FENOMENOLOGIA GENERALE DEL COLORE.

Trasparenza. Armonia ed espressività

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Ordinamento dei colori su base percettiva.

Colori trasparenti e **contrasto cromatico**.

Combinazioni di colori armoniche,

Emozioni e **caratteristiche espressive dei colori**."

A che cosa serve il colore:

comunica caratteristiche degli oggetti

colori di superficie vs colori luminosi

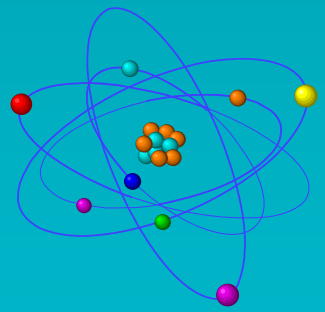
doppio senso del termine “luce”

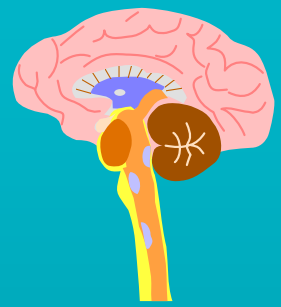
Origine dei colori:

fisica

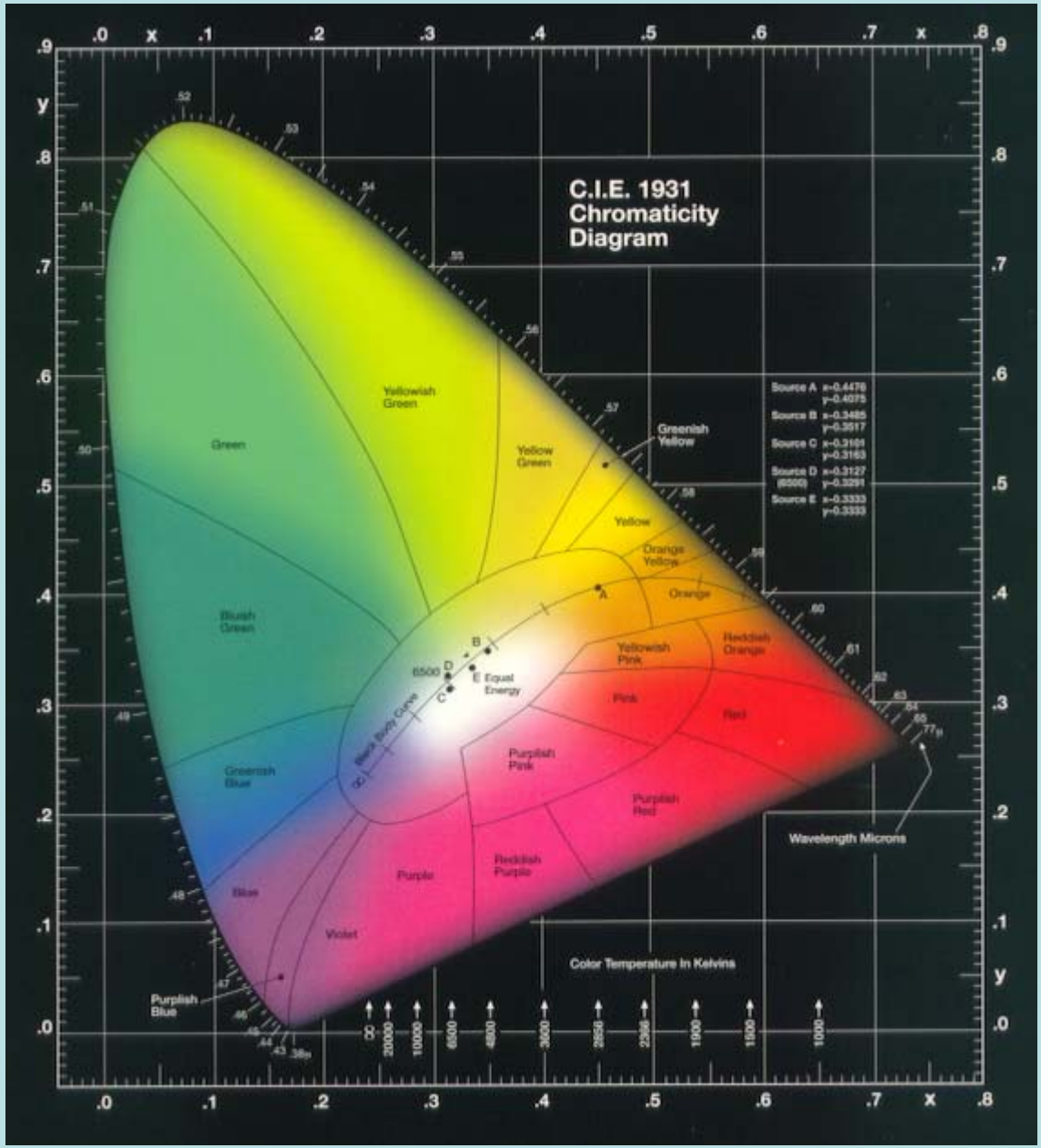
chimica

fisiologia





fisica
radiazioni



fisiologia – sensibilità dei recettori retinici

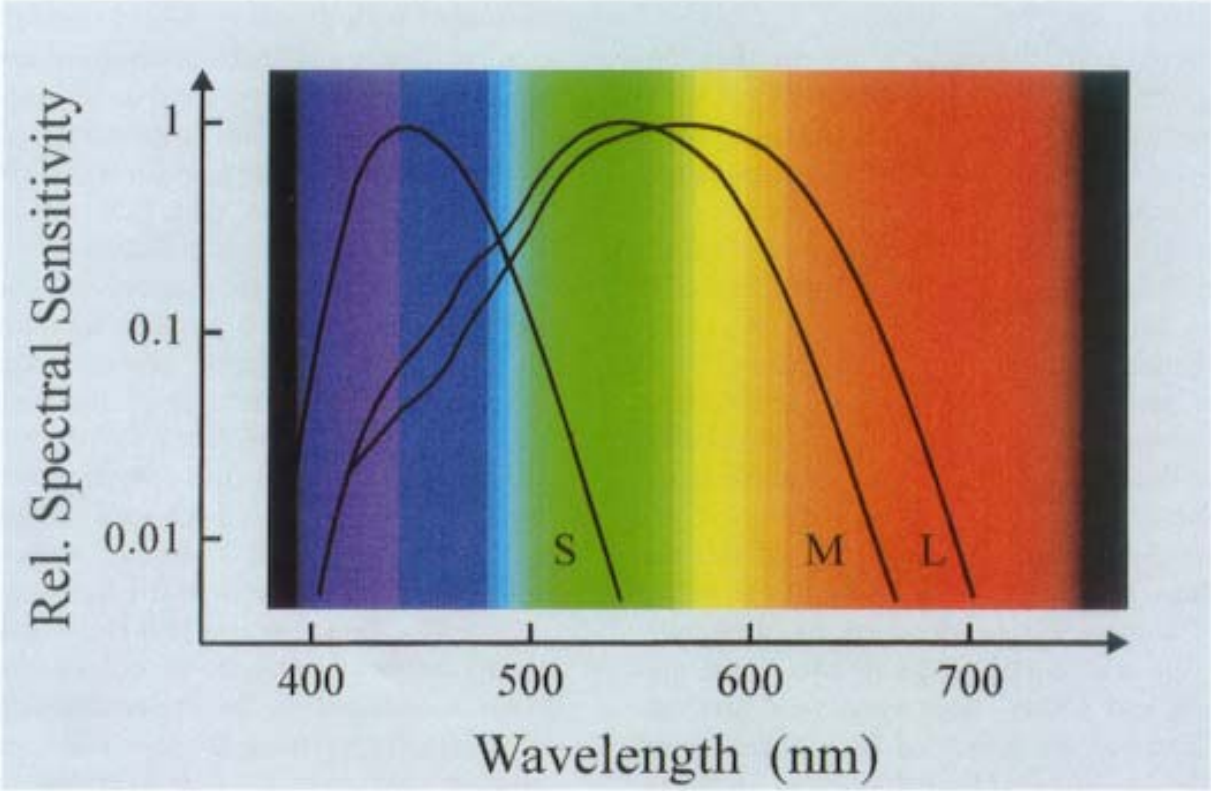
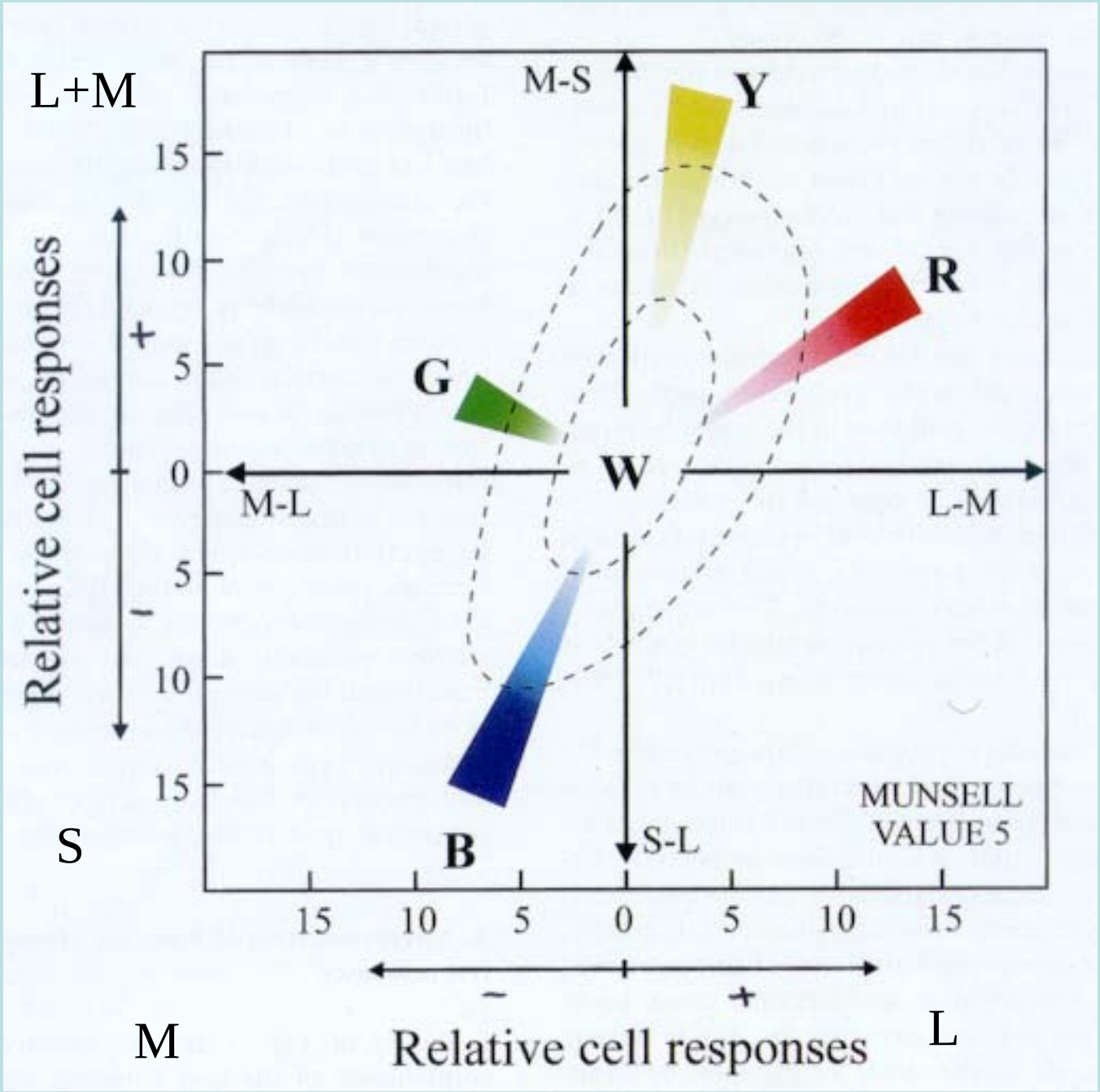


Fig. 1. The relative spectral sensitivity of three types of cone photoreceptors, L, M and S, in the human retina (Smith & Pokorny, 1975). The three maxima are found in the greenish yellow, the yellowish green, and in the violet regions of the spectrum. The hues of the spectrum are only approximately reproduced.

fisiologia
neuroni



Valberg 2001

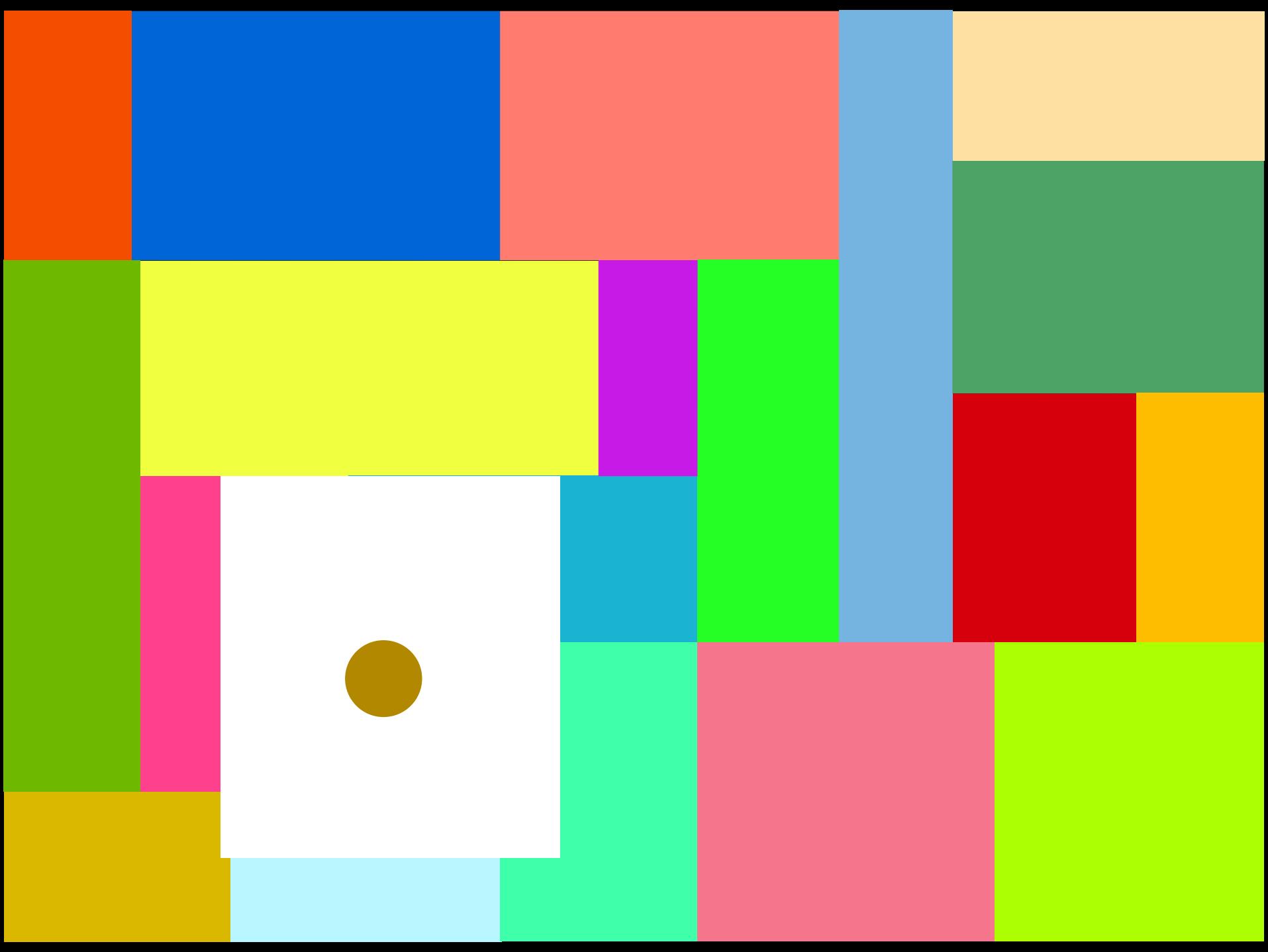
Solo fenomenologia : i colori come appaiono all'osservatore

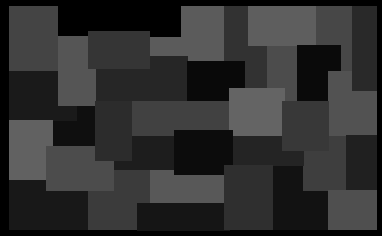
I **due** fondamentali tipi di percezione del colore:

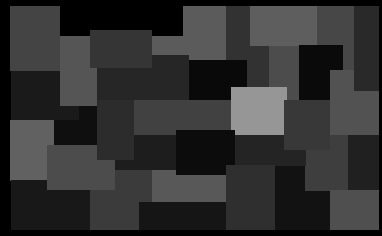
1 - area luminosa – che emette luce

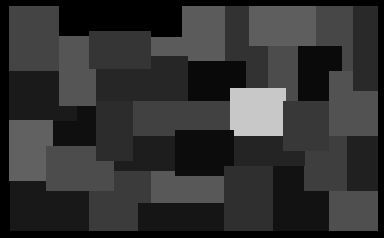
2 - area opaca = riflettente = illuminata

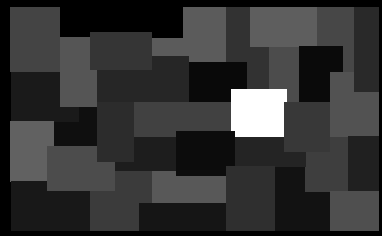
(+ area fluorescente, misto delle due)





