

A metric to evaluate the closeness of the two colors



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Product packaging



Magazine advert



Newspaper advert



Billboard advert



Vehicle wrap

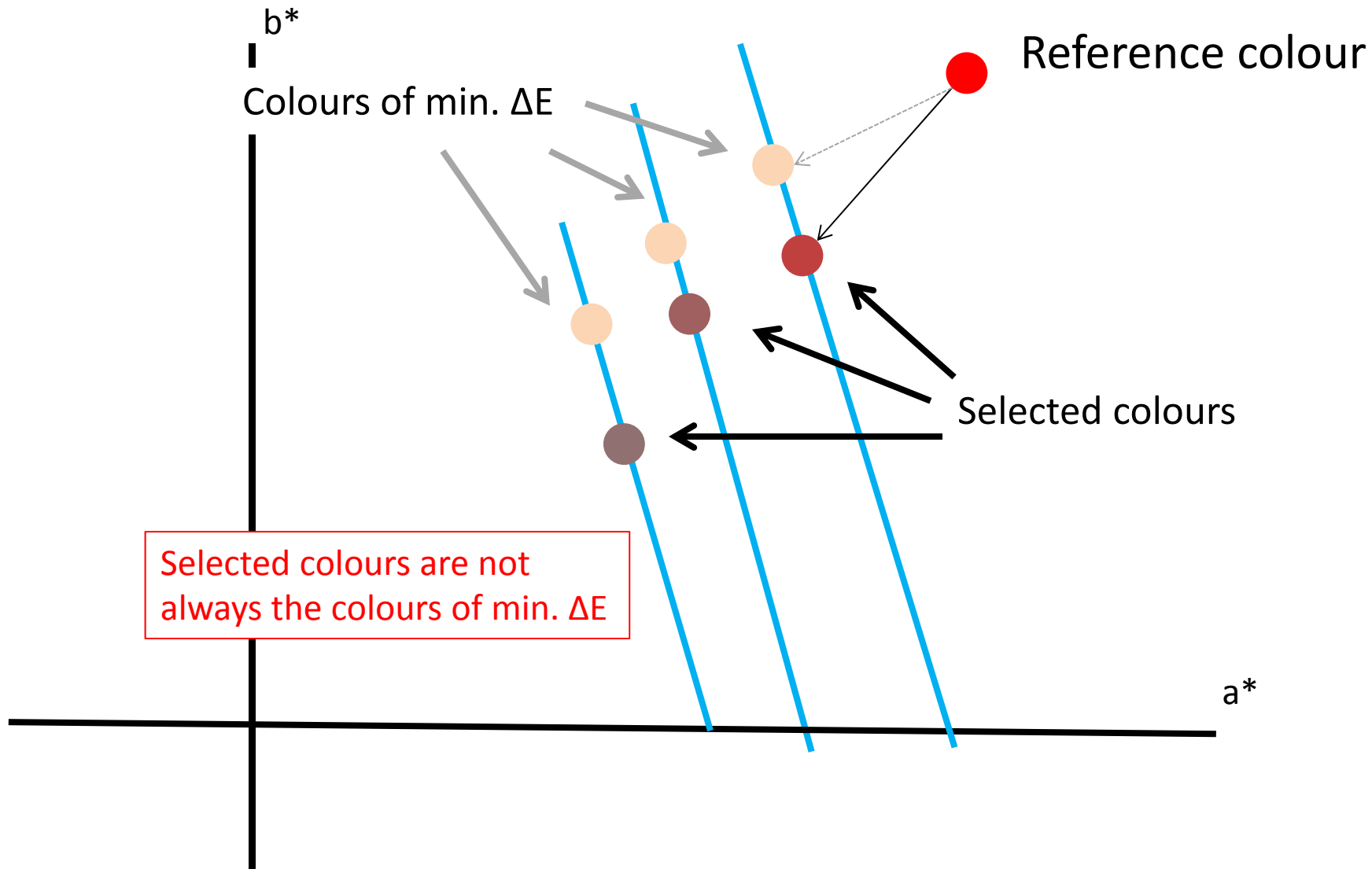


Television / internet

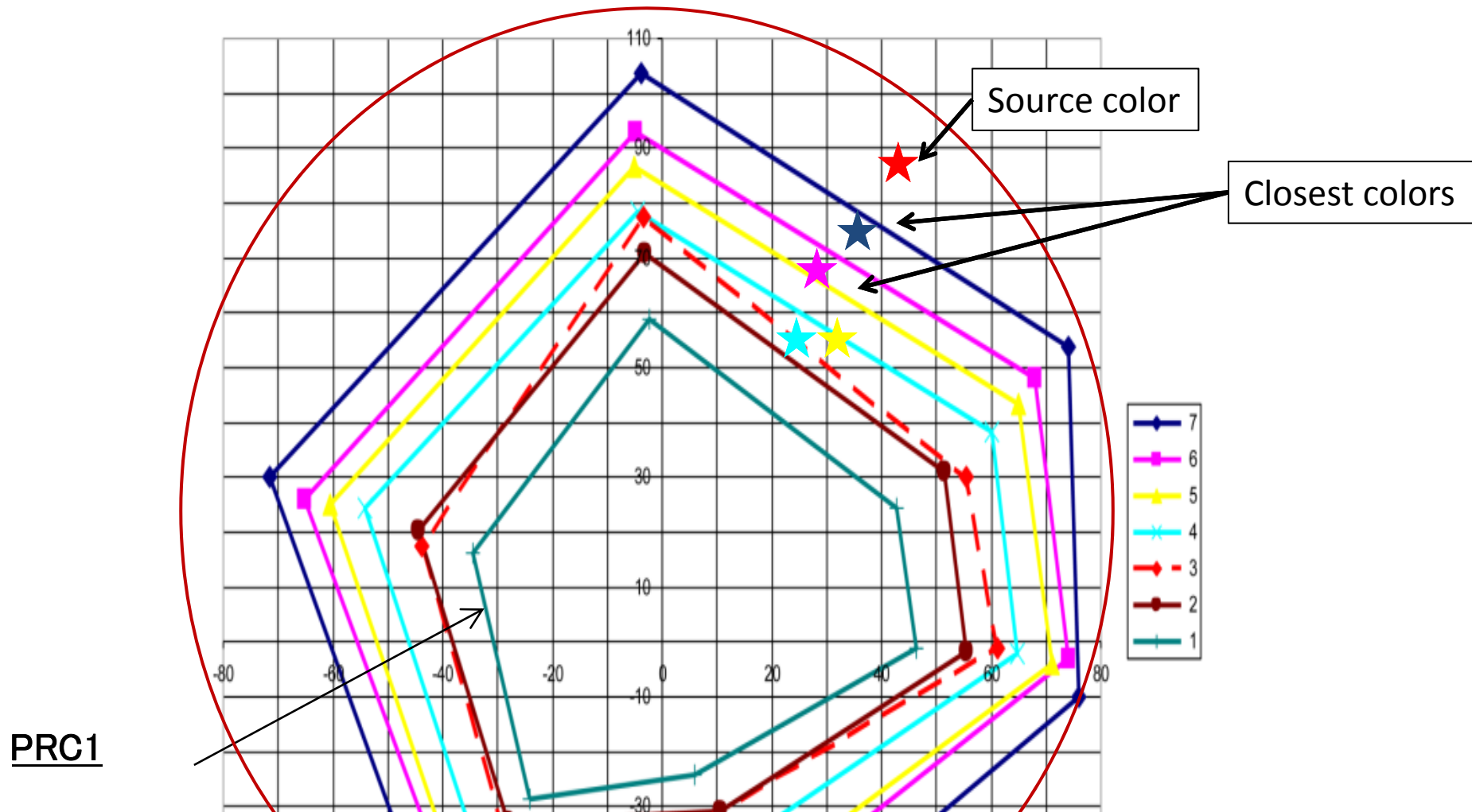
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Color appearance should be consistent

