Colorimetric data for system lines TLS18 −> ORS18, TLS00, NRS18, SRS18

For input ***LCH*a0*** (TLS18) and output ***olv*3m*** for 4 systems (***m*** = 0 to 4)
Six CIELAB hue angles of device ORS18: (37.7 96.4 150.9 236.0 305.0 353.7);
Six CIELAB hue angles of device TLS00: (40.0 102.8 136.0 196.4 306.3 328.2);
Six CIELAB hue angles of device NRS18: (25.5 92.3 162.2 217.0 271.7 328.6);
Six CIELAB hue angles of device SRS18: (30.0 90.0 150.0 210.0 270.0 330.0);

no.	Colour	->TLS18 LCH*a0			->TLS18 n*, c*, H*ai0			ORS18 olv*31			TLS00 olv*32			NRS18 olv*33			SRS18 olv*34		
01	O=o00y	50.9	43.6	35	0.3	0.5	35	0.7	0.2	0.23	0.7	0.2	0.23	0.7	0.27	0.2	0.7	0.24	0.2
02	o10y	53.0	40.5	42	0.3	0.5	42	0.7	0.24	0.2	0.7	0.22	0.2	0.7	0.32	0.2	0.7	0.3	0.2
03	o20y	55.0	38.4	49	0.3	0.5	49	0.7	0.3	0.2	0.7	0.27	0.2	0.7	0.38	0.2	0.7	0.36	0.2
04	o30y	56.8	37.2	55	0.3	0.5	55	0.7	0.35	0.2	0.7	0.32	0.2	0.7	0.42	0.2	0.7	0.41	0.2
05	o40y	58.8	36.4	62	0.3	0.5	62	0.7	0.41	0.2	0.7	0.38	0.2	0.7	0.47	0.2	0.7	0.47	0.2
06	o50y	60.8	36.1	69	0.3	0.5	69	0.7	0.47	0.2	0.7	0.43	0.2	0.7	0.53	0.2	0.7	0.52	0.2
07	o60y	62.9	36.4	76	0.3	0.5	76	0.7	0.53	0.2	0.7	0.49	0.2	0.7	0.58	0.2	0.7	0.58	0.2
08	o070y	64.9	37.2	83	0.3	0.5	83	0.7	0.59	0.2	0.7	0.54	0.2	0.7	0.63	0.2	0.7	0.64	0.2
09	o80y	67.0	38.6	90	0.3	0.5	90	0.7	0.65	0.2	0.7	0.6	0.2	0.7	0.68	0.2	0.7	0.7	0.2
10	o90y	68.7	40.5	96	0.3	0.5	96	0.7	0.7	0.2	0.7	0.65	0.2	0.67	0.7	0.2	0.65	0.7	0.2
11	Y=y00l	70.8	43.5	103	0.3	0.5	103	0.64	0.7	0.2	0.7	0.7	0.2	0.62	0.7	0.2	0.59	0.7	0.2

Goal: Transfer coordinates ***LCH*a0*** (system m=0) to ***rgbm = olv*3m*** (system m=1 to 4)

The given data ***LCH*a0*** include the device hue ***H*a0***
Integer (i) device hue: ***H*ai0 = round (H*a0)*** (1)

Fetch device data ***LCH*a,Mm*** from table with 361 entries for ***H*ai0*** from 0 to 360 degrees
Lightness, chroma, hue: ***LCH*a,M0 = LCH*a,M0 [H*ai0]*** (2)

Calculate ***lcnw**** data from ***LC*a0*** and ***LC*a,M0***:
Relative lightness: ***l* = [L*0 − L*N0] / [L*W0 − L*N0]*** (3)
Relative chroma: ***c* = C*a0 / C*a,M0*** (4)
Relative Blackness: ***n* = 1 − l* + c* [L*M0 − L*N0] / [L*W0 − L*N0]*** (5)

Fetch device data ***olv*3,Mm*** from table with 361 entries for ***H*ai0*** from 0 to 360 degrees
"red, green, blue" ***rgbMm*** data: ***olv*3,Mm = olv*3,Mm [H*ai0]*** (6)

For any input or output device (m=0 to 4) it is valid for constant ***n*, c*, l*, H*a***:
"red, green, blue" ***rgbm*** data: ***olv*3m = 1 − n* − c* + c* olv*3,Mm*** (7)

Result: device dependent relative CIELAB data of 4 systems m=1 to 4:
"red, green, blue" ***rgbm*** data: ***rgbm = olv*3m*** (8)

