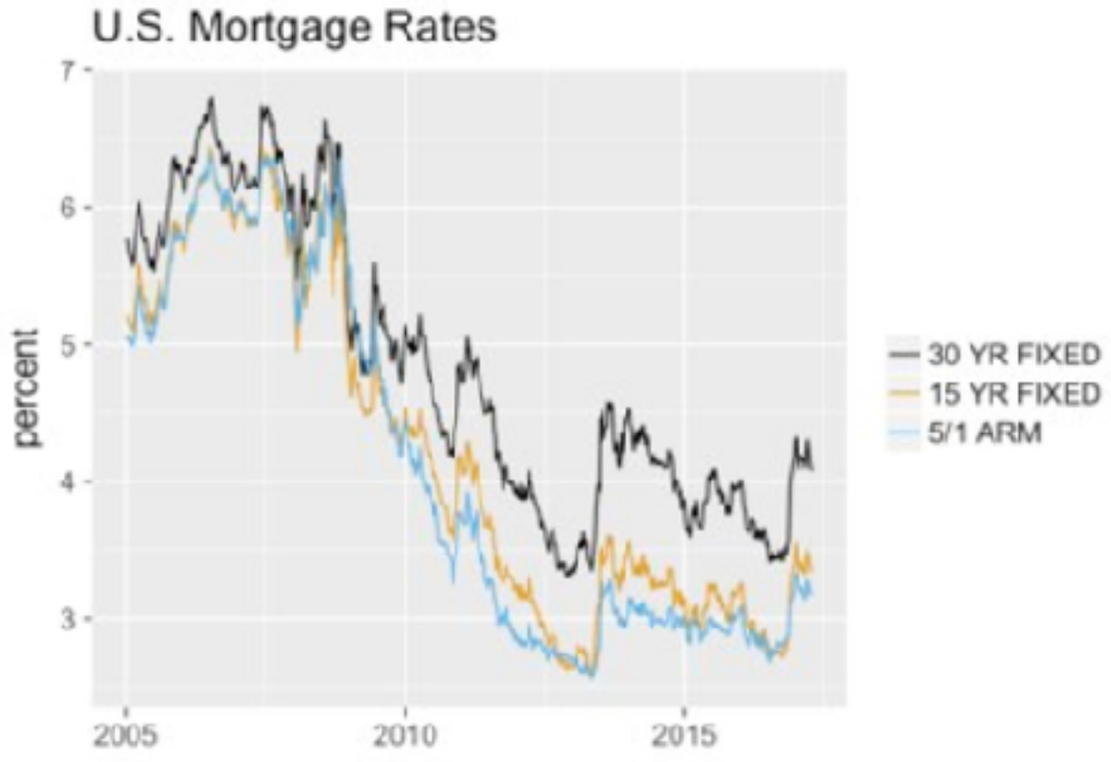
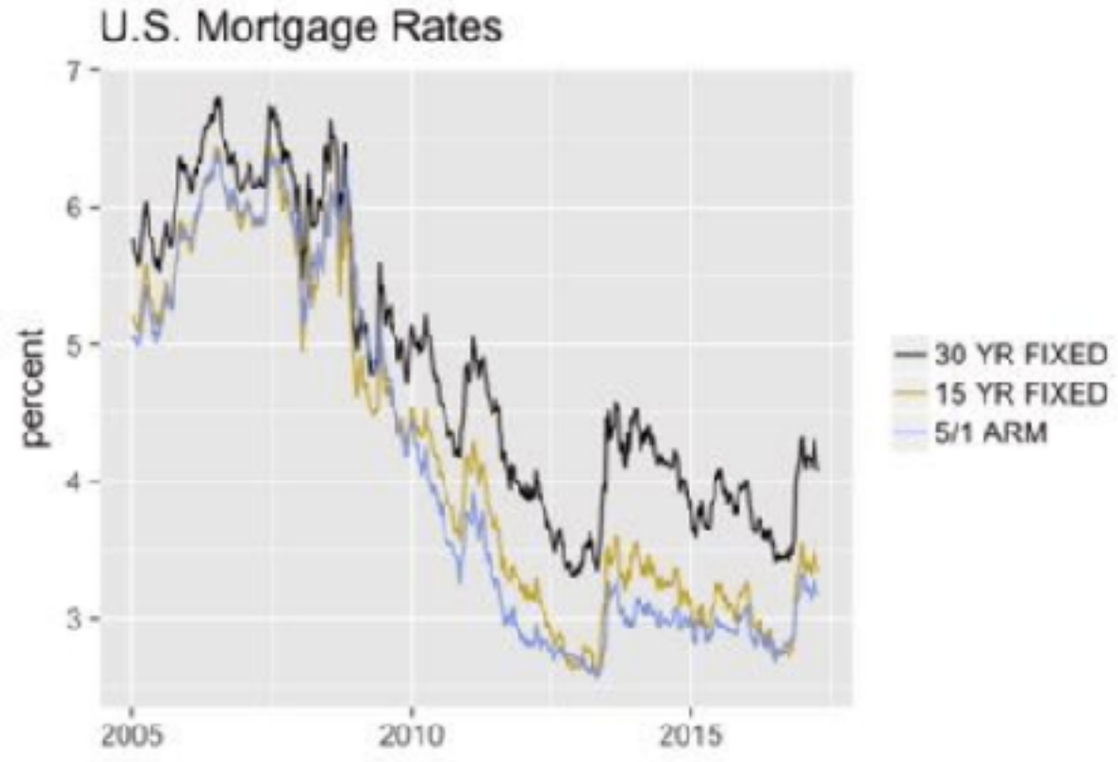
Your Results:

Original Image



Deuteranope Simulation

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