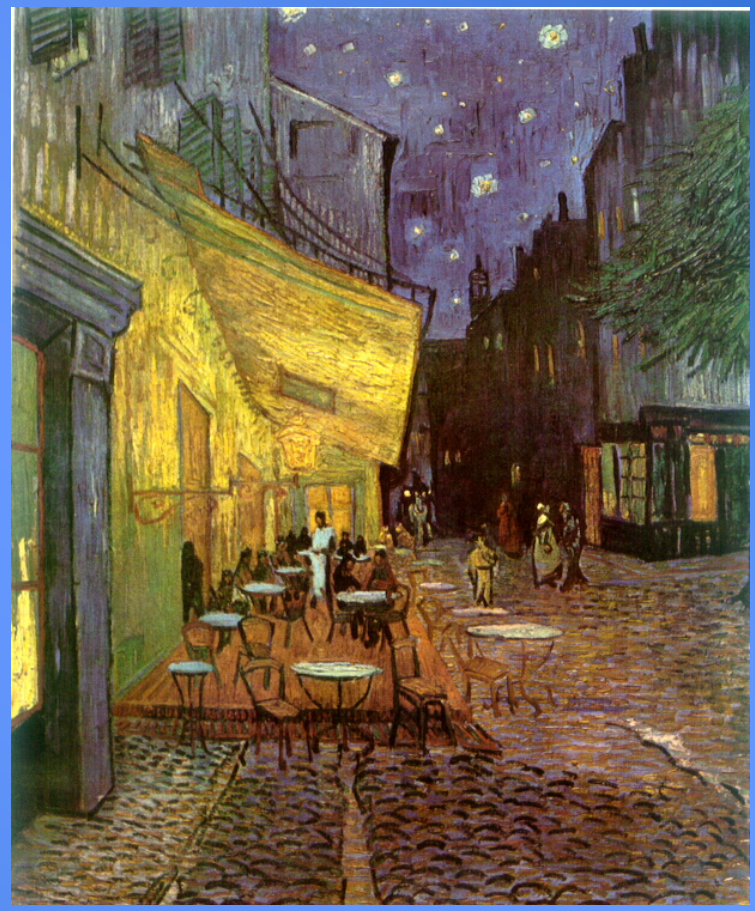


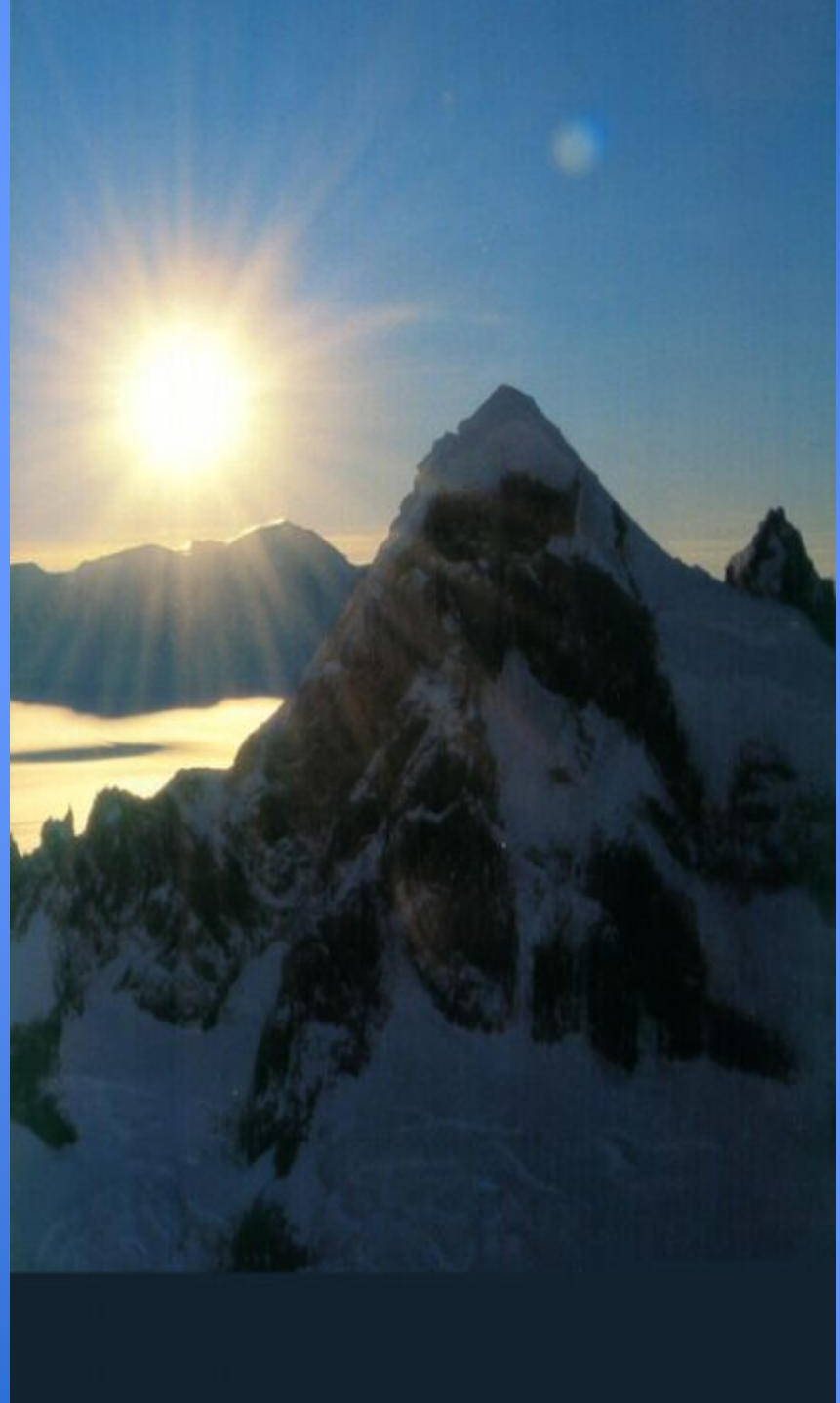




Origine dei colori

fenomenologia





Struttura del colore:

ordinamento dei colori → tavola periodica dei colori

su base puramente percettiva
= senza conoscenze previe
né fisica né fisiologia

unico criterio: “somiglianza”

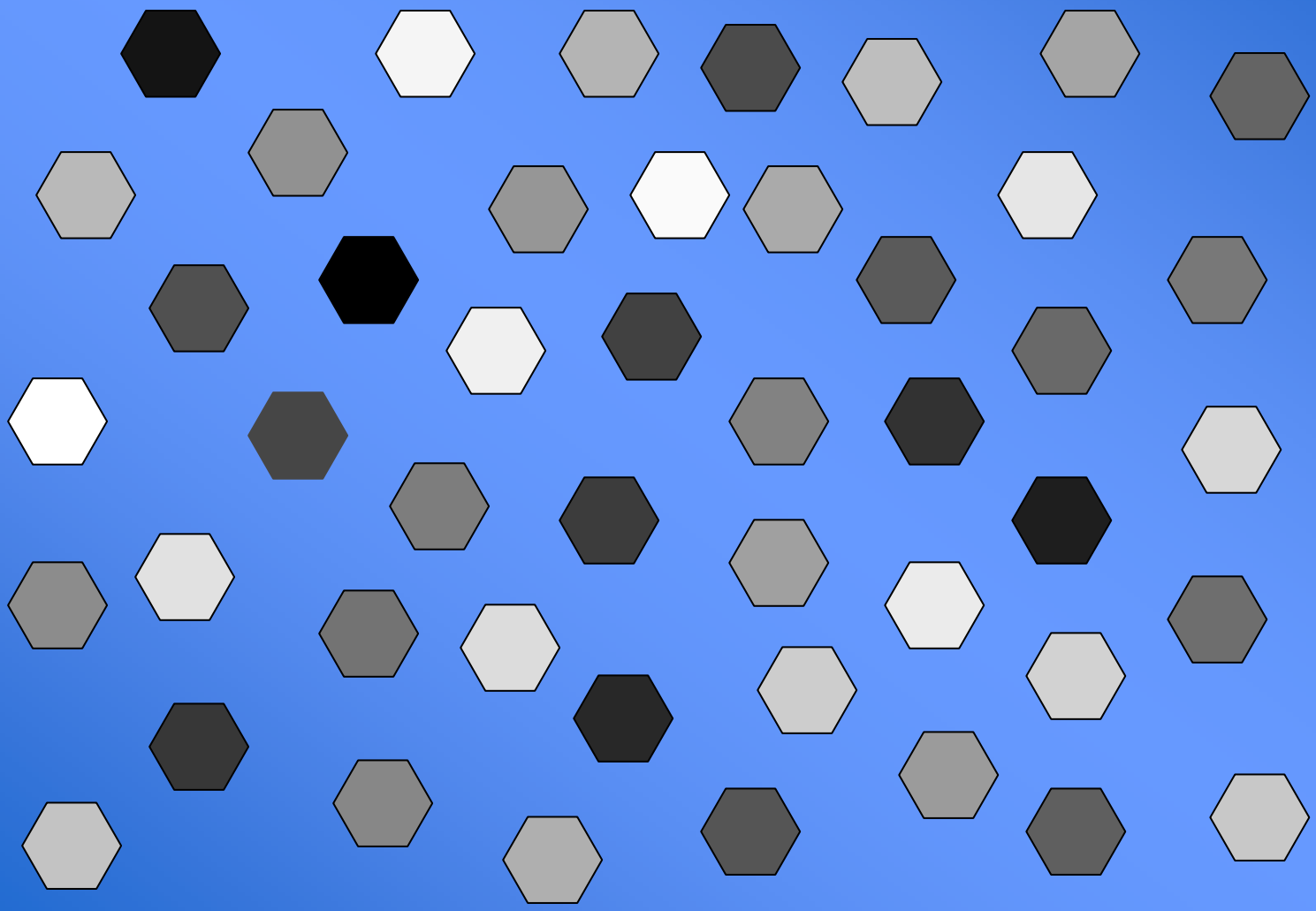
somiglianza *globale*
[vs somiglianza per alcuni determinati aspetti]

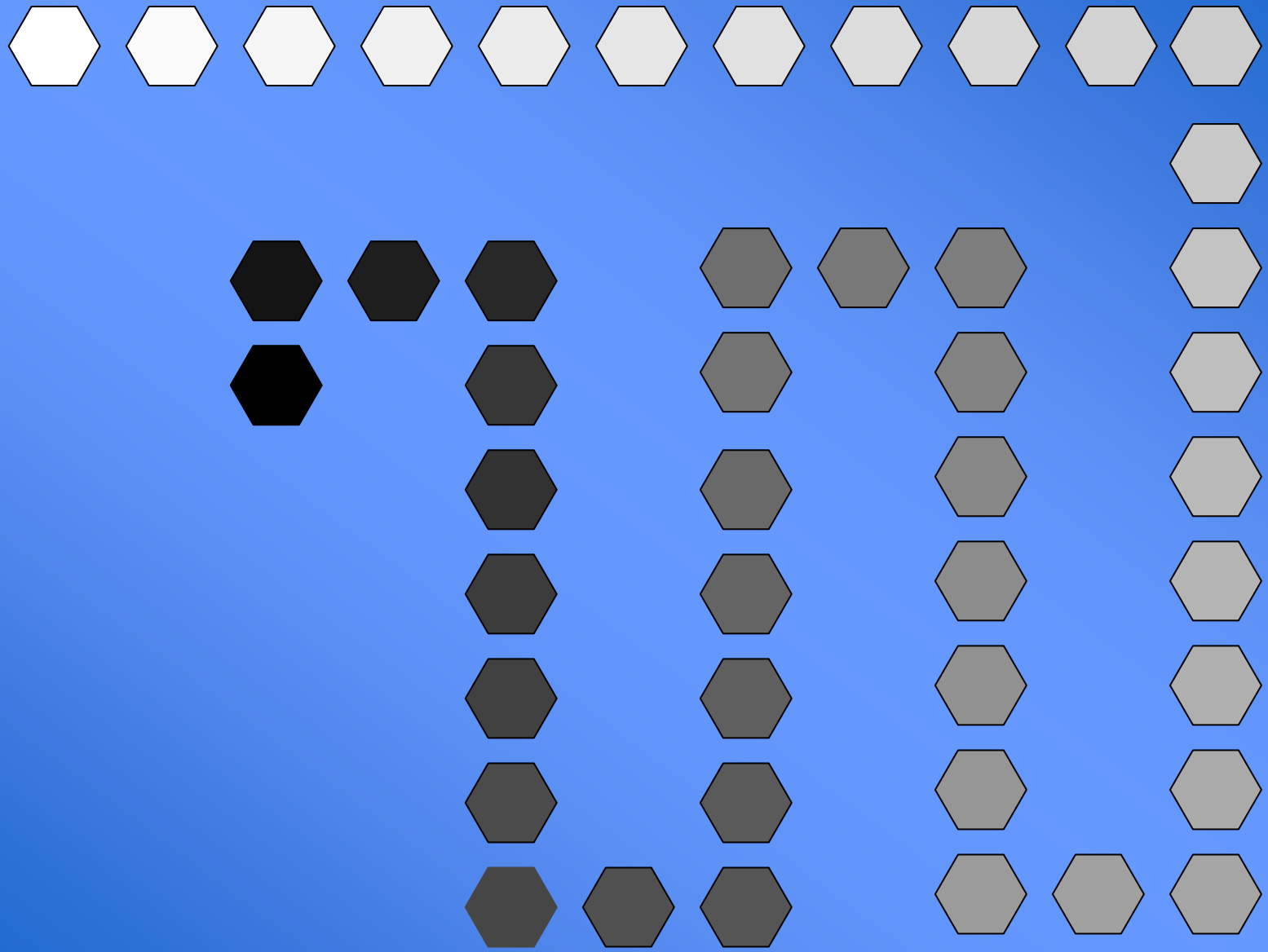
Ordinamento dei “grigi”

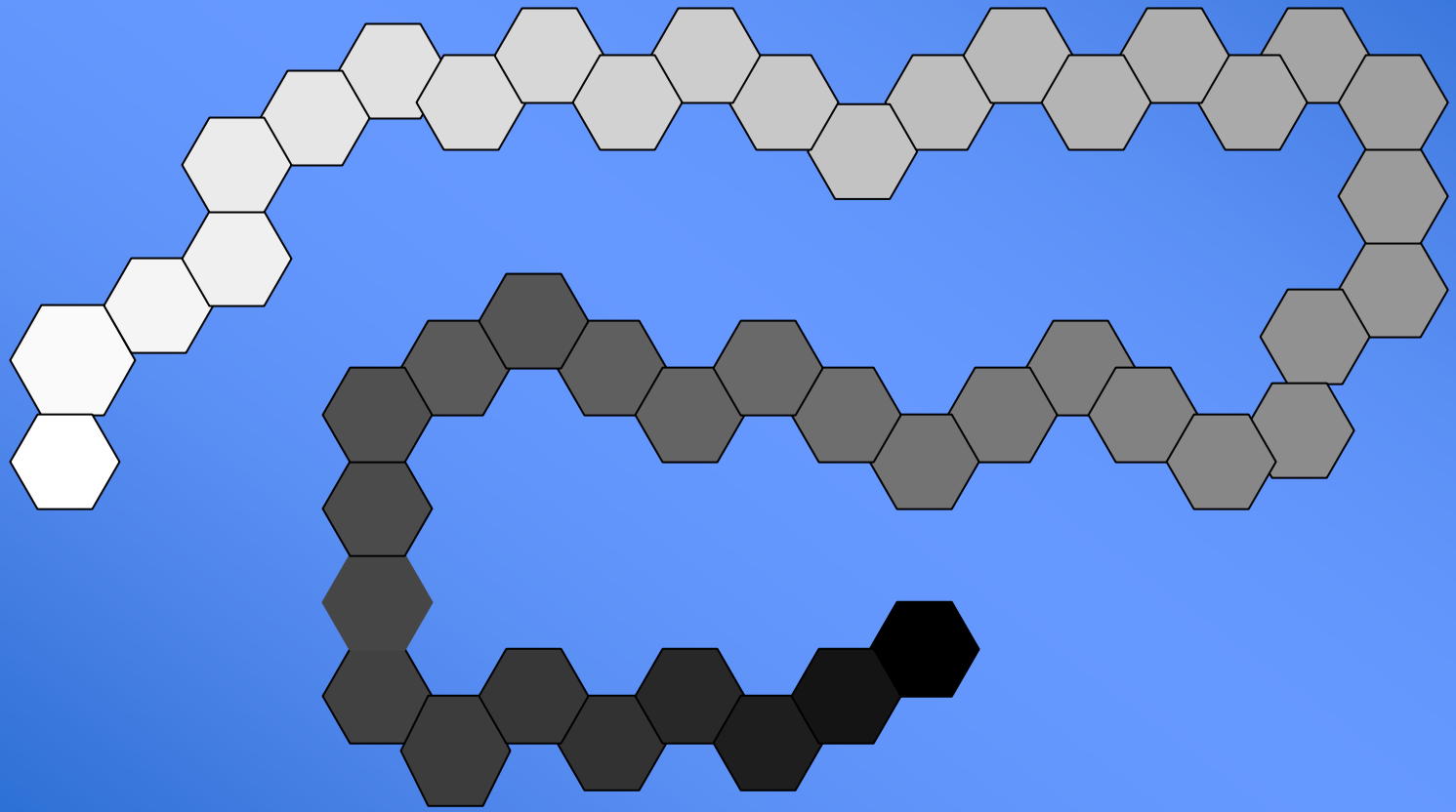
ovvero dei colori acromatici (senza croma)

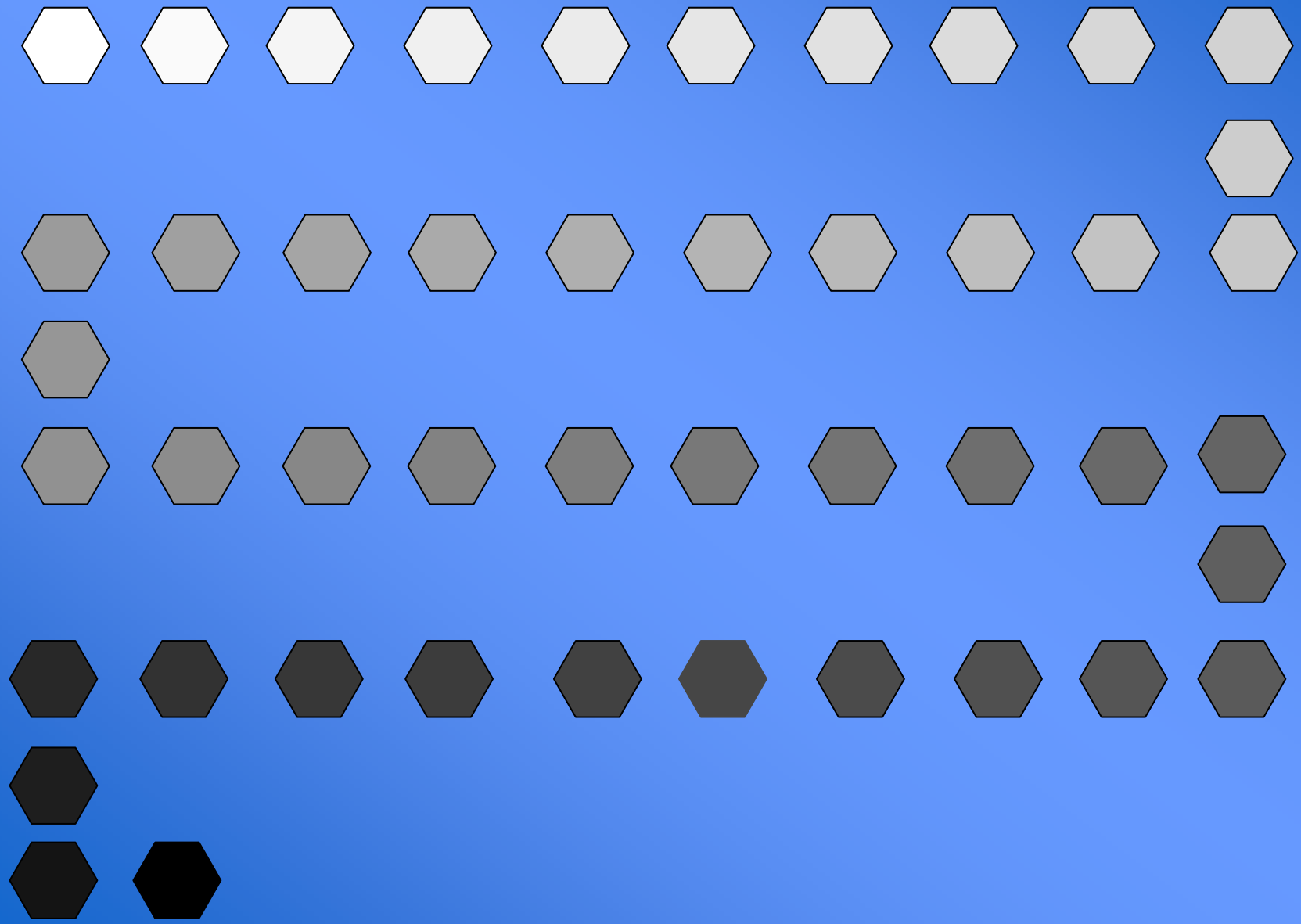
dal bianco al nero

Criterio: non specificato!

