Colour management for output linearization of a 9 step grey scale

*' (star-dash) coordinates
of real output with real
display reflection in office room;
lighter (positiv P) real output

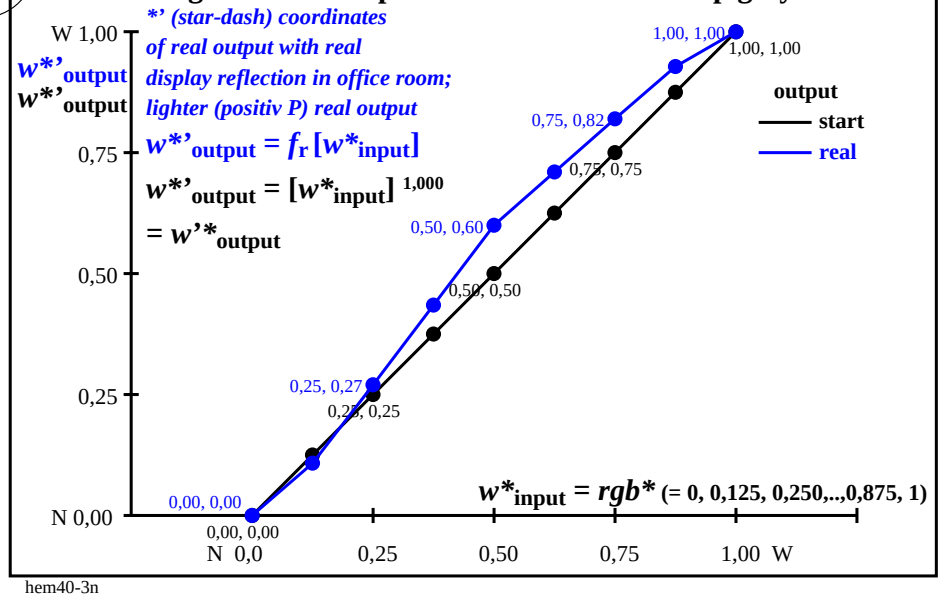
$w^{*'}_{output} = f_r\,[w^*_{input}]$

$w^{*'}_{output} = [w^*_{input}]^{1,000}$

$= w'^*_{output}$

$w^*_{input} = rgb^*$ (= 0, 0,125, 0,250,..,0,875, 1)

output: start, real



hem40-3n

Colour management for output linearization of a 9 step grey scale

*' (star-dash) coordinates
of real output with real
display reflection in office room;
lighter (positiv P) real output

$w^{*'}_{output} = f_r\,[w^*_{input}]$

$w^{*'}_{output} = [w^*_{input}]^{1,000}$

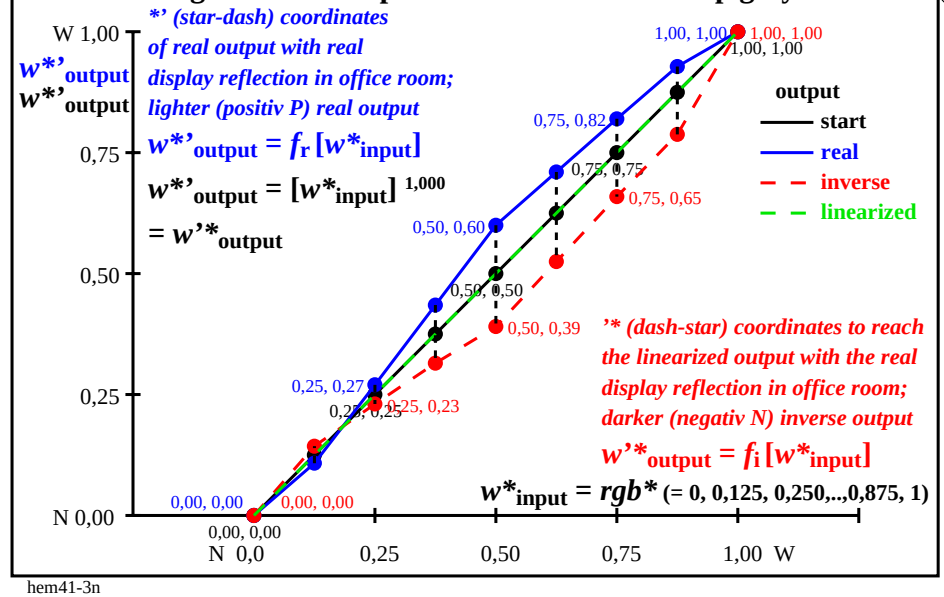
$= w'^*_{output}$

$w^*_{input} = rgb^*$ (= 0, 0,125, 0,250,..,0,875, 1)

