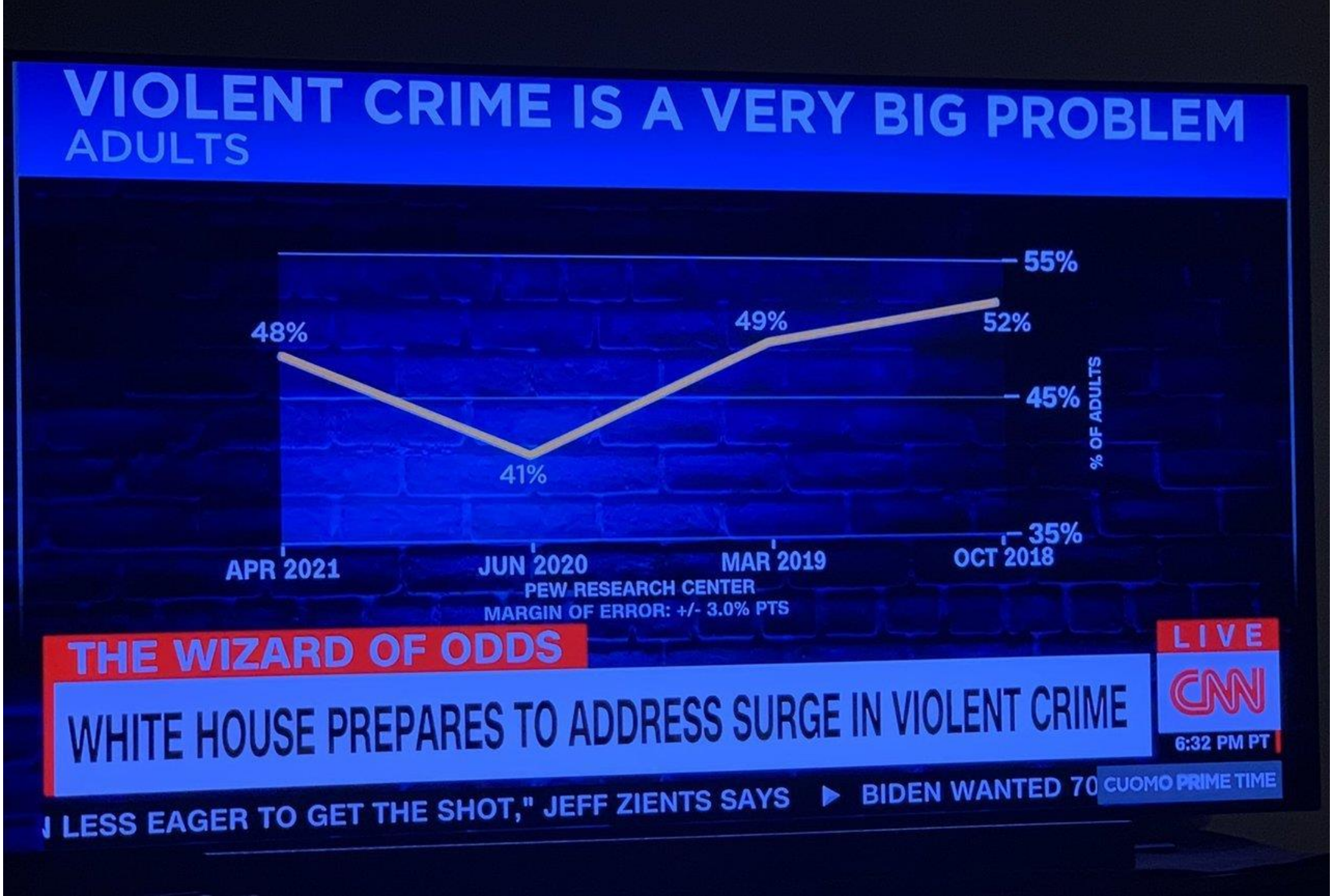
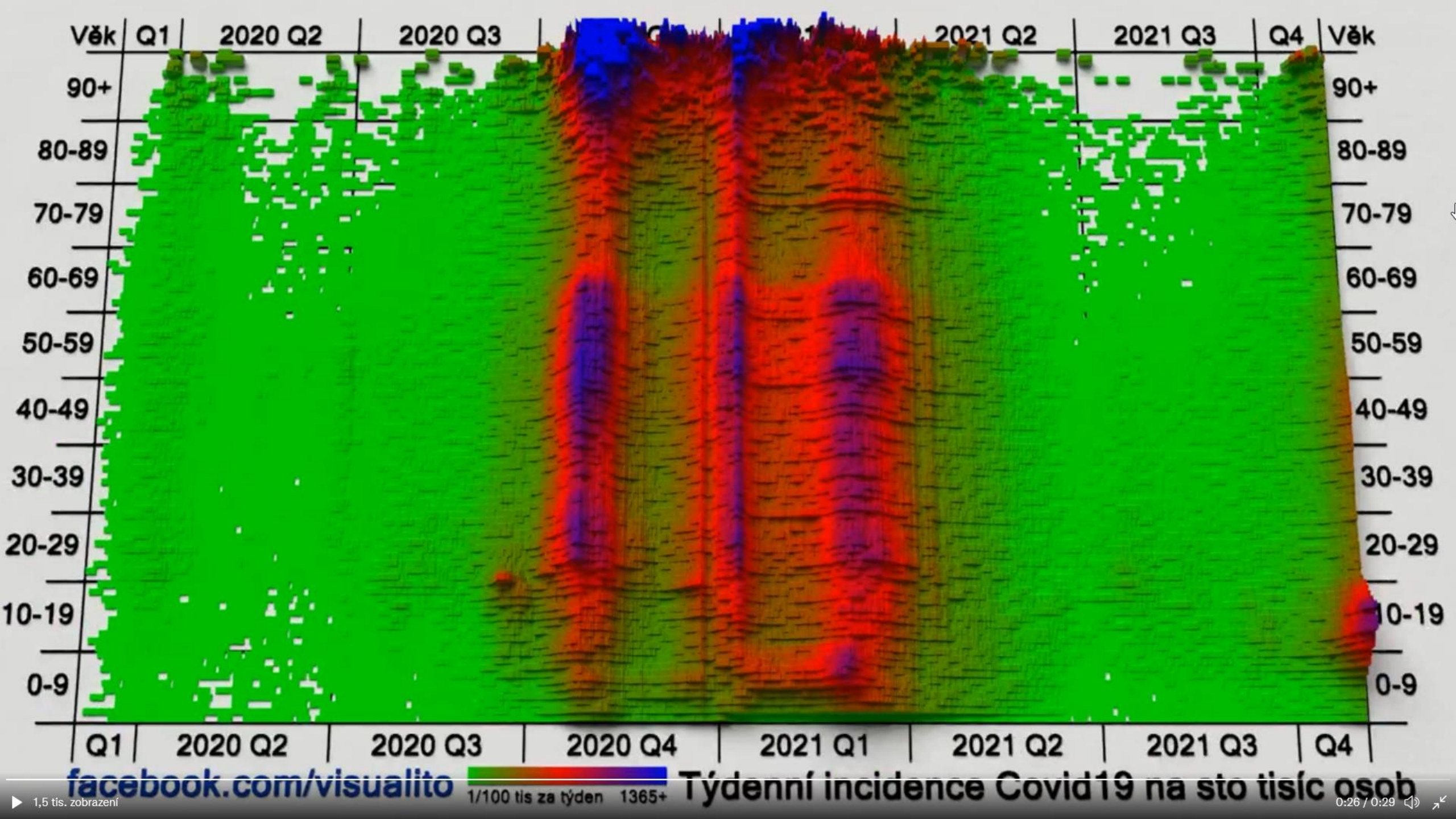
Co dál?

- 4. 11. | Barva DNES
- 11. 11. | Smysl a estetika
- 18. 11. | Manipulace + díváme se na úkoly
- 25. 11. | Honza Boček a datová žurnalistika
- 2. 12. | Praxe: formy a nástroje I.
- 9. 12. | Praxe: Formy a nástroje II.
- 16. 12. | Praxe: Úvod do Charticulatoru
- *Mimo rozvrh*: Grafy v Excelu HLASUJTE


VIOLENT CRIME IS A VERY BIG PROBLEM
ADULTS
55%
48%
49%
52%
45%
41%
% OF ADULTS
35%
APR 2021
JUN 2020
MAR 2019
OCT 2018
PEW RESEARCH CENTER
MARGIN OF ERROR: +/- 3.0% PTS
THE WIZARD OF ODDS
WHITE HOUSE PREPARES TO ADDRESS SURGE IN VIOLENT CRIME
LIVE
CNN
6:32 PM PT
CUOMO PRIME TIME
LESS EAGER TO GET THE SHOT," JEFF ZIENTS SAYS
BIDEN WANTED 70



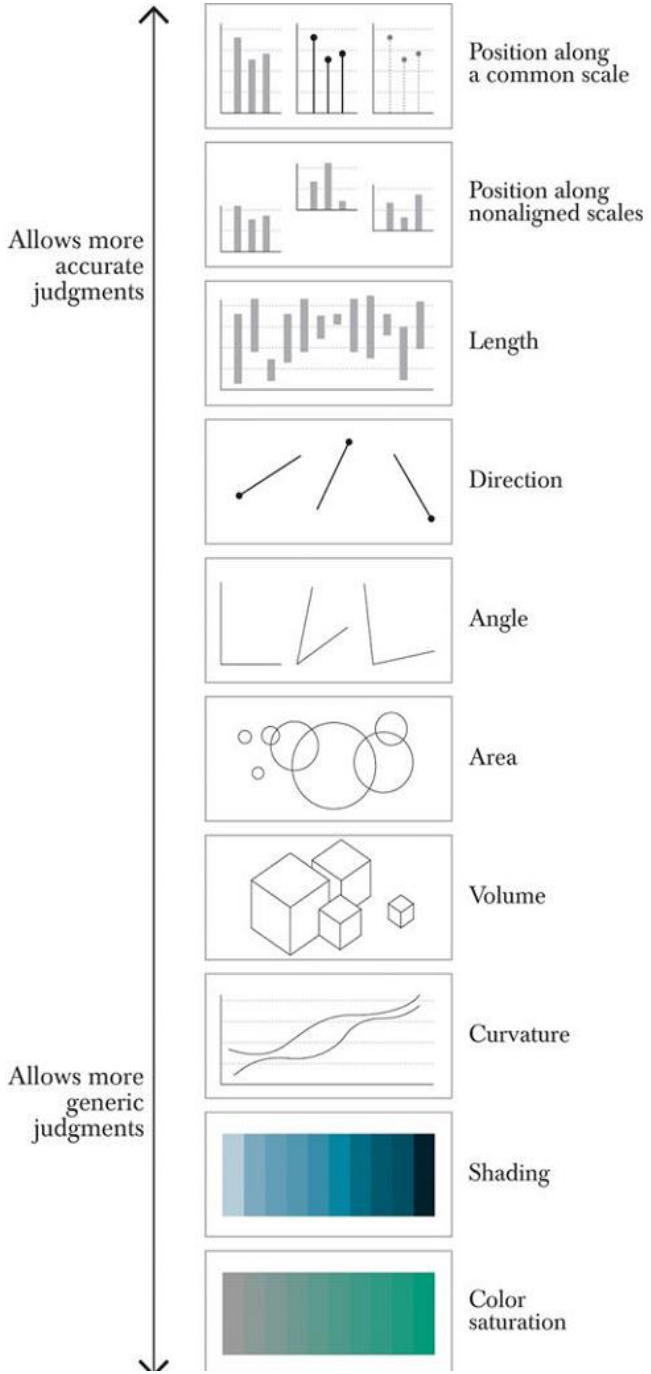
Vizualizace dat

Barva ve vizualizaci dat

4. 11. 2021

vnímání změn hodnot

Vizuální proměnné dle kvantitativní efektivity



Weberův zákon

Stevensův zákon

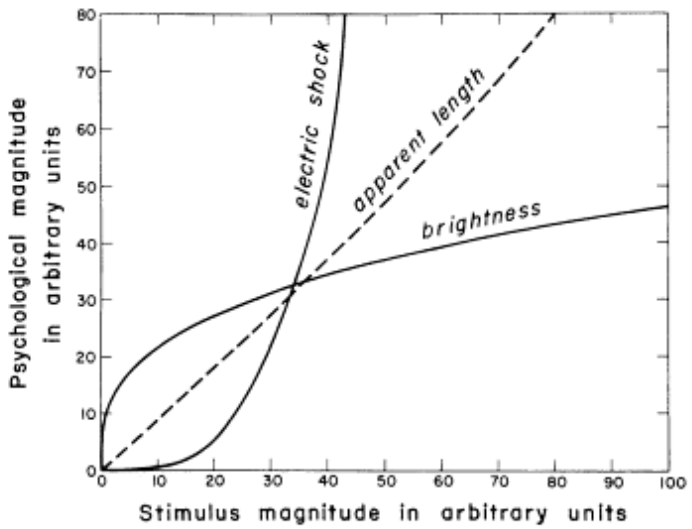
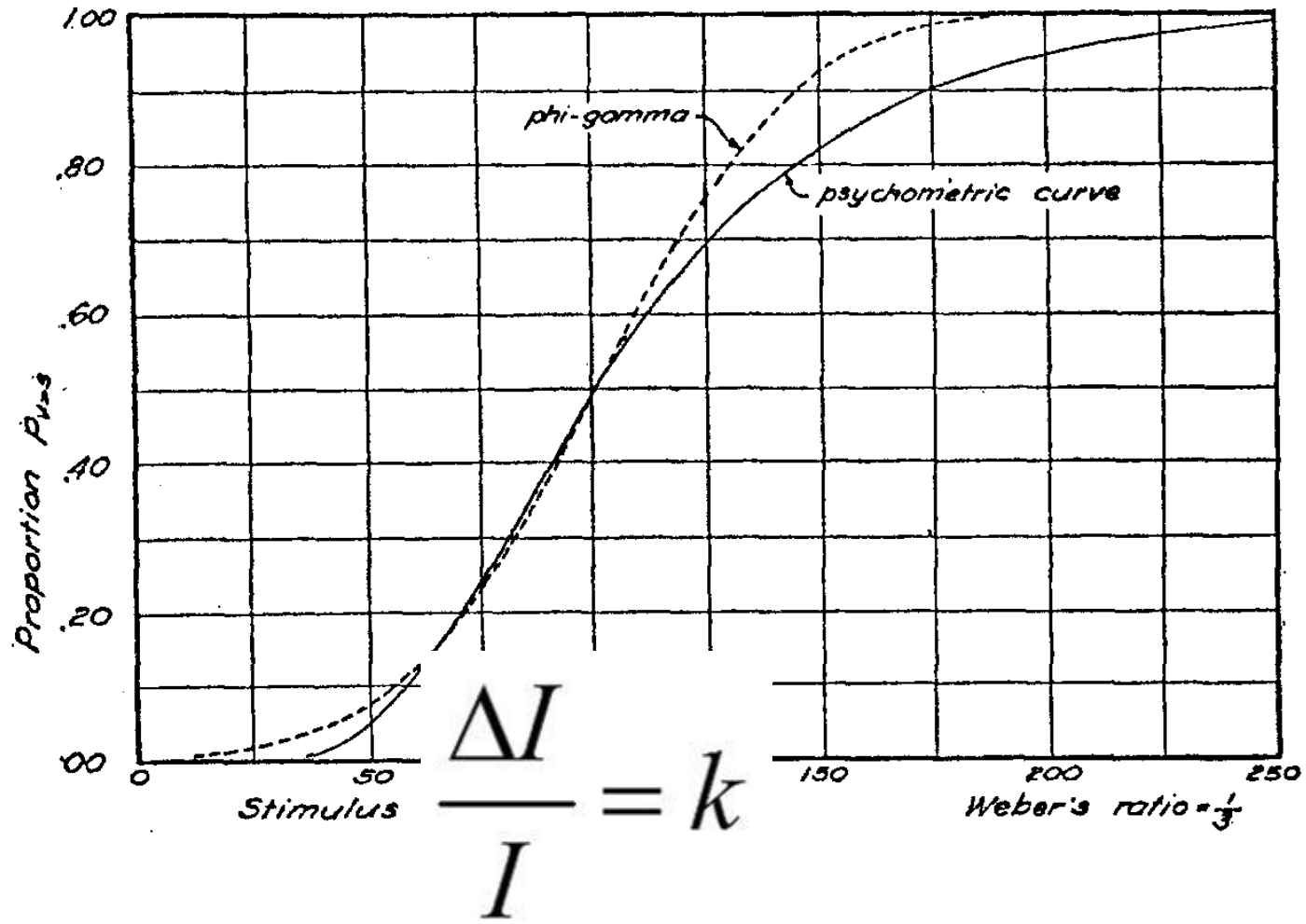
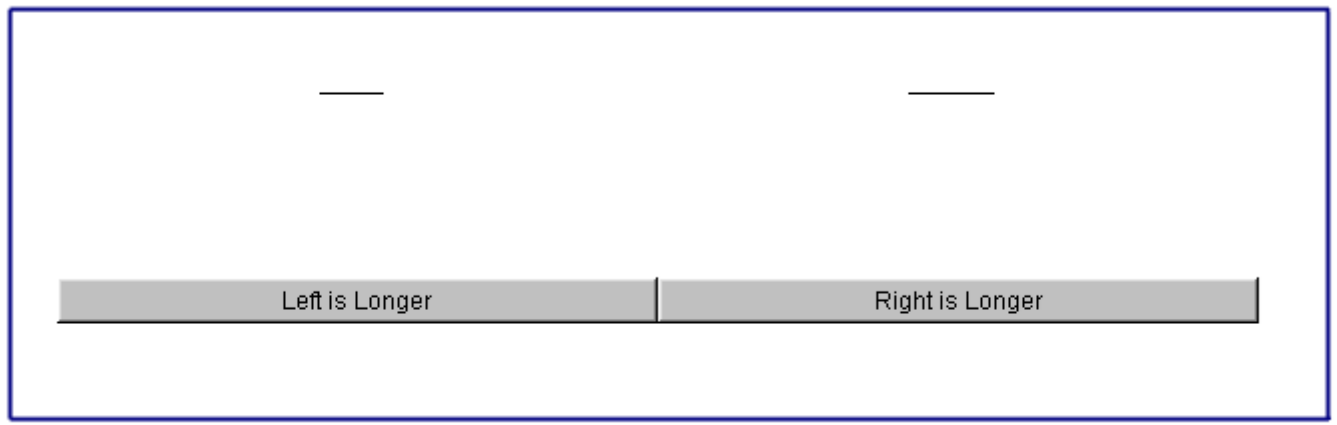
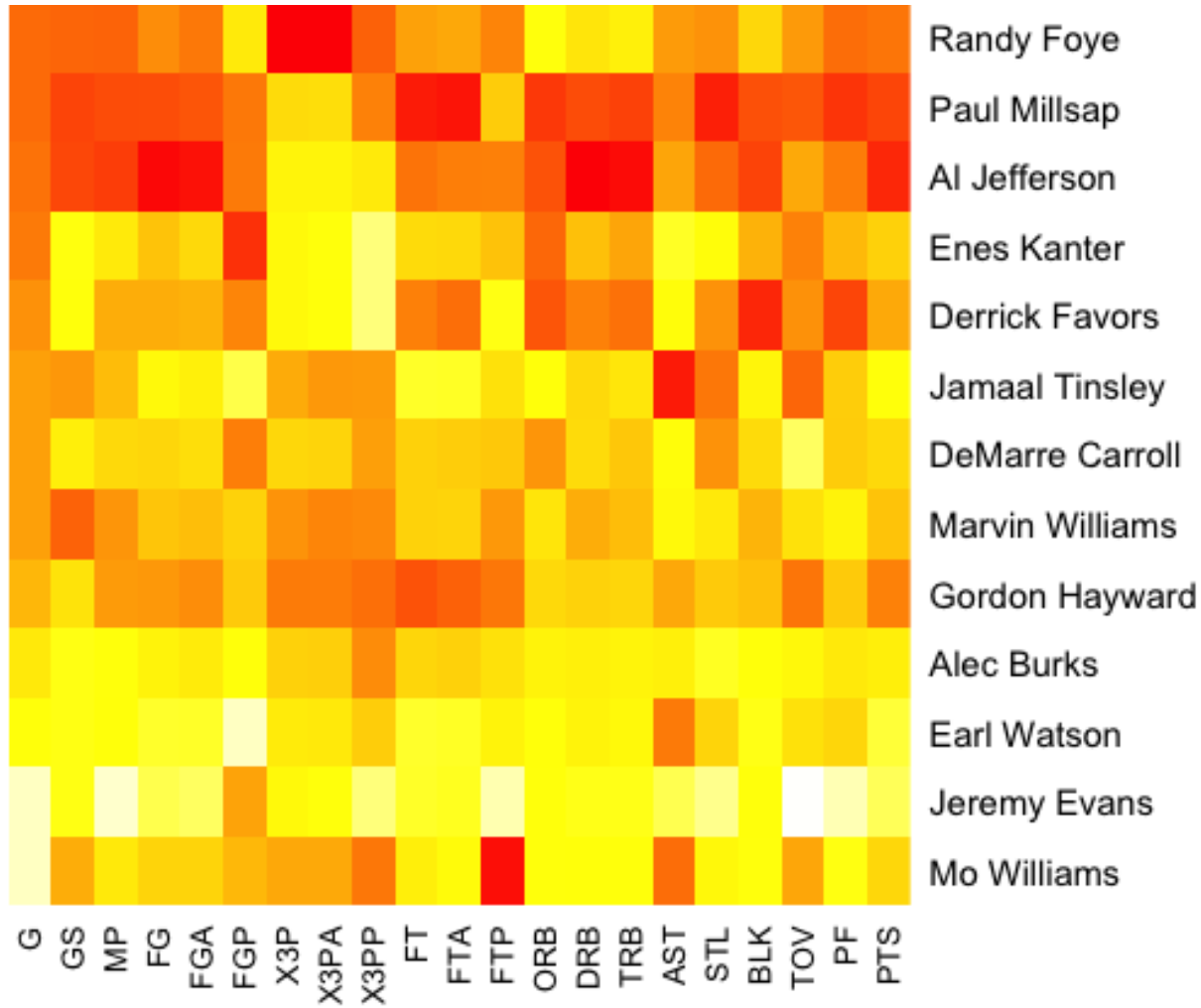


