

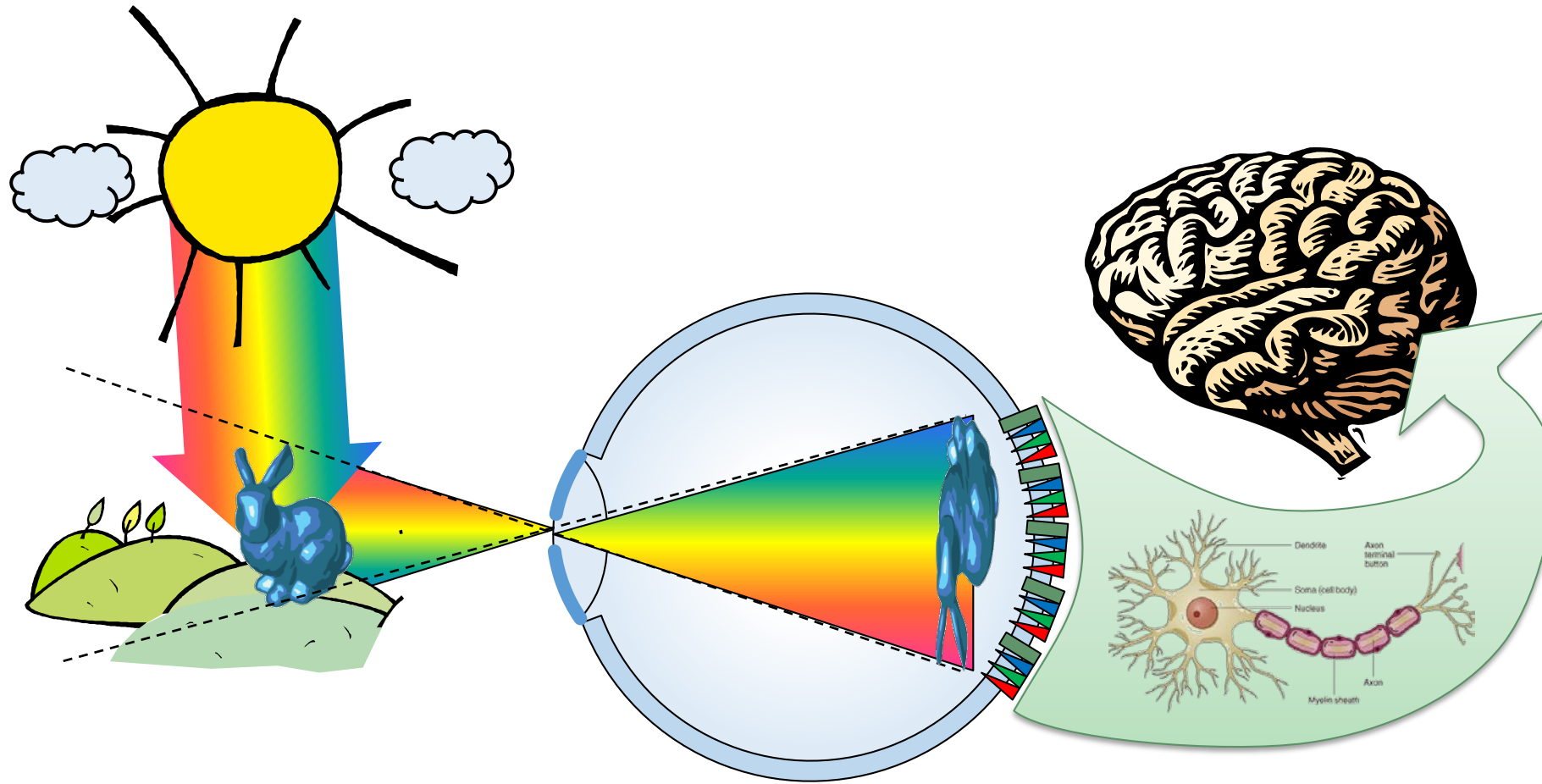
Additive Color

John C. Hart

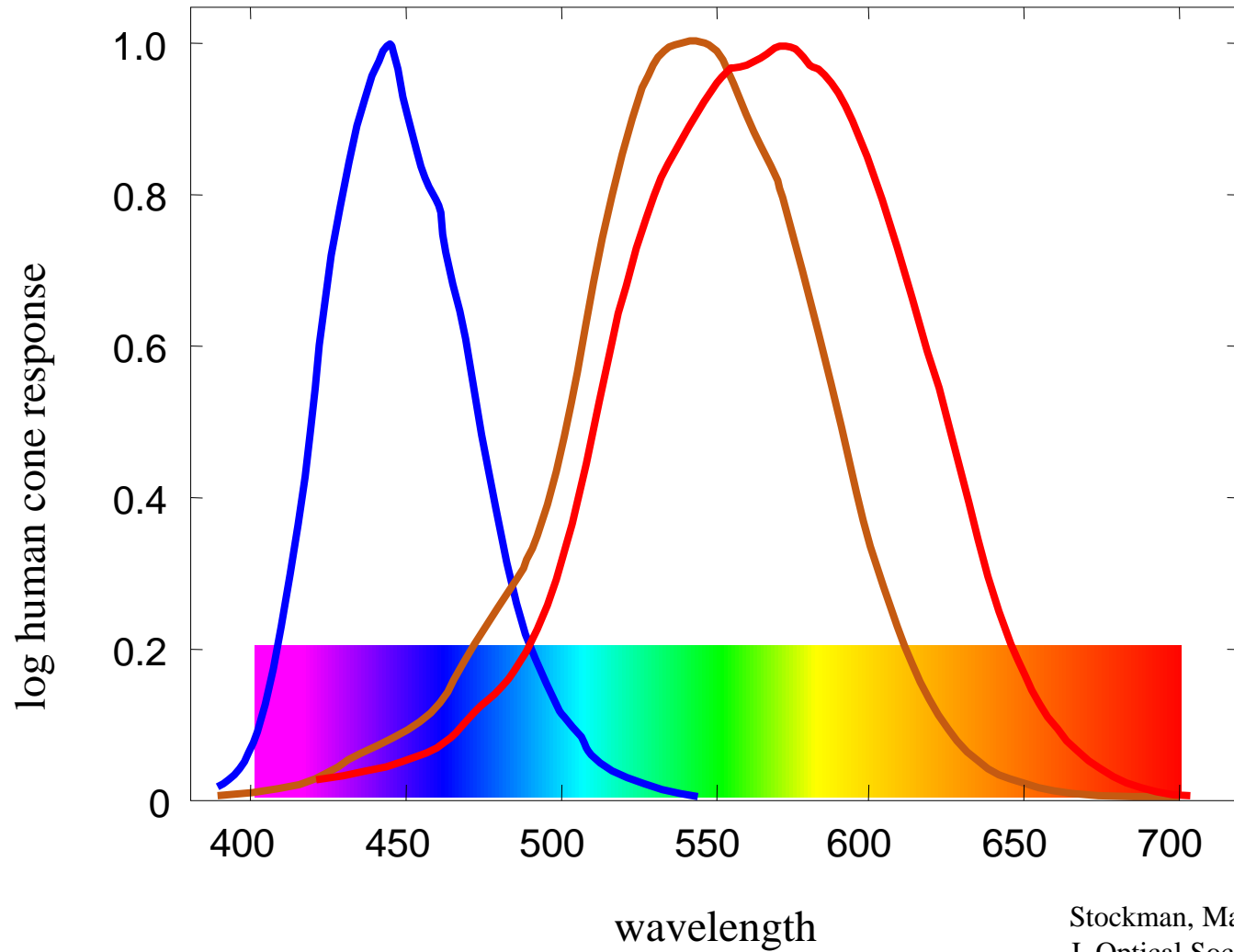
CS 418

Interactive Computer Graphics

Light Spectrum



Cone Response



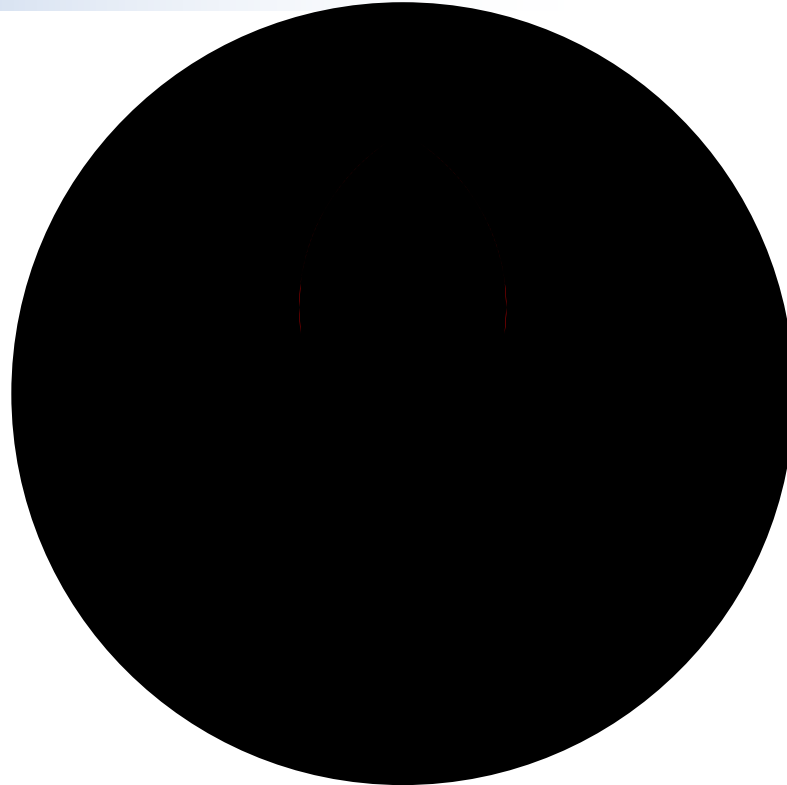
Stockman, MacLeod & Johnson (1993)
J. Optical Society of America A, 10,
2491-2521, via Wikipedia

RGB Additive Color

- Red, Green, Blue
- Color model used in luminous displays (CRT, plasma, LCD)
- Physically linear
- Perceptually logarithmic
- Additive
- Designed to stimulate each kind of cone