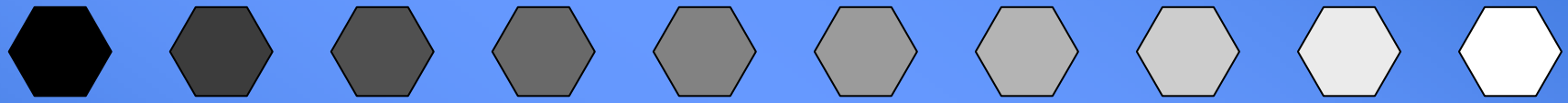








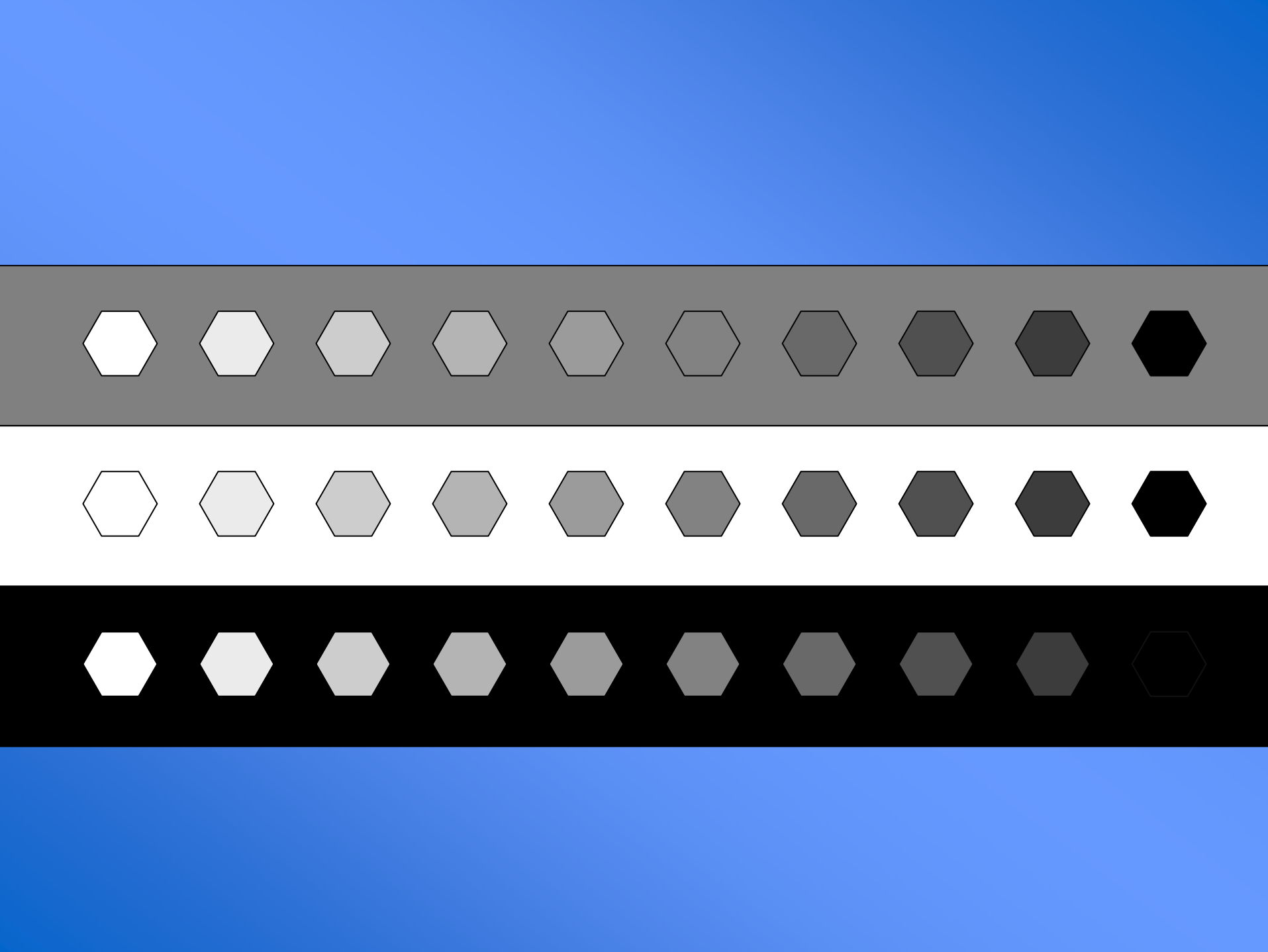
Costruzione di scala equispaziata



Doppia interpretazione, doppio sistema di “numerazione” (=misurazione”):

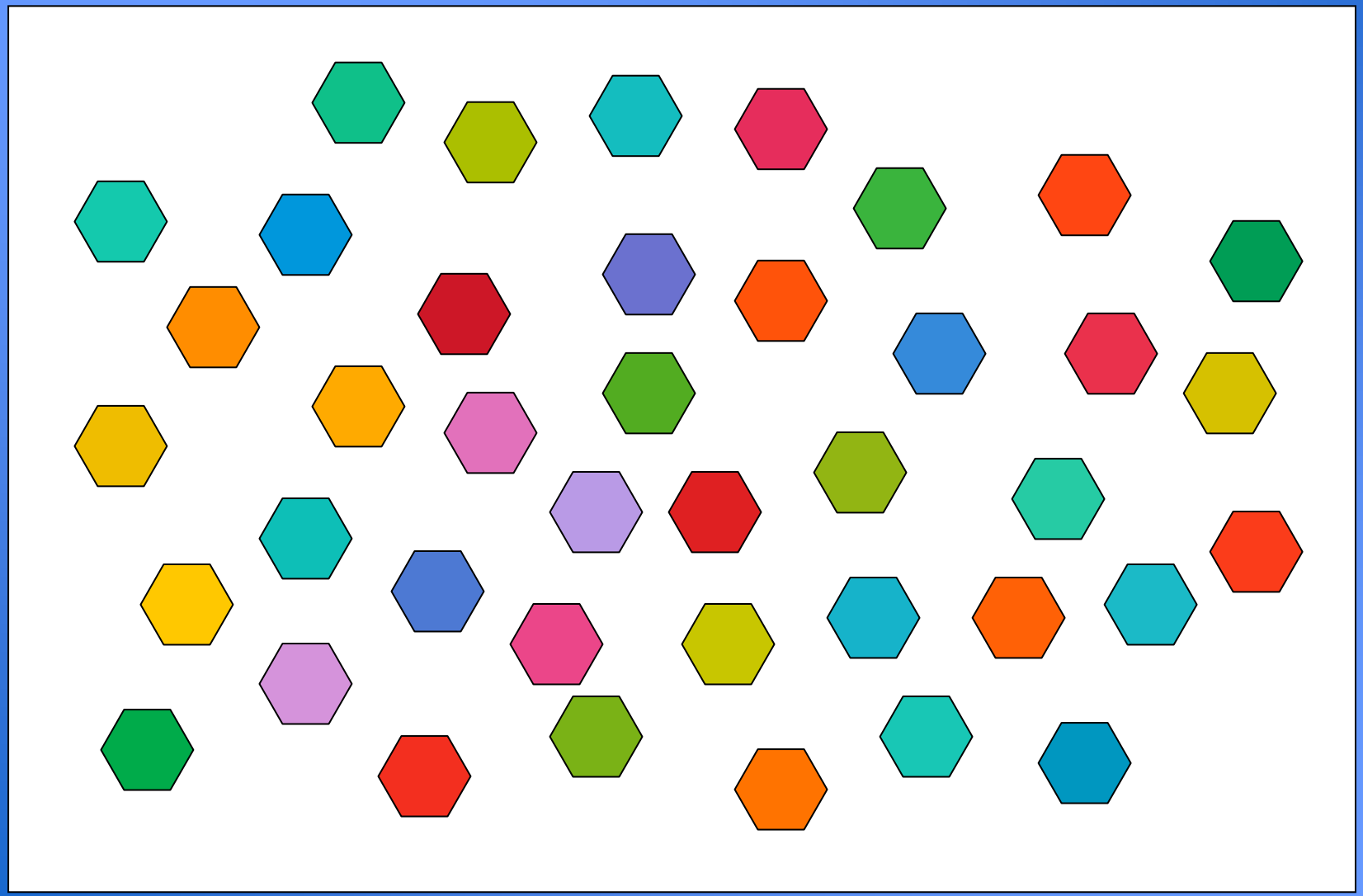
1. Somiglianza con i colori estremi (NCS: Bianco = 0 - Nero = 100)

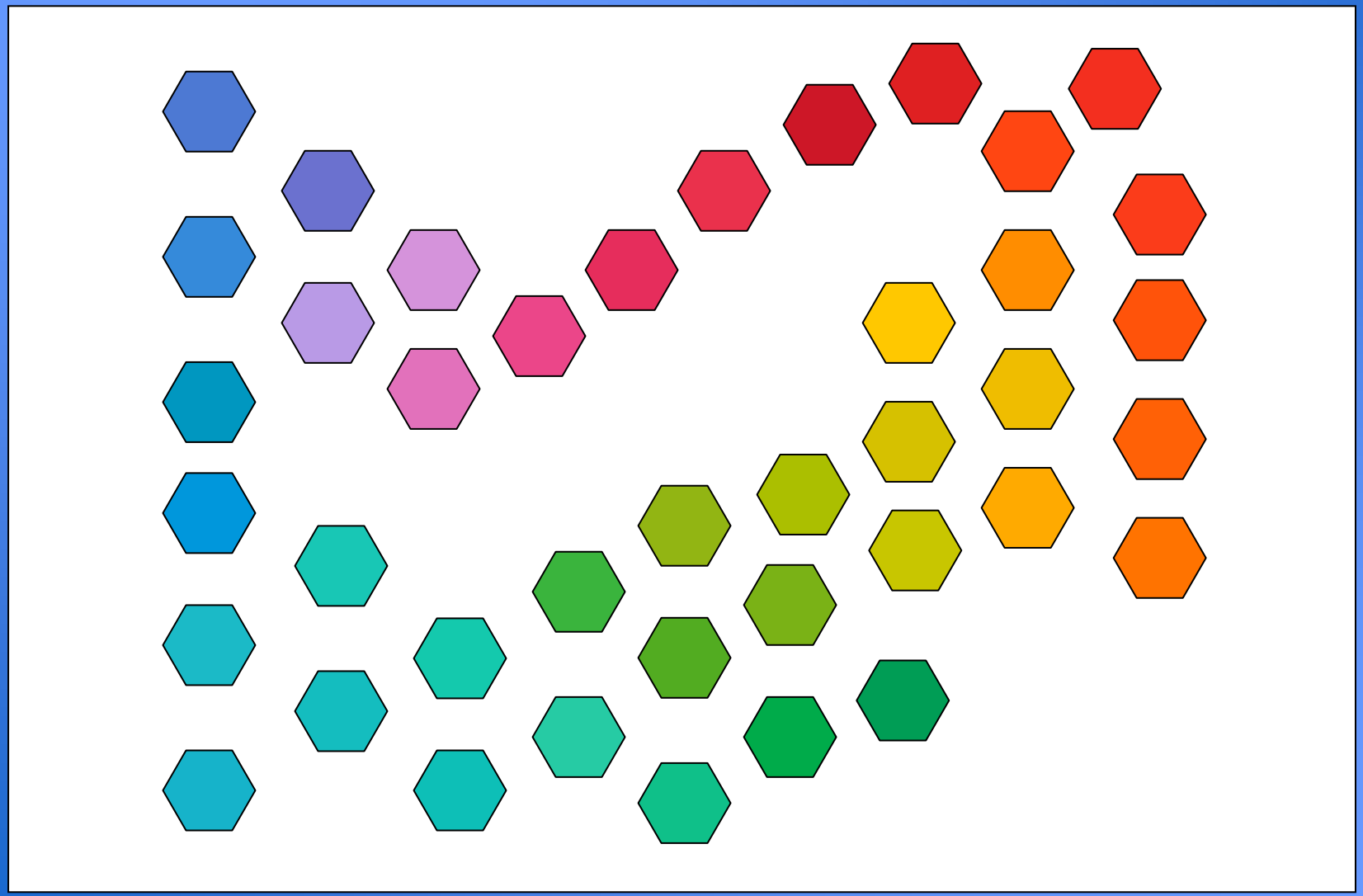
2. Intrensità “sensazione”: (Munsell, L*: Bianco = 10 - Nero = 0)