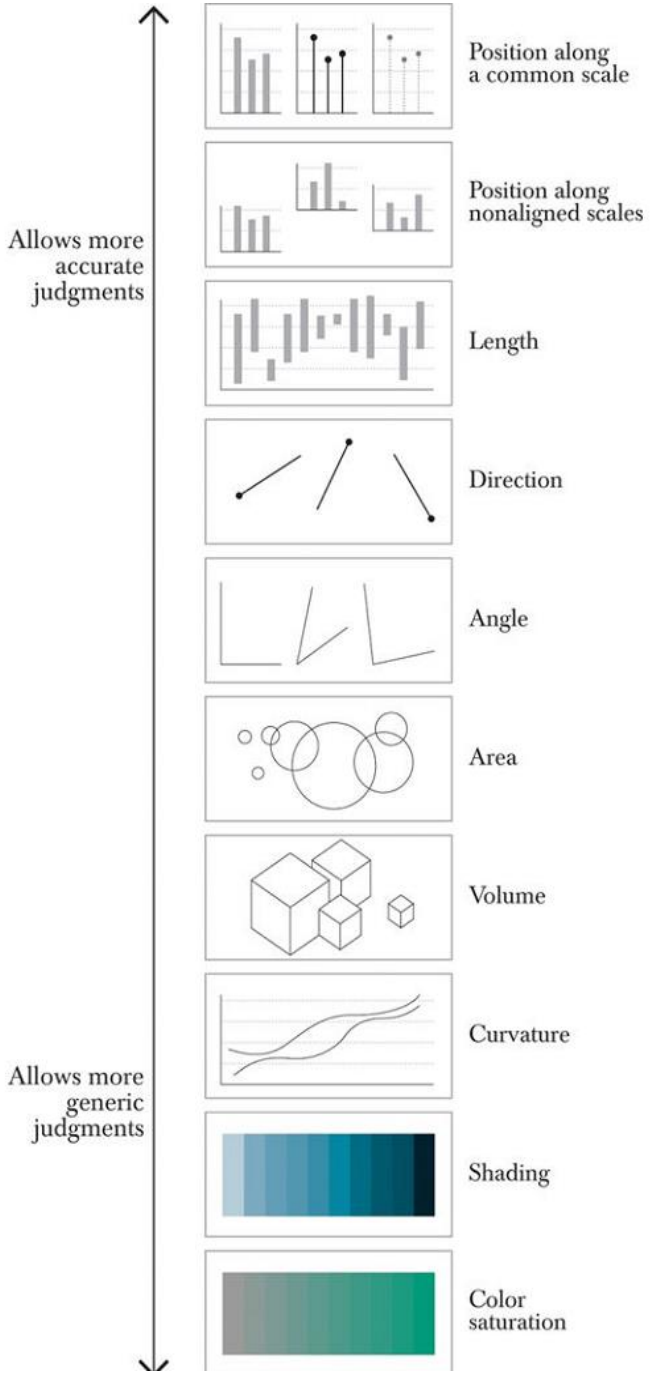
Fig. 5. The apparent magnitudes of electric shock, length, and brightness follow different curves of growth, because their power law exponents are 3.5, 1.1, and 0.33, respectively. Note how the curve is concave upward or downward, depending on whether the exponent is greater or less than 1.0. The power function for apparent length is almost straight in these linear coordinates because its exponent is close to 1.0. The units of the scales have been chosen arbitrarily in order to show the relative form of the curves on a single graph. (From Stevens 1961.)




Left is Longer
Right is Longer


Randy Foye
Paul Millsap
Al Jefferson
Enes Kanter
Derrick Favors
Jamaal Tinsley
DeMarre Carroll
Marvin Williams
Gordon Hayward
Alec Burks
Earl Watson
Jeremy Evans
Mo Williams
G
GS
MP
FG
FGA
FGP
X3P
X3PA
X3PP
FT
FTA
FTP
ORB
DRB
TRB
AST
STL
BLK
TOV
PF
PTS

Vizuální proměnné dle kvantitativní efektivity



vnímání barev

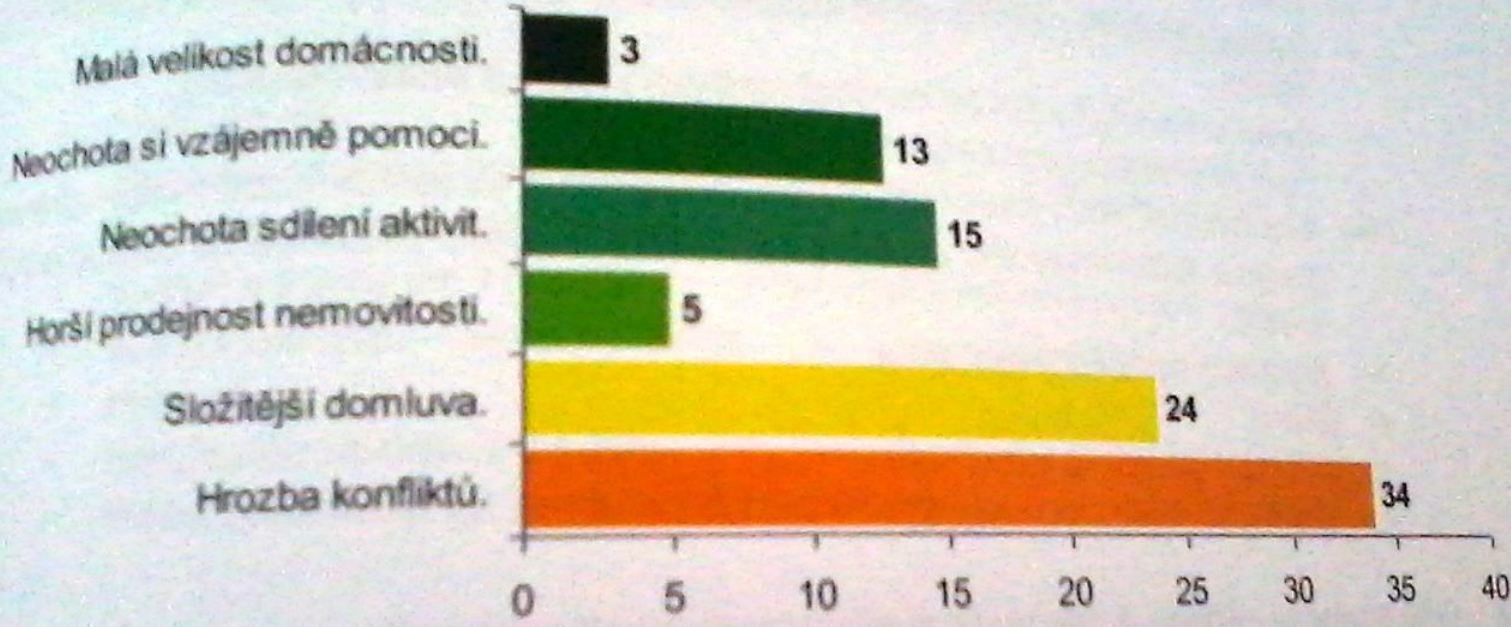
Barva ve vizualizaci

- Záměrné využití k nesení významu
- Kódování hodnot/kategorií

- Propojení grafiky s identitou značky

- *Nezáměrné asociace*

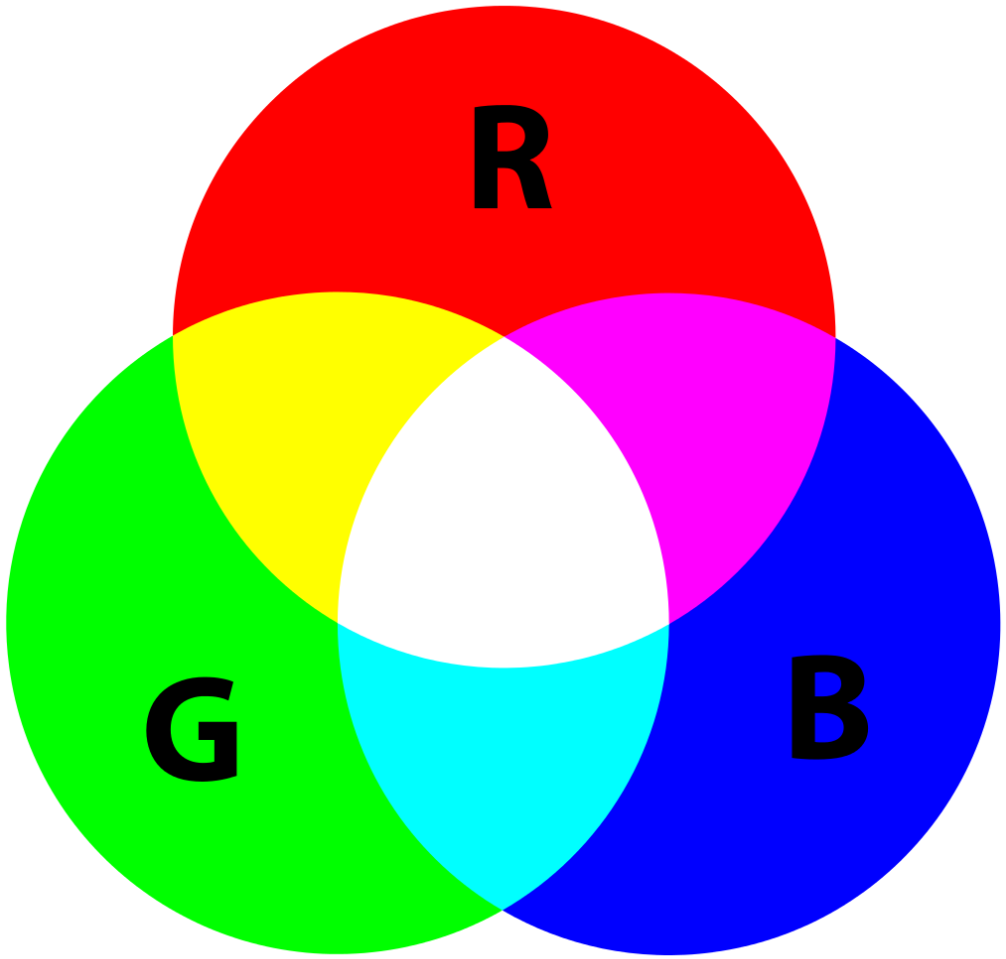
4. **Jaké mohou být podle Vašeho názoru nevýhody senior cohousingu?**
(povinná otázka – respondenti mohli vybrat max. 2 z uvedených možností)

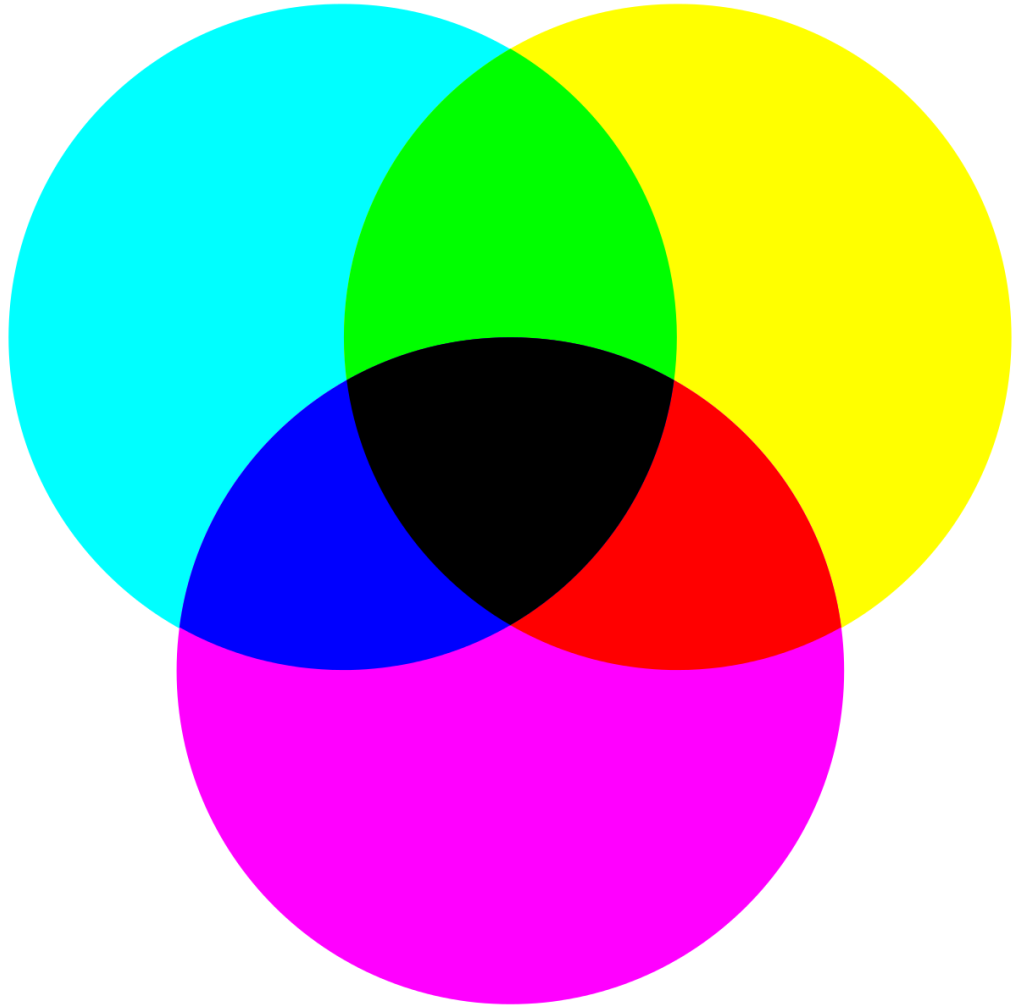


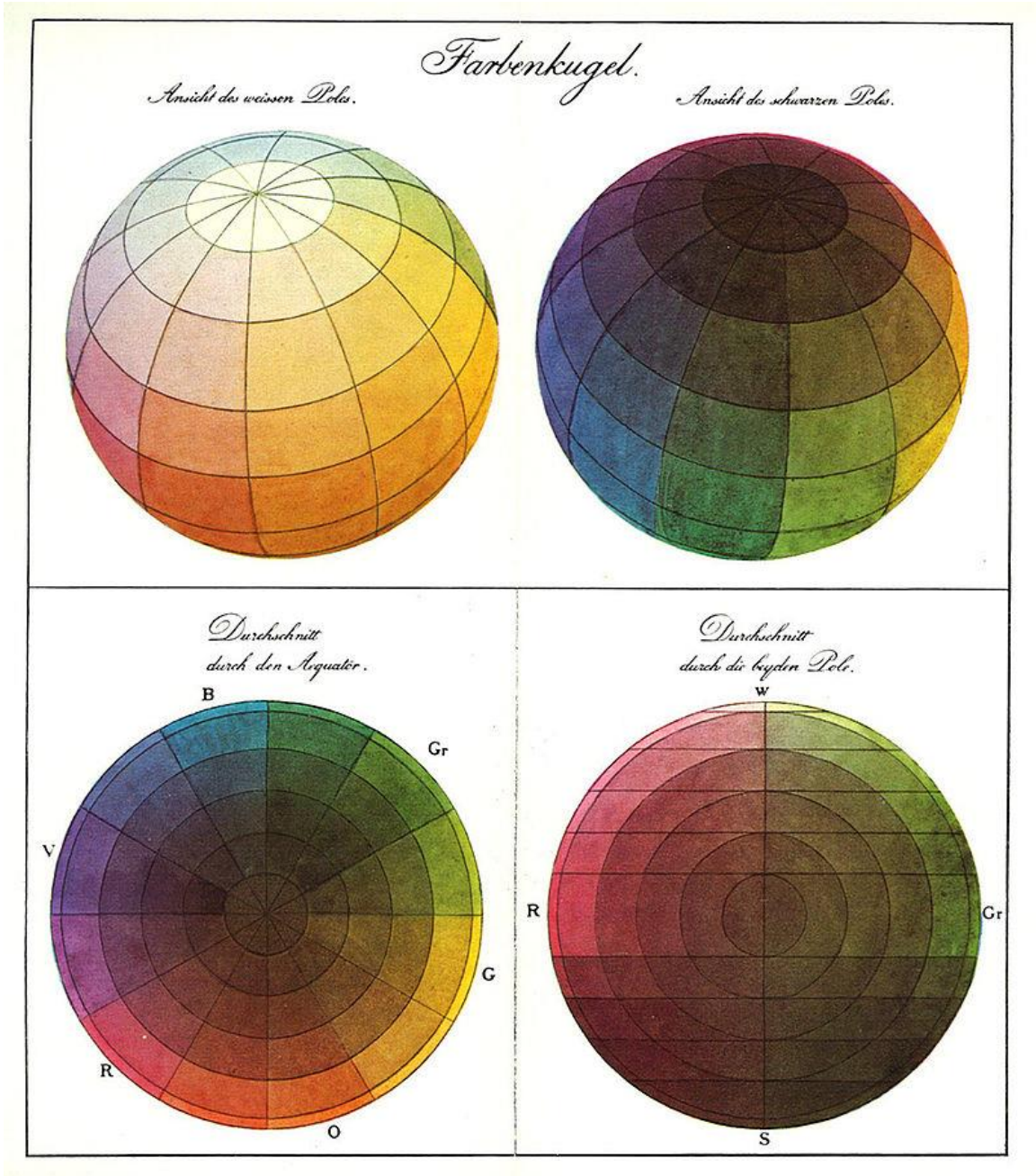
Obrázek 3: Jaké mohou být podle Vašeho názoru nevýhody senior cohousingu?