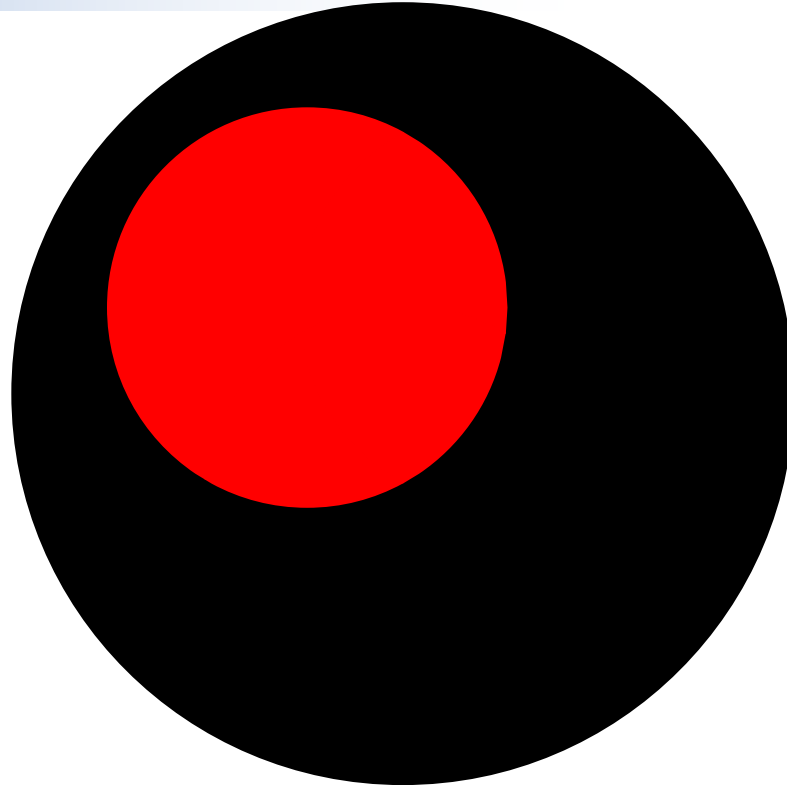
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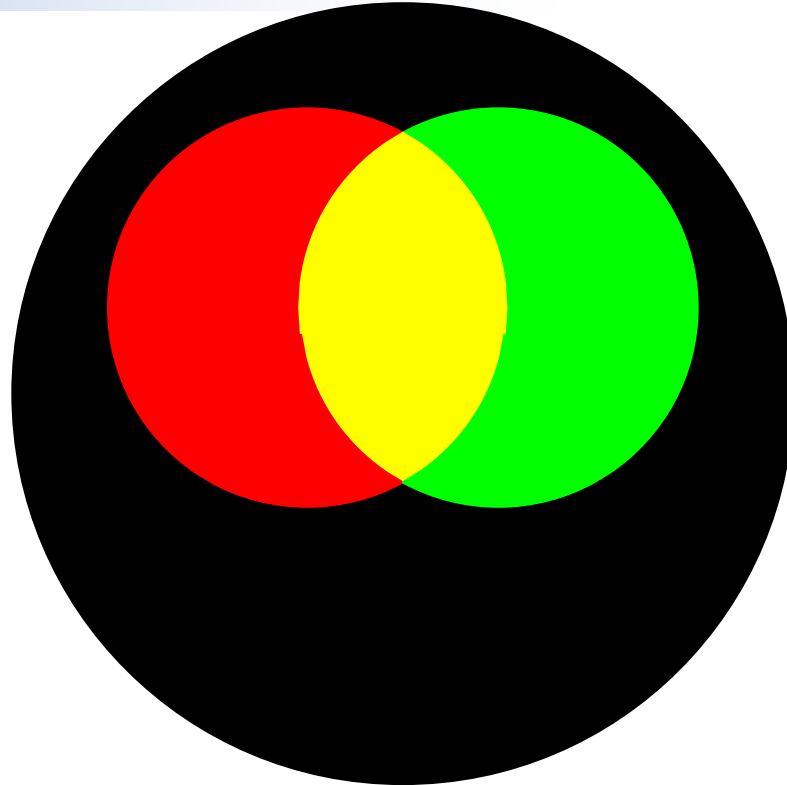
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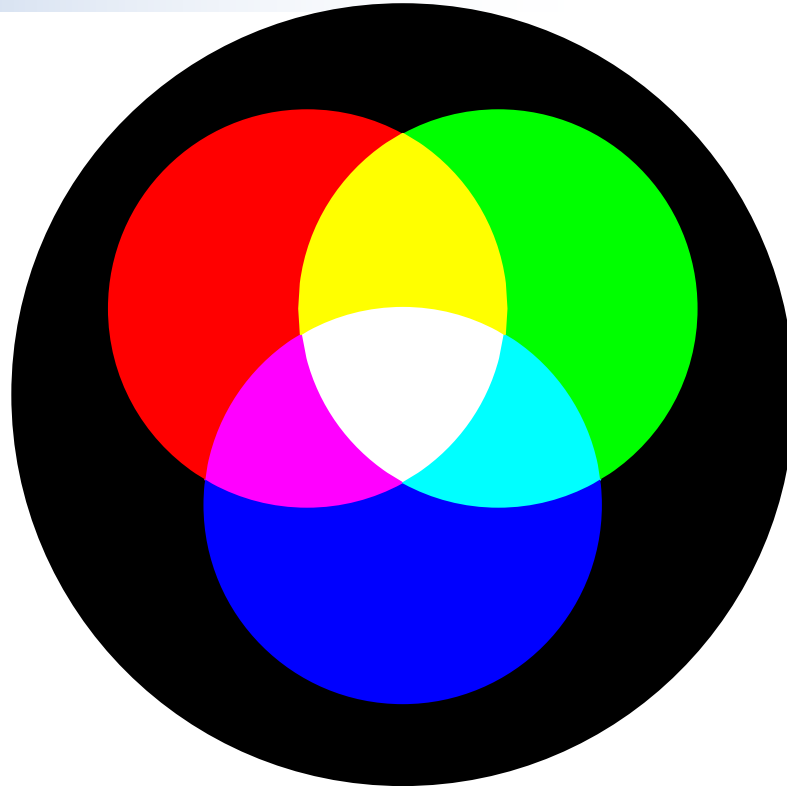