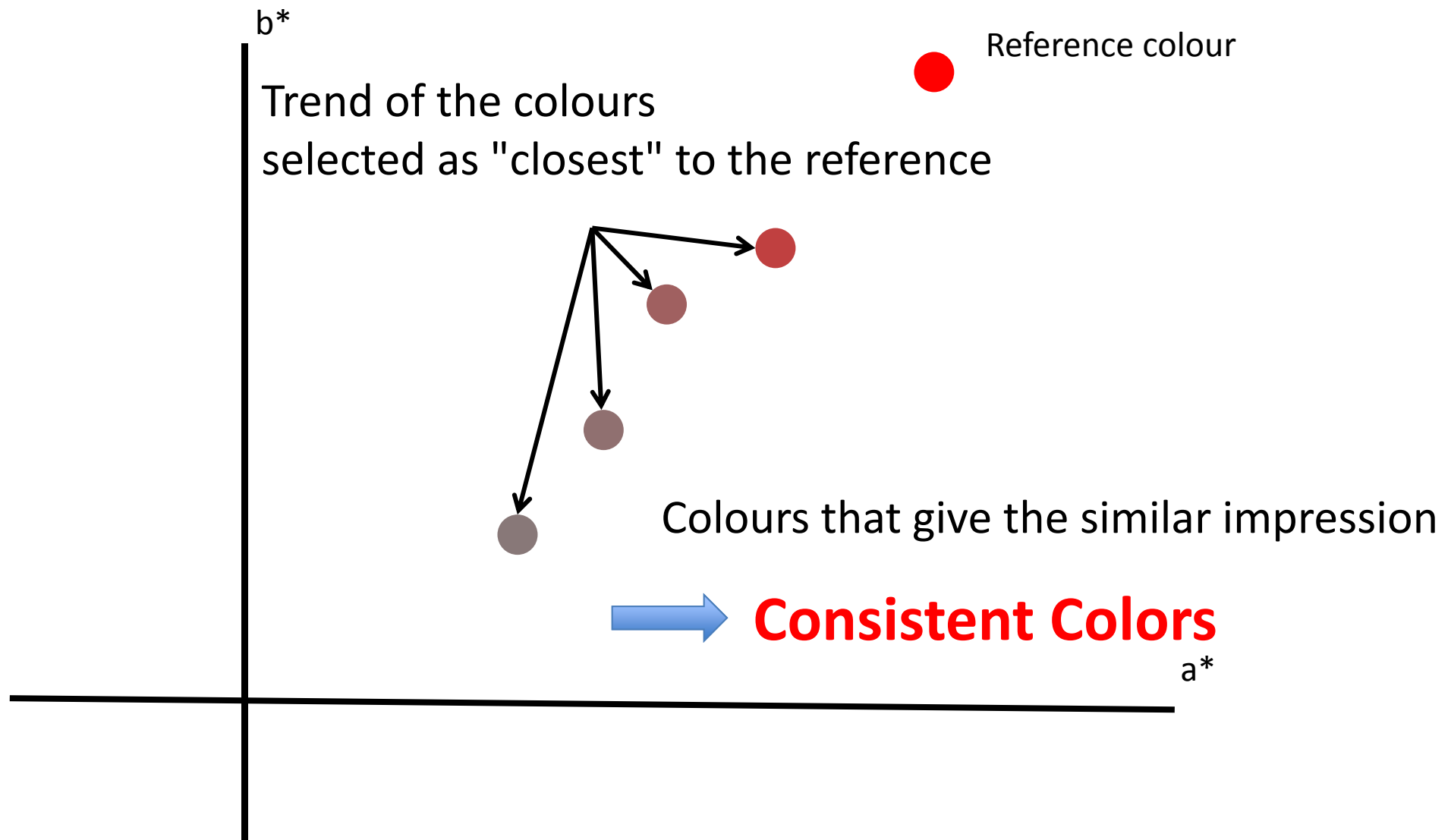
Task: "Find the closest colour on a line (e.g. equal saturation)"