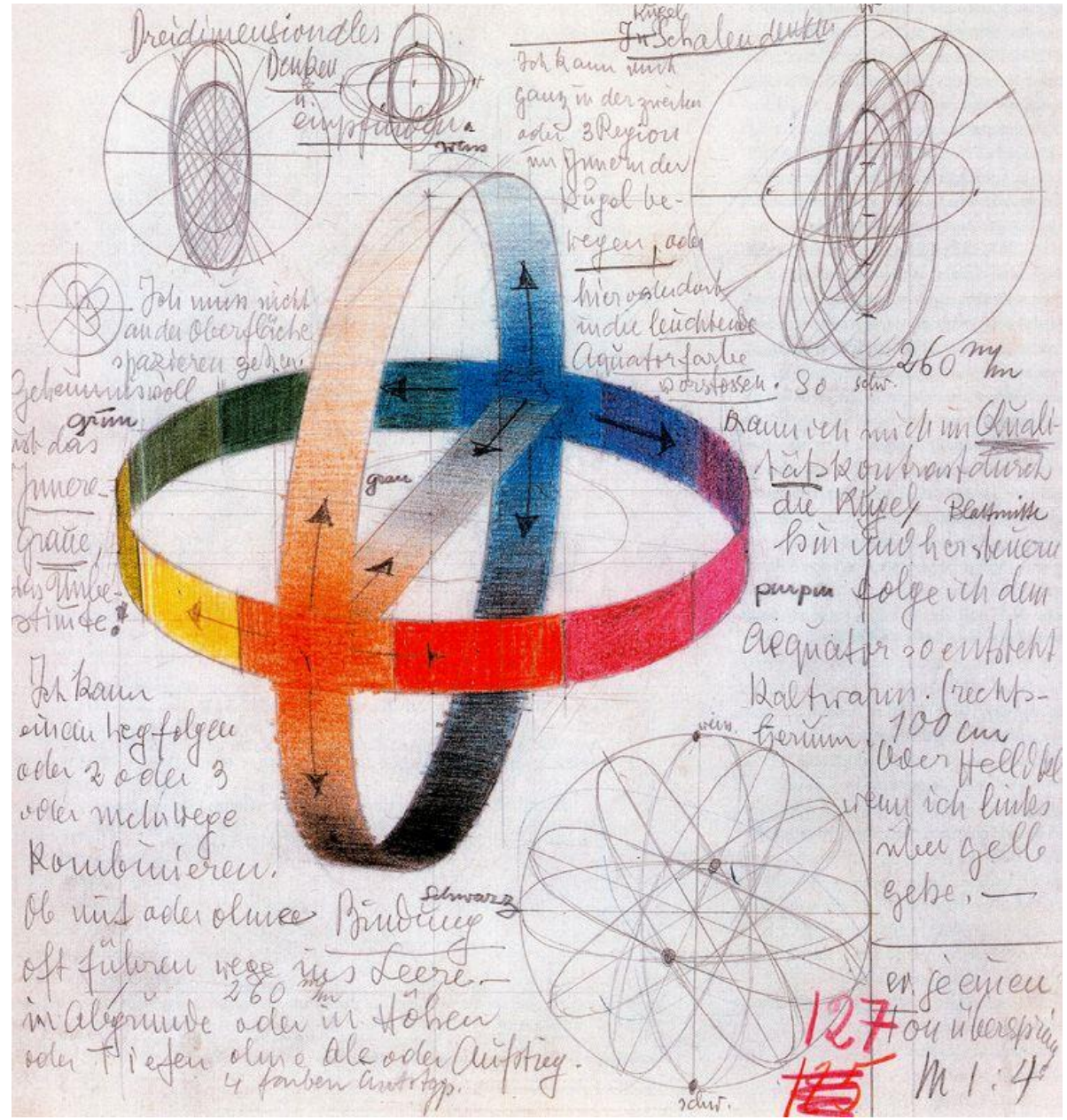
...e největší nevýhodu senior cohousingu vidí respondenti všech věkových kategorií v možných „konfliktech" a ...e složité vzájemné domluvě". Konflikty jsou ostatně jedním ze skutečných a velmi rizikových faktorů rozpadu ...ch snažících se vybudovat cohousing.

...mec". Obavy zřejmě


R
G
B



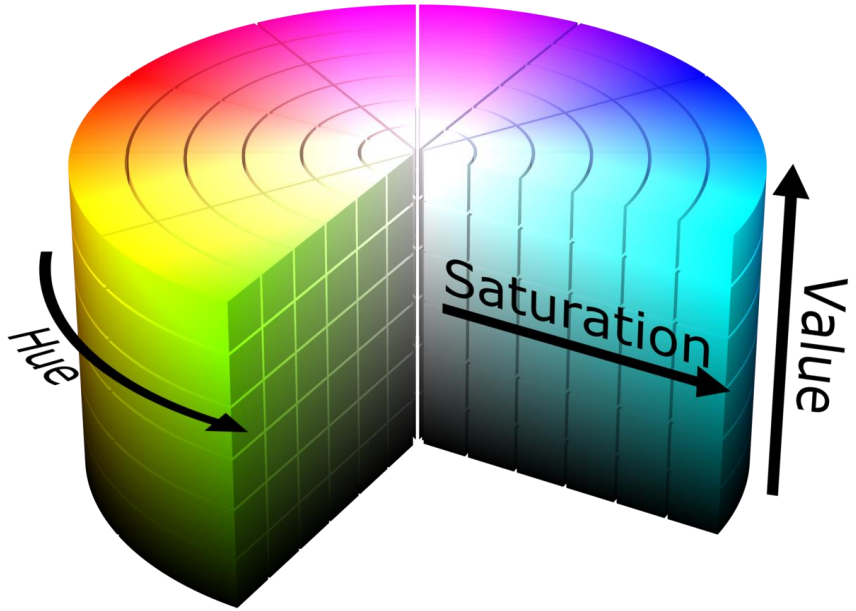

Farbenkugel.
Ansicht des weissen Pols.
Ansicht des schwarzen Pols.
Durchschnitt
durch den Aequator.
Durchschnitt
durch die beyden Pole.
B
Gr
V
G
R
O
W
R
Gr
S


Dreidimensionales
Denken
Kugel
Schalendenken
grün
grau
purpur
Schwarz
260 mμ
127

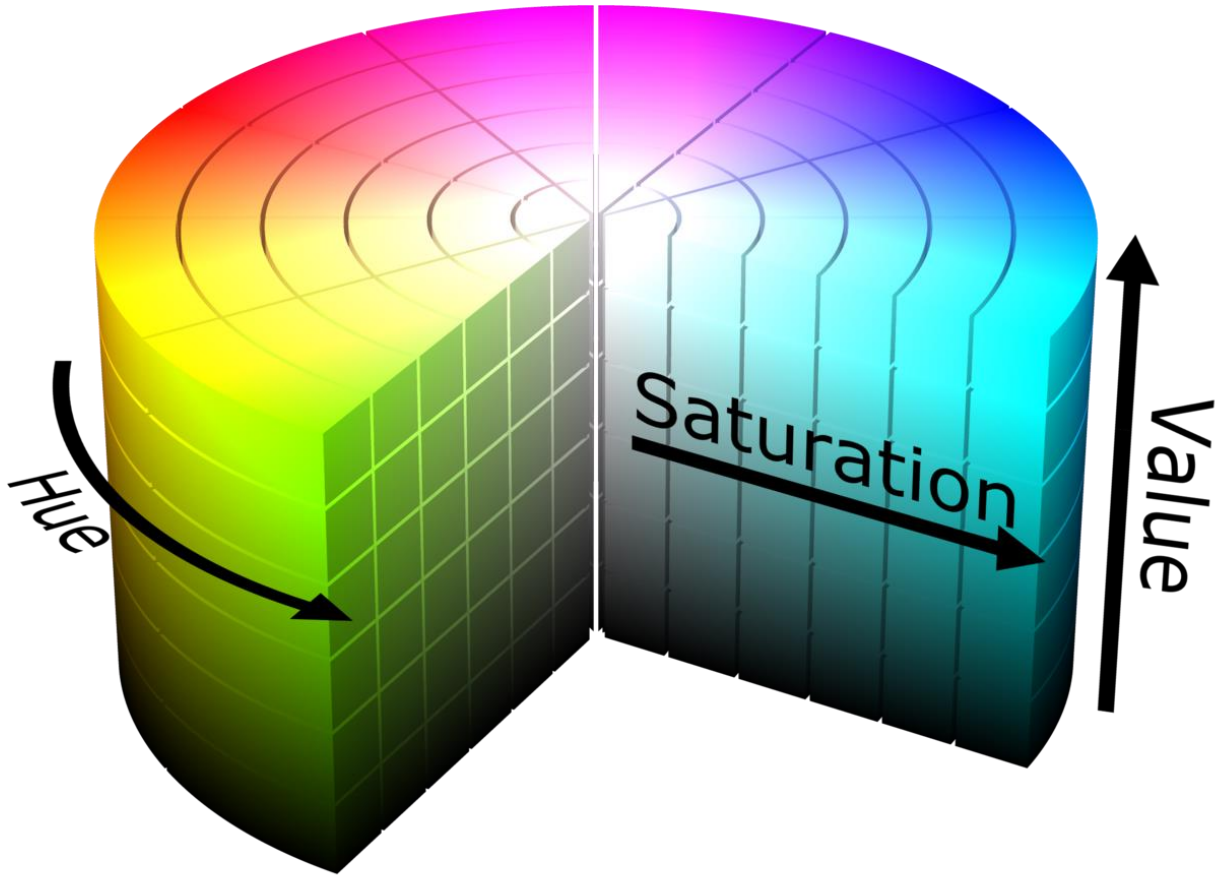
Barevné modely

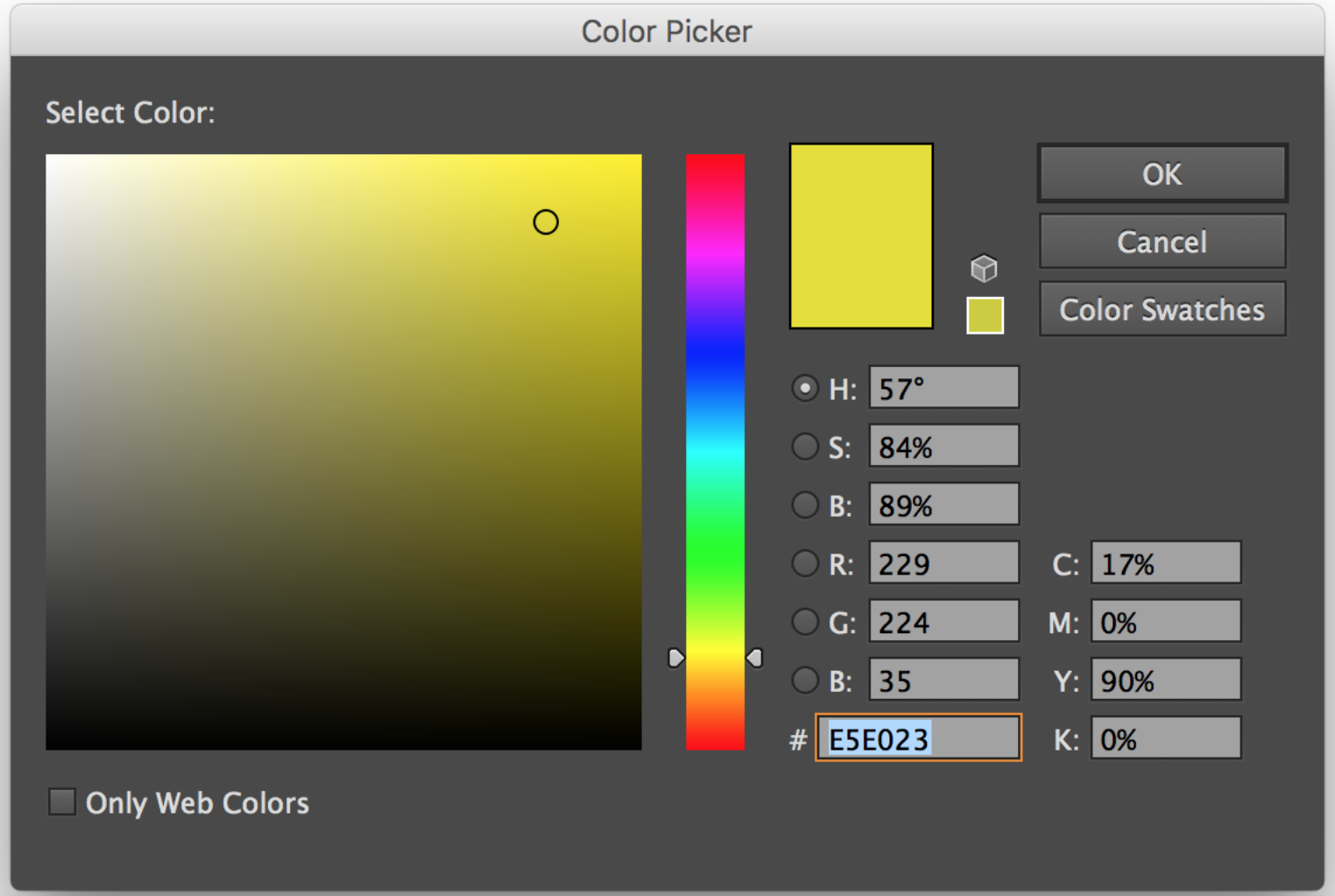
- HSV – HSL

- Tři základní dimenze
- Hue = odstín
- Saturation / chroma
- Lightness = jas / Luminance