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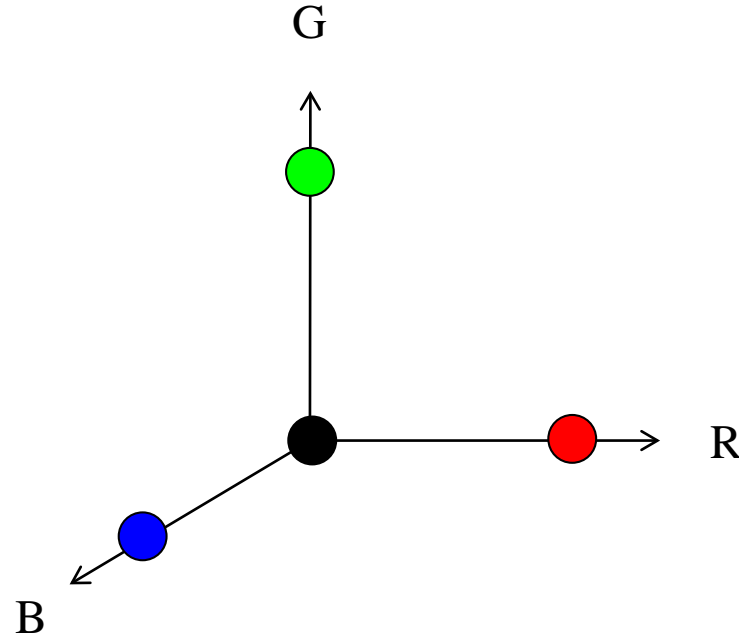
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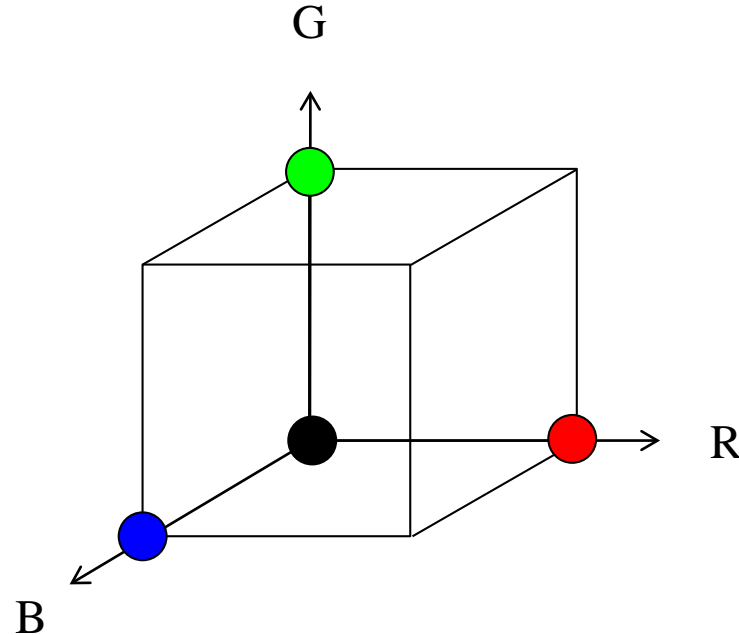
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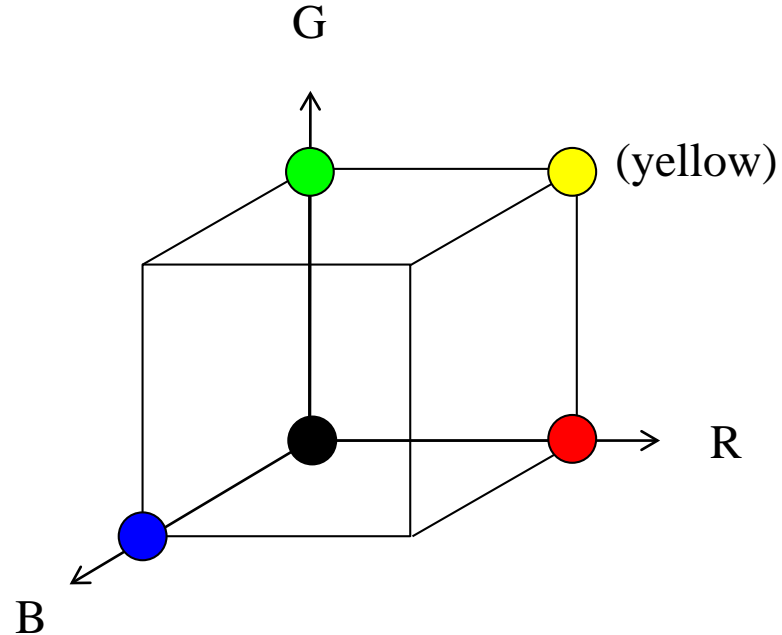