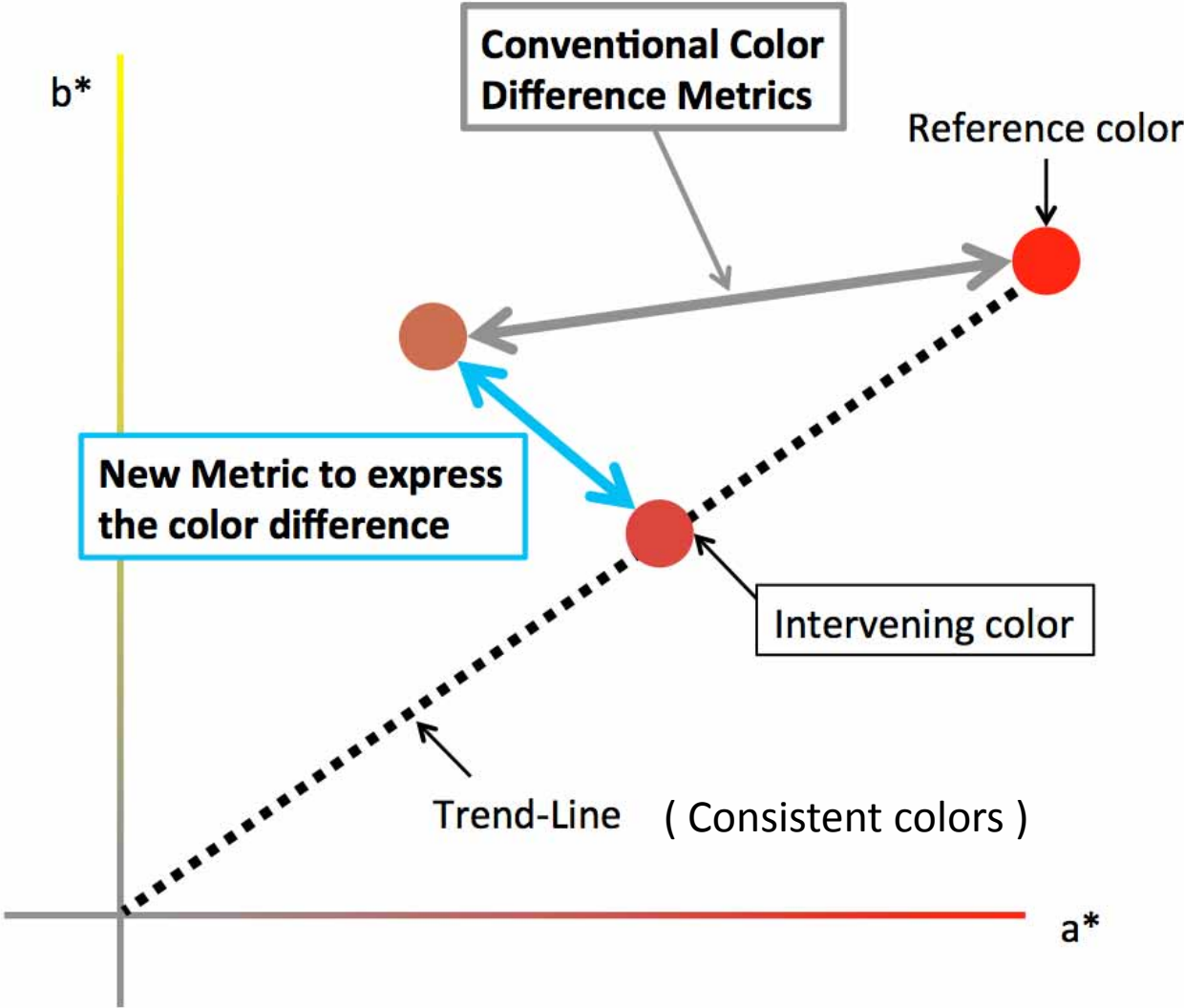
When we would like to map a source color to a color in a given gamut, we need to find the "corresponding" color (= perceptually equal).



After collecting several closest colours of different gamuts:



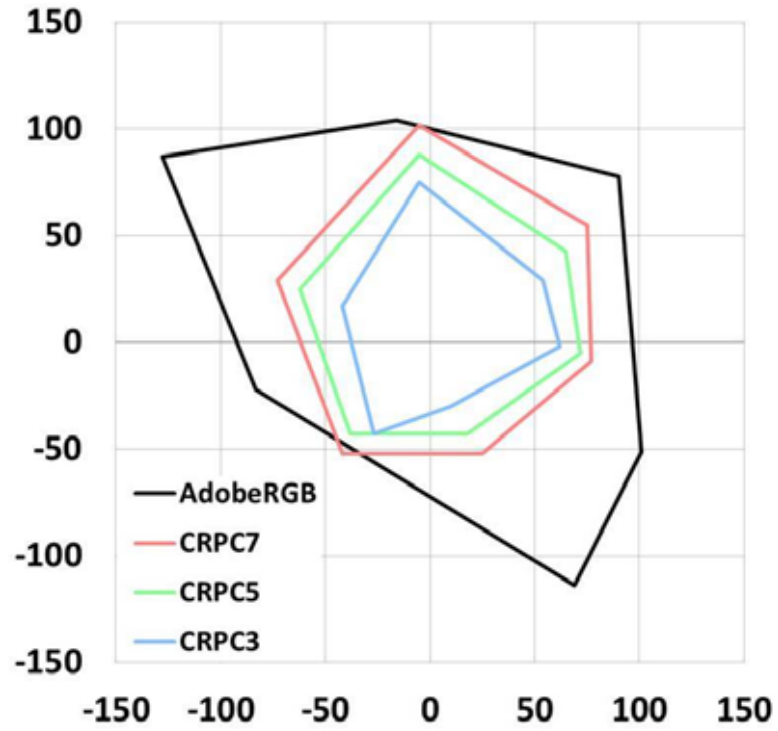
Concept of the color difference based on consistent color locus