output: start, real, inverse, linearized

'* (dash-star) coordinates to reach
the linearized output with the real
display reflection in office room;
darker (negativ N) inverse output

$w'^*_{output} = f_i\,[w^*_{input}]$



hem41-3n

Three, 5 and 9 colour steps for visual evaluation

s: 0, 125, 250, 375, 500, 625, 750, 875, 1000
Magenta M00w − Magenta M16w = White W
$L^*_{TUBLOG,U}=[50/\log(5)]\,\log(Y/Y_U)+50$, $Y_N=4$, $Y_U=20$, $Y_W=100$

M00w	M08w	M16w	M00w	M04w	M08w	M12w	M16w	M00w	M02w	M04w	M06w	M08w	M10w	M12w	M14w	M16w
0		1	0		1		1	0		1						1
0	e08=0, . .	1	0	e04=0, . .	1	e48=0, . .	1	0	e02=0, . .	1	c24=0, . .	0	e46=0, . .	1	e68=0, . .	1
0	a1=e08	1	0	b1=e04*a1	0	b2=a1	1	0	c1=e02*b1	0	c2=b1	1	c4=b2	0	c6=b3	1
						b3=e48* (1−b2)+b2					c3=e24* (b2−b1)+b1		c5=e46* (b3−b2)+b2		c7=e68* (1−b3)+b3	

Three, 5 and 9 colour steps, numeric specification

M00w	M08w	M16w	M00w	M04w	M08w	M12w	M16w	M00w	M02w	M04w	M06w	M08w	M10w	M12w	M14w	M16w
0		1	0		1		1	0		1						1
0	e08=0, . .	1	0	e04=0, . .	1	e48=0, . .	1	0	e02=0, . .	1	c24=0, . .	0	e46=0, . .	1	e68=0, . .	1
0	a1=e08	1	0	b1=e04*a1	0	b2=a1	1	0	c1=e02*b1	0	c2=b1	1	c4=b2	0	c6=b3	1
						b3=e48* (1−b2)+b2					c3=e24* (b2−b1)+b1		c5=e46* (b3−b2)+b2		c7=e68* (1−b3)+b3	

Three, 5 and 9 colour steps, numeric calculation example

M00w	M08w	M16w	M00w	M04w	M08w	M12w	M16w	M00w	M02w	M04w	M06w	M08w	M10w	M12w	M14w	M16w
0		1	0		1		1	0		1						1
0	0,60	1	0	0,45	1	0,55	1	0	0,40	1	0,49	0	0,50	1	0,60	1
0,000	0,600	1,000	0,000	0,270	0,600	0,820	1,000	0,000	0,108	0,270	0,435	0,600	0,710	0,820	0,928	1,000
0,000	0,390	1,000	0,000	0,230	0,390	0,658	1,000	0,000	0,143	0,230	0,314	0,390	0,524	0,658	0,787	1,000

r: 0, 108, 270, 435, 600, 710, 820, 928, 1000
i: 0, 143, 230, 314, 390, 524, 658, 787, 1000
$L^*_{TUBLOG,U}=[50/\log(5)]\,\log(Y/Y_U)+50$, $Y_N=4$, $Y_U=20$, $Y_W=100$

Three, 5 and 9 colour steps, produced visual linearization

Magenta M00w − Magenta M16w = White W

M00w	M08w	M16w	M00w	M04w	M08w	M12w	M16w	M00w	M02w	M04w	M06w	M08w	M10w	M12w	M14w	M16w

hem40-7n, Test samples: 3, 5 and 9 colour steps, greu=0,500, expu=1,000, expa=1,000, expi=1,000