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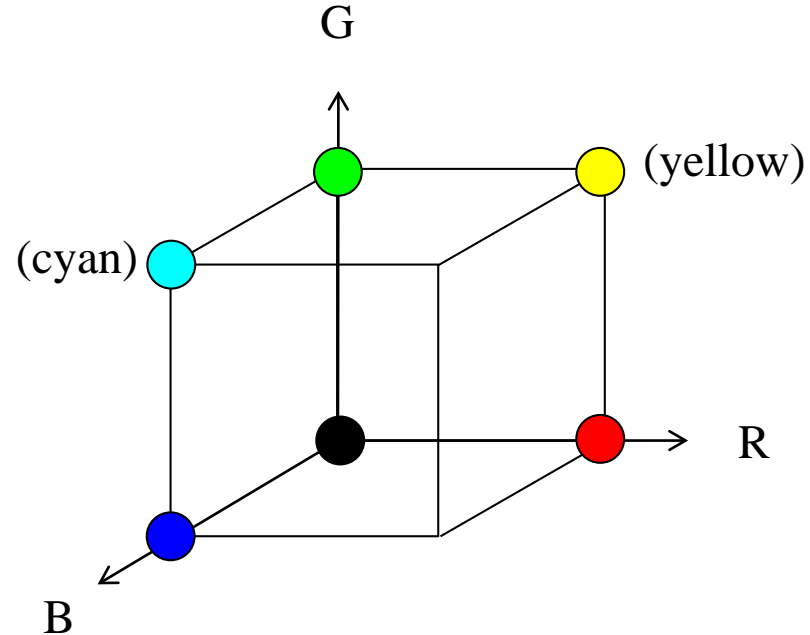
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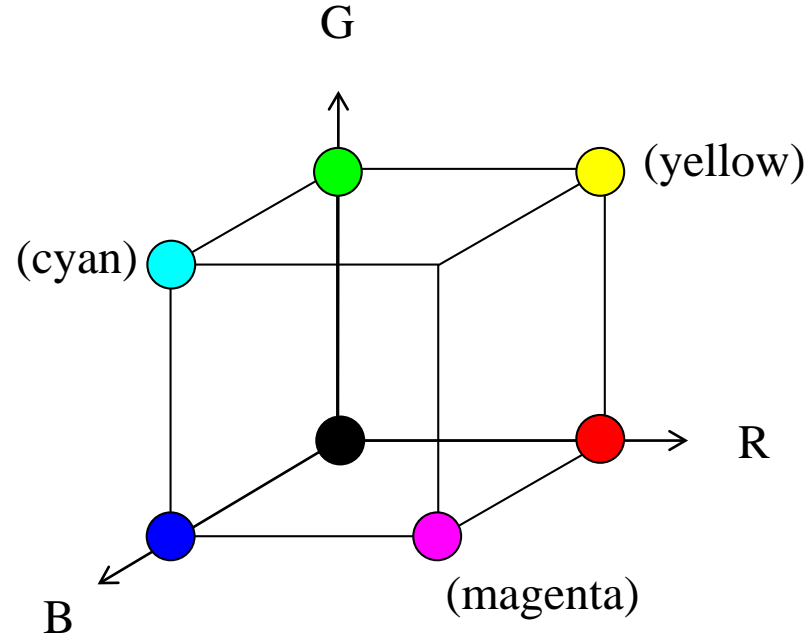
