sensation scaling functions
lightness L^* and tristimulus value Y

adaptation on surround white W

$$L^*_W = 100\ (\ Y\ /\ 100)^{1/2,0}$$

adaptation on surround grey U

$$L^*_{IECsRGB} = 100\ (\ Y\ /\ 100)^{1/2,4}$$

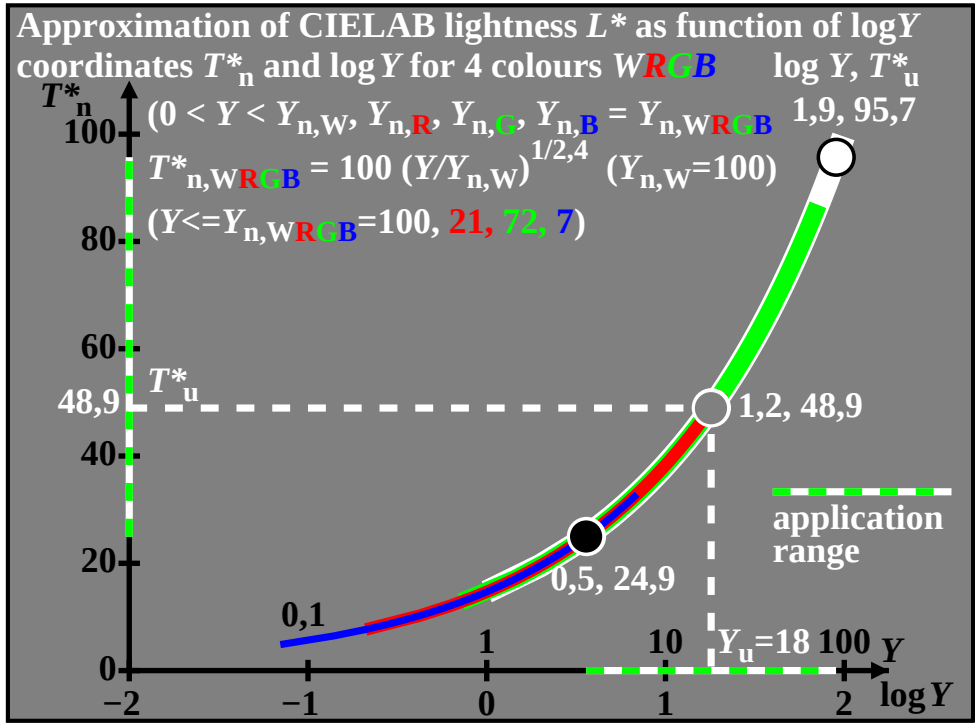
description with CIELAB 1976

$$L^*_{CIELAB} = 116\ (\ Y\ /\ 100)^{1/3,0} - 16$$

adaptation on surround black N

$$L^*_N = 100\ (\ Y\ /\ 100)^{1/3,0}$$

heb30−1a



heb30−2a, eer31−3n

lightness scaling (ln(10)=2,3, Yu=18)
L^*_{CIELAB}, $T^*_{IECsRGB}$, T^*_{TUBJND}

description with CIELAB 1976

$$L^*_{CIELAB} = 116\ (\ Y\ /\ 100)^{1/3,0} - 16$$

Approximation by IECsRGB 1999

$$T^*_{IECsRGB} = 100\ (\ Y\ /\ 100\ )^{1/2,4}$$

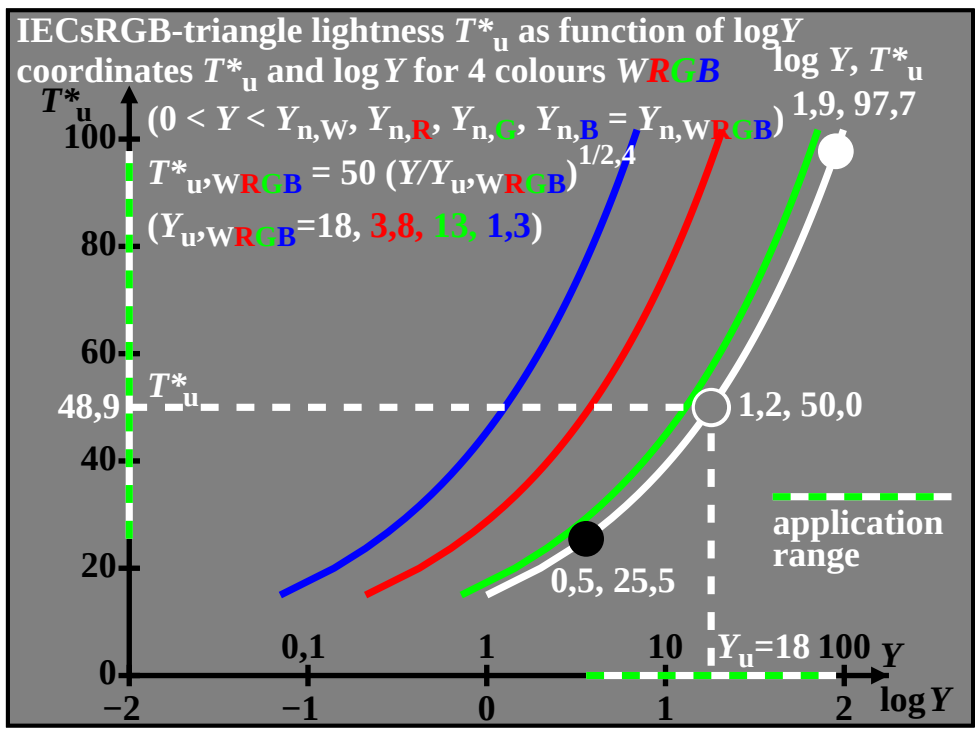
Approximation by TUBJND 2024

$$T^*_{TUBJND} = 47,49\ (\ Y\ /\ Y_u)^{1/\ln(10)}$$

ln [$T^*_{TUBJND,relative}$] has the slope 1!

$$\ln\ [T^*_{TUBJND,r}] = \log\ (\ Y\ /\ Y_u\ )$$

heb30−3a



heb30−4a

heb30−3n