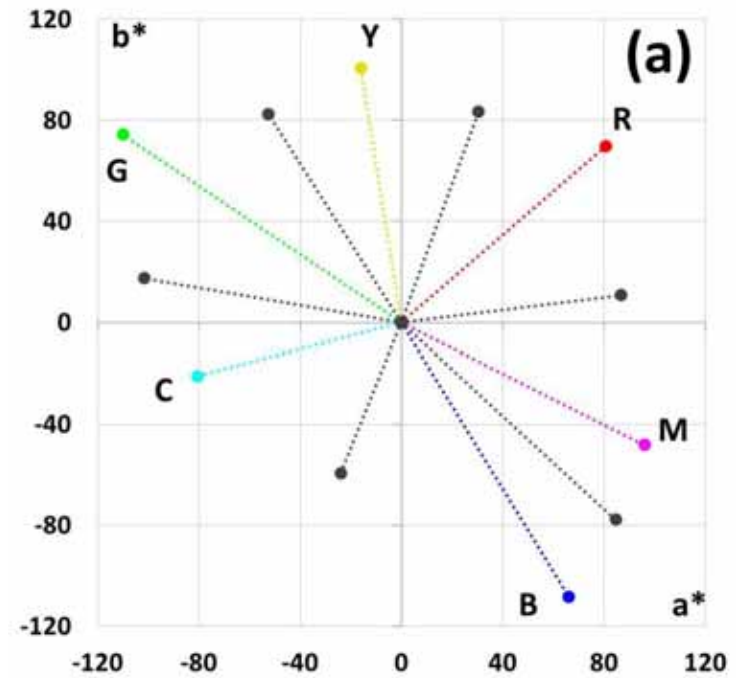
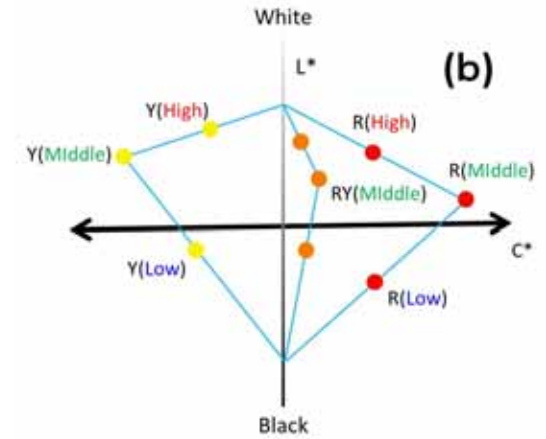
Step 1: Find the trend lines
(consistent color loci)

Step 2: Find the "closest color" of a test color
off trend-line on a trend-line

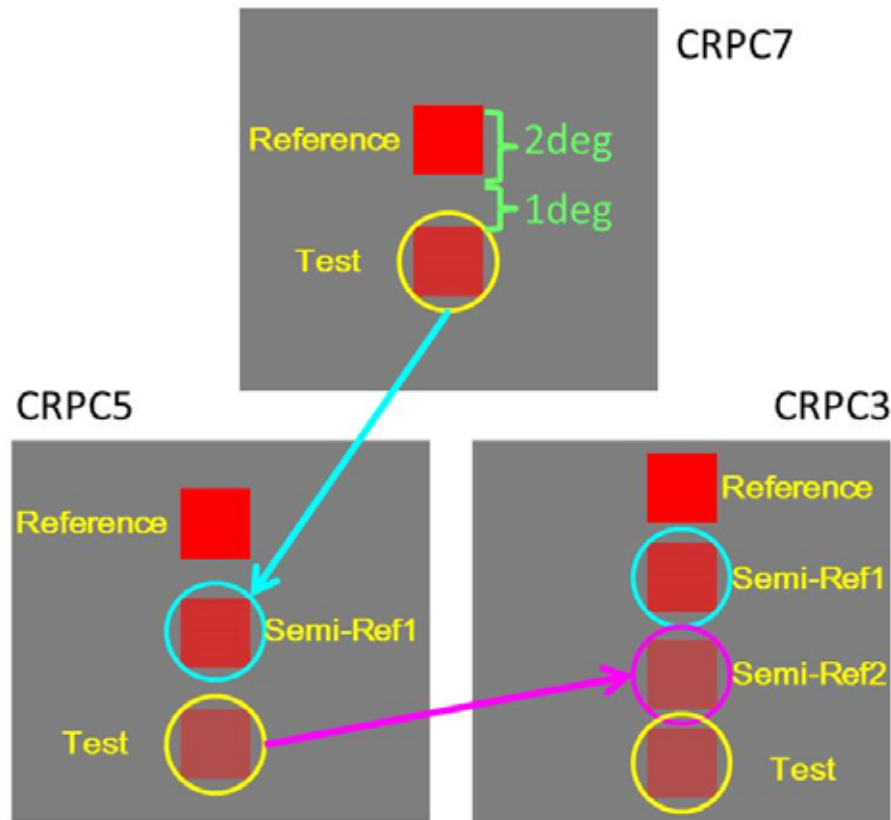
Experiment



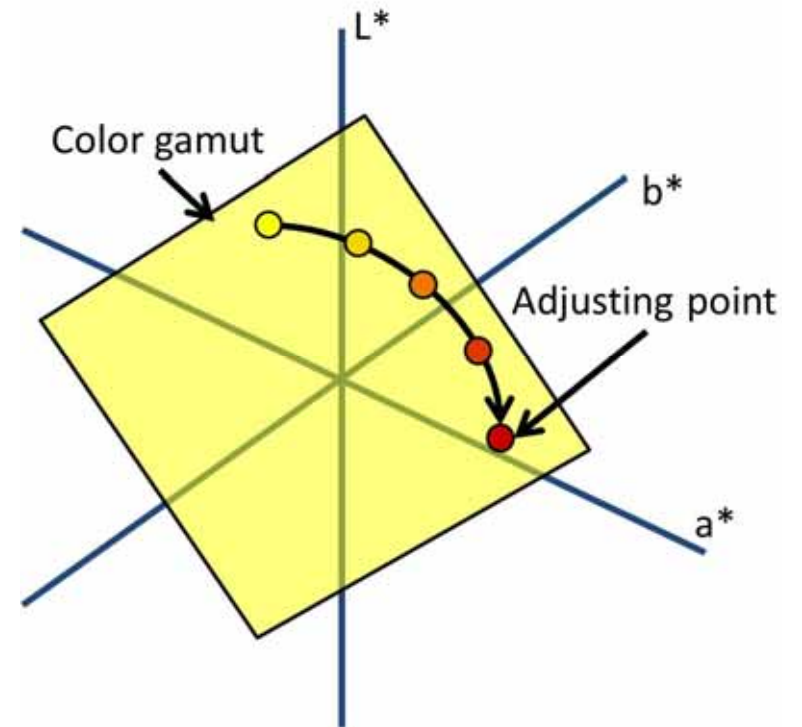
Gamuts used in the experiment



12 target colors (references)