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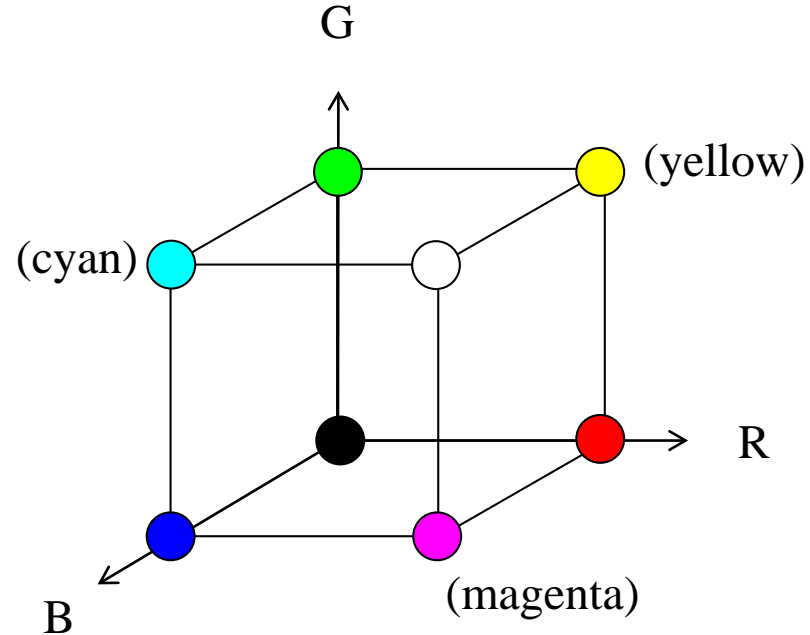
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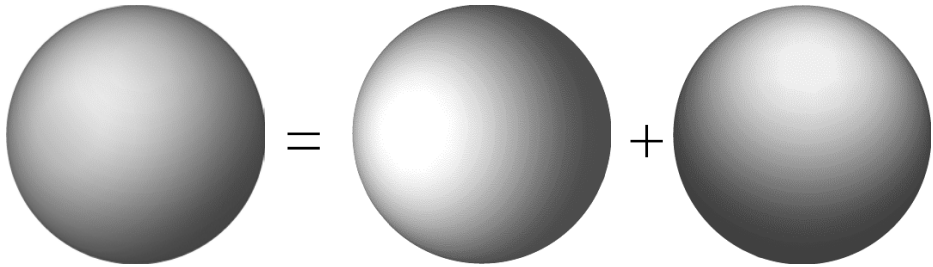
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Light Adds