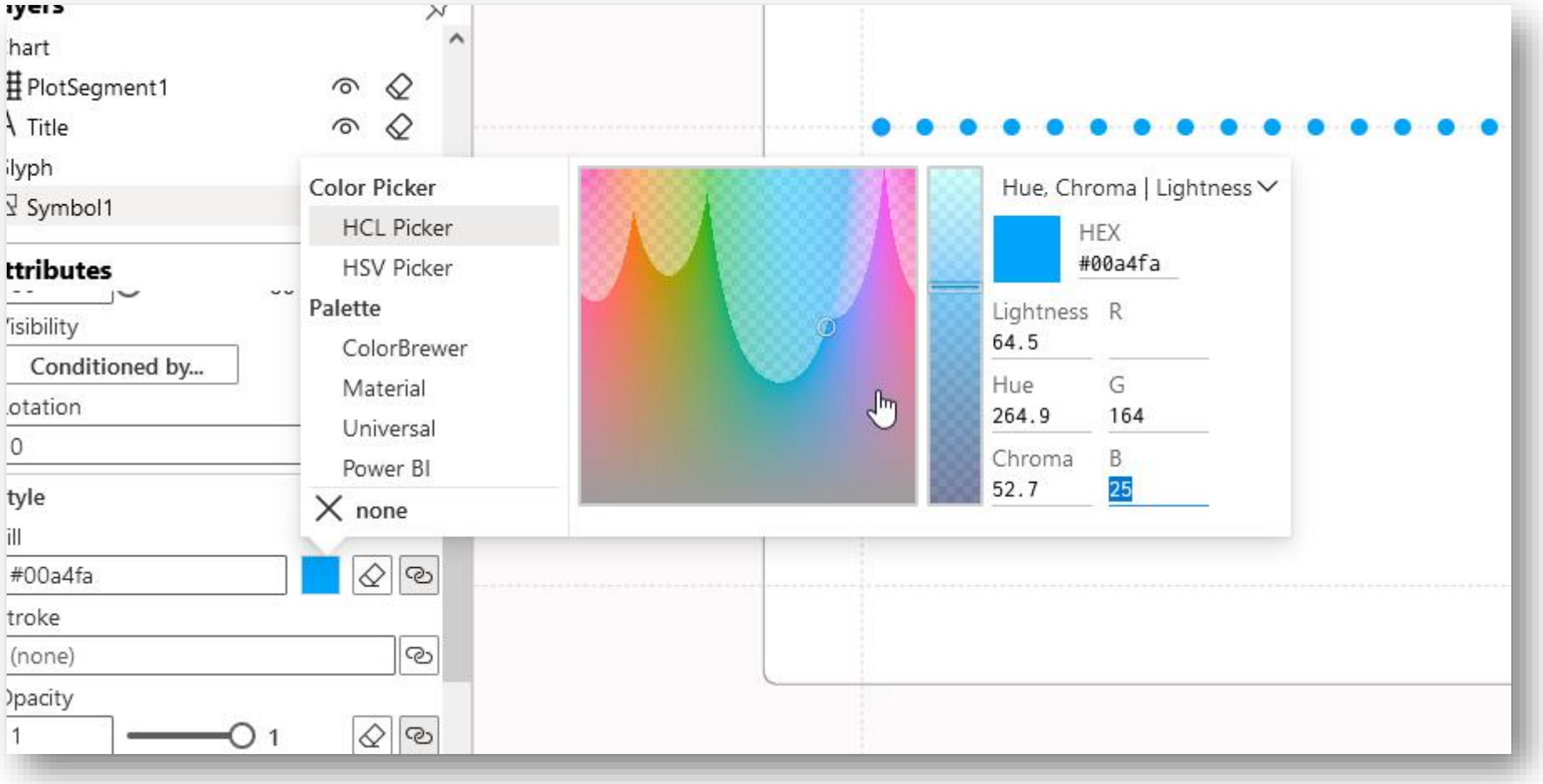


Barevné modely

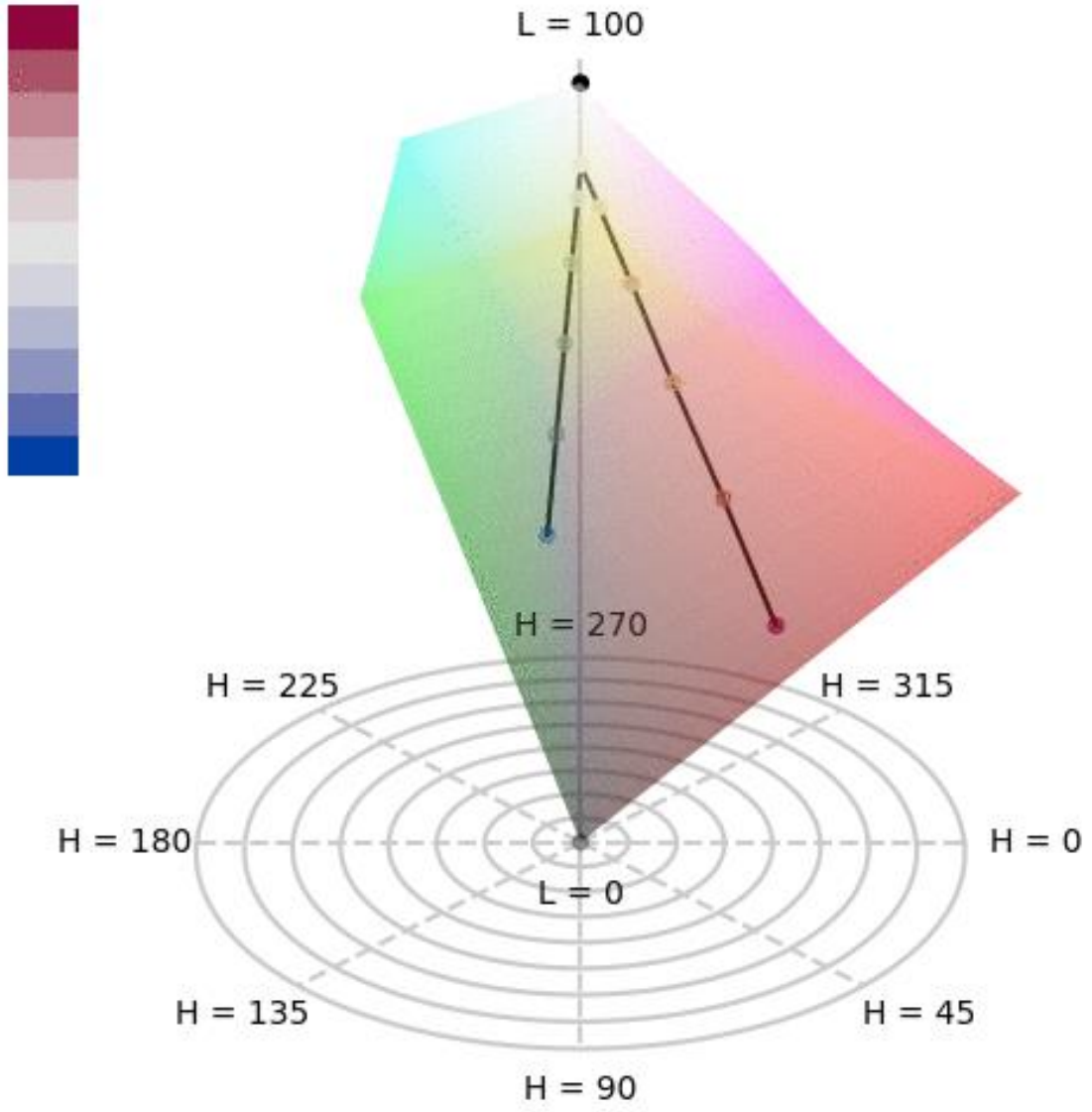


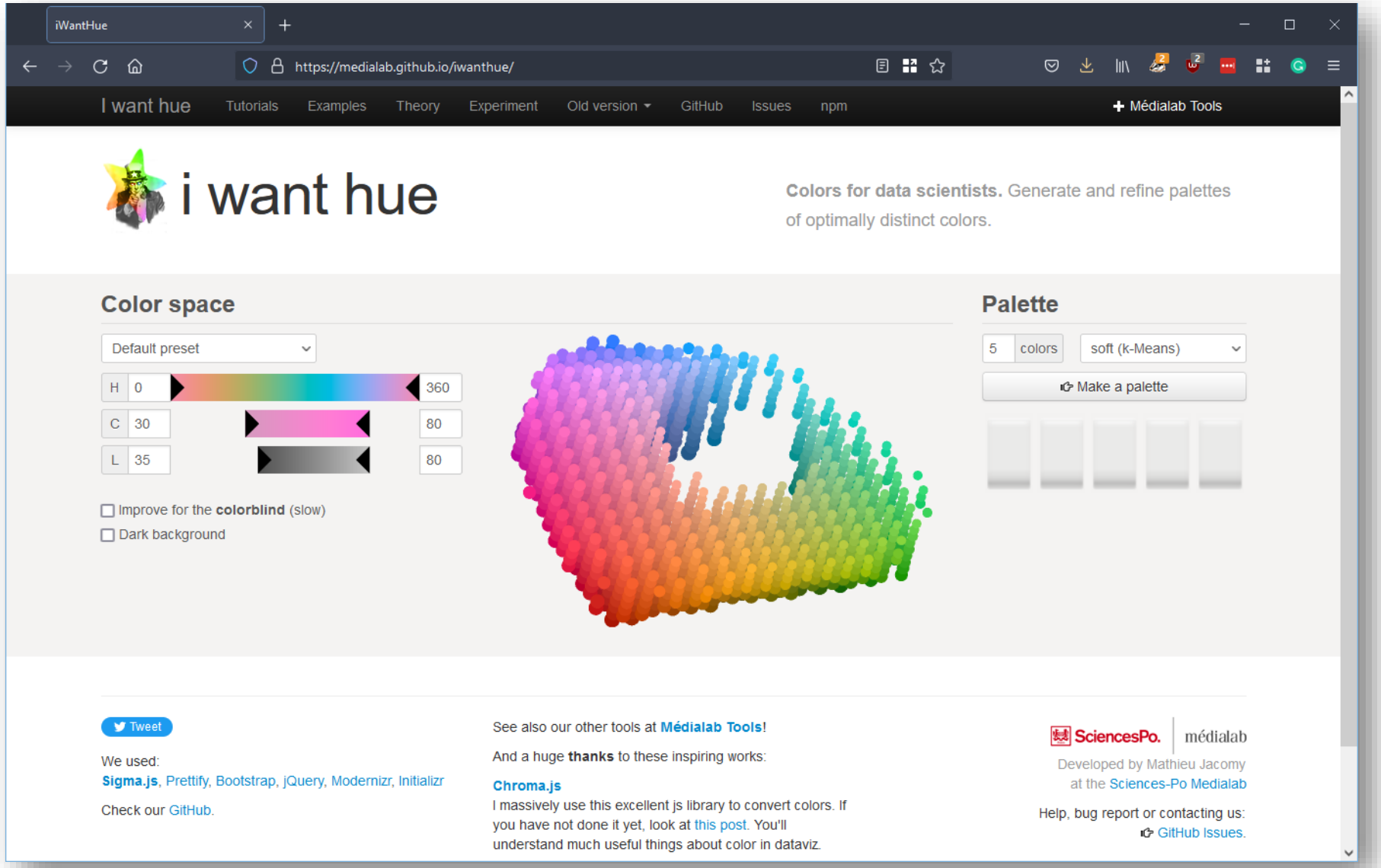

Color Picker
Select Color:
OK
Cancel
Color Swatches
H: 57°
S: 84%
B: 89%
R: 229
G: 224
B: 35
C: 17%
M: 0%
Y: 90%
K: 0%
E5E023
Only Web Colors

HCL Colour Space



HCL Colour Space



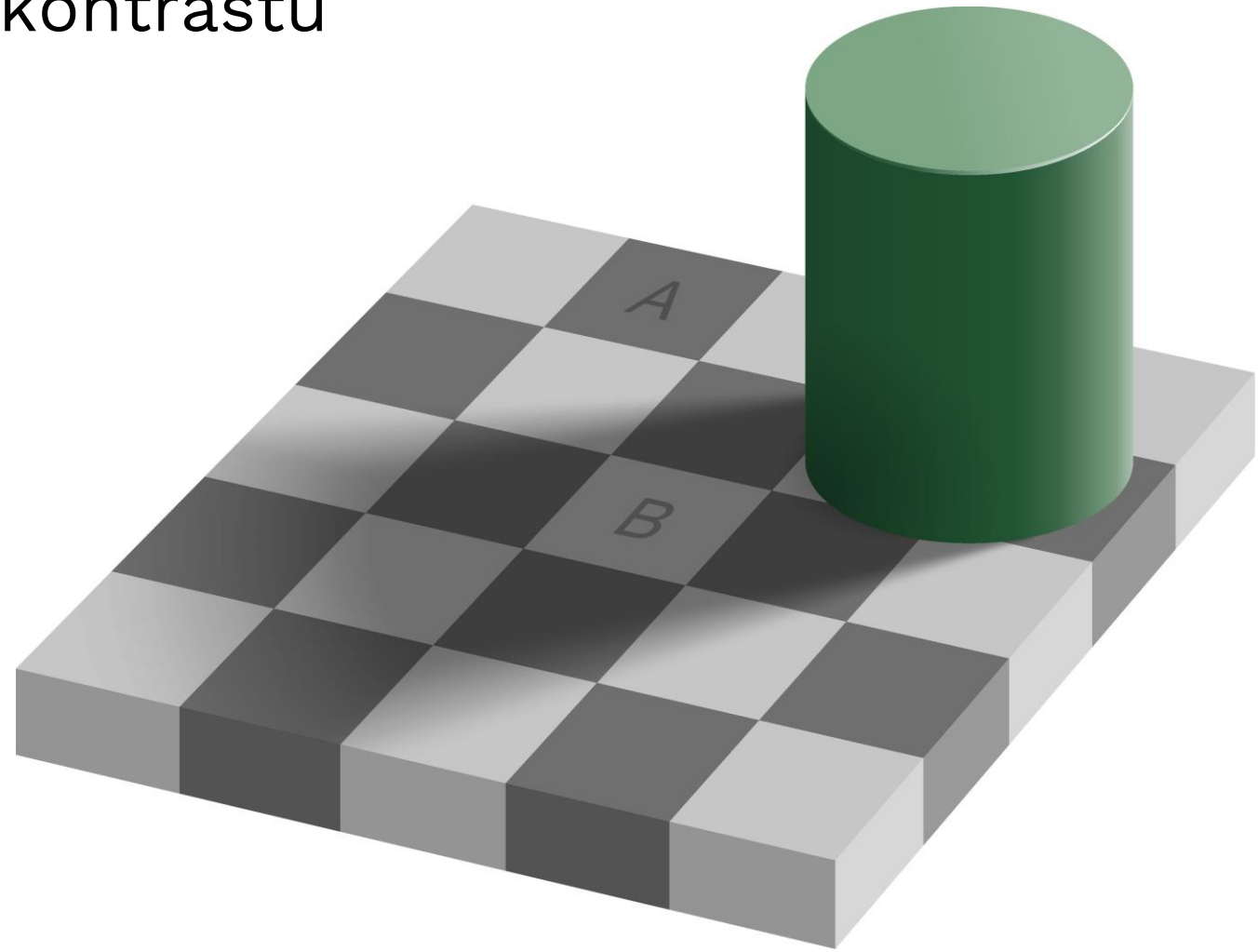

iWantHue
https://medialab.github.io/iwanthue/
I want hue
Tutorials
Examples
Theory
Experiment
Old version
GitHub
Issues
npm
+ Médialab Tools
i want hue
Colors for data scientists. Generate and refine palettes of optimally distinct colors.
Color space
Default preset
H 0 360
C 30 80
L 35 80
Improve for the colorblind (slow)
Dark background
Palette
5 colors
soft (k-Means)
Make a palette
Tweet
We used:
Sigma.js, Prettify, Bootstrap, jQuery, Modernizr, Initializr
Check our GitHub.
See also our other tools at Médialab Tools!
And a huge thanks to these inspiring works:
Chroma.js
I massively use this excellent js library to convert colors. If you have not done it yet, look at this post. You'll understand much useful things about color in dataviz.
SciencesPo. médialab
Developed by Mathieu Jacomy at the Sciences-Po Medialab
Help, bug report or contacting us:
GitHub Issues.

Interakce barev

- oko není kamera
- role kontextu a zkušenosti
- jednotnost barvy objektu bez ohledu na dobu
- **konstantnost barvy**

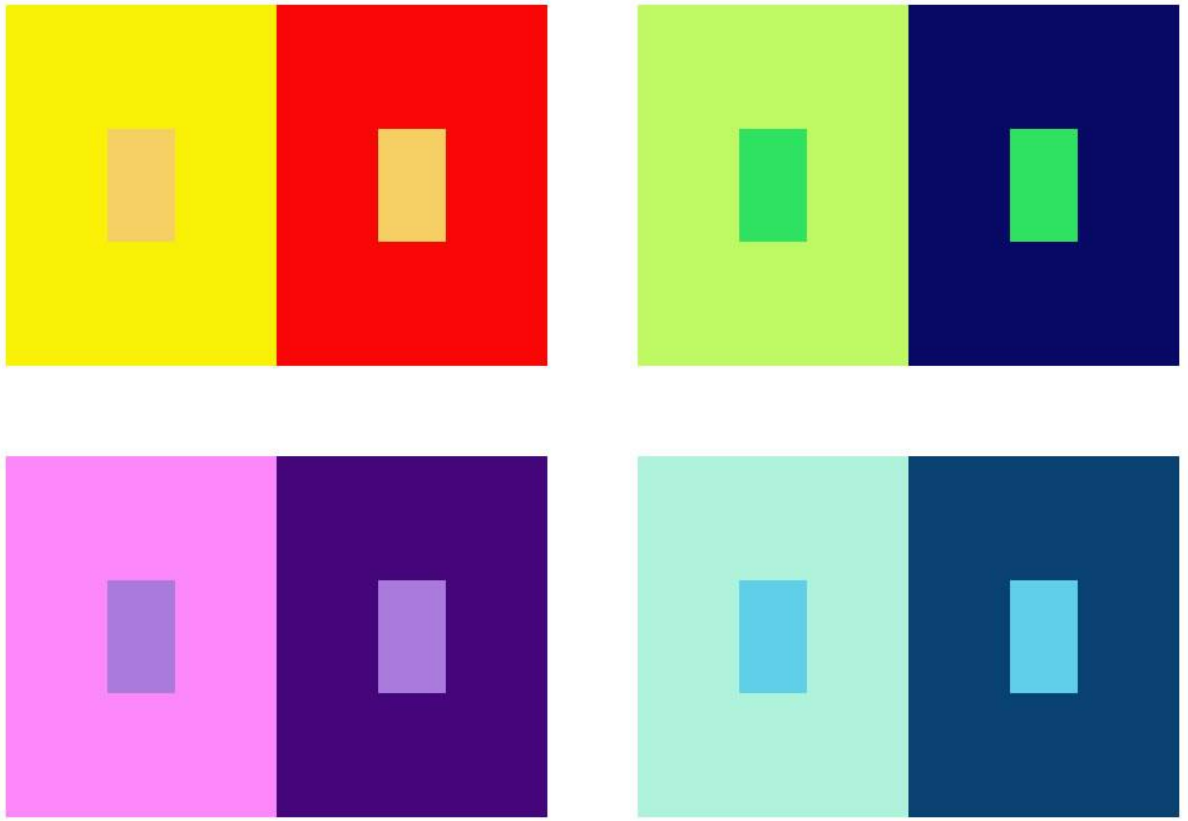
- užitečné pro reálný svět
- problematické pro informační grafiku

iluze barevného kontrastu

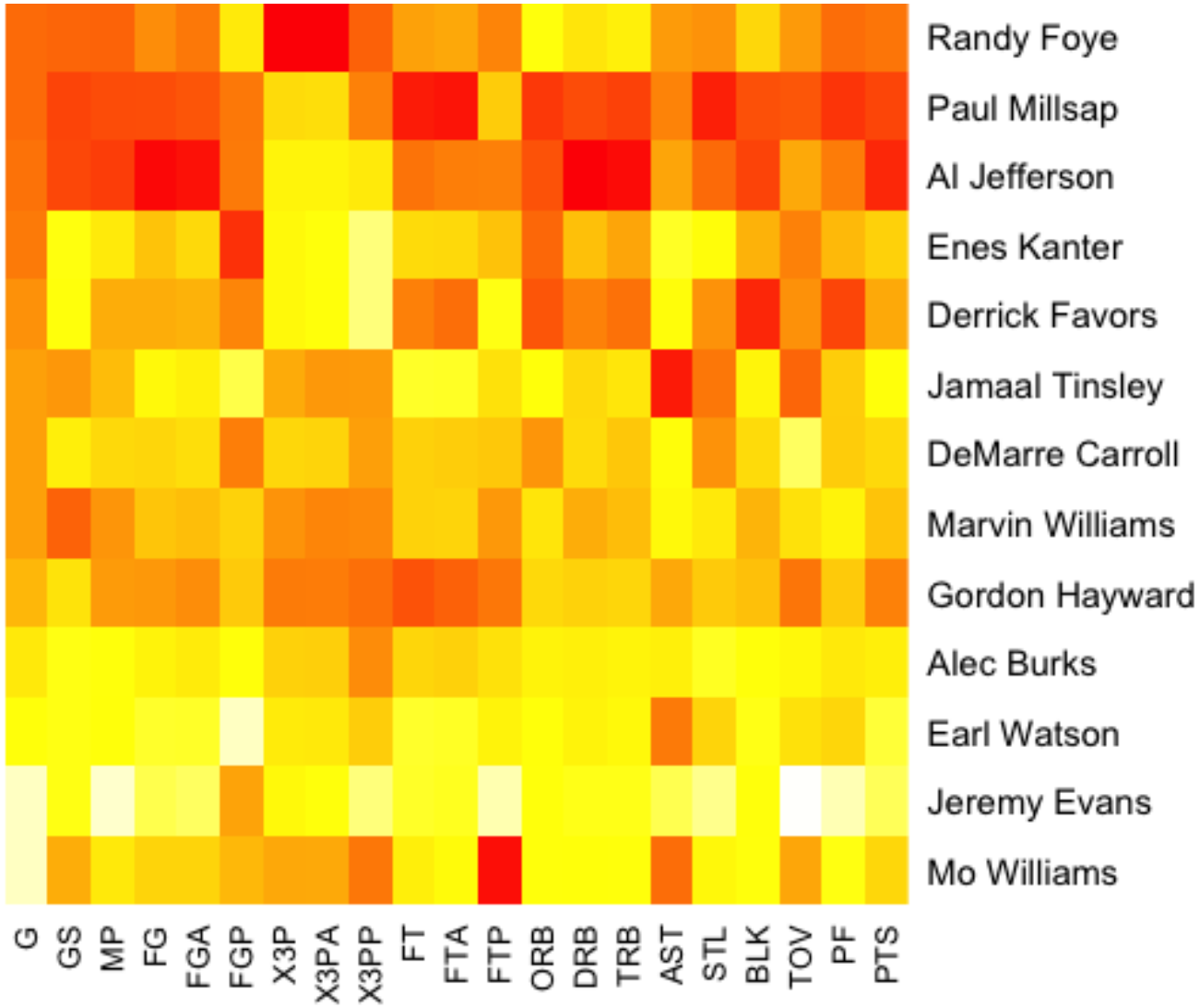


Michel Eugène Chevreul - The Principles of Harmony and Contrast of Colours (1839)