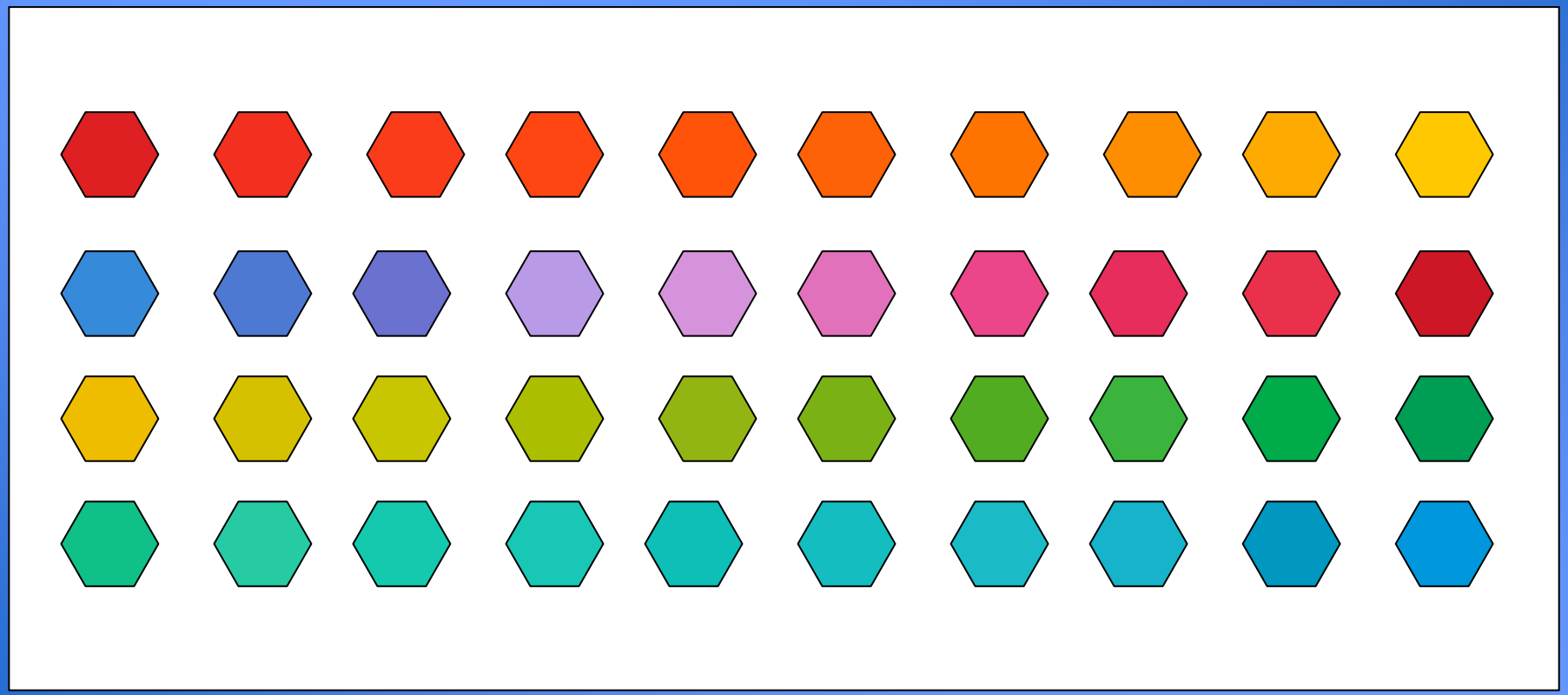


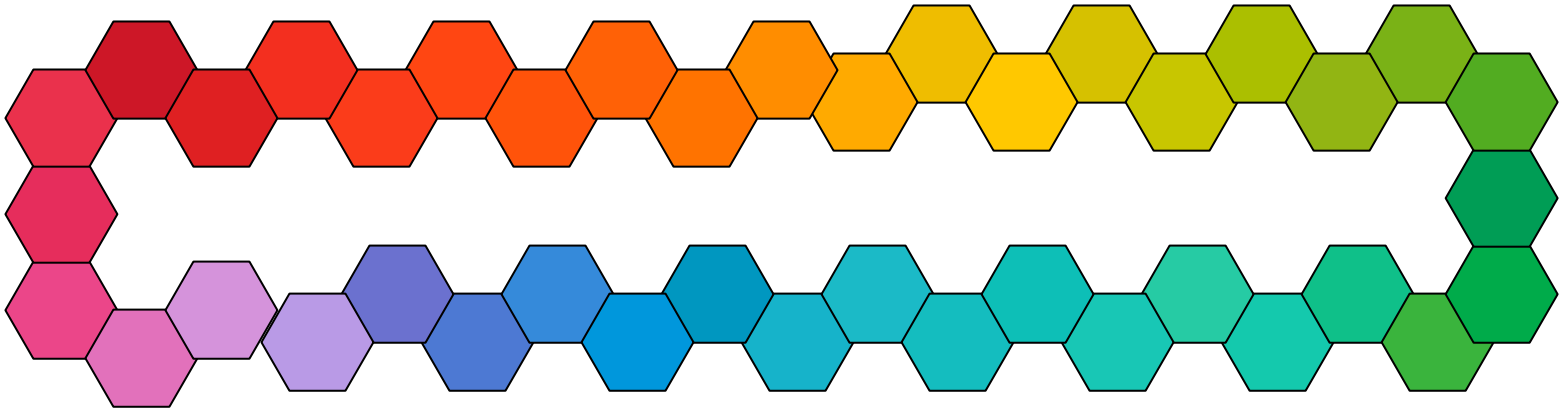
Ordinamento delle tinte / tonalità

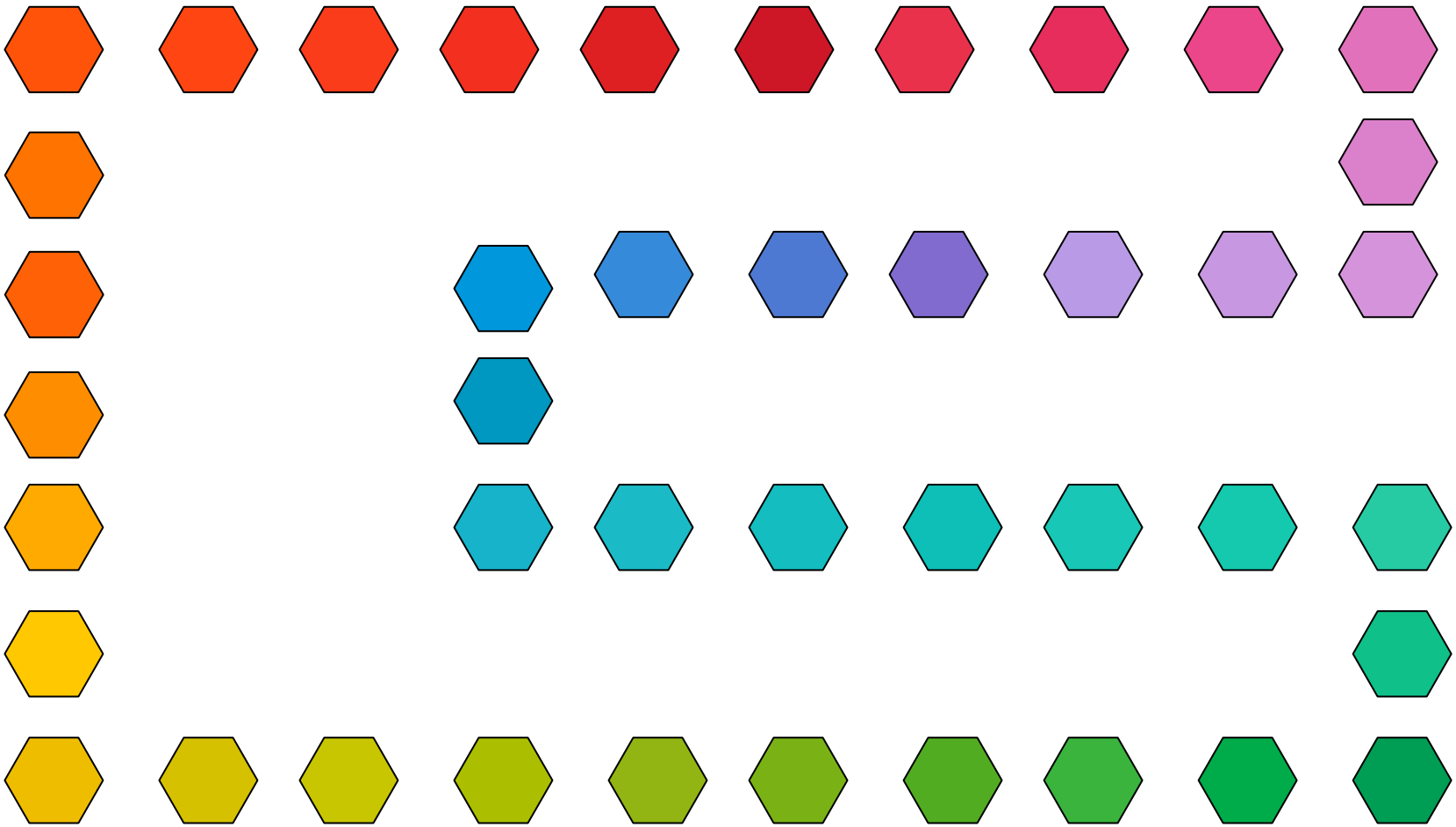
Il cerchio cromatico



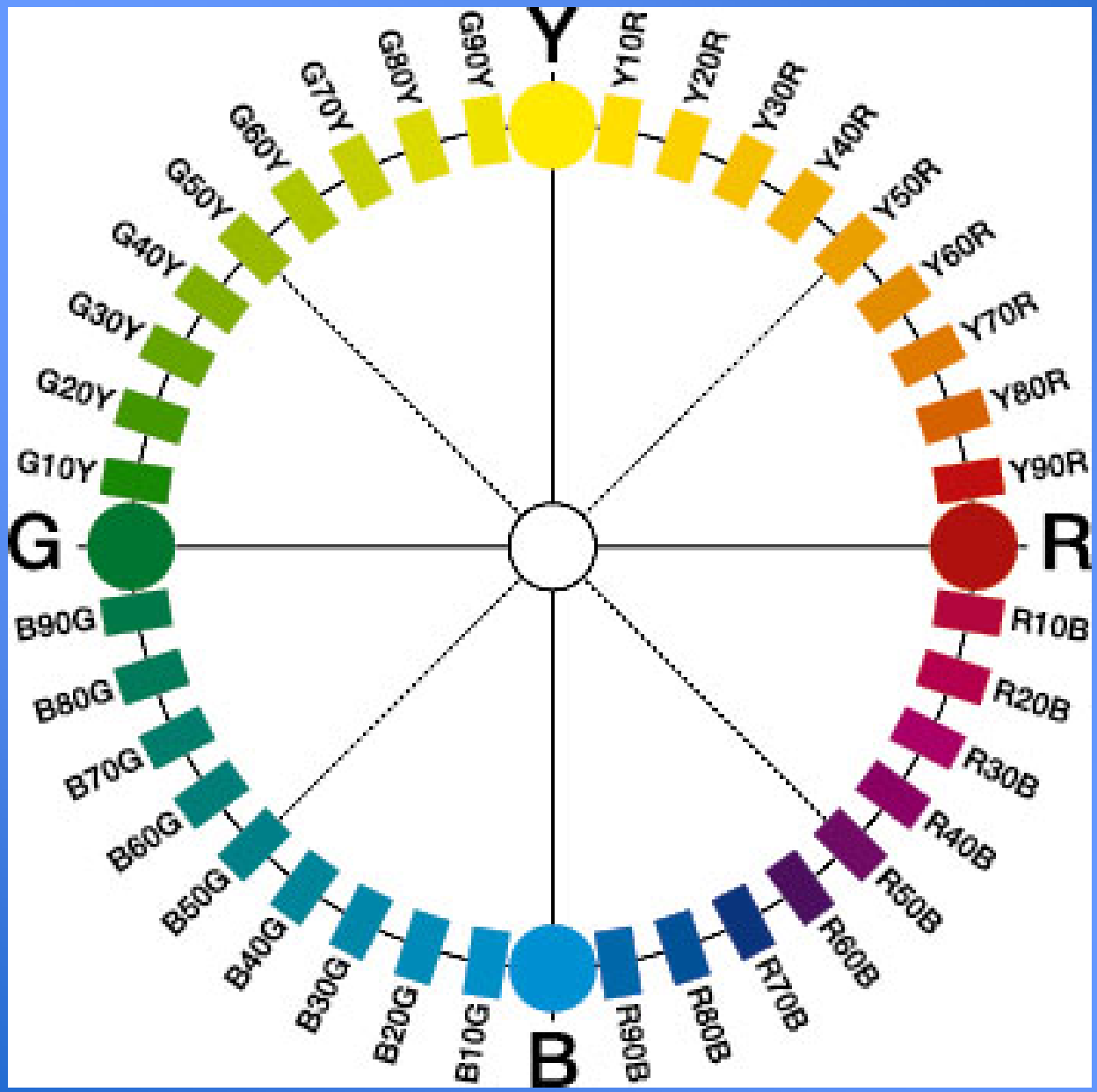








Ordinamento delle diverse tinte



Che cosa vi è di **naturale**

1 – la sequenza (come in M.)