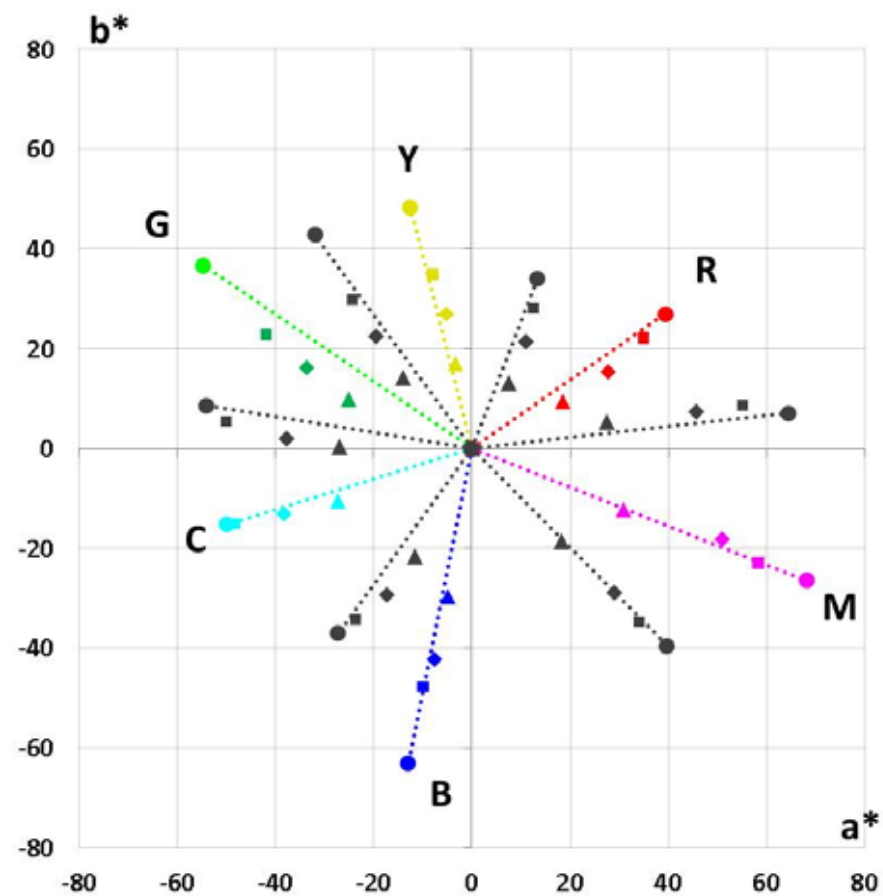
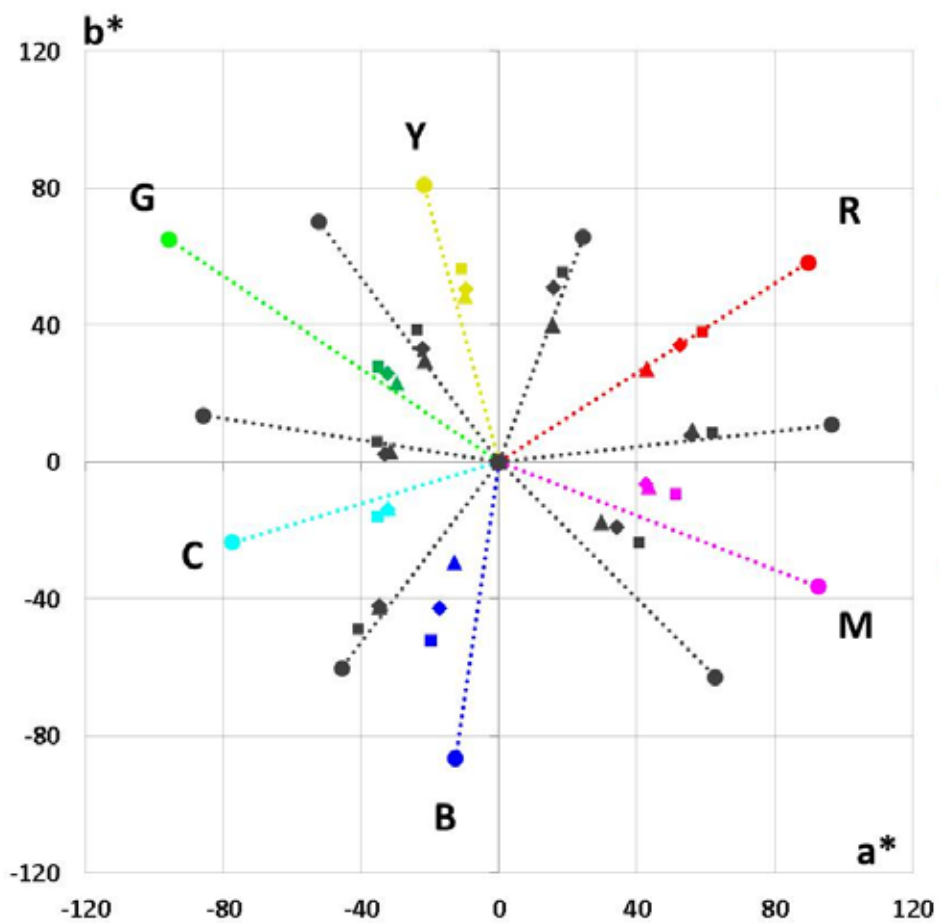