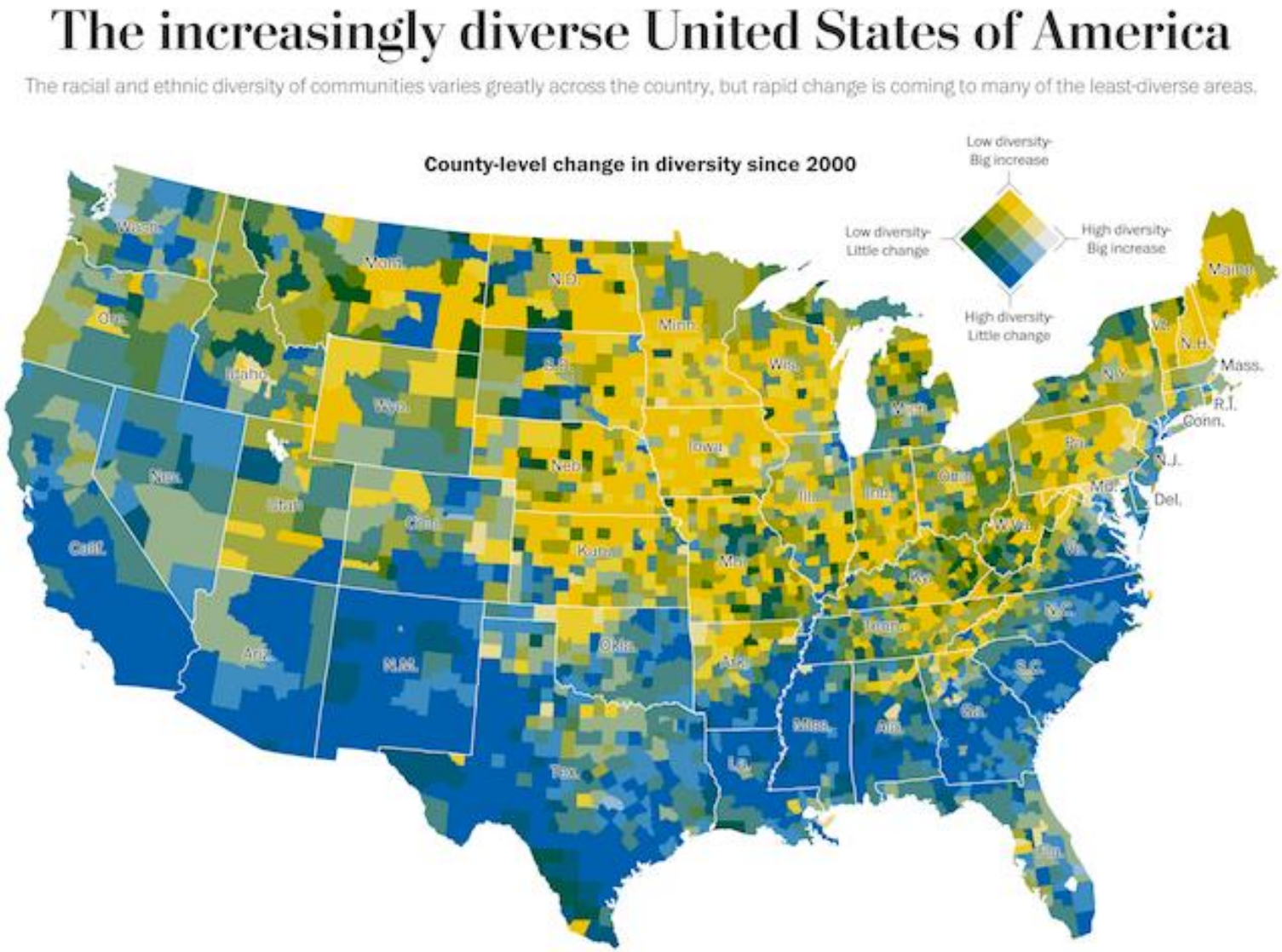
iluze barevného kontrastu



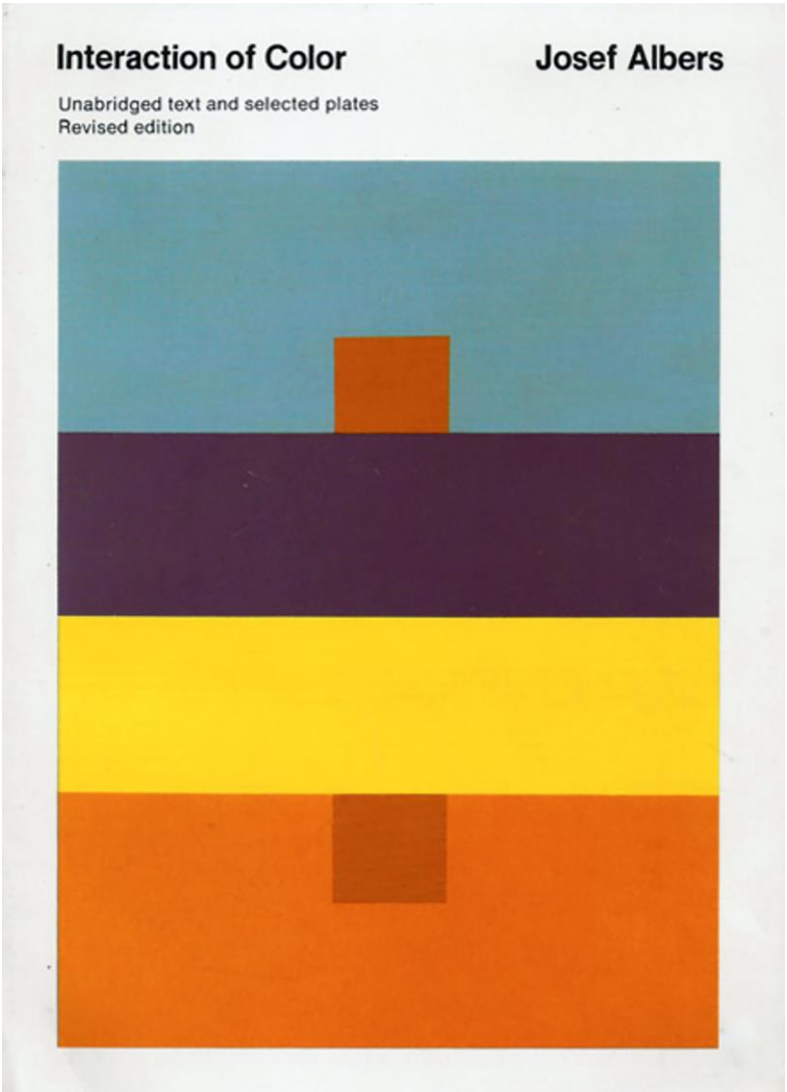
iluze barevného kontrastu



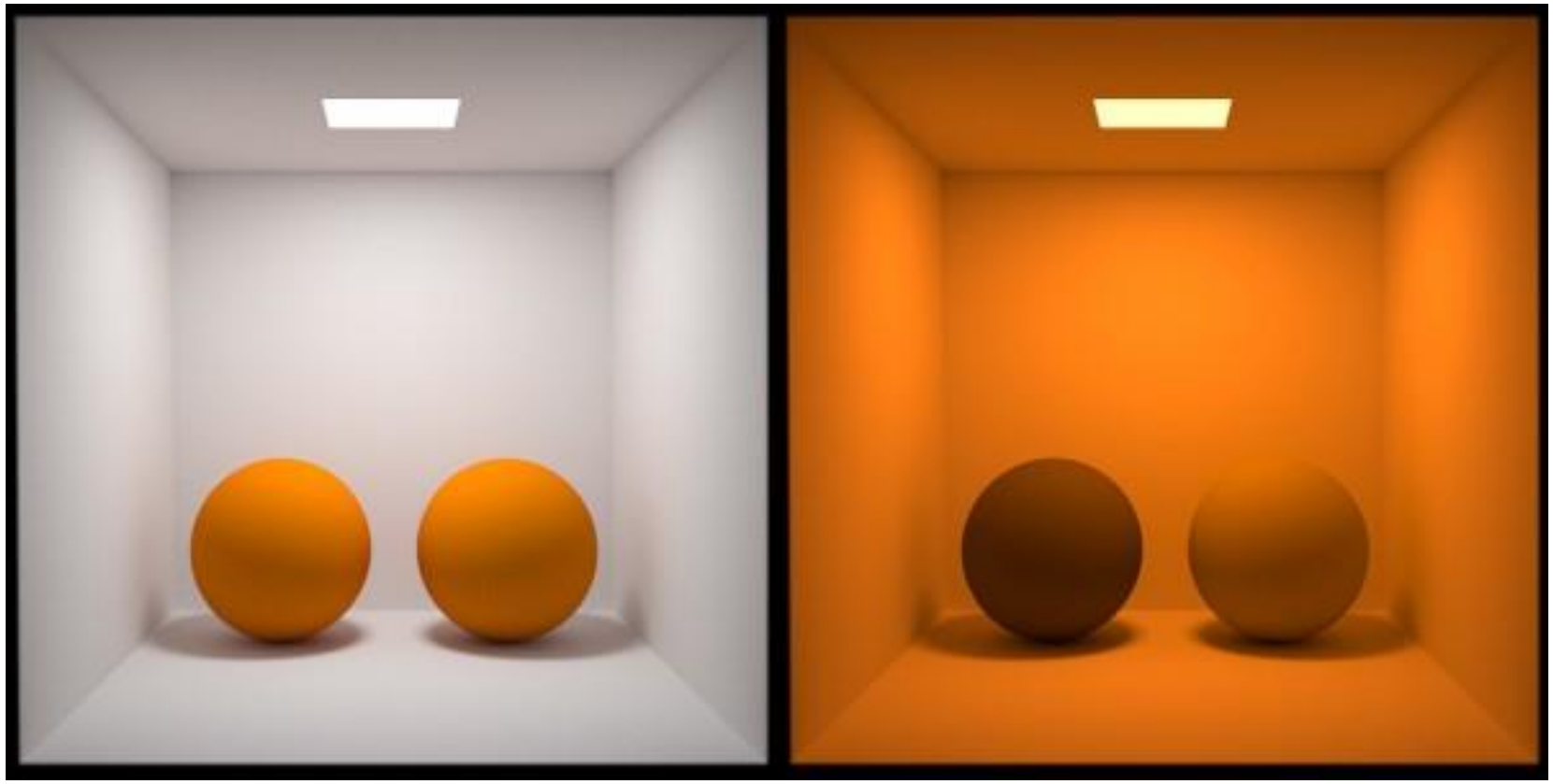
iluze barevného kontrastu



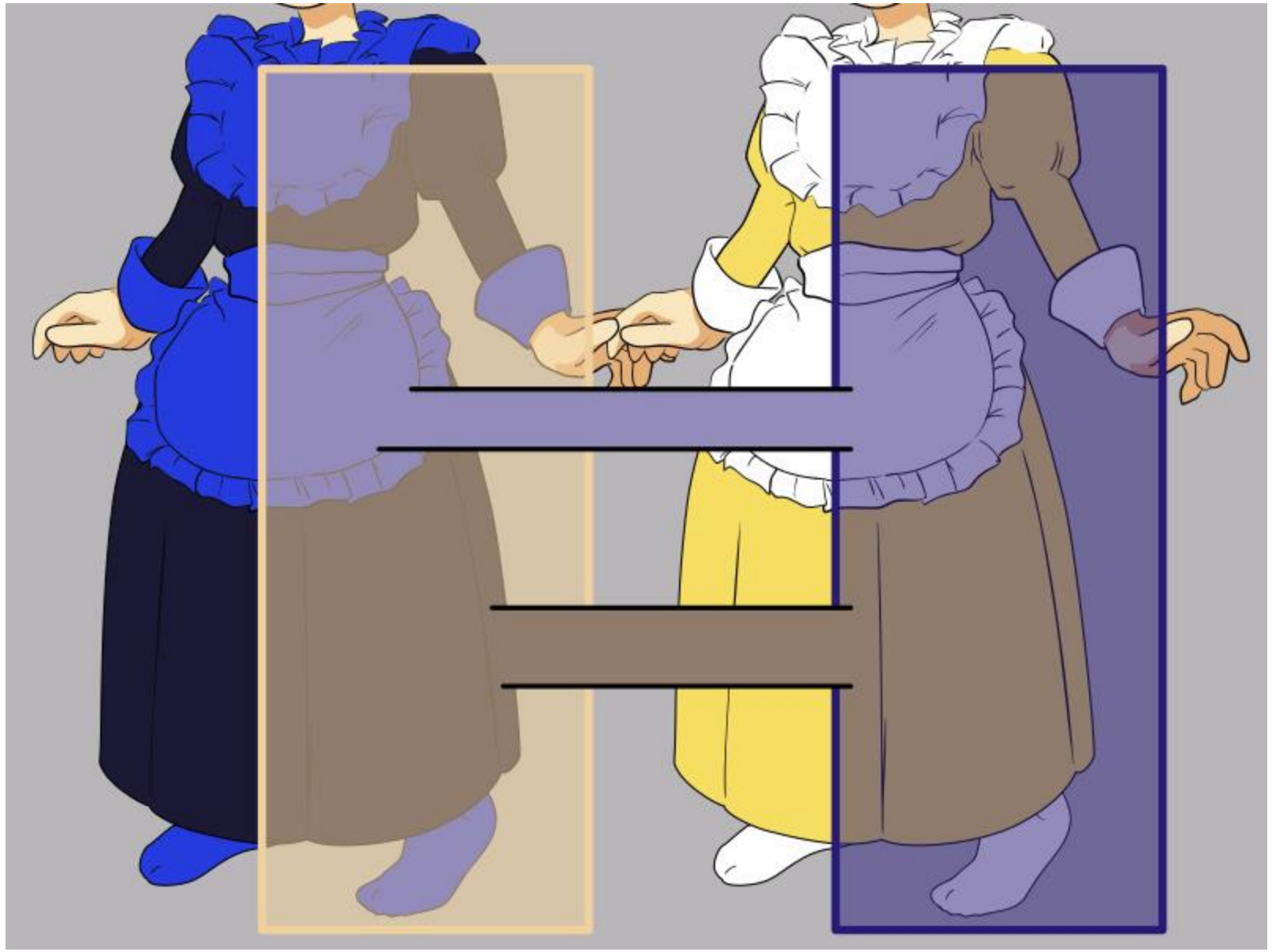
Josef Albers



metamerismus



metamerismus



Anomálie barevného vidění

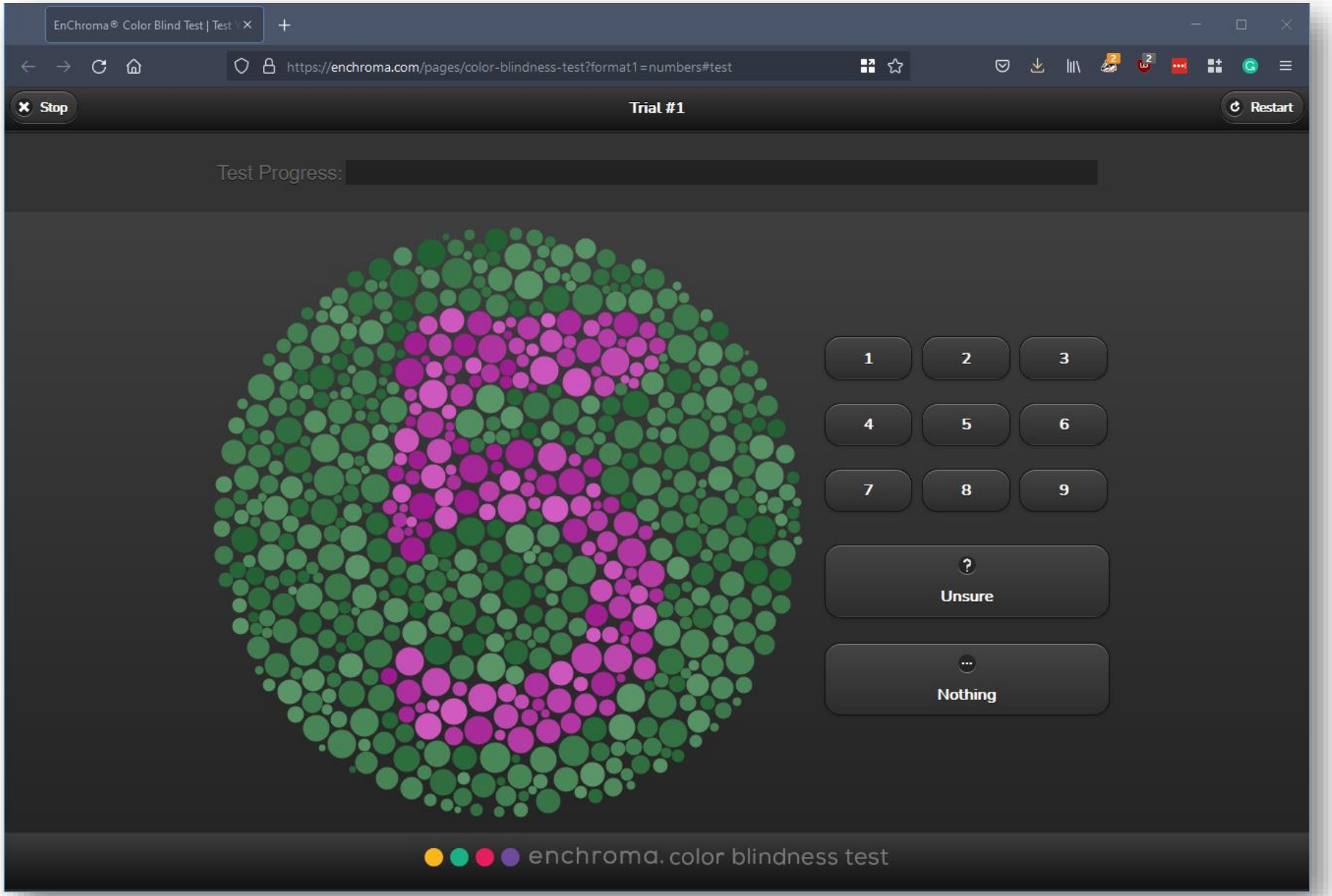
- běžné vidění je trichromatické
- tři druhy čípků = tři barvy

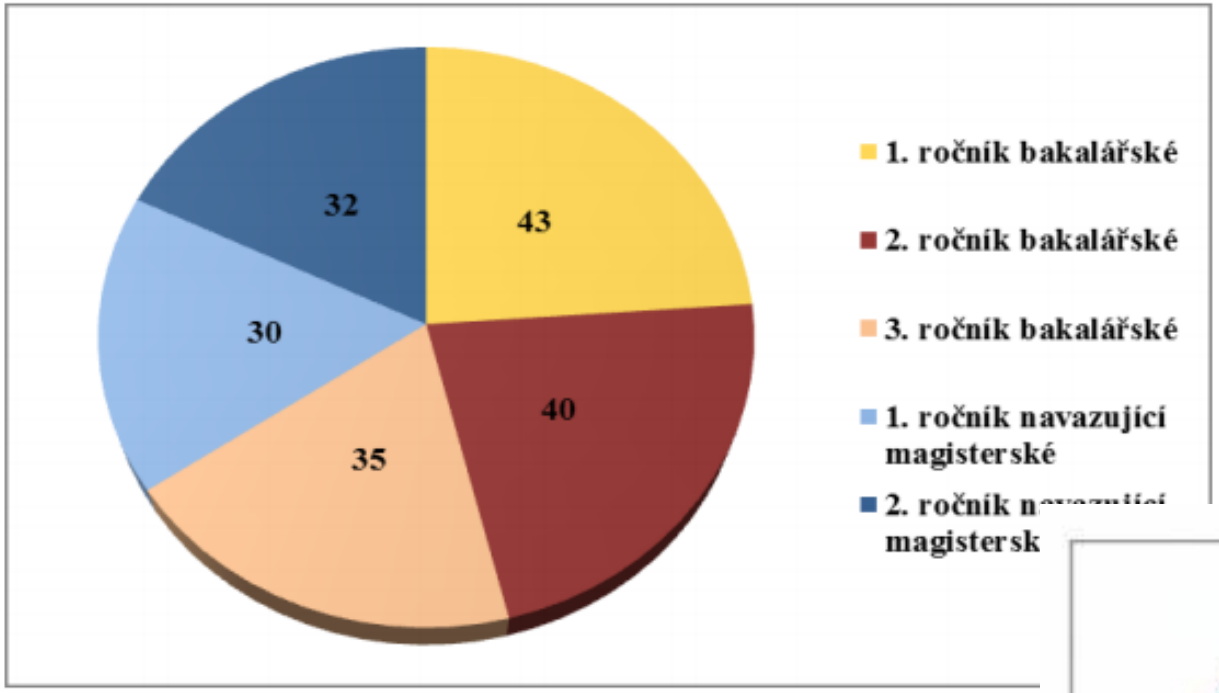
- těžko odhadnout, kolik lidí má vadu barvocitu
- muži (genetická vada v chromozomu X): 8-9 %
- ženy: 0.5 % (tetrachromatické vidění – 100x širší sp.)

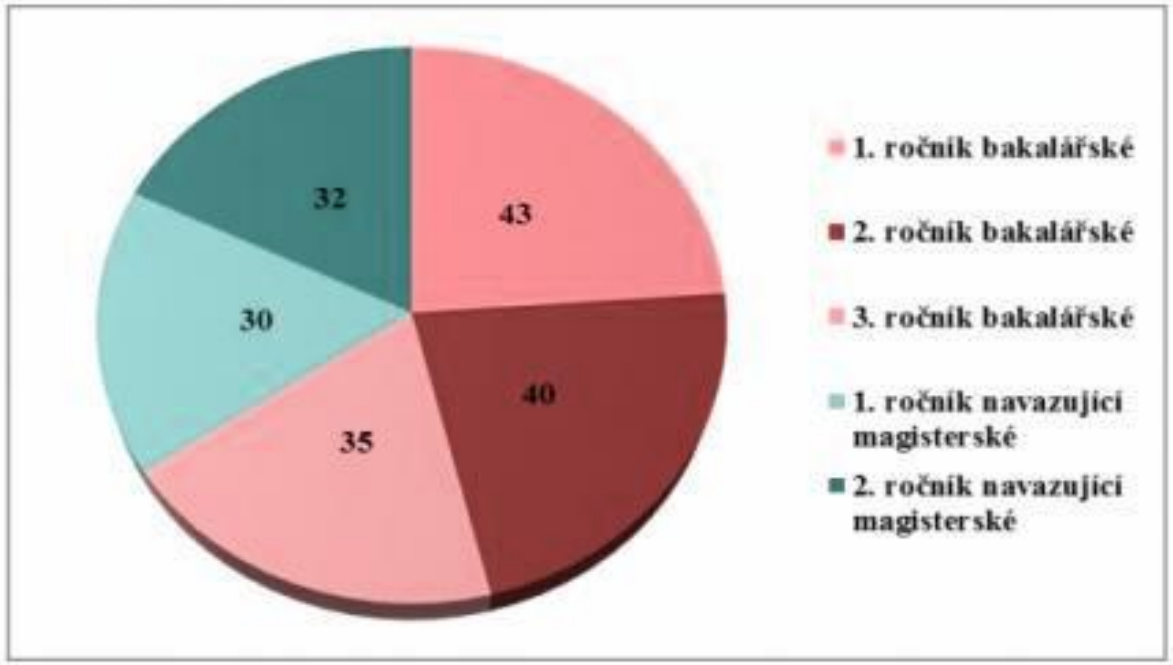
Anomálie barevného vidění

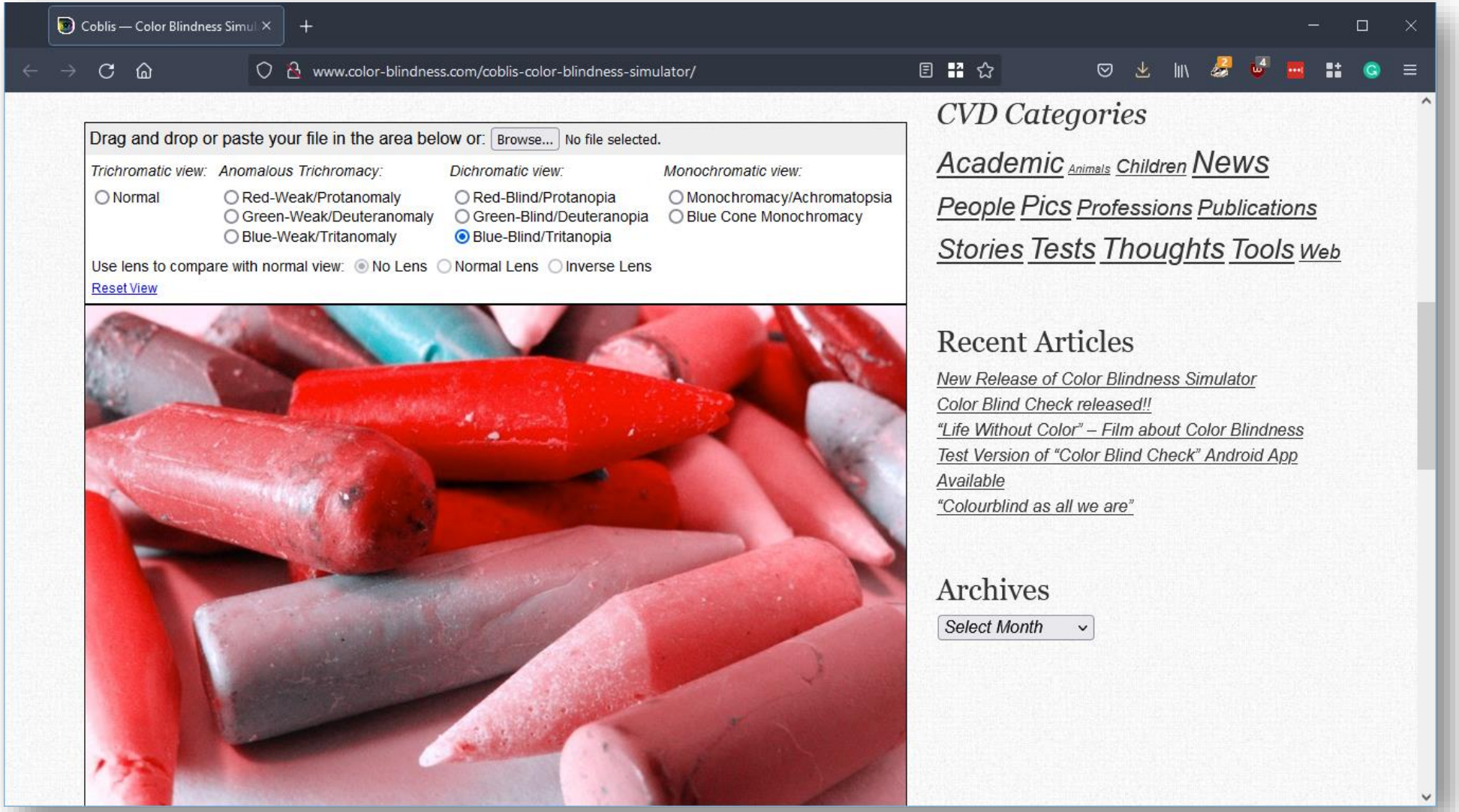
- Protanopie - červená
- Deuteranopie - zelená
- Tritanopie – modrá
- Achromatopsie

