Project 1 for Data Visualization ST 2019

Color Measurements

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Date:

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# Abstract

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# Introduction

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“College writing often involves integrating information from published sources into your own writing in order to add credibility and authority–this process is essential to research and the production of new knowledge.” [1]

## Possible Questions

Similarity in 3 steps:

1. for all squares and position circles
2. without the position circles
3. without the color at the border, just the skin colors

Is there a intra sheet inter color card dispersion?

How similar is each color to the master color?

* Try different visualizations – what works, what not?

How similar is each card to the master color card?

How similar is a card to each other card from the same sheet?

How similar is a card to each other card from every sheet?

Are the cards more similar to the master color card than to other cards?

Is it possible to find a limit value for similarity to declare color cards that should be rejected?

* The histogram from today
* <https://wisotop.de/farbabstand-farben-vergleichen.php>

# Materials and Methods

## Datasets

### MasterColorCard.csv

contains intended colors for color card production

(obtained from the print master based on actual CMYKS values,

Lab values calculated from these; CMYKS is closer to printing;

there are no contractual targets for each color spot)

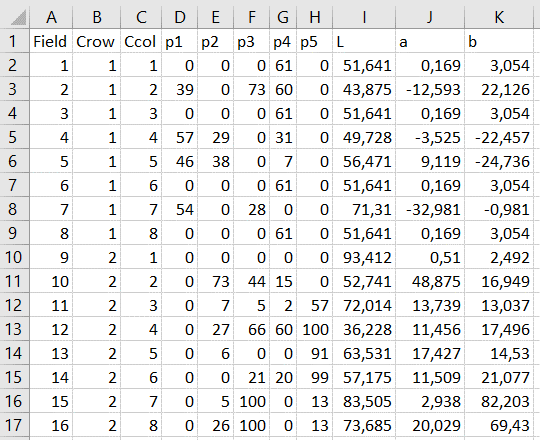
column headers:

Field (No., 1 to 64), for a single color card

Crow, Ccol (1 to 8 each, for position on a single color card)

p1 to p5: Cyan, Magenta, Yellow, Black, Special color for skin

L, a, b: calculated intended colors for comparison to measurements



CIELAB Definition

of one color

CMYKS Definition

of one color

Position on the

mastercard



### LabMeasurements-Color-Card.csv

42 color cards are printed on one large sheet with 7 rows and 6 columns

contains the measurements

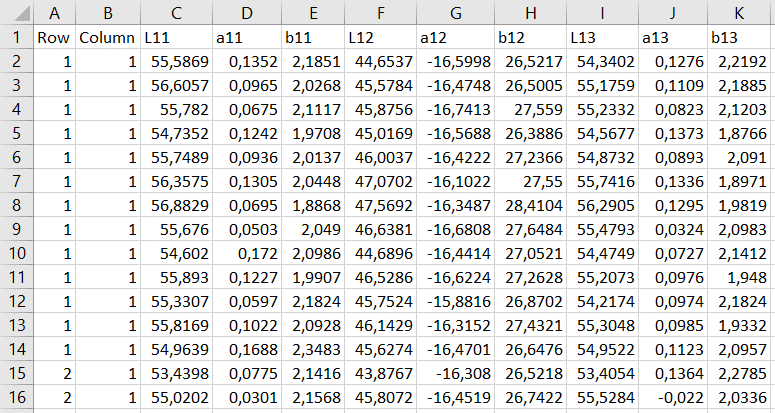
format: csv wit „,“ as decimal separator and „;“ as separator

column headers:

Row, Column (target position on large sheet of color cards)

L11, a11, b11, …, L88, a88, b88 Lab‐values for color spots (1,1) to (8,8)

The first digit reflects the card’s row, the second the card’s column.



First row and first column

of all the 13 sheets

CIELAB Definition

of the 1st color

CIELAB Definition

of the 2nd color

## R Packages

### data.table

fread

### colorscience

deltaE2000 – Distance

Source: http://zschuessler.github.io/DeltaE/learn/

### tcR

cosine.similarity

Histogram / Boxplot / ….

<https://wisotop.de/farbabstand-farben-vergleichen.php>

# <https://greenbookblog.org/2018/03/21/replacing-boxplots-and-histograms-with-rugs-violins-and-bean-plots/>

# Results

## Result 1

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## Result 2

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# Discussion

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# Conclusion

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# References

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| [1] | F. N. Last Name, "Quoting and Paraphrasing," 13 May 2019. [Online]. Available: https://writing.wisc.edu/handbook/assignments/quotingsources/. |