IECsRGB lightness L^* normalized to the background lightness L^*_u

$$L^* = s\,(Y/Y_n)^n - d \quad (Y_n=100,\ Y_u=18,\ s=100{,}0,\ n=1/2{,}4,\ d=0{,}0) \quad [1a]$$

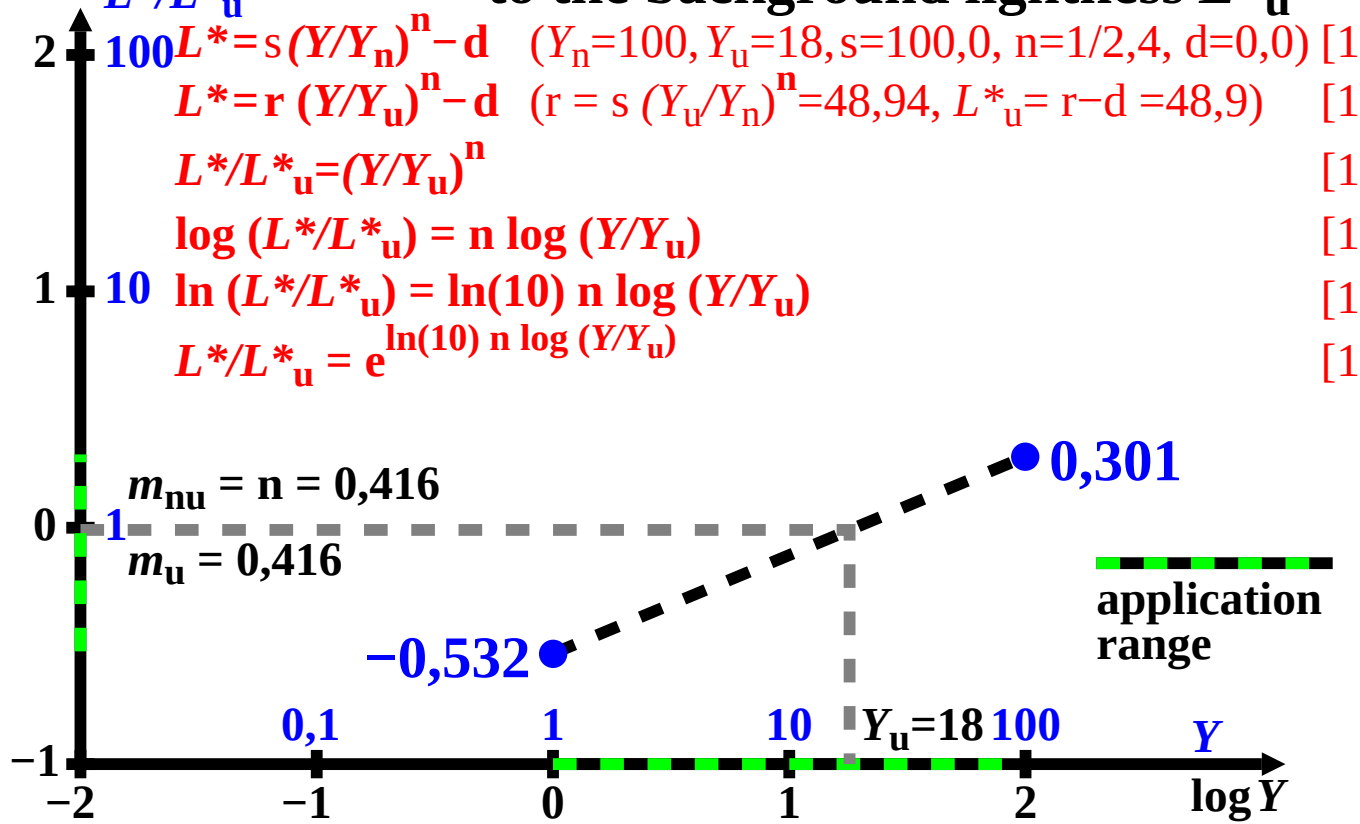
$$L^* = r\,(Y/Y_u)^n - d \quad (r = s\,(Y_u/Y_n)^n = 48{,}94,\ L^*_u = r - d = 48{,}9) \quad [1b]$$

$$L^*/L^*_u = (Y/Y_u)^n \quad [1c]$$

$$\log(L^*/L^*_u) = n \log(Y/Y_u) \quad [1d]$$

$$\ln(L^*/L^*_u) = \ln(10)\, n \log(Y/Y_u) \quad [1e]$$

$$L^*/L^*_u = e^{\ln(10)\, n \log(Y/Y_u)} \quad [1f]$$



hep80−5a