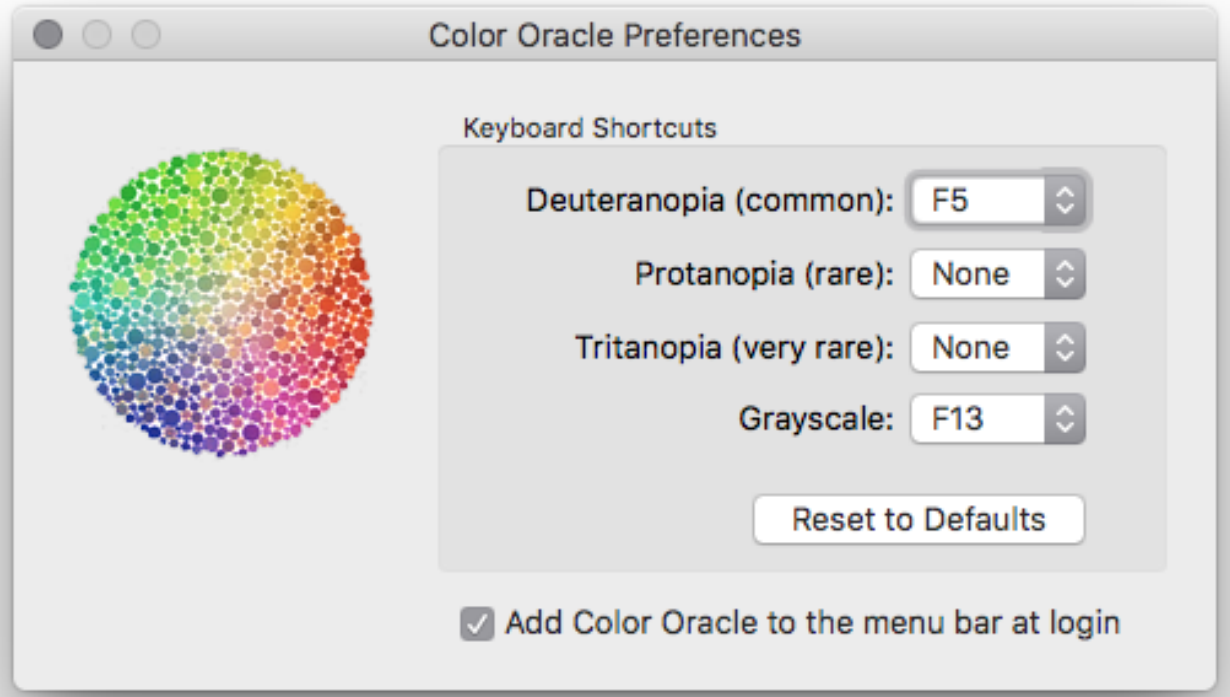
- pseudoizochromatické tabulky
- Ishiharovy testy

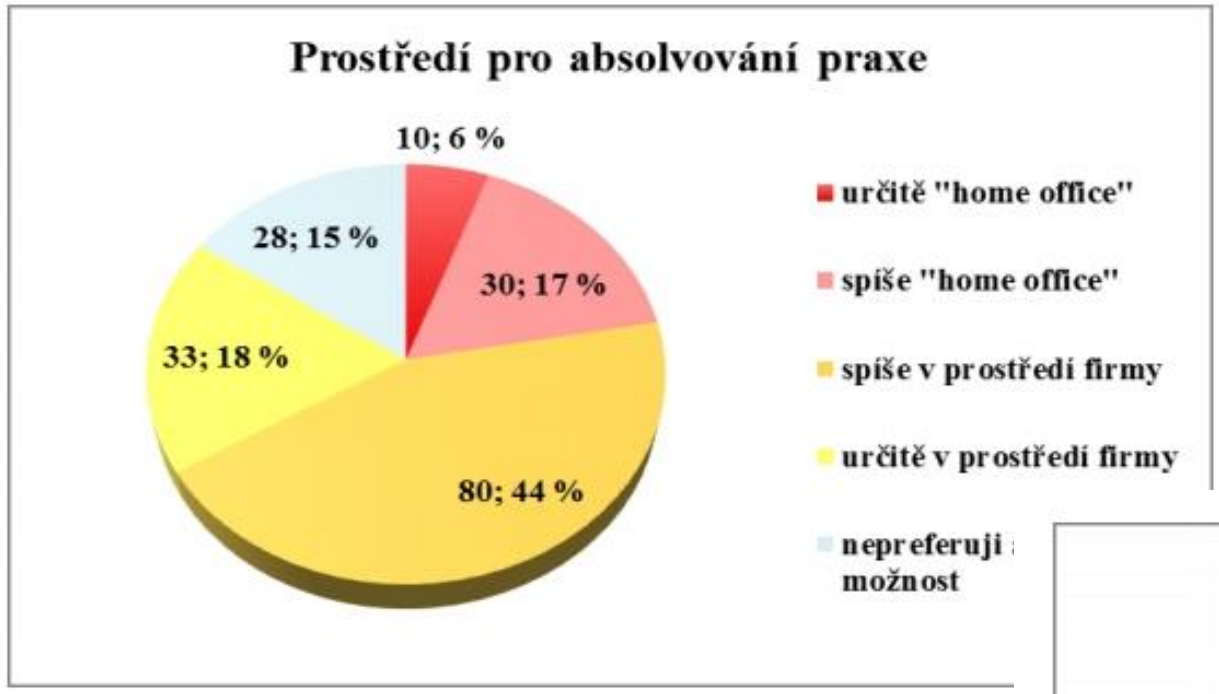

EnChroma® Color Blind Test | Test
https://enchroma.com/pages/color-blindness-test?format1=numbers#test
Stop
Trial #1
Restart
Test Progress:
1
2
3
4
5
6
7
8
9
Unsure
Nothing
enchroma. color blindness test

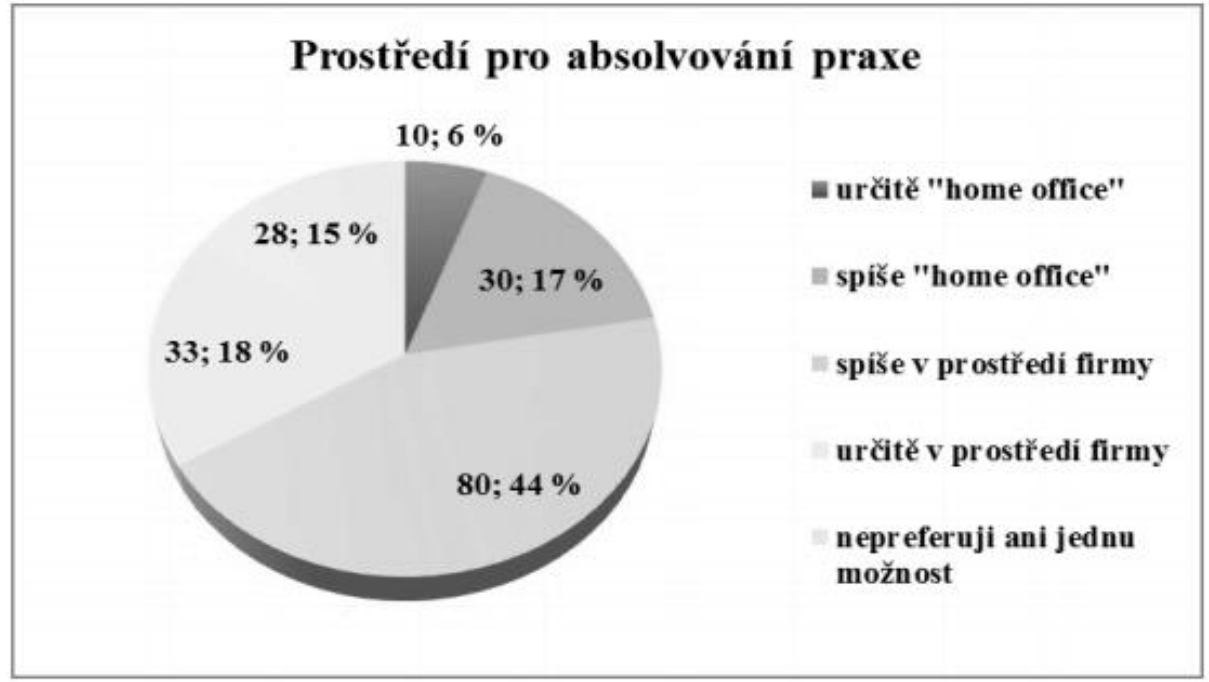

43
40
35
30
32
1. ročník bakalářské
2. ročník bakalářské
3. ročník bakalářské
1. ročník navazující magisterské
2. ročník navazující magisterské


43
40
35
30
32
1. ročník bakalářské
2. ročník bakalářské
3. ročník bakalářské
1. ročník navazující magisterské
2. ročník navazující magisterské


Coblis — Color Blindness Simul
www.color-blindness.com/coblis-color-blindness-simulator/
Drag and drop or paste your file in the area below or: Browse... No file selected.
Trichromatic view:
Anomalous Trichromacy:
Normal
Red-Weak/Protanomaly
Green-Weak/Deuteranomaly
Blue-Weak/Tritanomaly
Dichromatic view:
Red-Blind/Protanopia
Green-Blind/Deuteranopia
Blue-Blind/Tritanopia
Monochromatic view:
Monochromacy/Achromatopsia
Blue Cone Monochromacy
Use lens to compare with normal view: No Lens Normal Lens Inverse Lens
Reset View
CVD Categories
Academic Animals Children News
People Pics Professions Publications
Stories Tests Thoughts Tools Web
Recent Articles
New Release of Color Blindness Simulator
Color Blind Check released!!
"Life Without Color" – Film about Color Blindness
Test Version of "Color Blind Check" Android App Available
"Colourblind as all we are"
Archives
Select Month


Color Oracle Preferences
Keyboard Shortcuts
Deuteranopia (common):
F5
Protanopia (rare):
None
Tritanopia (very rare):
None
Grayscale:
F13
Reset to Defaults
Add Color Oracle to the menu bar at login


Prostředí pro absolvování praxe
10; 6 %
30; 17 %
80; 44 %
33; 18 %
28; 15 %
určitě "home office"
spíše "home office"
spíše v prostředí firmy
určitě v prostředí firmy
nepreferuji
možnost


Prostředí pro absolvování praxe
10; 6 %
30; 17 %
80; 44 %
33; 18 %
28; 15 %
určitě "home office"
spíše "home office"
spíše v prostředí firmy
určitě v prostředí firmy
nepreferuji ani jednu možnost

Obama's Divided Nation

ma presides over
ca more divided
any time in 50
y that was riven
racial lines gath-
2008 to elect its
ident. That presi-
our years dividing
the basis of eco-
The campaign re-
vealed no evi-
dence that Mr.
Obama will close
the chasm he has
created between
his voters and
those he attacked
and vilified.

It may be true
hat Mitt Romney
ailed to respond

Source: AP

drawn attention to what hap-

Obama spokestotum replied:

problem with pols, e
verbally facile as Mr.
that in crunch time,
reverts to No. 1. Exi
that 9% of the electo
who to vote for jus
Tuesday; and amo
42% said Mr. Oban
Sandy response—t
tie photo-op—wa
factor. Of those,
voted for Mr. Ob
Mr. Christie is o
politico who is

Yes, Republic
across two pres
that there are
how crudely
issue like ill
Blowing up th
if you thoug
day's results

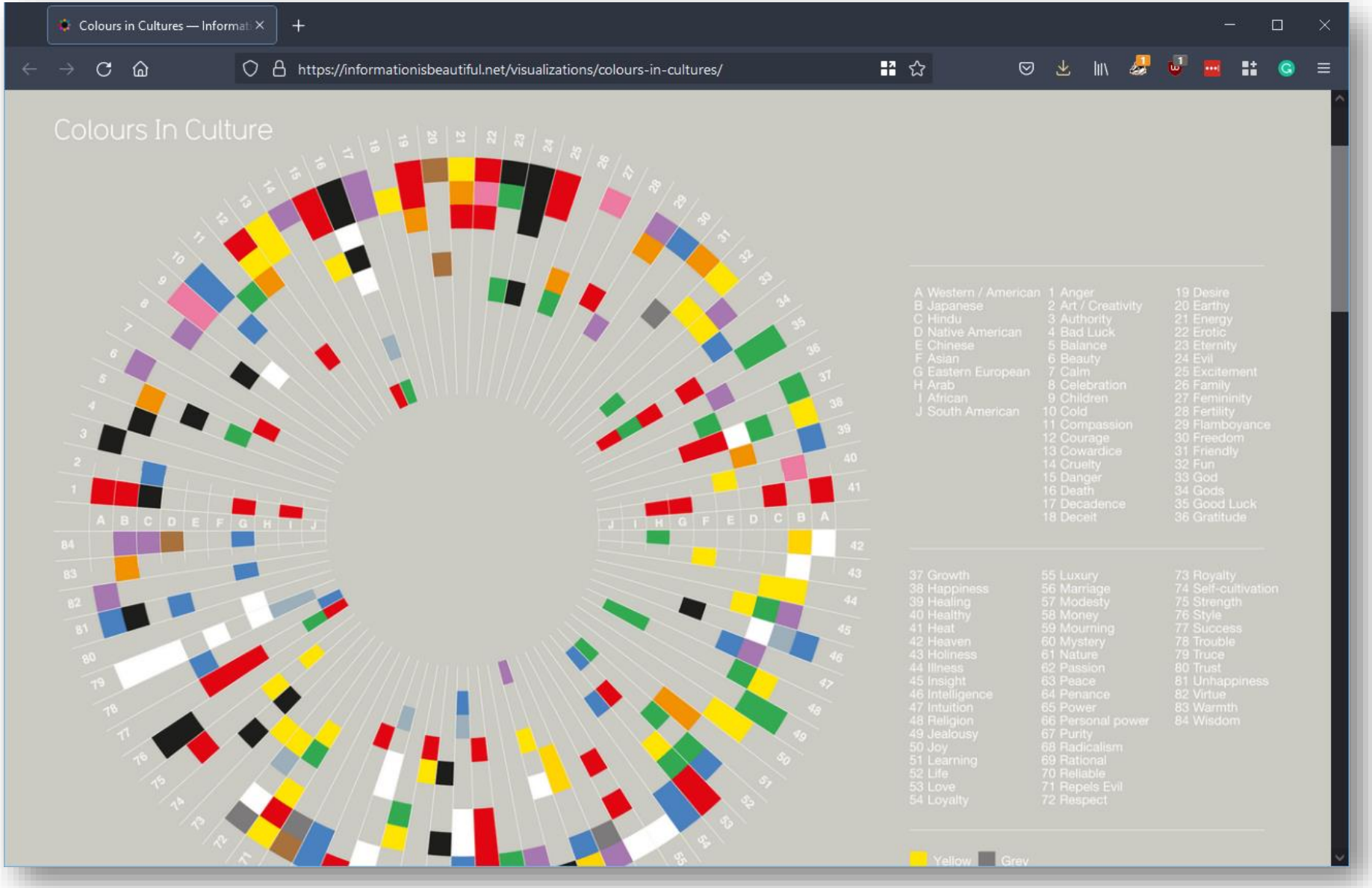
Co s tím vším?