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Colorimetric data for system lines TLS18 −> ORS18, TLS00, NRS18, SRS18

For input ***olv*30*** (TLS18) and output ***olv*3m*** for 4 systems (***m*** = 0 to 4)
Six CIELAB hue angles of device ORS18: (37.7 96.4 150.9 236.0 305.0 353.7);
Six CIELAB hue angles of device TLS00: (40.0 102.8 136.0 196.4 306.3 328.2);
Six CIELAB hue angles of device NRS18: (25.5 92.3 162.2 217.0 271.7 328.6);
Six CIELAB hue angles of device SRS18: (30.0 90.0 150.0 210.0 270.0 330.0);

no.	Colour	->TLS18 olv*30			->TLS18 n*, c*, H*si0			ORS18 olv*31			TLS00 olv*32			NRS18 olv*33			SRS18 olv*34		
01	O=o00y	0.7	0.2	0.2	0.3	0.5	30	0.7	0.2	0.23	0.7	0.2	0.23	0.7	0.27	0.2	0.7	0.24	0.2
02	o10y	0.7	0.25	0.2	0.3	0.5	35	0.7	0.24	0.2	0.7	0.22	0.2	0.7	0.32	0.2	0.7	0.3	0.2
03	o20y	0.7	0.3	0.2	0.3	0.5	41	0.7	0.3	0.2	0.7	0.27	0.2	0.7	0.38	0.2	0.7	0.36	0.2
04	o30y	0.7	0.35	0.2	0.3	0.5	47	0.7	0.35	0.2	0.7	0.32	0.2	0.7	0.42	0.2	0.7	0.41	0.2
05	o40y	0.7	0.4	0.2	0.3	0.5	53	0.7	0.41	0.2	0.7	0.38	0.2	0.7	0.47	0.2	0.7	0.47	0.2
06	o50y	0.7	0.45	0.2	0.3	0.5	60	0.7	0.47	0.2	0.7	0.43	0.2	0.7	0.53	0.2	0.7	0.52	0.2
07	o60y	0.7	0.5	0.2	0.3	0.5	67	0.7	0.53	0.2	0.7	0.49	0.2	0.7	0.58	0.2	0.7	0.58	0.2
08	o070y	0.7	0.55	0.2	0.3	0.5	73	0.7	0.59	0.2	0.7	0.54	0.2	0.7	0.63	0.2	0.7	0.64	0.2
09	o80y	0.7	0.6	0.2	0.3	0.5	79	0.7	0.65	0.2	0.7	0.6	0.2	0.7	0.68	0.2	0.7	0.7	0.2
10	o90y	0.7	0.65	0.2	0.3	0.5	84	0.7	0.7	0.2	0.7	0.65	0.2	0.67	0.7	0.2	0.65	0.7	0.2
11	Y=y00l	0.7	0.7	0.2	0.3	0.5	90	0.64	0.7	0.2	0.7	0.7	0.2	0.62	0.7	0.2	0.59	0.7	0.2

Goal: Transfer coordinates ***olv*30*** (system m=0) to ***olv*3m*** (system m=1 to 4)
The following equations for relative blackness and chroma are valid for any device:
n* = 1 − max (o*30, l*30, v*30) (1)
c* = max (o*30, l*30, v*30) − min (o*30, l*30, v*30) (2)

For the calculation of the missing relative device hue asume
as a starting point that the three values ***olv*30*** belong to the standard (s) device SRS18:
relative red-green chroma: ***a*r0 = o*30 cos(30) + l*30 cos(150)*** (3)
relative yellow-blue chroma: ***b*r0 = o*30 sin(30) + l*30 sin(150) − v*30 sin(270)*** (4)
Standard integer hue: ***H*si0 = round [atan (b*r0 / a*r0)]*** (5)
Fetch device integer hue: ***H*ai0 = H*si_ai [H*si0]*** (6)

Fetch device data ***olv*3,Mm*** from table with 361 entries for ***H*ai0*** from 0 to 360 degrees
"red, green, blue" ***rgbm*** data: ***olv*3,Mm = olv*3,Mm [H*ai0]*** (7)

For any input or output device (m=0 to 4) it is valid for constant ***n*, c*, l*, H*a***:
"red, green, blue" ***rgbm*** data: ***olv*3m = 1 − n* − c* + c* olv*3,Mm*** (8)

Result: device dependent relative CIELAB data of 4 systems m=1 to 4:
"red, green, blue" ***rgbm*** data: ***rgbm = olv*3m*** (9)

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