2 – l'unicità

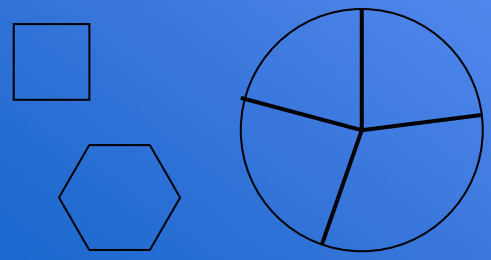
3 – le scale bipolari

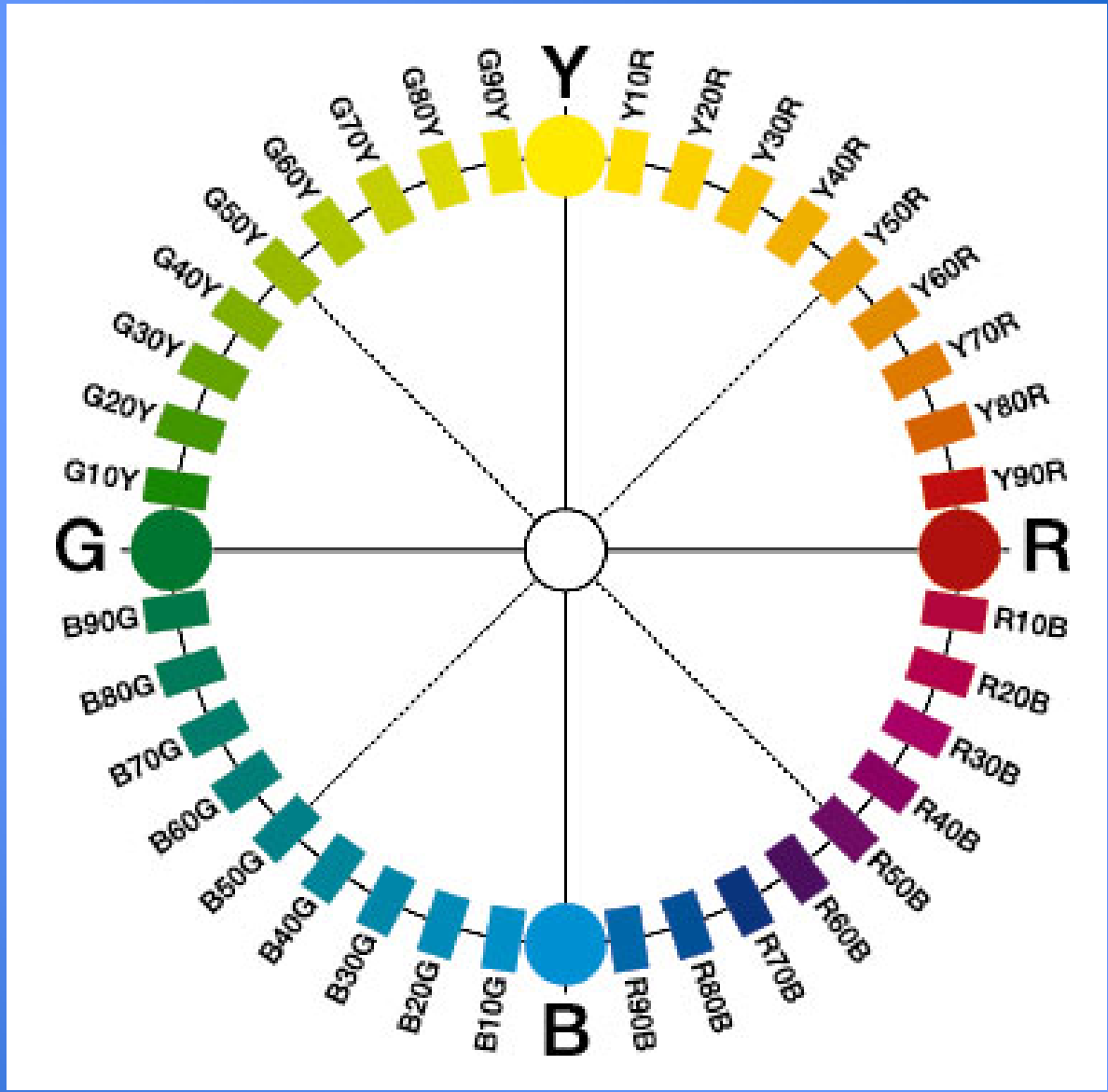
4 – l'opponenza

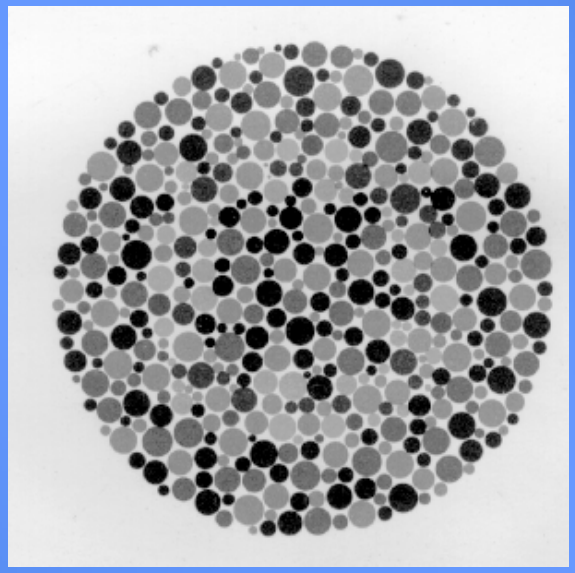
Che cosa vi è di **convenzionale**

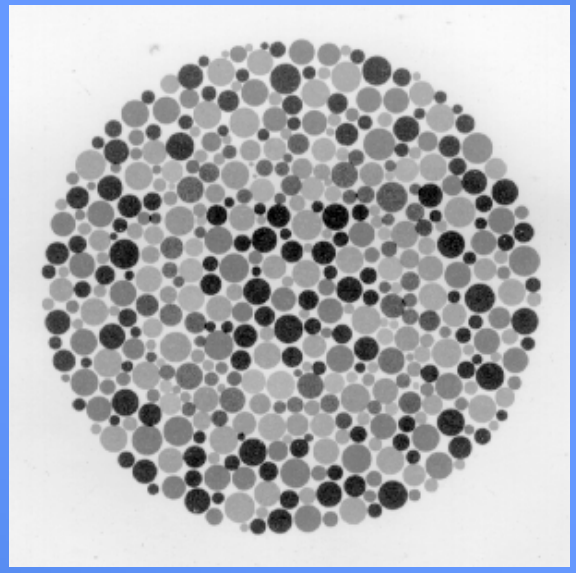
la forma circolare

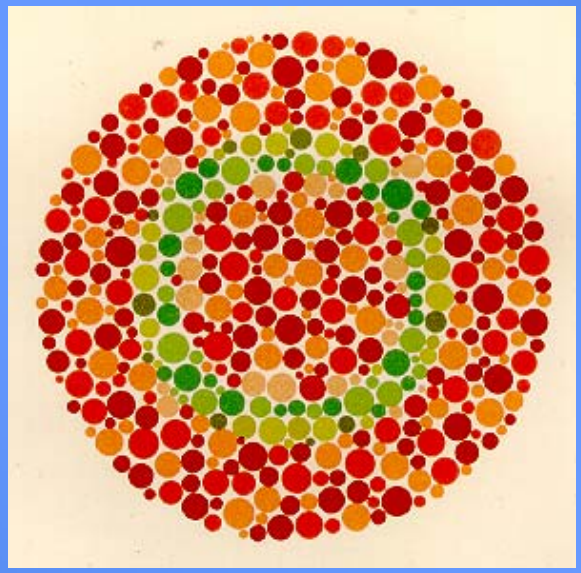
la suddivisione in quadranti uguali

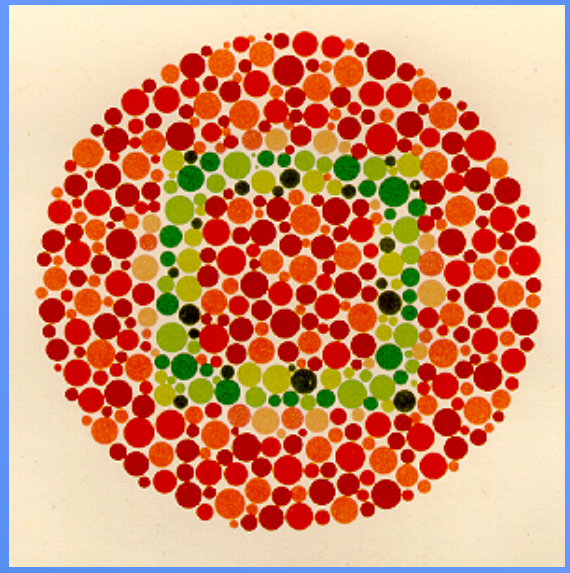


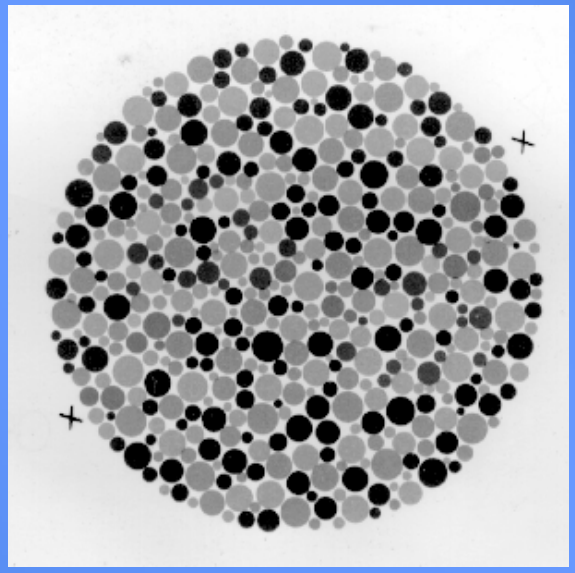


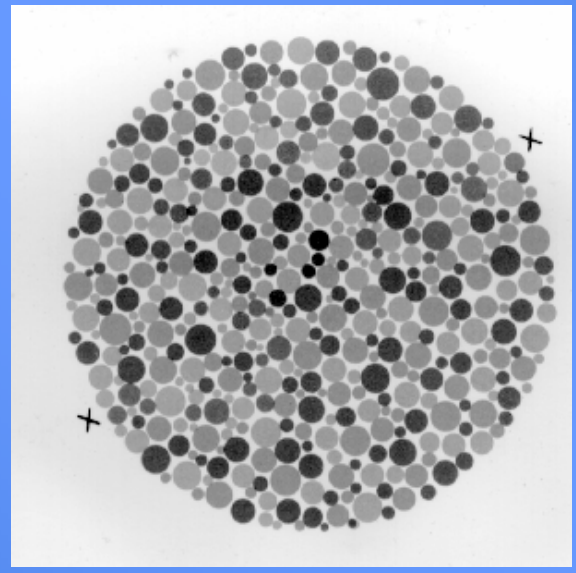


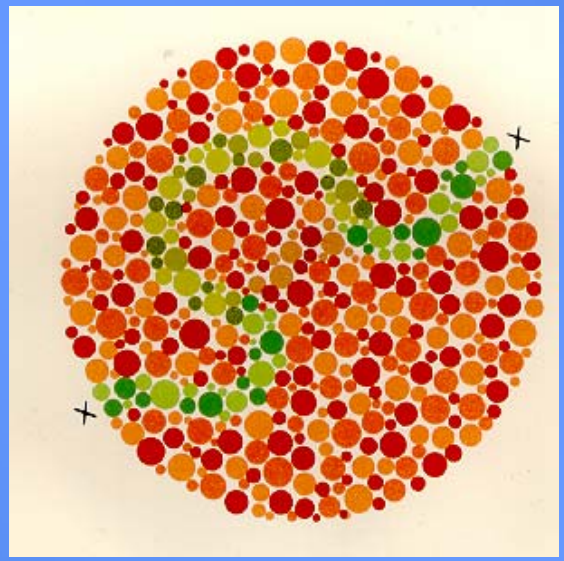


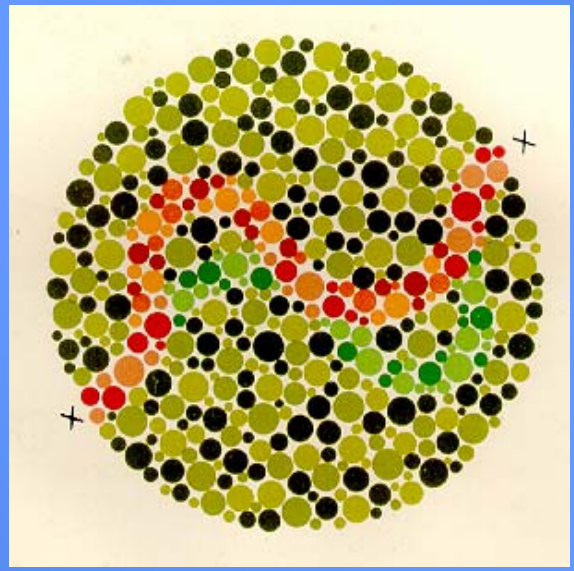






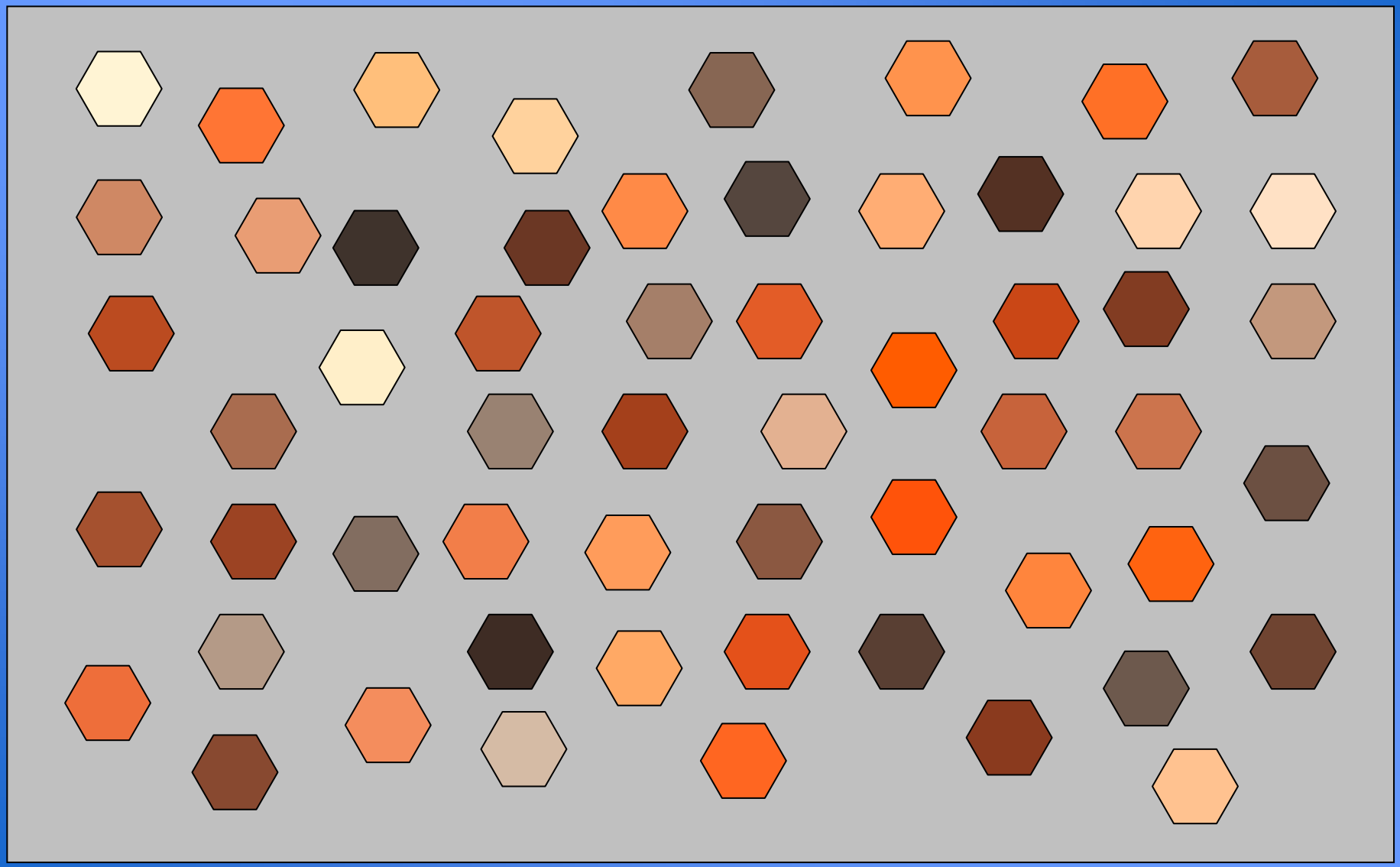


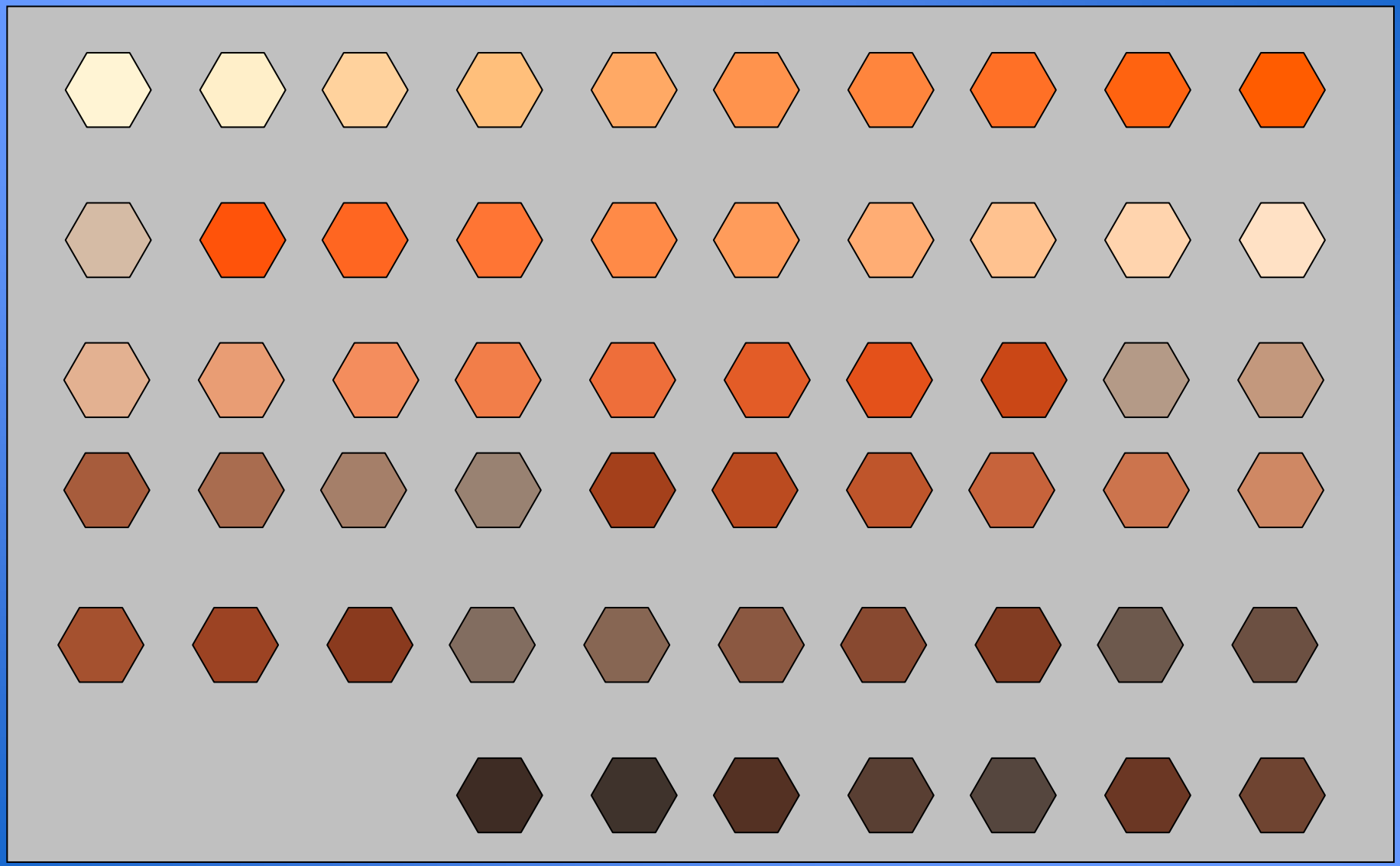


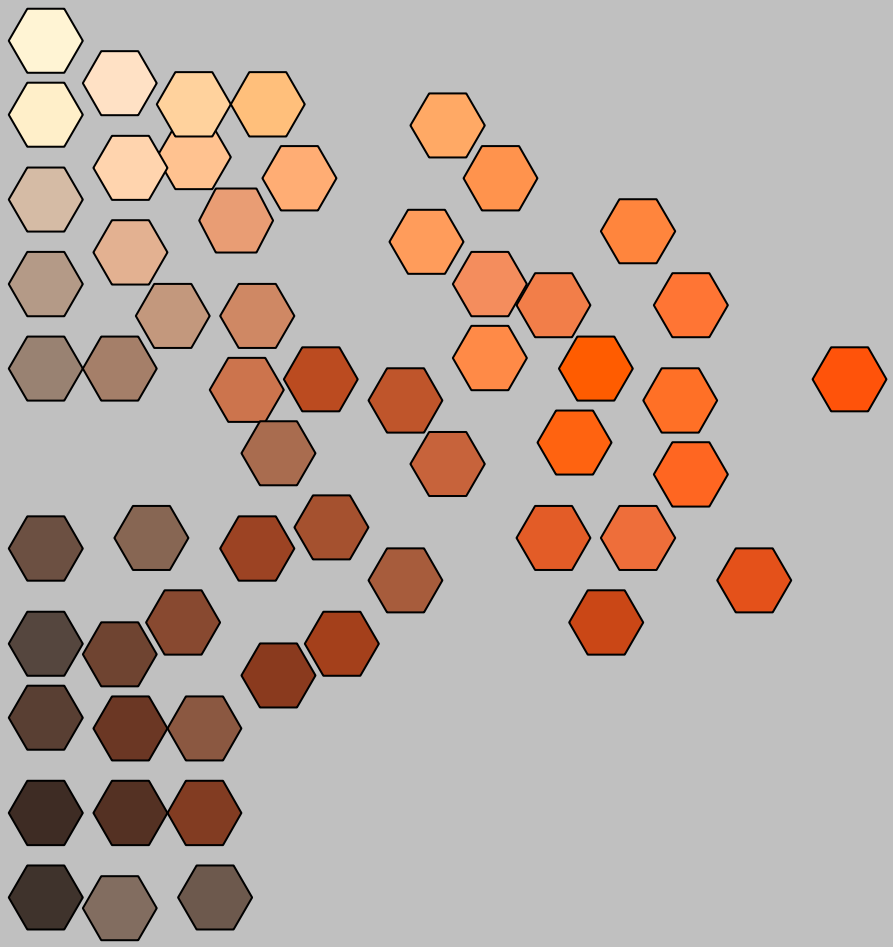


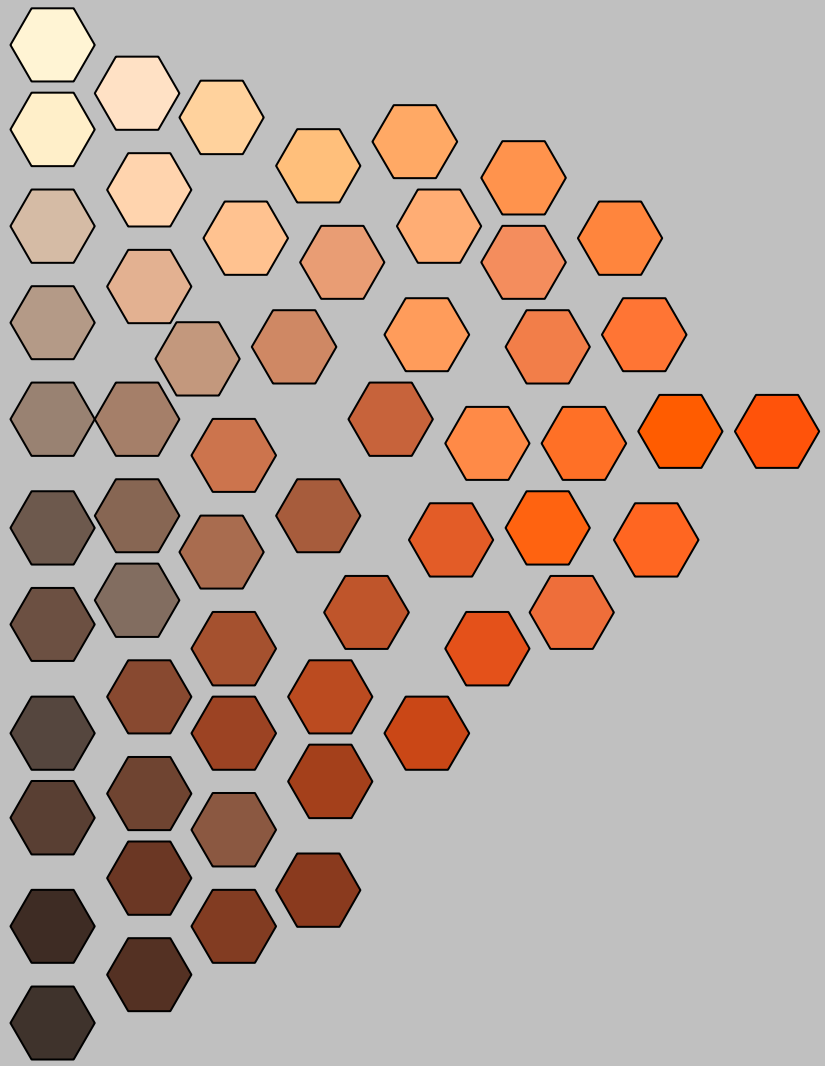
Ordinamento dei colori
cromatici
sulla base della
somiglianza globale