Configuration of the stimulus



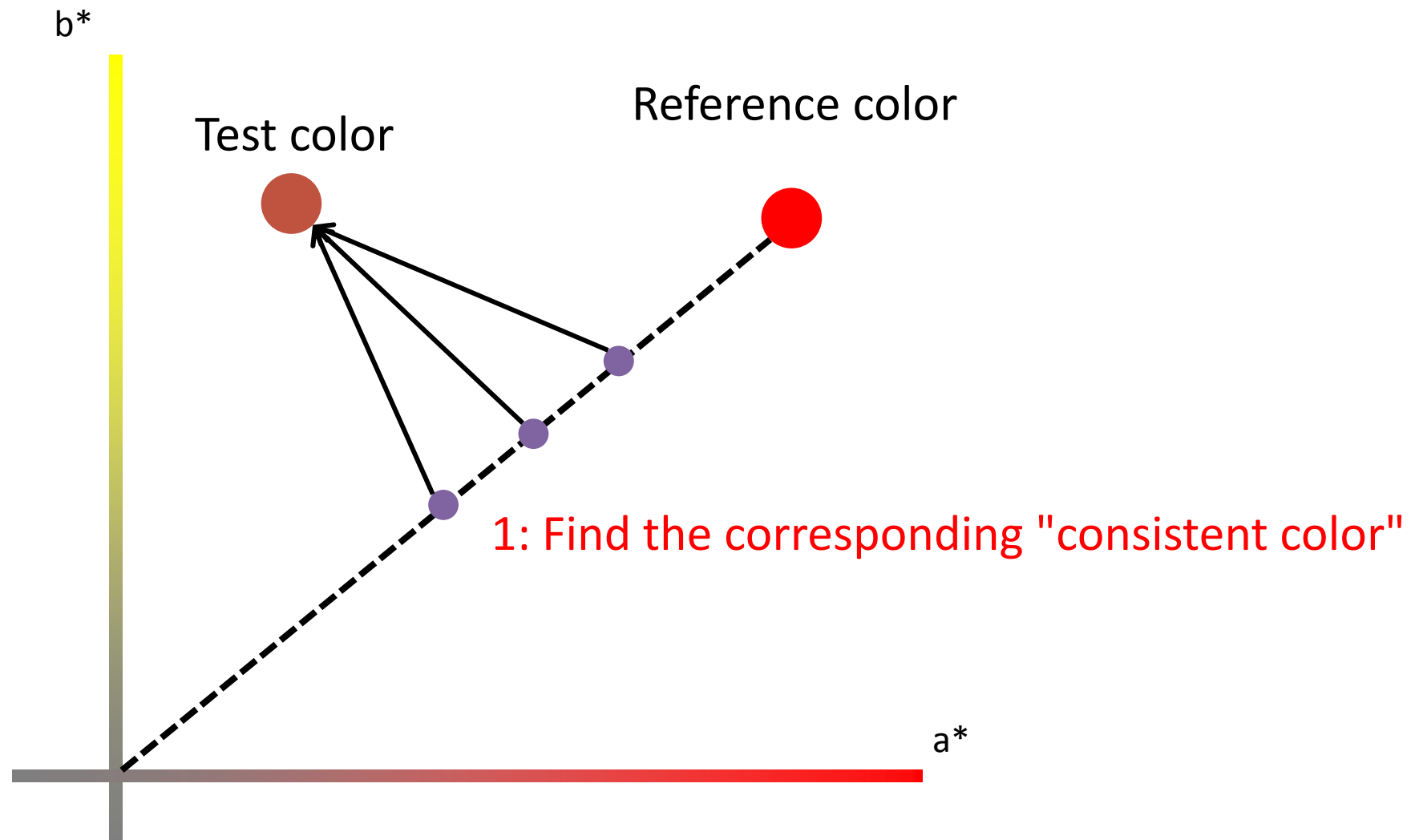
Test color changed along the surface of a given gamut

Consistent color loci (for CRPC7, CRPC5, and CRPC3)