$$R(L_1) + R(L_2) = R(L_1 + L_2)$$

$$L_o = k_a L_a + L_{i(1)} (k_d \mathbf{n} \cdot \mathbf{l}_{(1)} + k_s (\mathbf{v} \cdot \mathbf{r}_{(1)})^n) + \\ L_{i(2)} (k_d \mathbf{n} \cdot \mathbf{l}_{(2)} + k_s (\mathbf{v} \cdot \mathbf{r}_{(2)})^n) + \dots$$



Light Adds

$$R(L_1) + R(L_2) = R(L_1 + L_2)$$



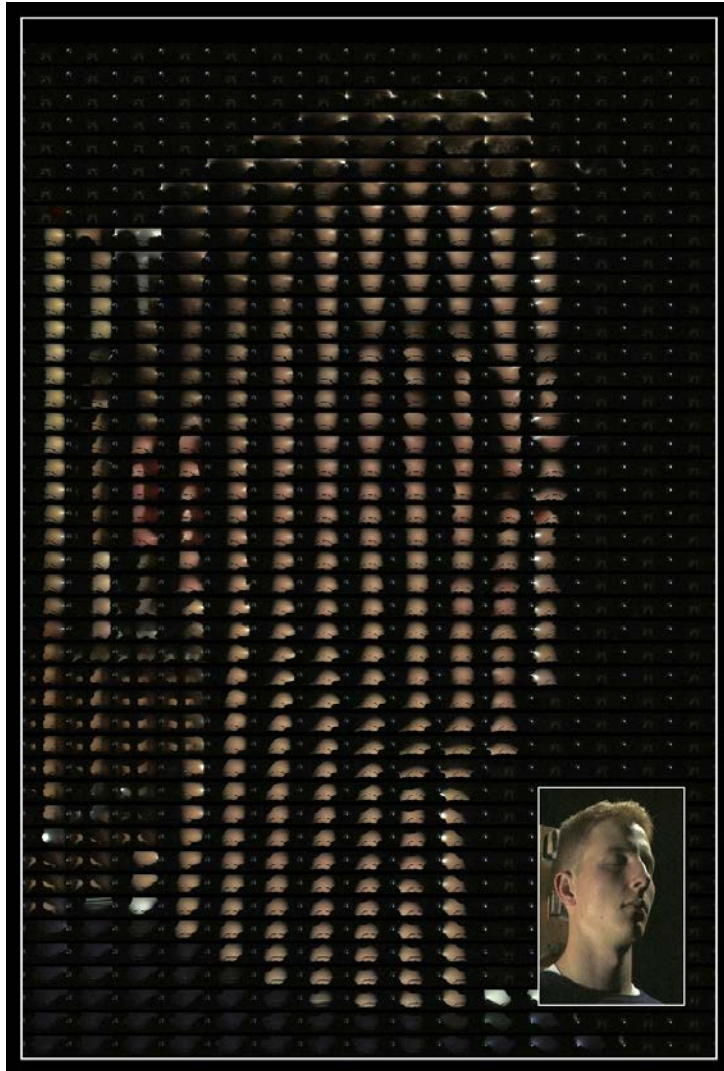
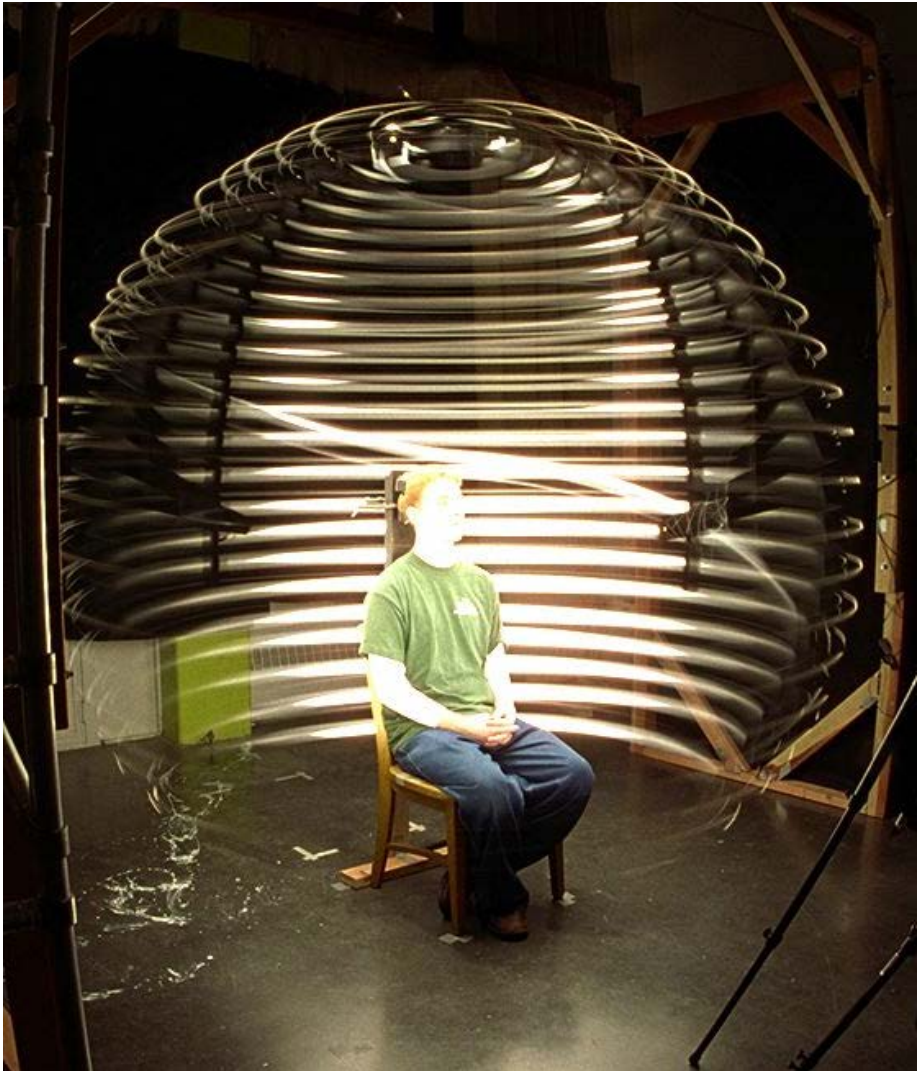
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Light Stage



Debevec et al., Acquiring the Reflectance Field of a Human Face, Proc. SIGGRAPH 2000

Point Light Sources



Environment Lighting