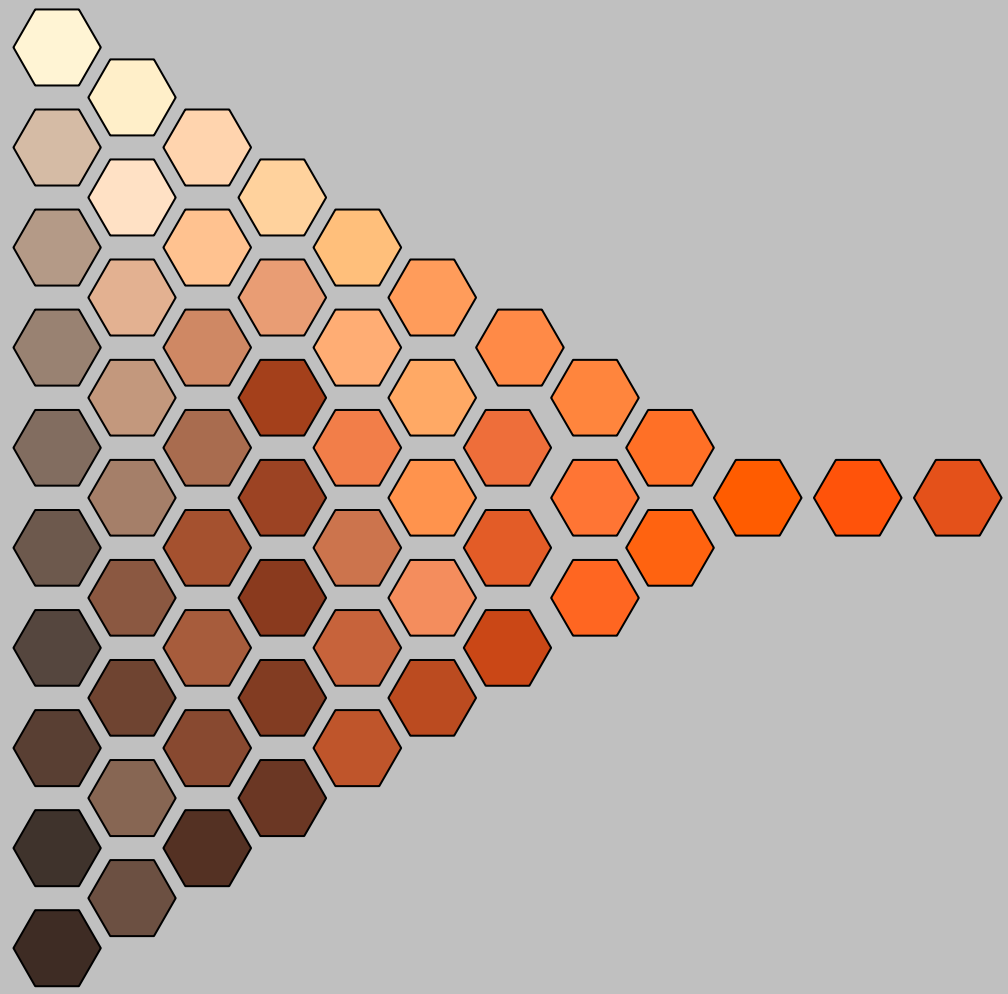
Nuance della stessa
tinta/tonalità

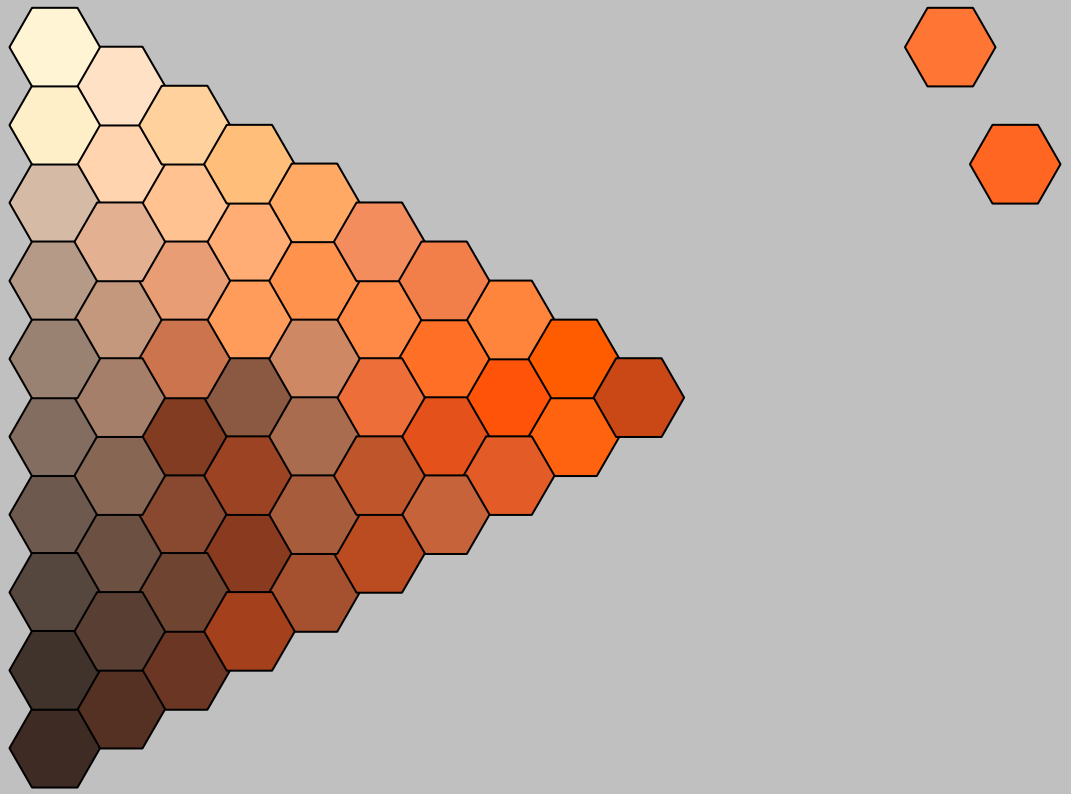


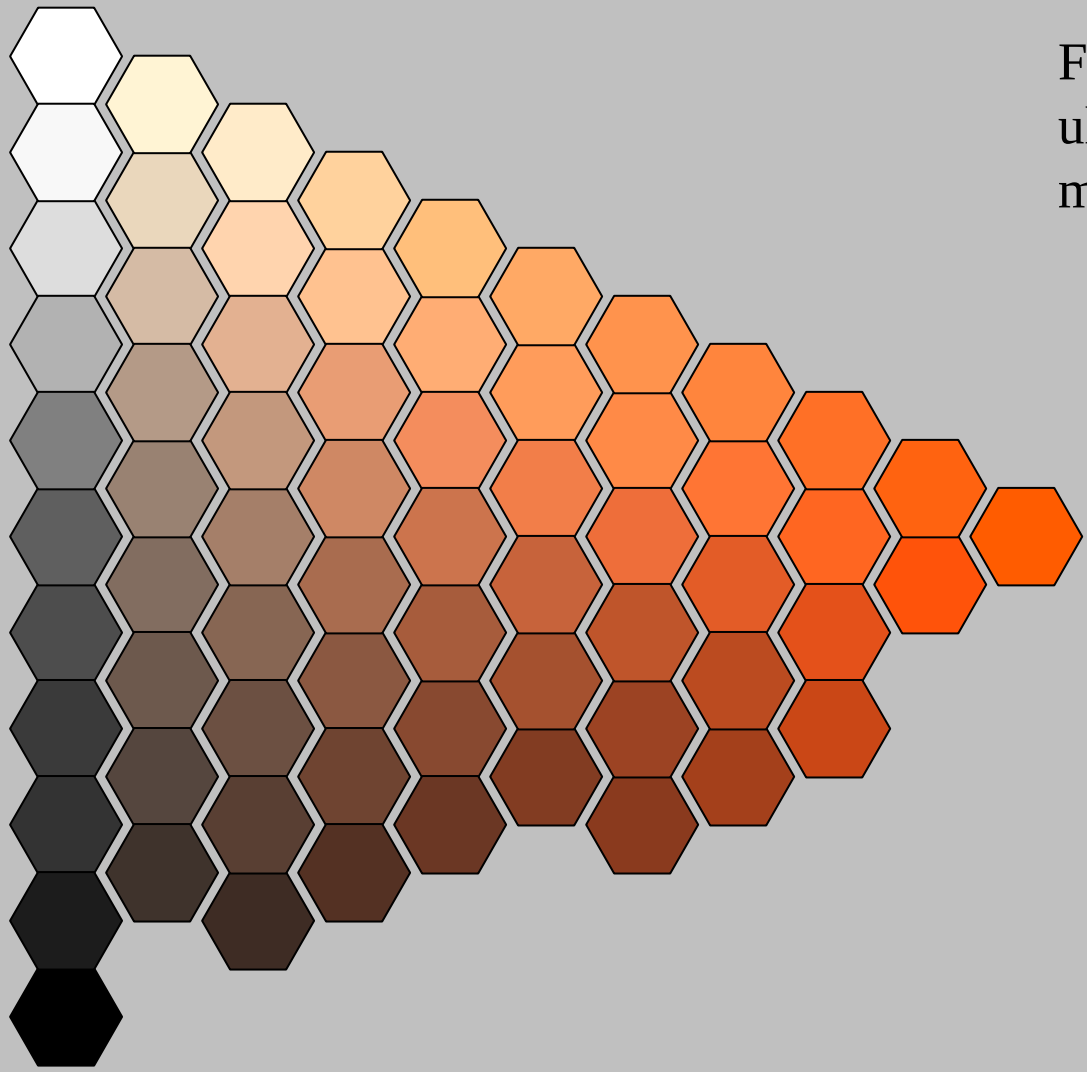






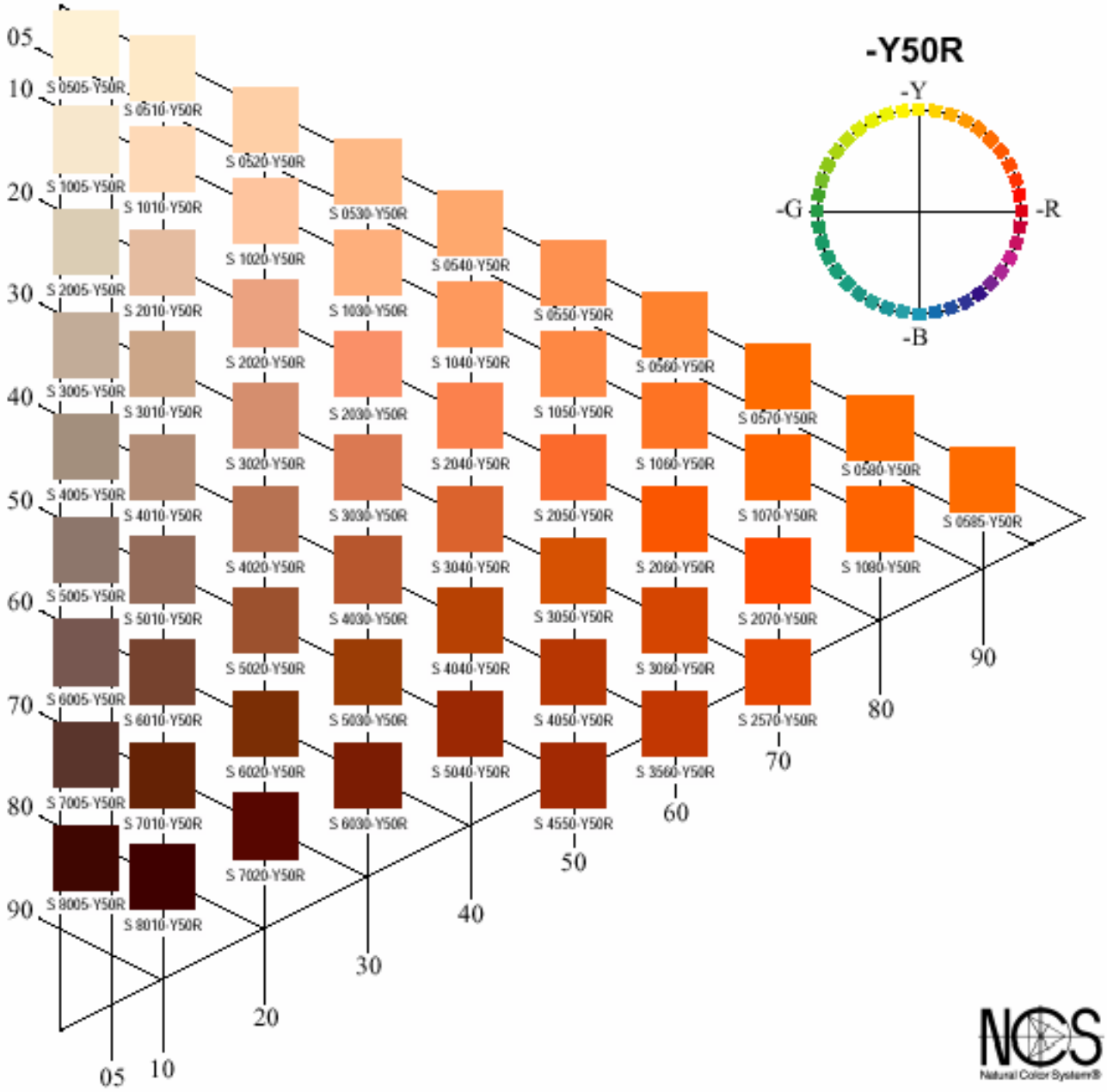




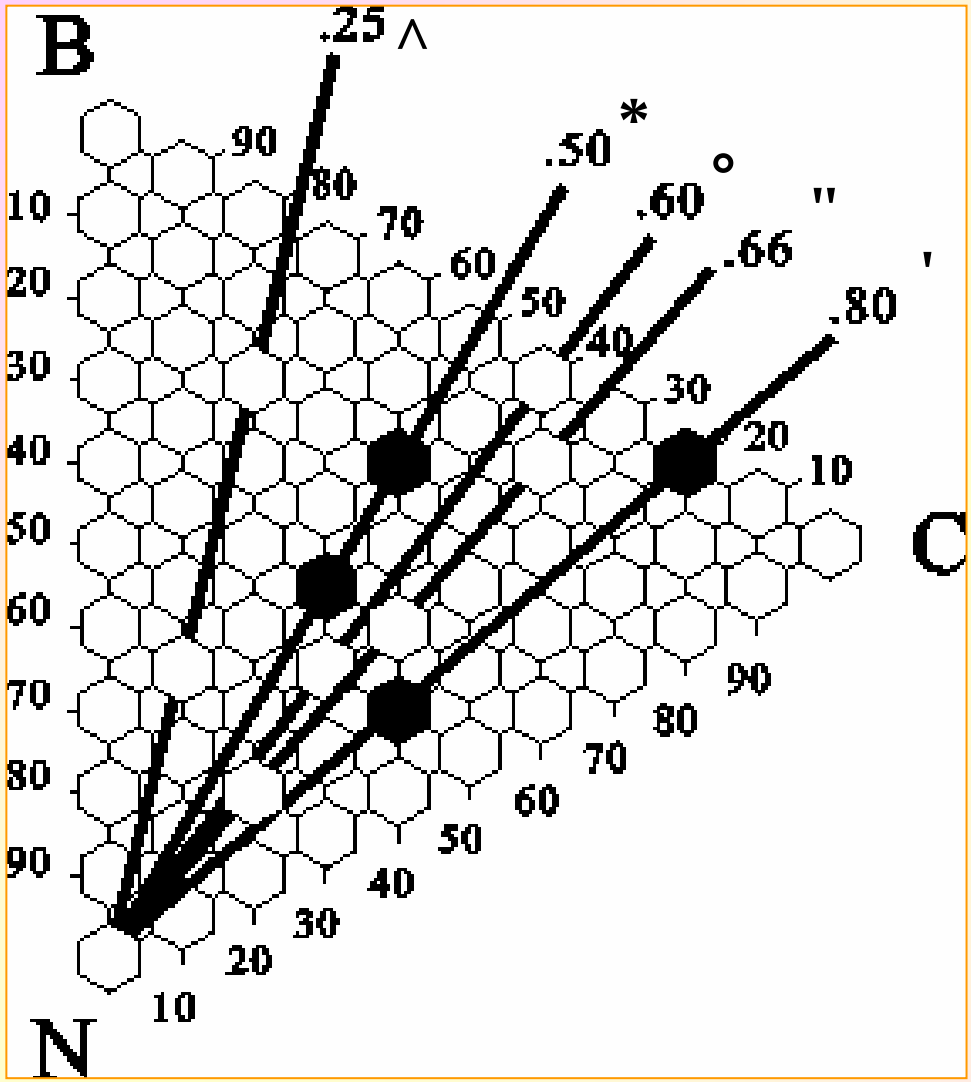


Finale non ulteriormente modificabile

NCS – the international language of colour



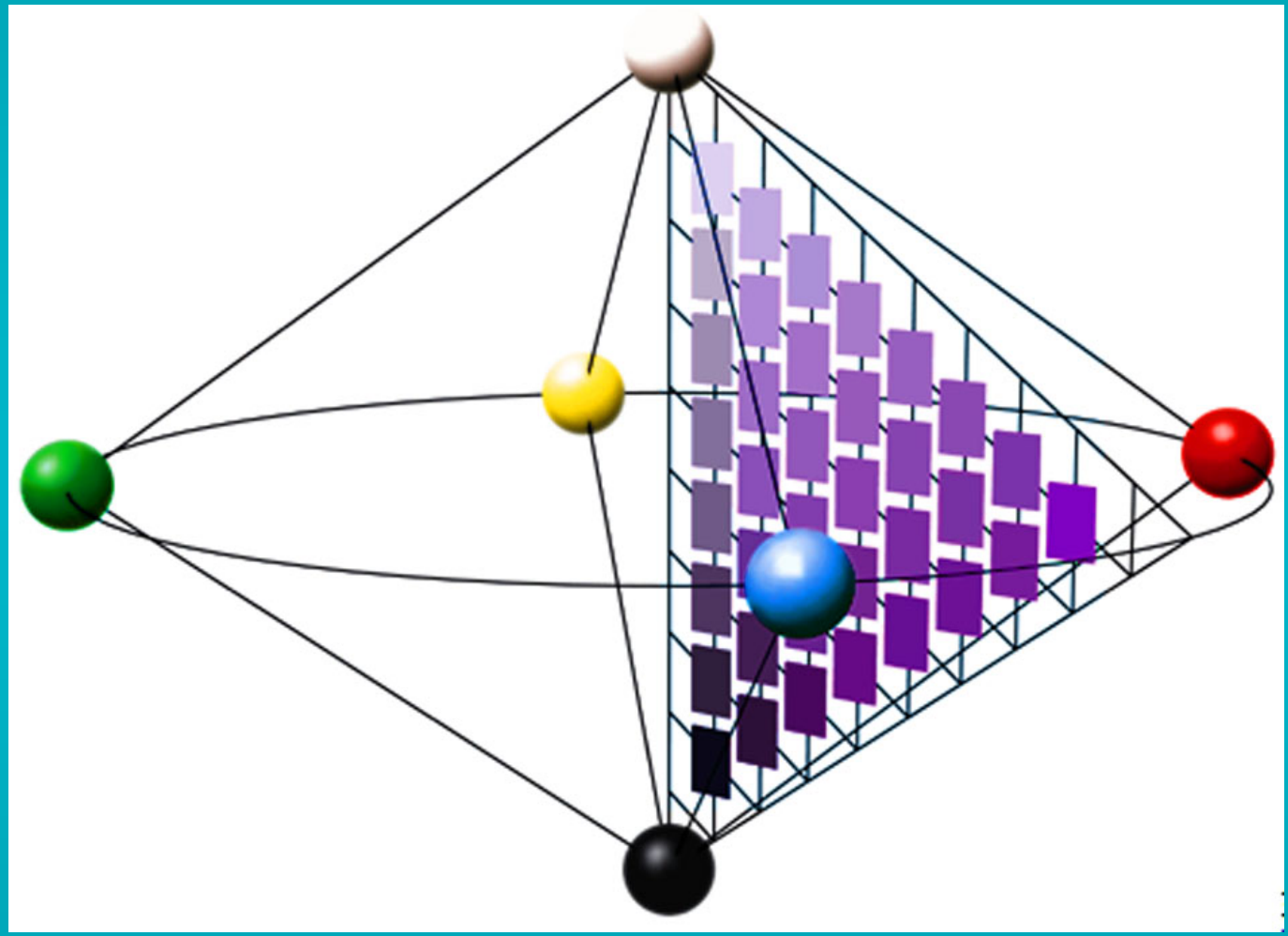
Linee di ugual saturazione



(Nerezza **C**roma **B**ianchezza **S**aturazione**)**

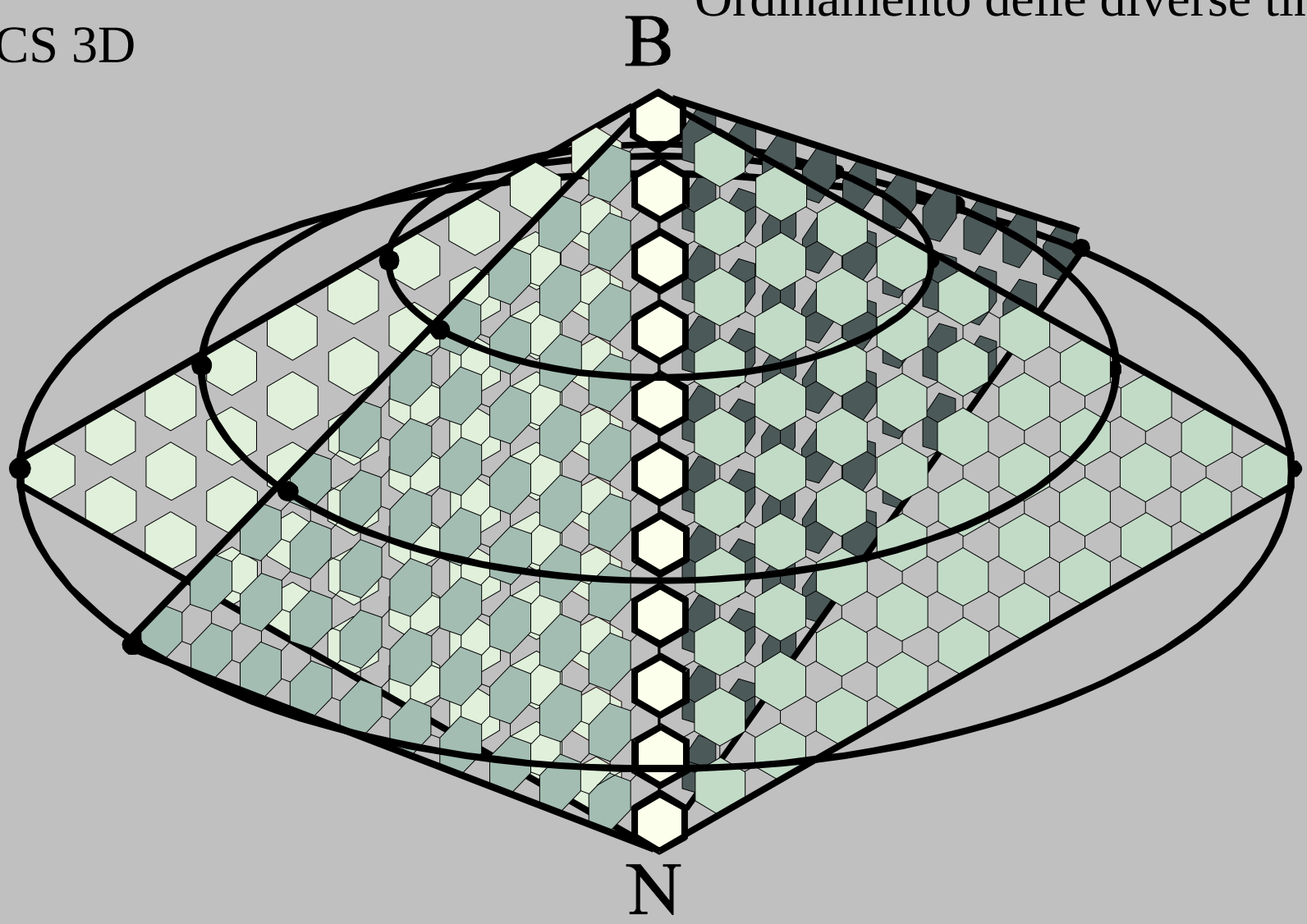
	N	C	B	C/C+B		S
']	50	40	10	40/50	= 4/5	0,8
	00	80	20	80/100	= 4/5	0,8
"]	70	20	10	20/30	= 2/3	0,66
	40	40	20	40/60	= 2/3	0,66
	10	60	30	60/90	= 2/3	0,66
°]	50	30	20	30/50	= 3/5	0,6
	00	60	40	60/100	= 3/5	0,6
*]	60	20	20	20/40	= 1/2	0,5
	40	30	30	30/60	= 1/2	0,5
	20	40	40	40/80	= 1/2	0,5
^]	60	10	30	10/40	= 1/4	0,25
	20	20	60	20/80	= 1/4	0,25

Ordinamento delle diverse tinte



Ordinamento delle diverse tinte

NCS 3D



Ruotando i triangoli intorno al comune asse dei grigi (B-N) si ottiene un solido tridimensionale a forma di doppio cono; la circonferenza che divide i due coni corrisponde al cerchio delle tinte.