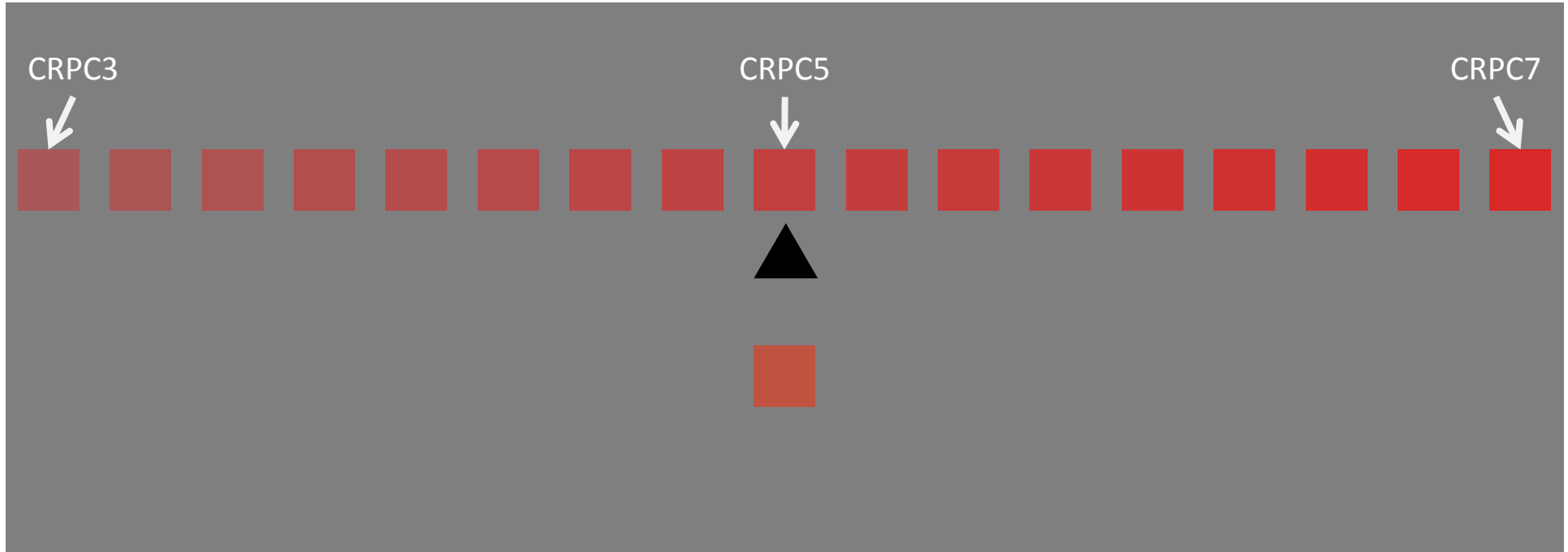


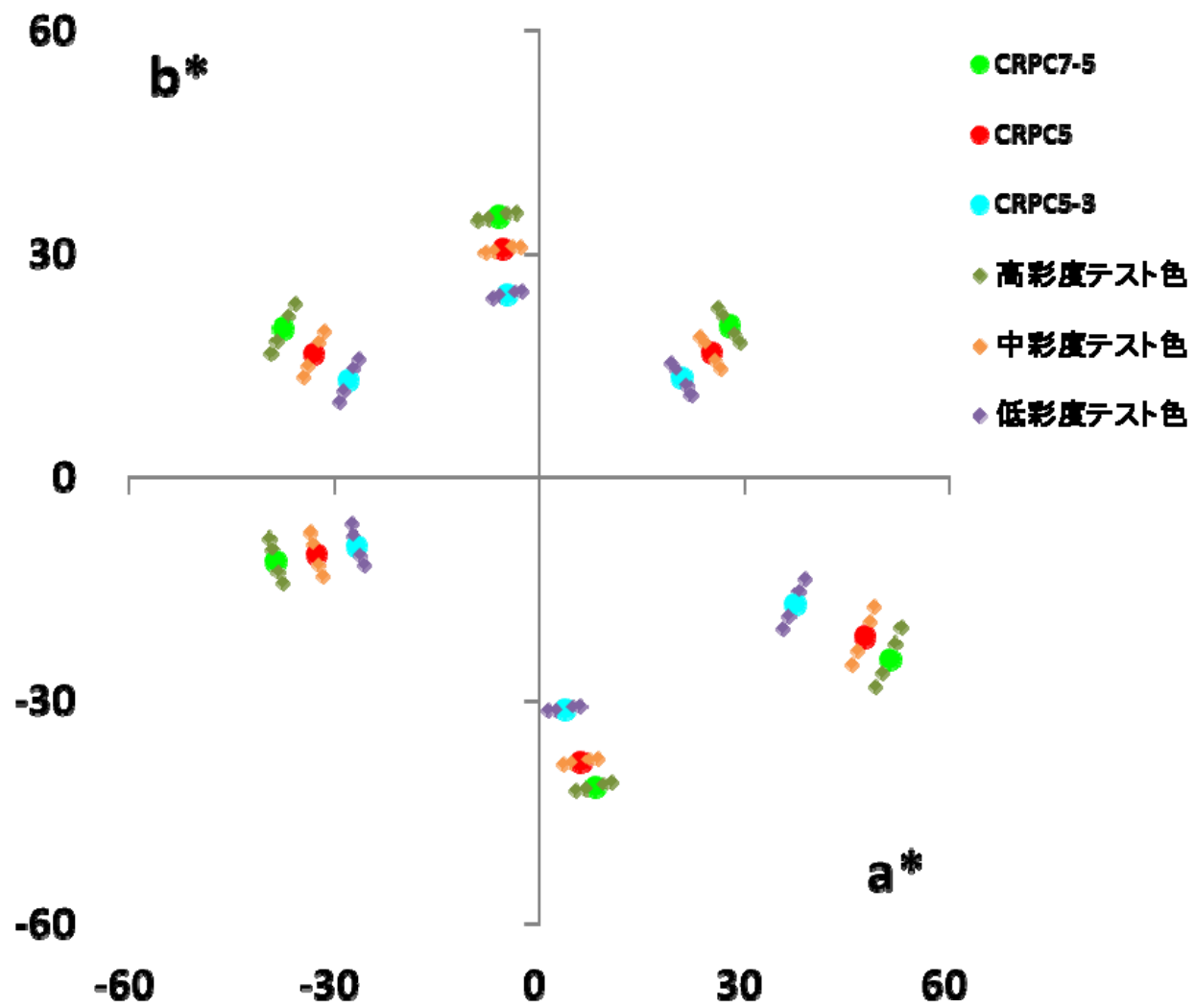
CIECAM02 space

Evaluation of the color (1)

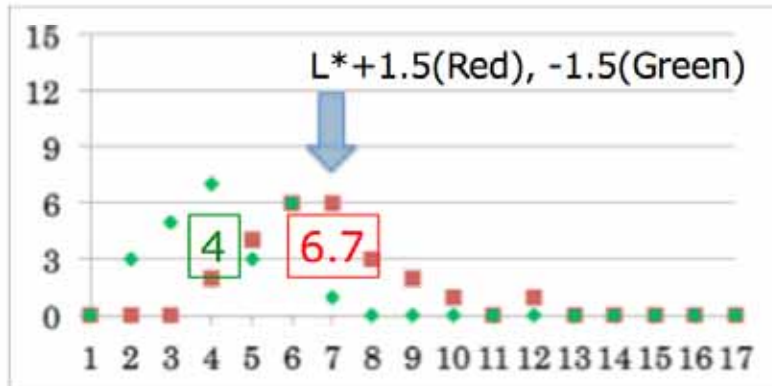
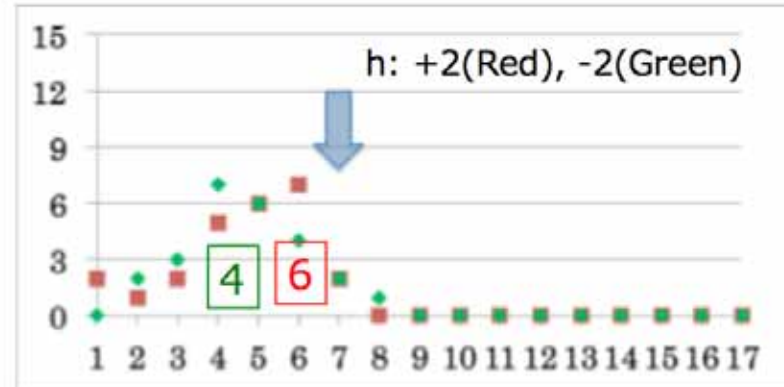
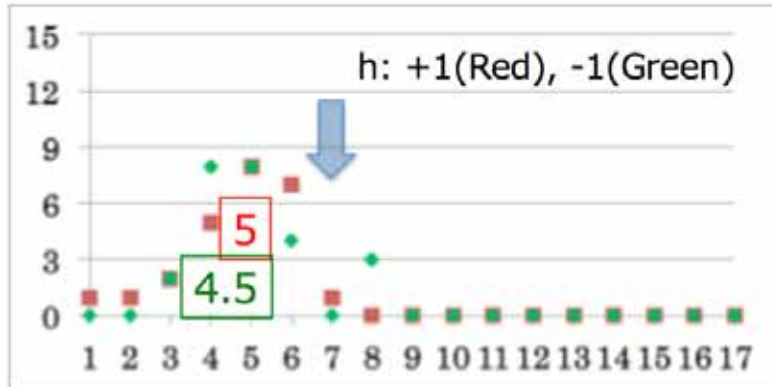