“In visual perception a color is almost never seen as it really is— as it physically is. This fact makes color the most relative medium in art. In order to use color effectively it is necessary to recognize that color deceives continually. To this end, the beginning is not a study of color systems. First, it should be learned that one and the same color evokes innumerable readings.” – Josef Albers

Volba palety a stupnice

- palety dané přirozeně *(mapa)*
- sémantická rezonance
- kulturní rozměr barvy

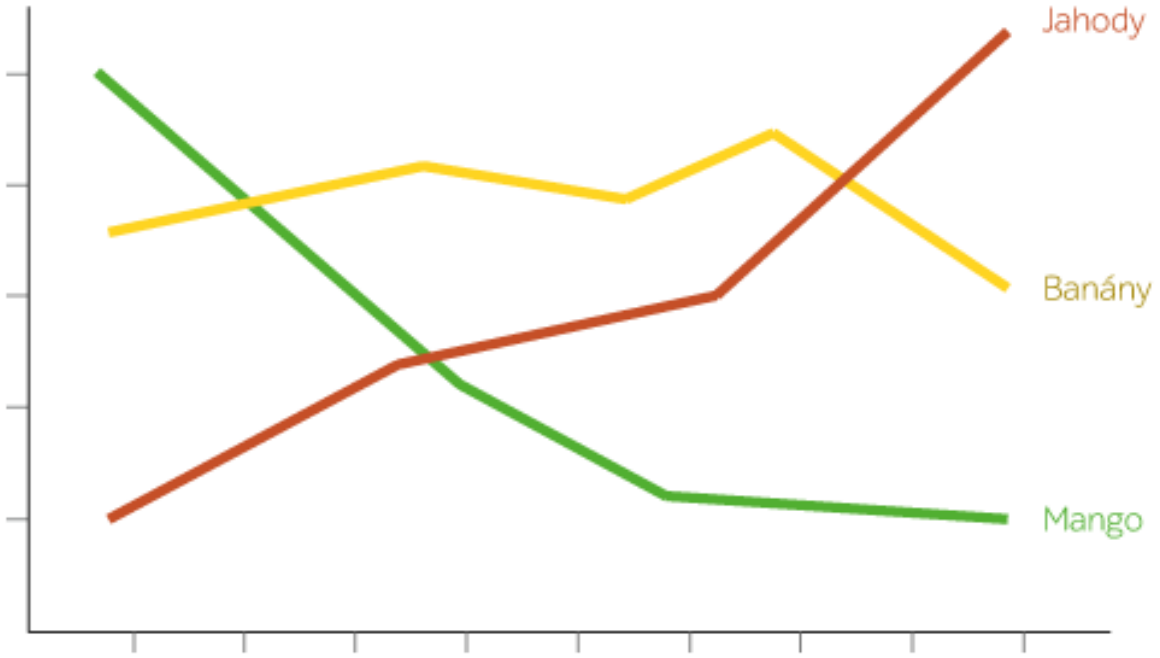
Smutek a smrt


Colours in Cultures — Informat
https://informationisbeautiful.net/visualizations/colours-in-cultures/
Colours In Culture
A Western / American
B Japanese
C Hindu
D Native American
E Chinese
F Asian
G Eastern European
H Arab
I African
J South American
1 Anger
2 Art / Creativity
3 Authority
4 Bad Luck
5 Balance
6 Beauty
7 Calm
8 Celebration
9 Children
10 Cold
11 Compassion
12 Courage
13 Cowardice
14 Cruelty
15 Danger
16 Death
17 Decadence
18 Deceit
19 Desire
20 Earthy
21 Energy
22 Erotic
23 Eternity
24 Evil
25 Excitement
26 Family
27 Femininity
28 Fertility
29 Flamboyance
30 Freedom
31 Friendly
32 Fun
33 God
34 Gods
35 Good Luck
36 Gratitude
37 Growth
38 Happiness
39 Healing
40 Healthy
41 Heat
42 Heaven
43 Holiness
44 Illness
45 Insight
46 Intelligence
47 Intuition
48 Religion
49 Jealousy
50 Joy
51 Learning
52 Life
53 Love
54 Loyalty
55 Luxury
56 Marriage
57 Modesty
58 Money
59 Mourning
60 Mystery
61 Nature
62 Passion
63 Peace
64 Penance
65 Power
66 Personal power
67 Purity
68 Radicalism
69 Rational
70 Reliable
71 Repels Evil
72 Respect
73 Royalty
74 Self-cultivation
75 Strength
76 Style
77 Success
78 Trouble
79 Truce
80 Trust
81 Unhappiness
82 Virtue
83 Warmth
84 Wisdom
Yellow
Grey

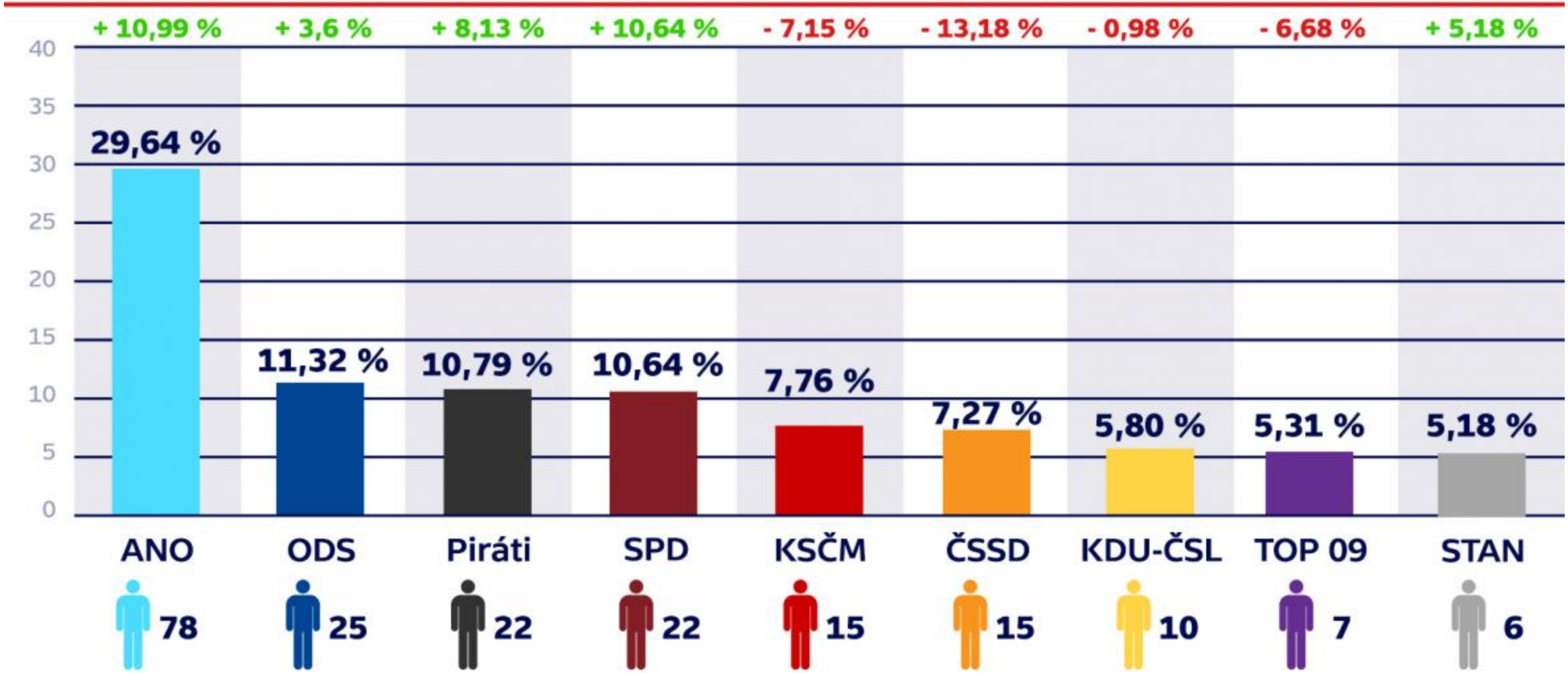
sémantická rezonance

DOI: 10.1111/cgf.12127

sémantická rezonance



DOI: 10.1111/cgf.12127



Zdroj: ČSÚ

*změna proti minulým volbám v % bodech

Barevné stupnice

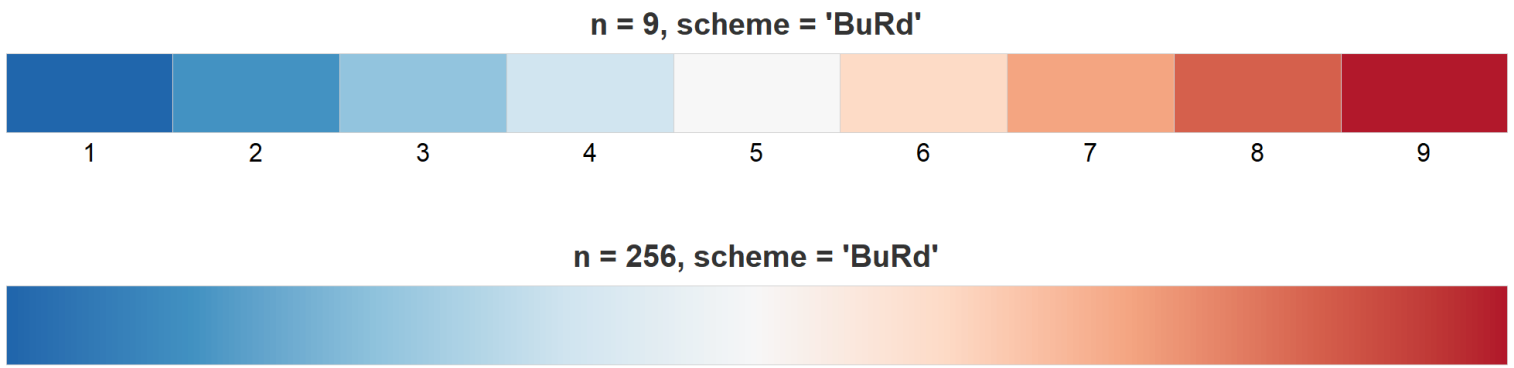
- Kvalitativní (nominální měřítko) – paleta
- Kvantitativní

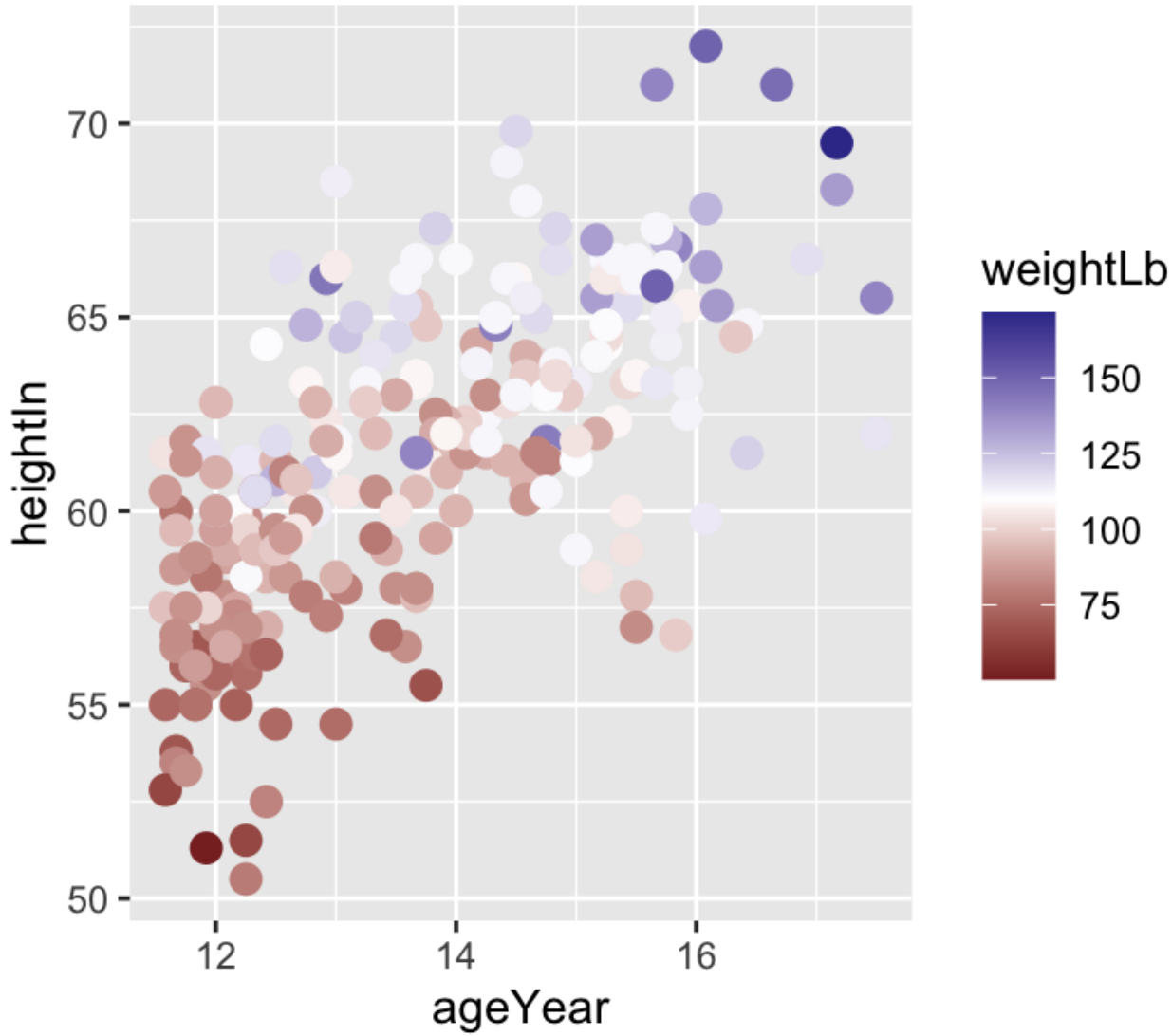
Kvalitativní paleta

- cíl: absolutní rozlišitelnost
- nejvzdálenější v HCL prostoru
- limit: 12
- monochromatická paleta někdy lepší řešení…
- Excel
- negativa?

Kvantitativní stupnice

- plynulá vs intervalová
- simultánní kontrast = intervalová




70
65
60
55
50
heightIn
12
14
16
ageYear
weightLb
150
125
100
75

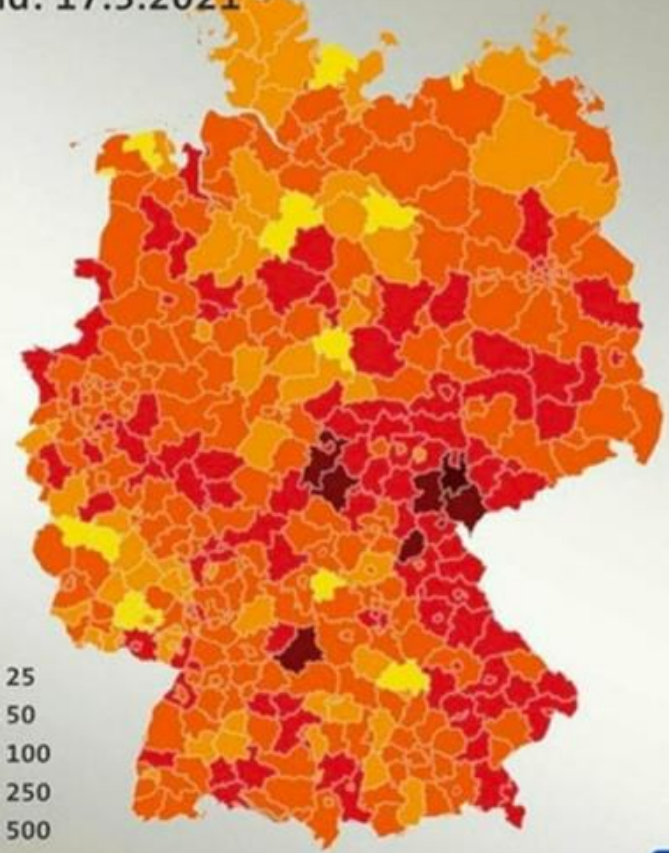
Kvantitativní stupnice

- pravidlo: větší číslo – intenzivnější barva
- divergentní a konvergentní
- *dvoukoncové a jednokoncové*