Ordinamento delle diverse tinte

Ostwald

L’aspetto di

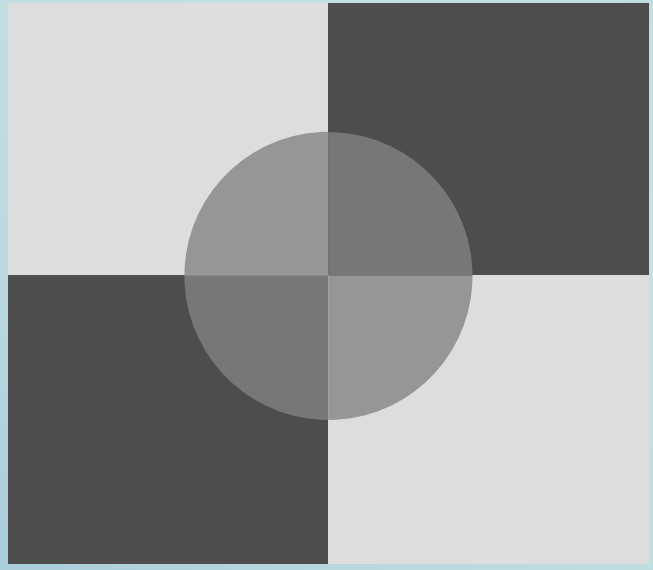
bianco
nero
rosso
blu
verde
giallo

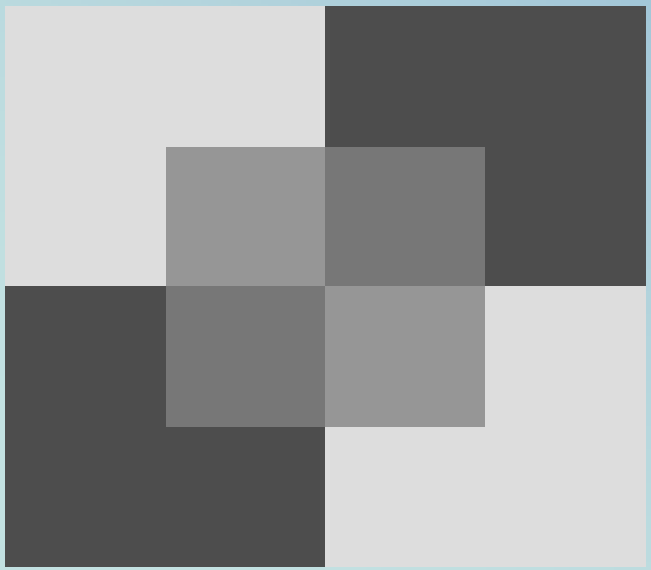
Caratterizzano tutti i possibili colori di superficie

(=tutti i colori possono essere analizzati in termini di questi 6 attributi)

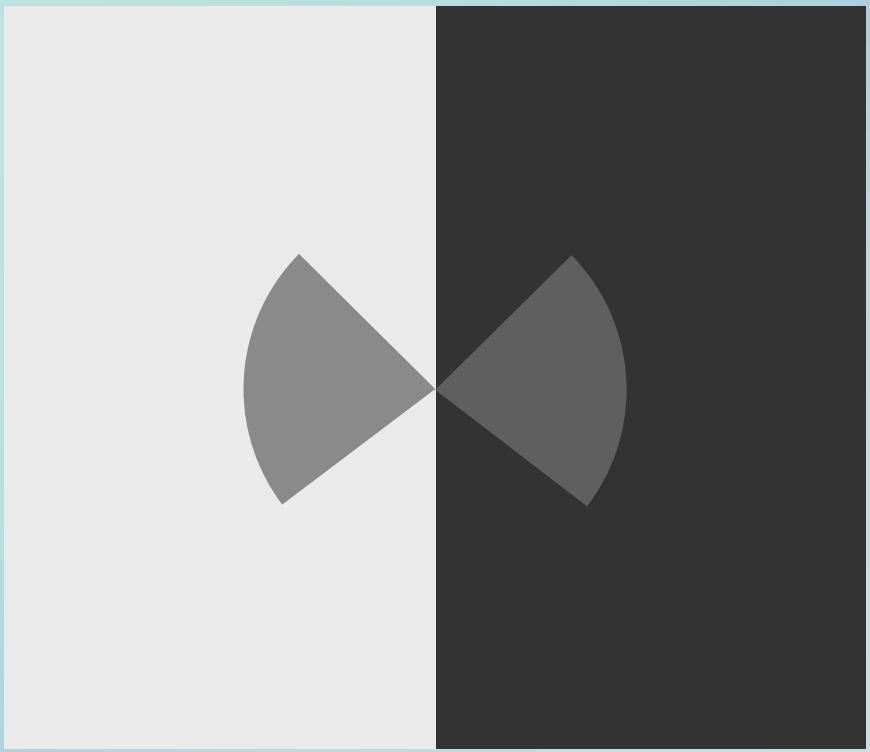
L’aspetto “nero” non è applicabile ai colori luminosi

Sulla trasparenza …..





Il modello tradizionale di Metelli e i mosaici derivabili



Il modello dell’episcotista

diverse aperture = α

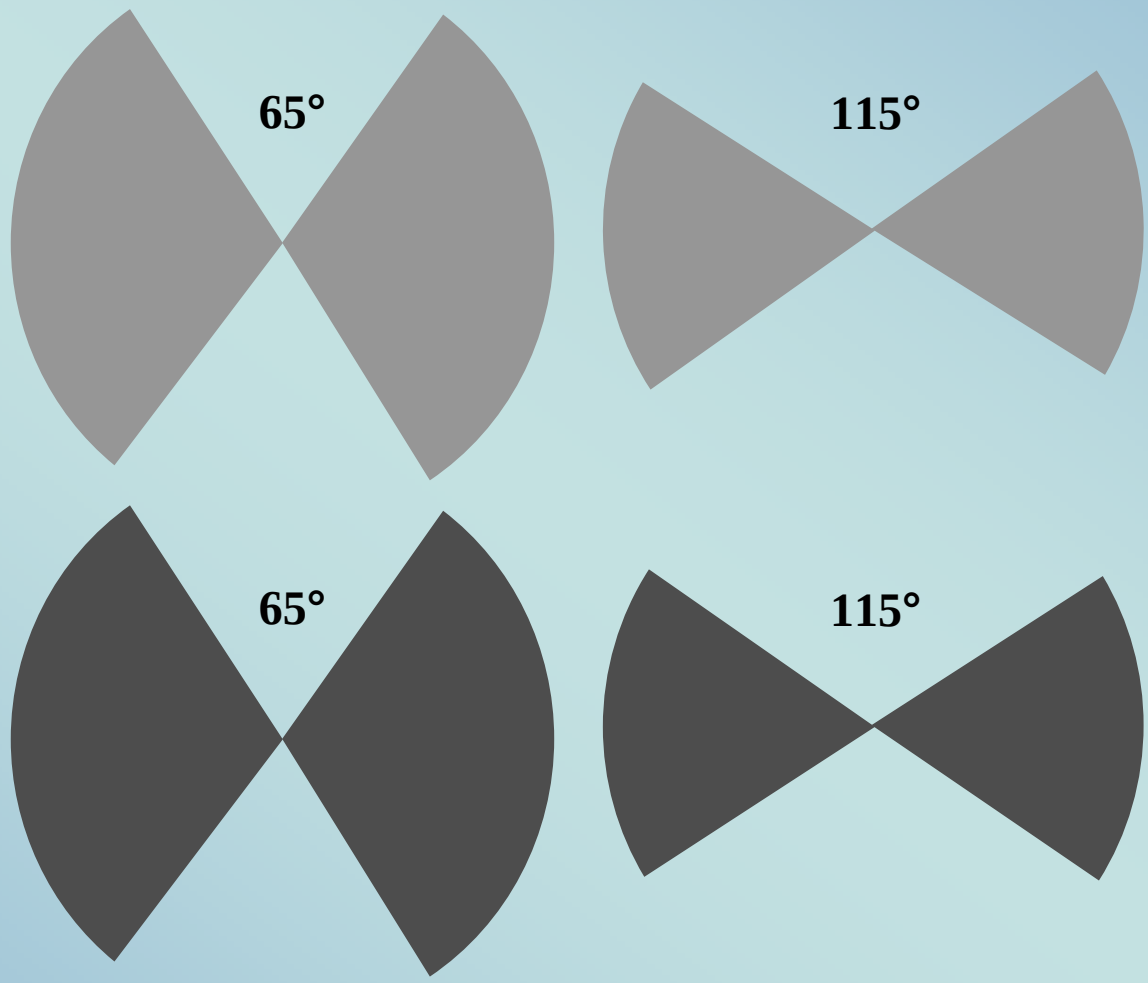
$\alpha = 0.36$
$(65°*2)/360°$

$\alpha = 0.64$
$(115°*2)/360°$

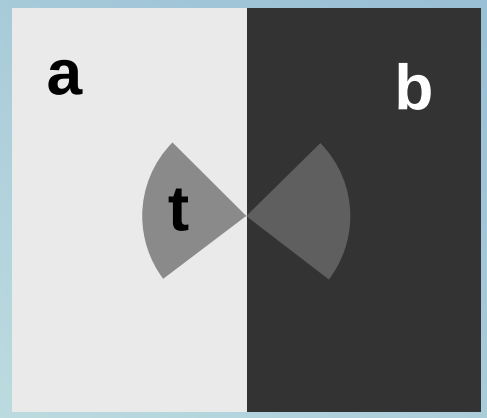
diversi colori = **t**

$R_{t1}G_{t1}B_{t1}$ =0.30

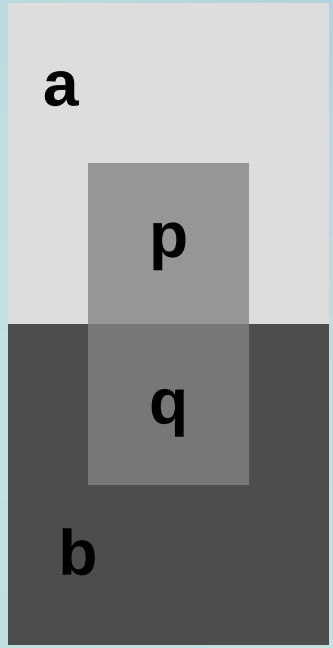
$R_{t2}G_{t2}B_{t2}$ =0.07



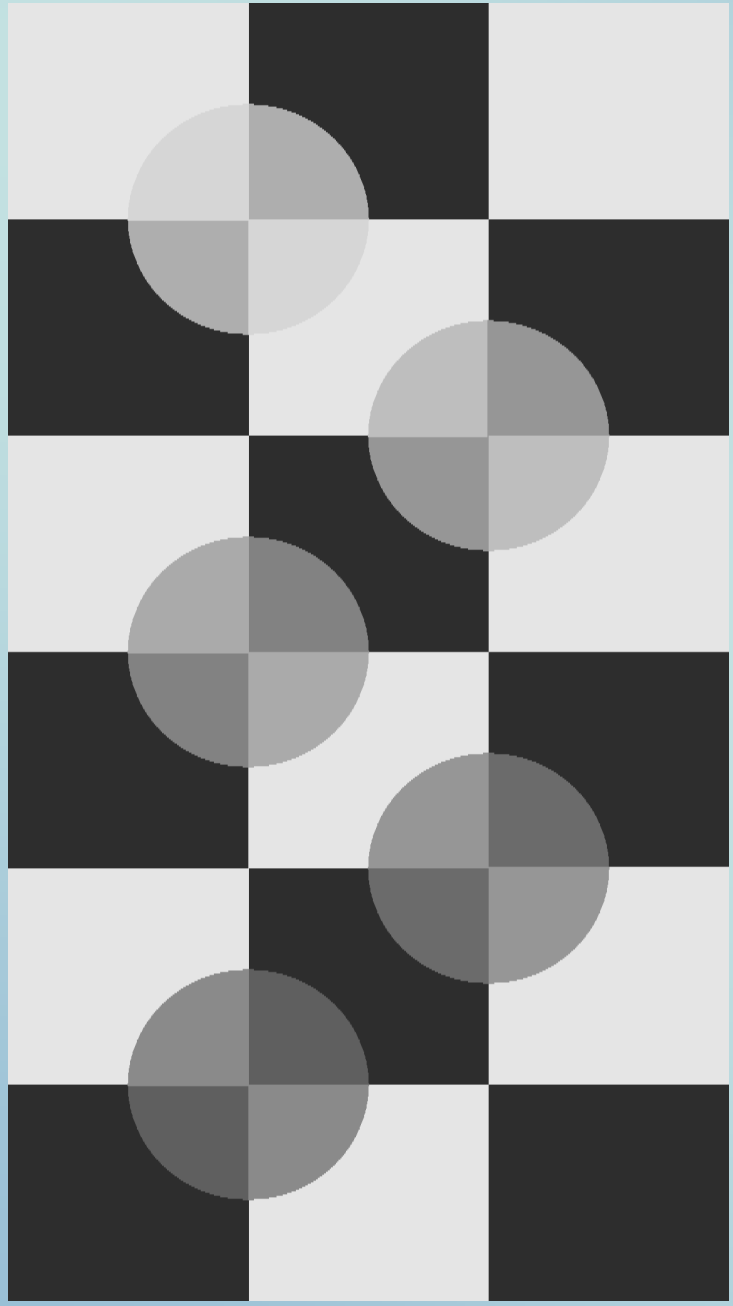
$$\begin{cases} p = \alpha * a + (1 - \alpha) * t \\ q = \alpha * b + (1 - \alpha) * t \end{cases}$$

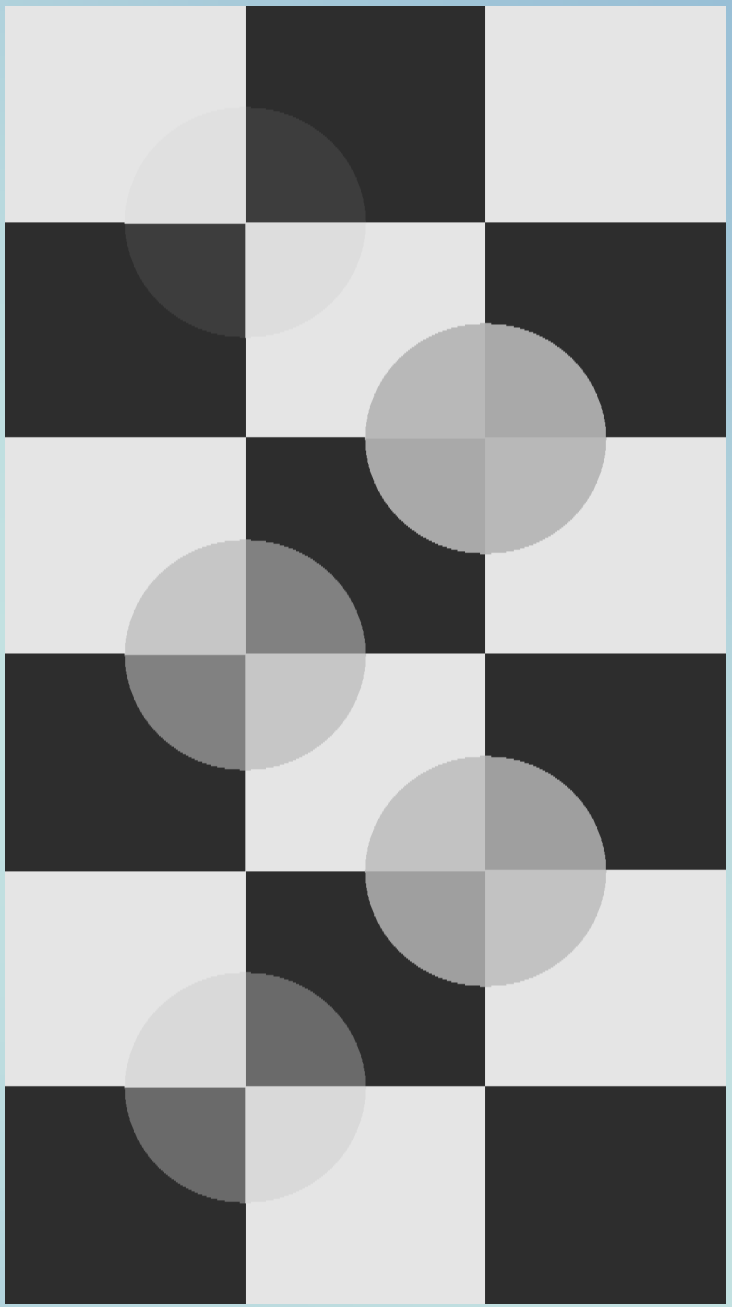


$$\alpha = \frac{p - q}{a - b}$$



$$t = (a * q - b * p) / (a + q - p - b)$$





Il modello tradizionale di Metelli e i mosaici derivabili

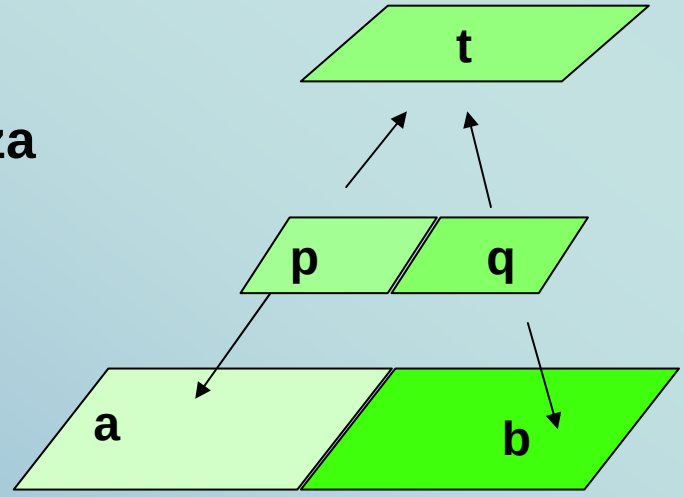
Modello fenomenologico – somiglianza di colore