Stimulus configuration

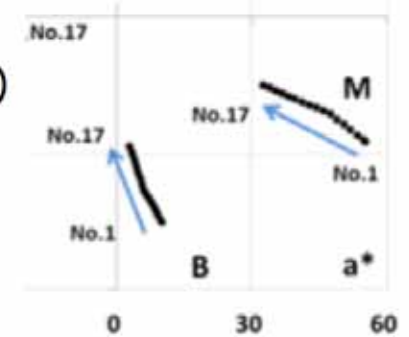




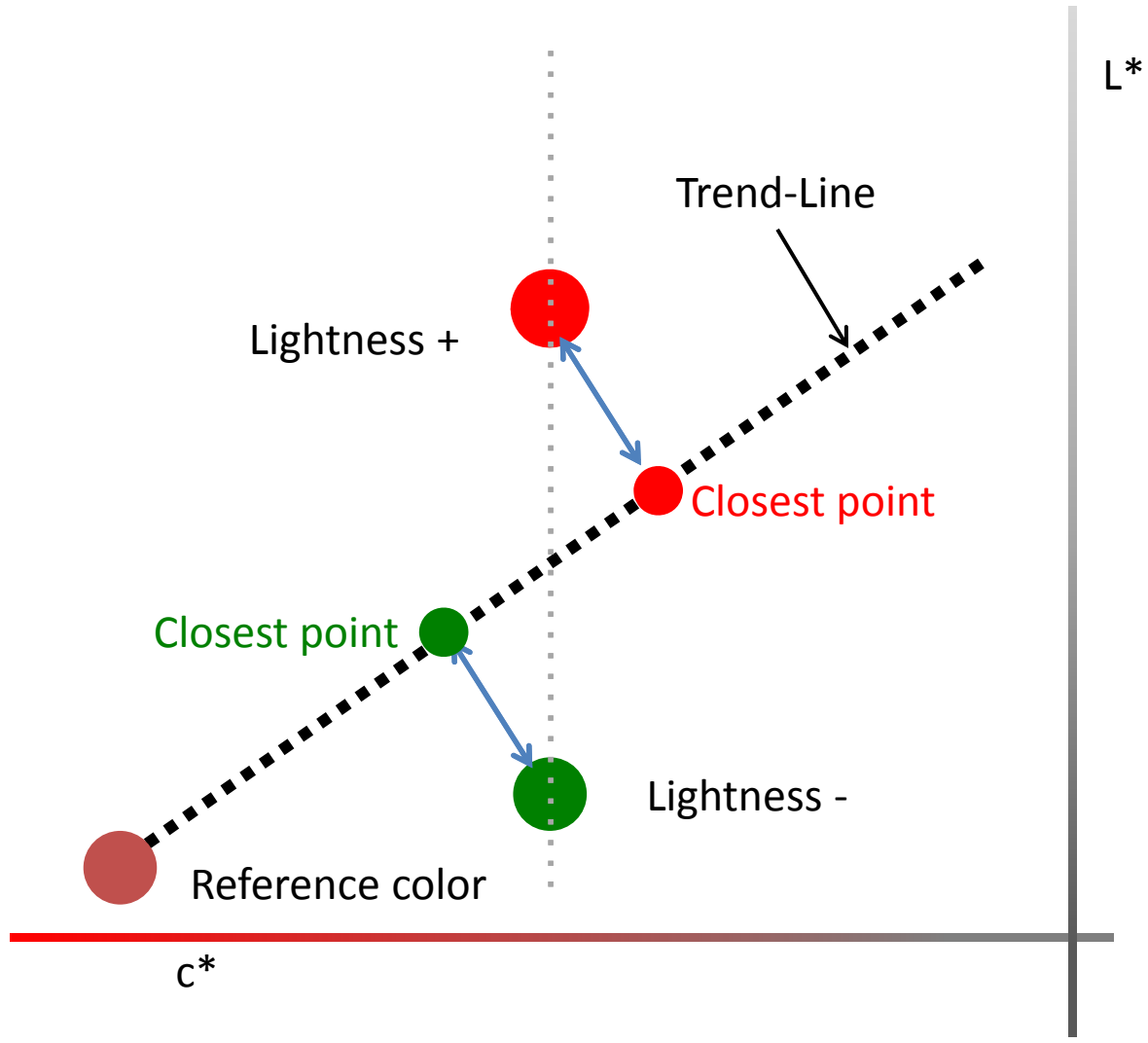
Frequency



↓ : Closest color (Euclid distance)



Color Number of Trend-line



Summary

- Consistent color appearance is well described on the trend-line.
- The intervening color is not necessary the minimum distance point on the trend-line.
- We might use this findings to evaluate the performance of the printers.
(We need to clarify whether the trend would be maintained with real images)
 - If so, we might propose a simple metric to predict the consistent color appearance.