tagesschau

7-Tage-Inzidenzen der Landkreise

Stand: 17.3.2021



bis 25
bis 50
bis 100
bis 250
bis 500

Quelle: Robert Koch-Institut

tagesschau

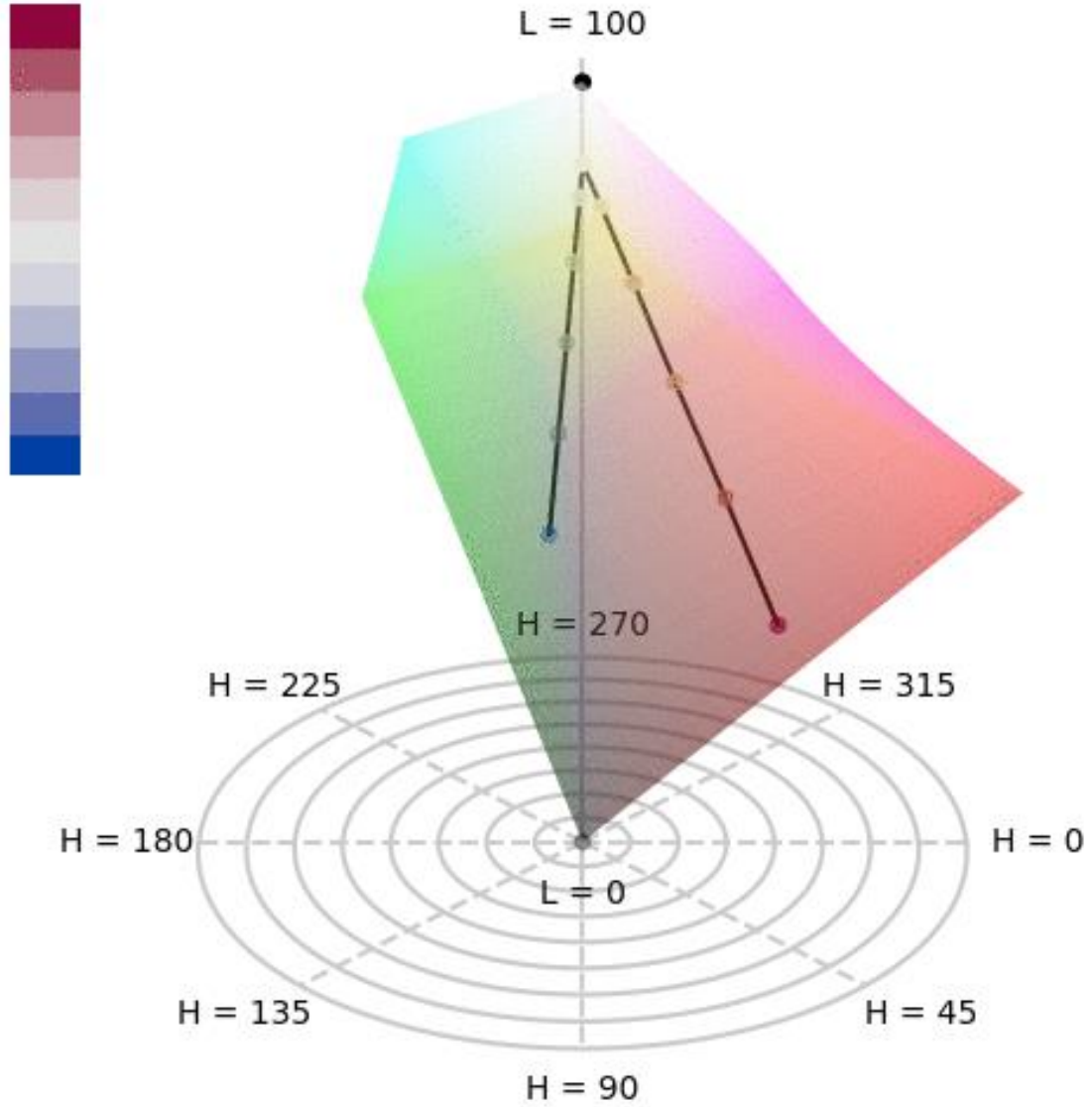
7-Tage-Inzidenzen der Landkreise

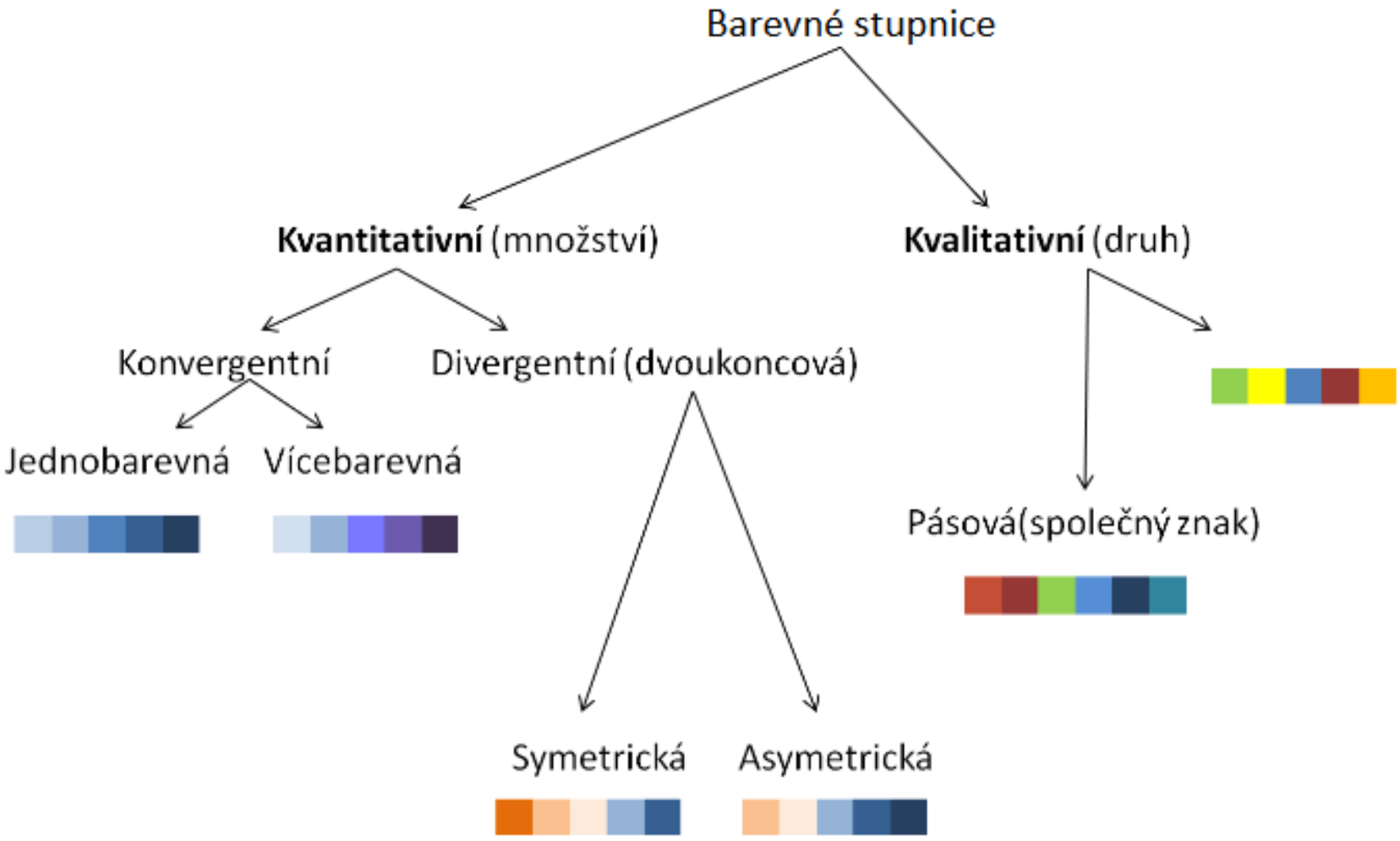
Stand: 9.4.2021

bis 20
bis 35
bis 50
bis 100
bis 200
über 200

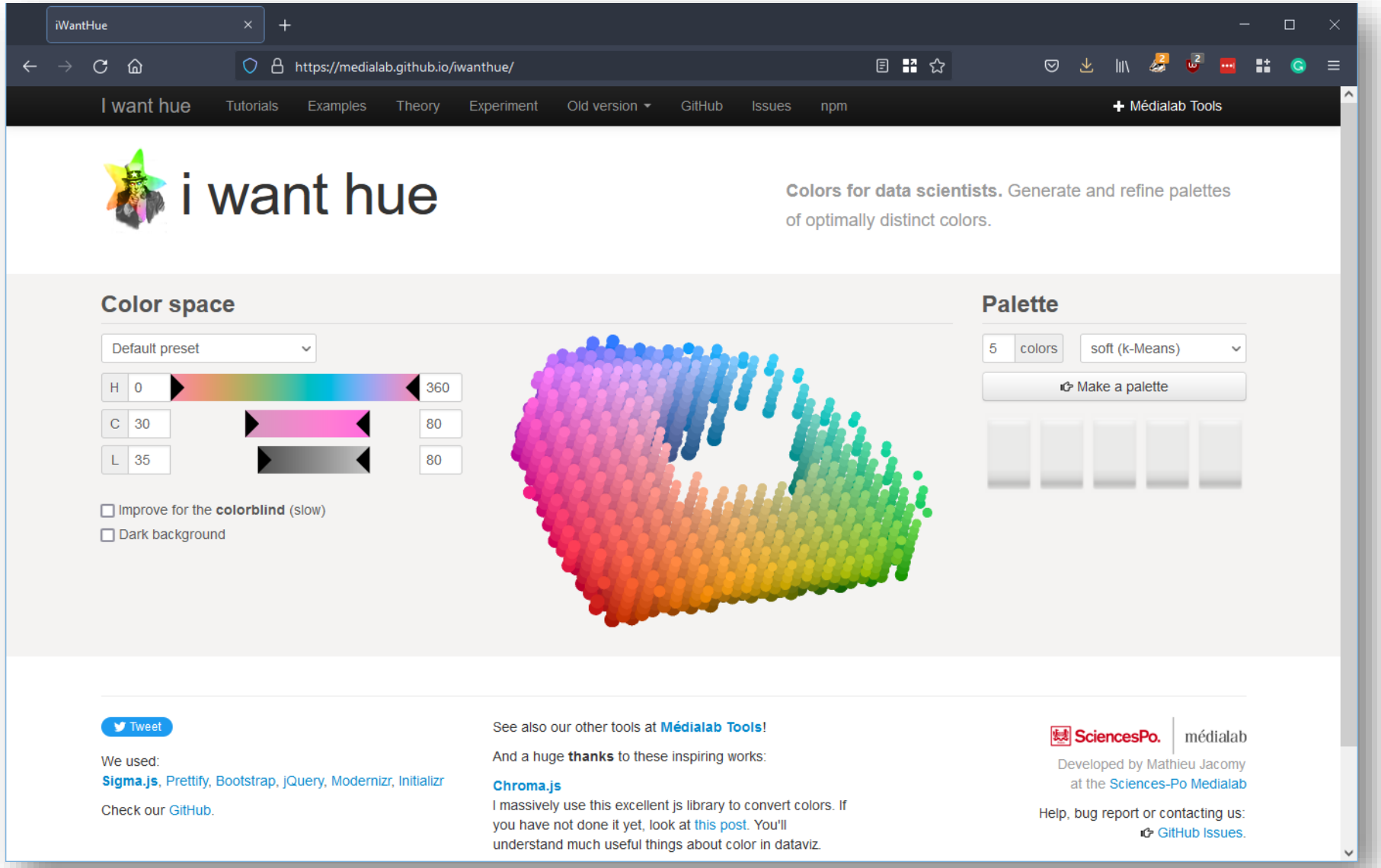
Quelle: Robert Koch-Institut

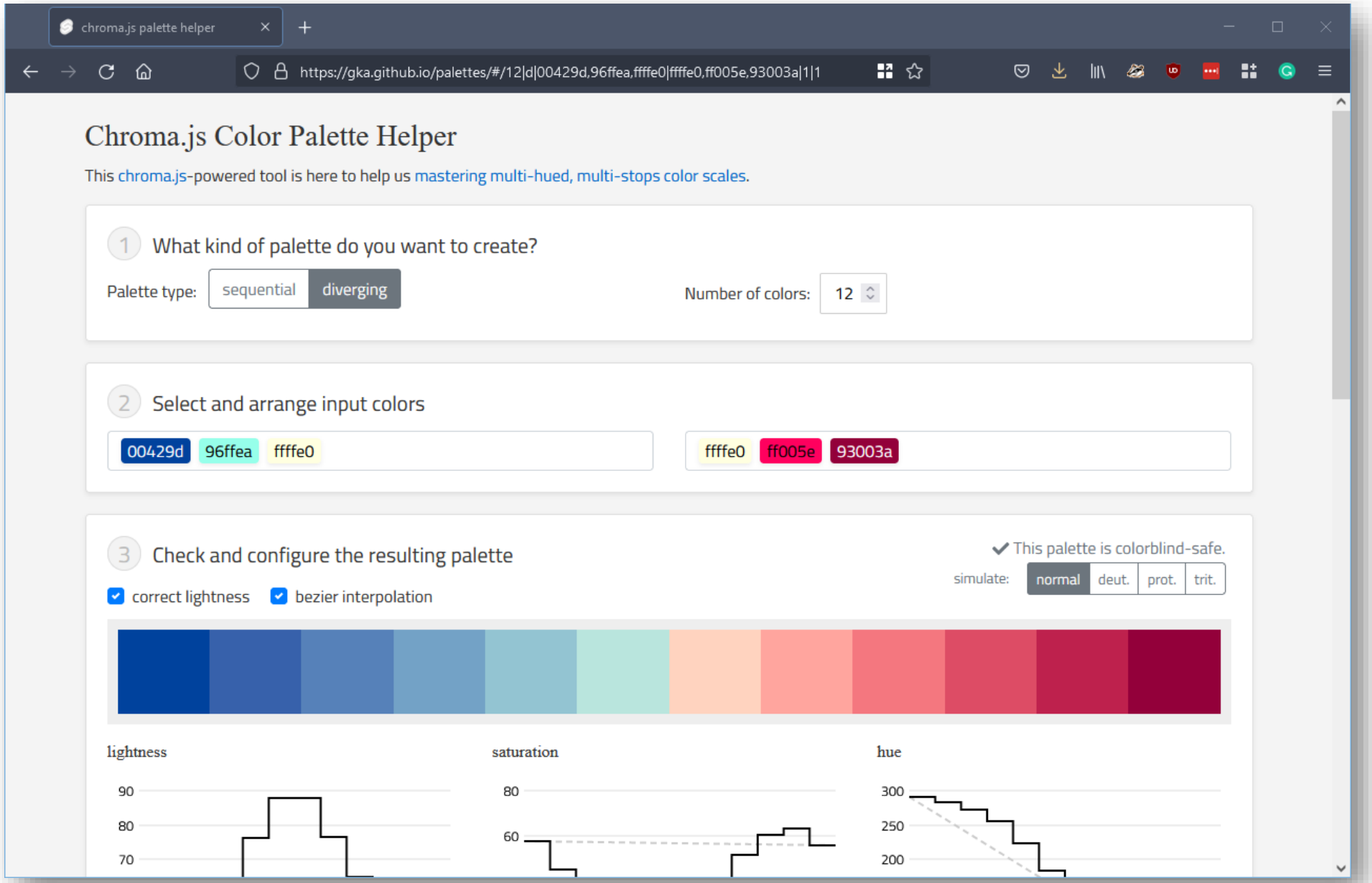
divergentní stupnice v HCL

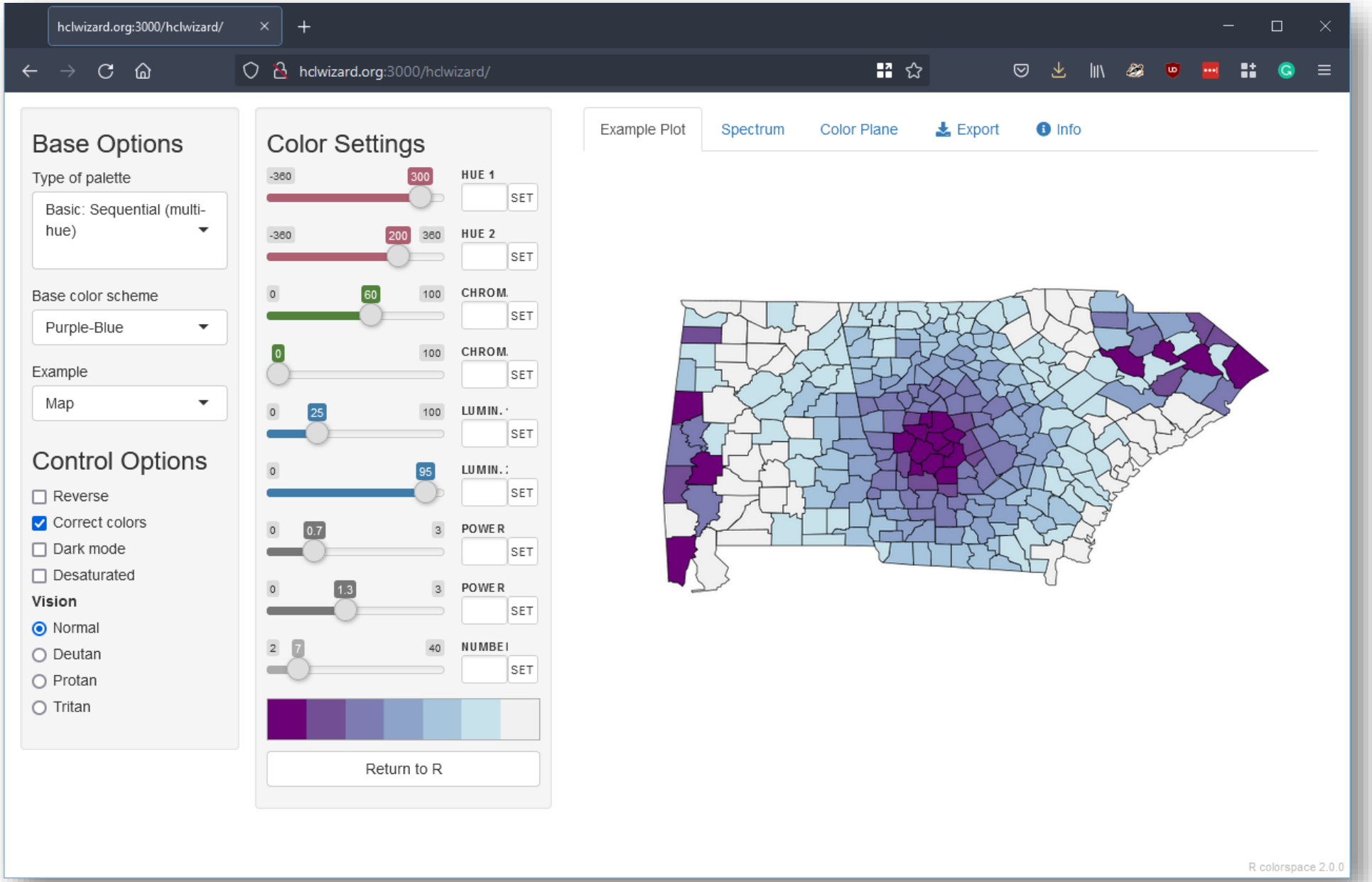


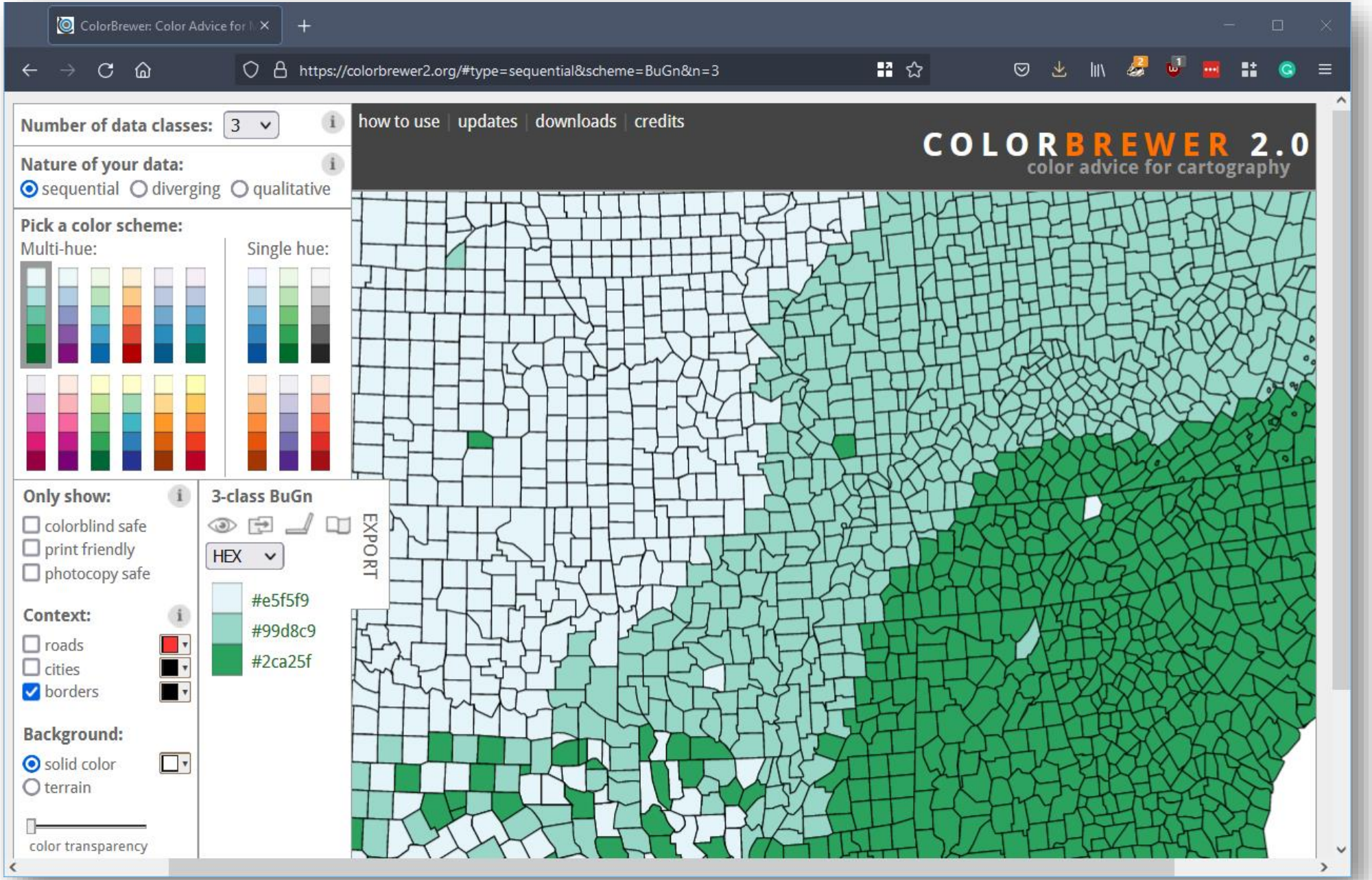


Zdroj: https://dspace5.zcu.cz/bitstream/11025/7135/1/Bakalarka.pdf


iWantHue
https://medialab.github.io/iwanthue/
I want hue
Tutorials
Examples
Theory
Experiment
Old version
GitHub
Issues
npm
+ Médialab Tools
i want hue
Colors for data scientists. Generate and refine palettes of optimally distinct colors.
Color space
Default preset
H 0 360
C 30 80
L 35 80
Improve for the colorblind (slow)
Dark background
Palette
5 colors
soft (k-Means)
Make a palette
Tweet
We used:
Sigma.js, Prettify, Bootstrap, jQuery, Modernizr, Initializr
Check our GitHub.
See also our other tools at Médialab Tools!
And a huge thanks to these inspiring works:
Chroma.js
I massively use this excellent js library to convert colors. If you have not done it yet, look at this post. You'll understand much useful things about color in dataviz.
SciencesPo. médialab
Developed by Mathieu Jacomy at the Sciences-Po Medialab
Help, bug report or contacting us:
GitHub Issues.


chroma.js palette helper
https://gka.github.io/palettes/#/12|d|00429d,96ffea,ffffe0|ffffe0,ff005e,93003a|1|1
Chroma.js Color Palette Helper
This chroma.js-powered tool is here to help us mastering multi-hued, multi-stops color scales.
1 What kind of palette do you want to create?
Palette type: sequential diverging
Number of colors: 12
2 Select and arrange input colors
00429d 96ffea ffffe0
ffffe0 ff005e 93003a
3 Check and configure the resulting palette
This palette is colorblind-safe.
simulate: normal deut. prot. trit.
correct lightness
bezier interpolation
lightness
saturation
hue
90
80
70
80
60
300
250
200


hclwizard.org:3000/hclwizard/
hclwizard.org:3000/hclwizard/
Base Options
Type of palette
Basic: Sequential (multi-hue)
Base color scheme
Purple-Blue
Example
Map
Control Options
Reverse
Correct colors
Dark mode
Desaturated
Vision
Normal
Deutan
Protan
Tritan
Color Settings
-360
300
HUE 1
SET
-360
200
360
HUE 2
SET
0
60
100
CHROM.
SET
0
100
CHROM.
SET
0
25
100
LUMIN.
SET
0
95
LUMIN.
SET
0
0.7
3
POWER
SET
0
1.3
3
POWER
SET
2
7
40
NUMBE
SET
Return to R
Example Plot
Spectrum
Color Plane
Export
Info
R colorspace 2.0.0


ColorBrewer: Color Advice for
https://colorbrewer2.org/#type=sequential&scheme=BuGn&n=3
Number of data classes: 3
Nature of your data:
sequential
diverging
qualitative
Pick a color scheme:
Multi-hue:
Single hue:
Only show:
colorblind safe
print friendly
photocopy safe
Context:
roads
cities
borders
Background:
solid color
terrain
color transparency
how to use
updates
downloads
credits
COLORBREWER 2.0
color advice for cartography
3-class BuGn
EXPORT
HEX
#e5f5f9
#99d8c9
#2ca25f

Takže...

- barva je silně subjektivní
- její vnímání ovlivňuje i předchozí a kulturní zkušenost
- design pro globální publikum je tak náročný
- design pro lokální publikum úplně stejně
- barvy v Excelu jsou ve výchozí podobě mnohdy nesmysl
- myslíme na základní pravidla a problémy
- k ruce máme arzenál nástrojů