

## Application of colour in daily life or in Colour Information Technology (IT)

Design, architecture, art, industrial products  
Measured for CIE standard illuminant D65

colour order system; name and coordinates:

*RAL Design System (CIELAB)*

$L^*C^*_{ab}h_{ab}$ , lightness, chroma, hue angle

*Munsell Colour System*

VCH, lightness (Value), Chroma, Hue text

*Natural Colour System (NCS)*

$ncu^*_e$ : relative blackness, relative chroma

relative elementary hue text

Colour Information Technology  
Measured for CIE illuminants D65 and D50

Device system name and coordinates:

Printer system (illuminants D50 or D65):

$cm_y_d$ , content of "cyan, magenta, yellow"

Display system (standard illuminant D65):

$rgb_d/sRGB_d$ , content of "red, green, blue"

*No user friendly colour coordinates*

*Nearly no connection to colour order systems*

***Aim: define user friendly connection***

**New:** Interpretation of the  $rgb$  colour data in the range 0 to 1 as elementary colour data  $rgb^*_e$

*Linear* relations between *relative* and *absolute* coordinates  $lab^*_d - LAB^*_d$  and  $lab^*_e - LAB^*_e$

$rgb^*_d - (L^*a^*b^*C^*_{ab}h_{ab})_d$  and  $rgb^*_e - (L^*a^*b^*C^*_{ab}h_{ab})_e$  (CIELAB)

$rgb_d - cm_y_d$ ,  $rgb^*_d - cm_y^*_d$  and  $rgb_e - cm_y_e$ ,  $rgb^*_e - cm_y^*_e$  ("1-minus"-relation)

$rgb^*_d - nce^*_d$ ,  $rgb^*_d - ncu^*_d$  and  $rgb^*_e - nce^*_e$ ,  $rgb^*_e - ncu^*_e$

*relative* coordinates  $lab^*_e$ : elementary redness  $r^*_e$ , greenness  $g^*_e$ , blueness  $b^*_e$ , blackness  $n^*_e$

chroma  $c^*_d$ , elementary hue  $e^*_e$ , elementary hue text  $u^*_e$