non basato su miscele o filtrazioni di radiazioni

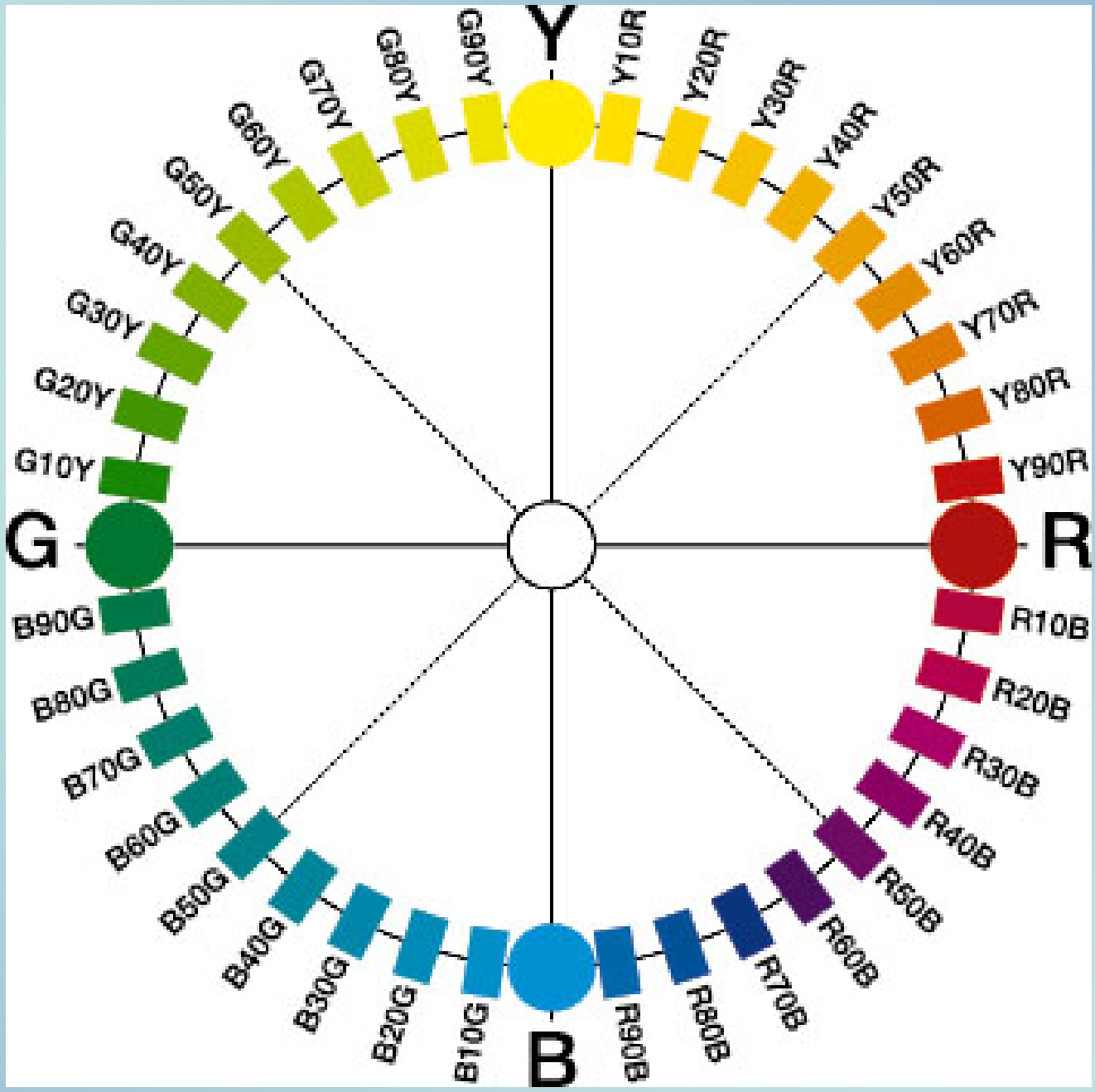
ma sulla somiglianza tra
il colore dell'area di sovrapposizione

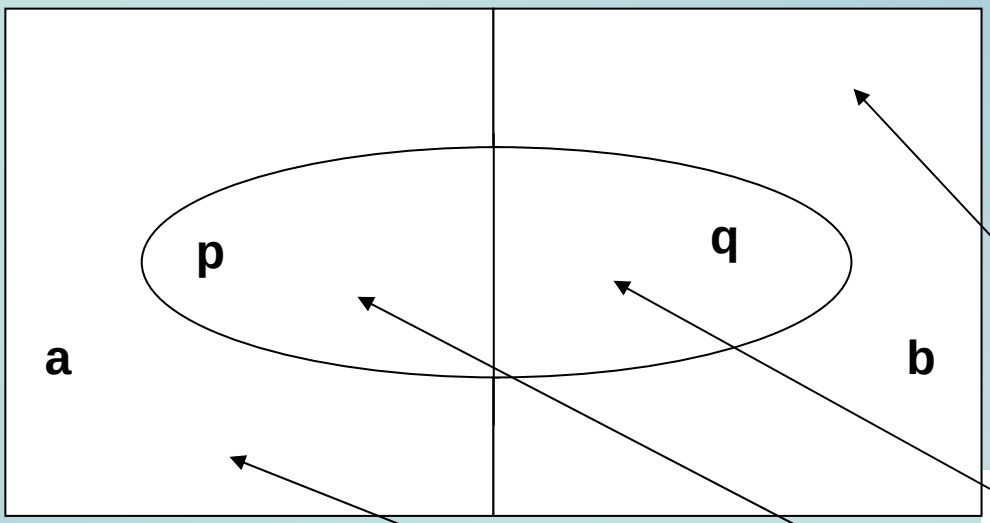
e i colori dello strato antistante e di quello retrostante

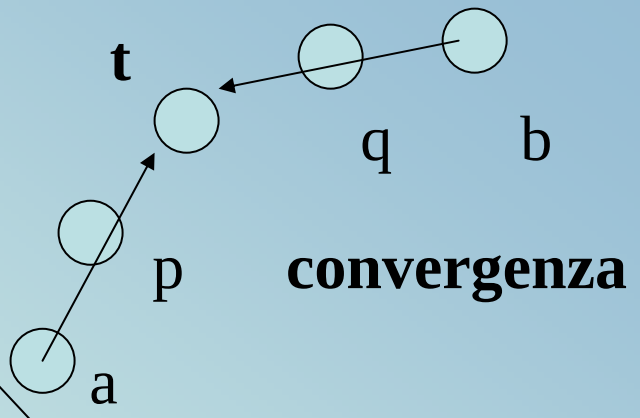
= somiglianza



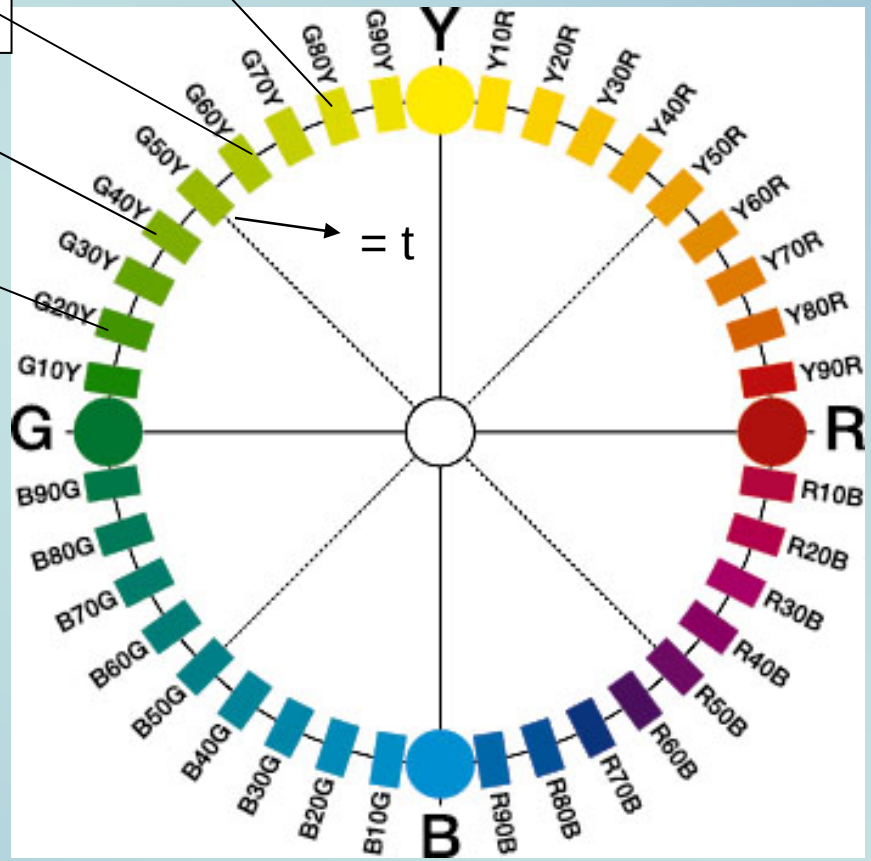
cerchio dei colori
NCS



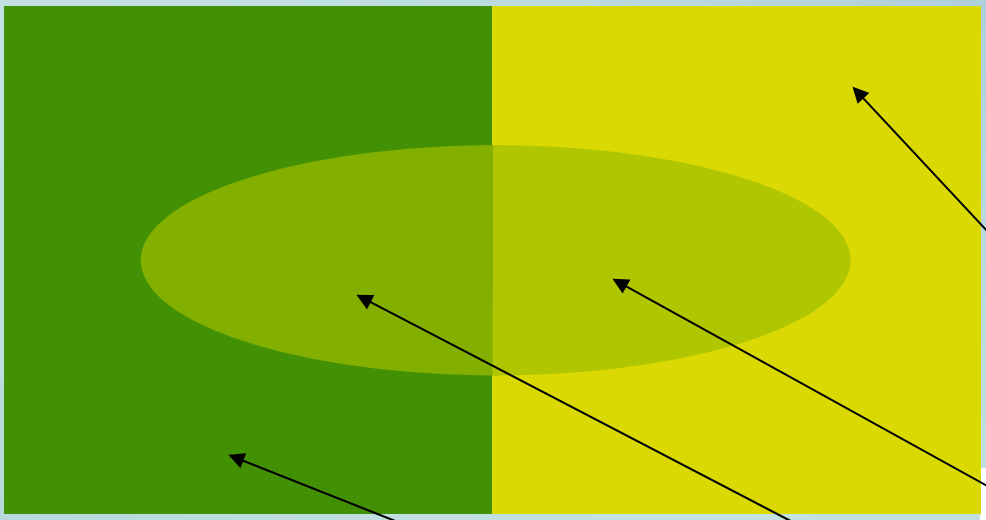


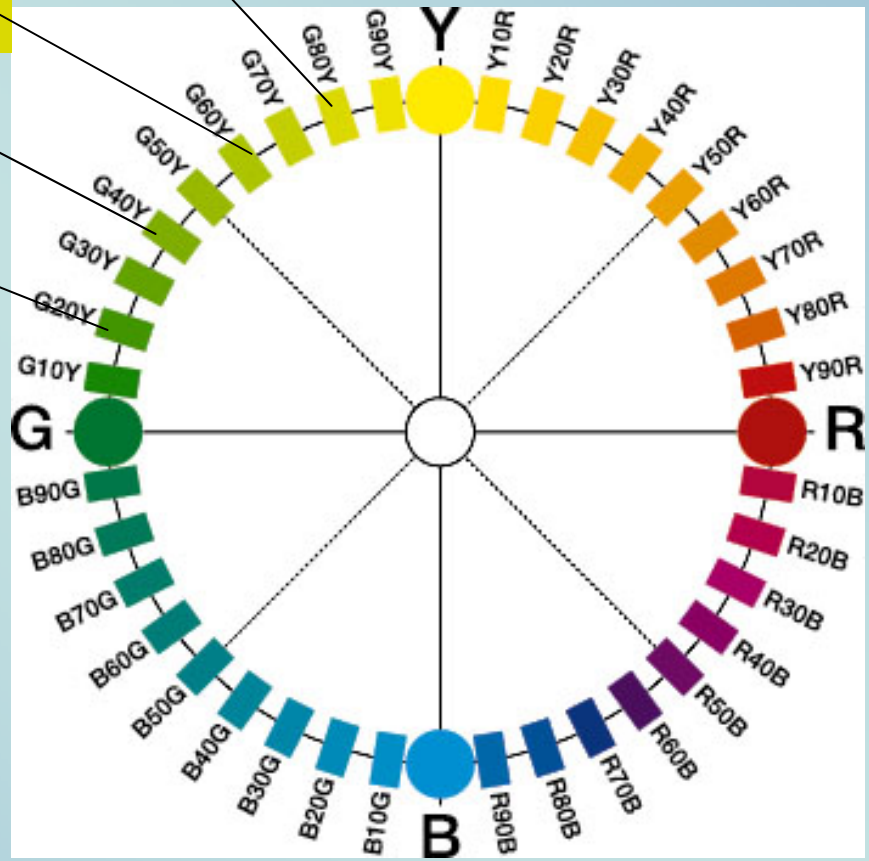


Somiglianza di tinte

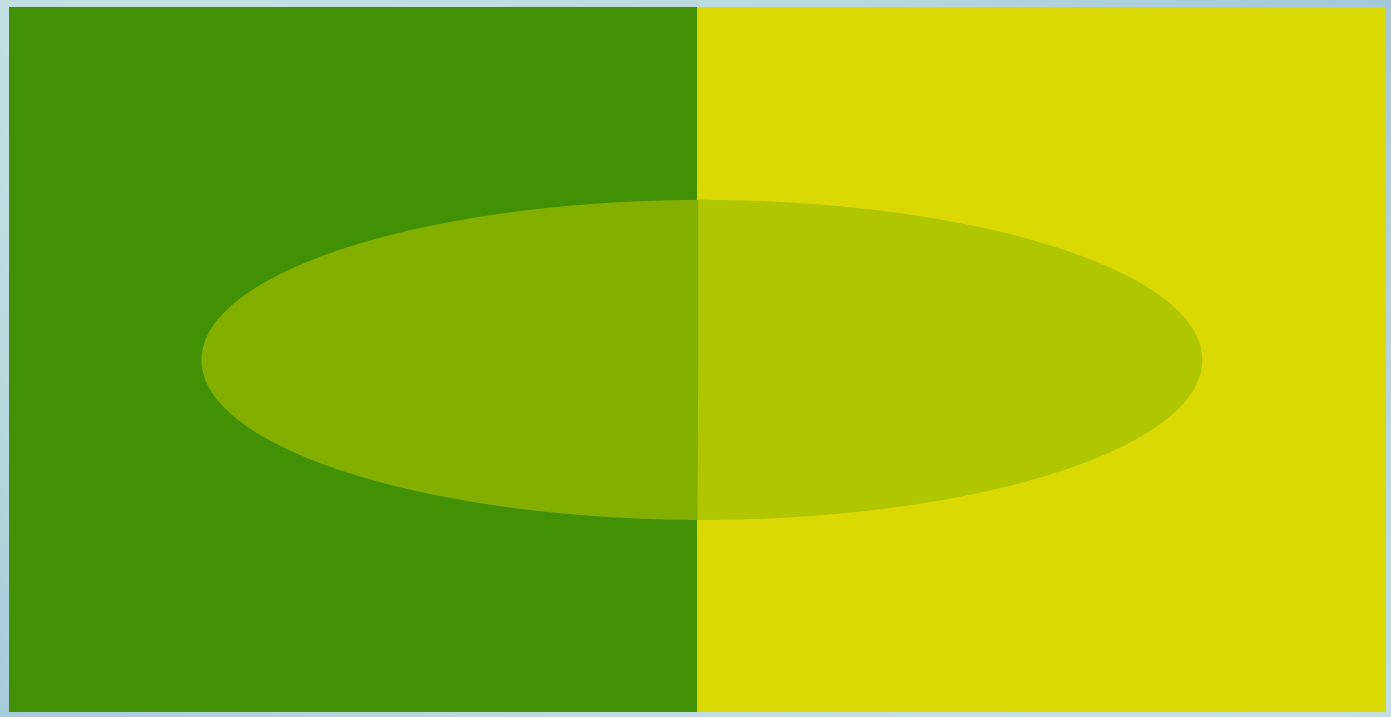


cerchio dei colori NCS

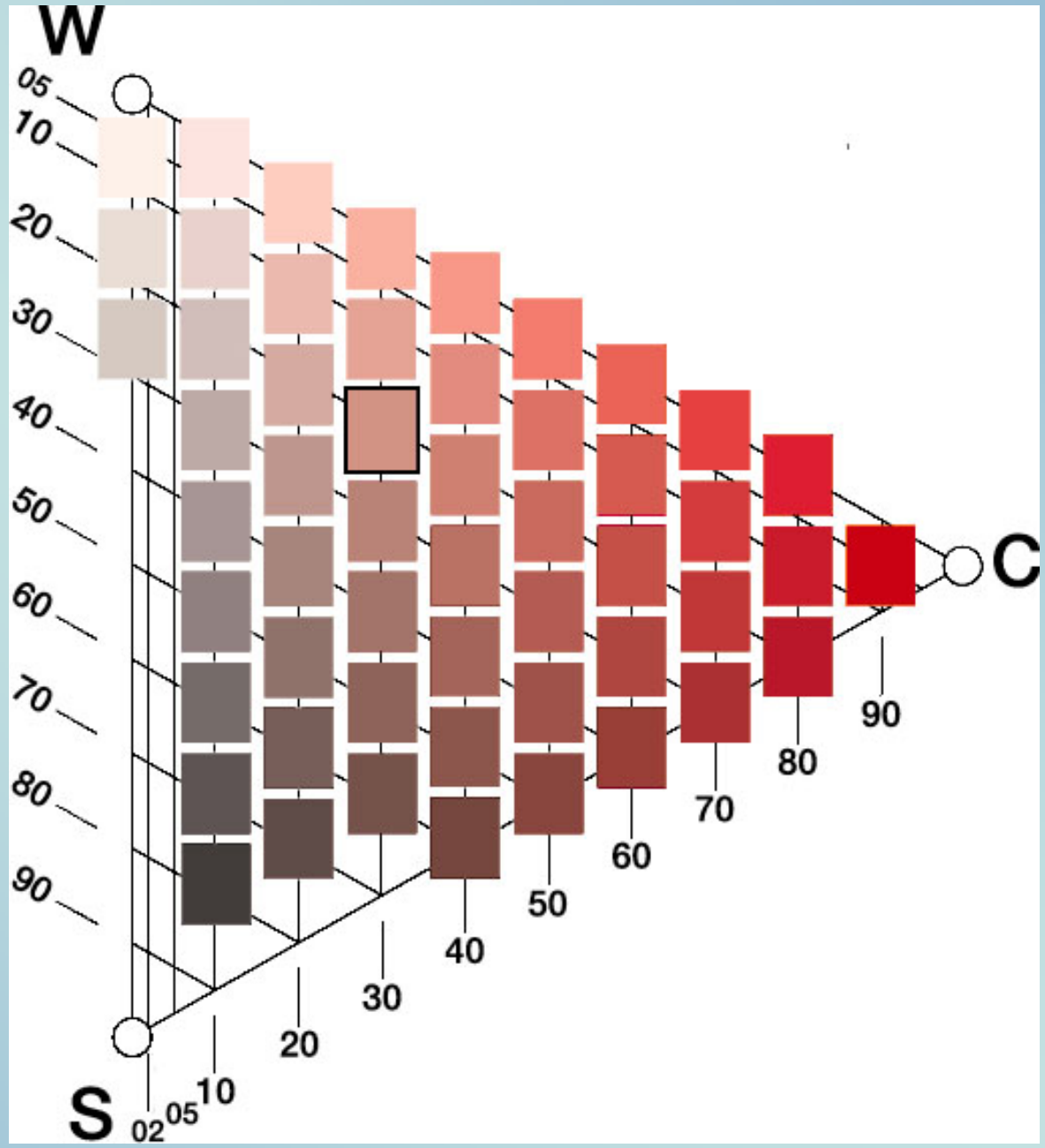


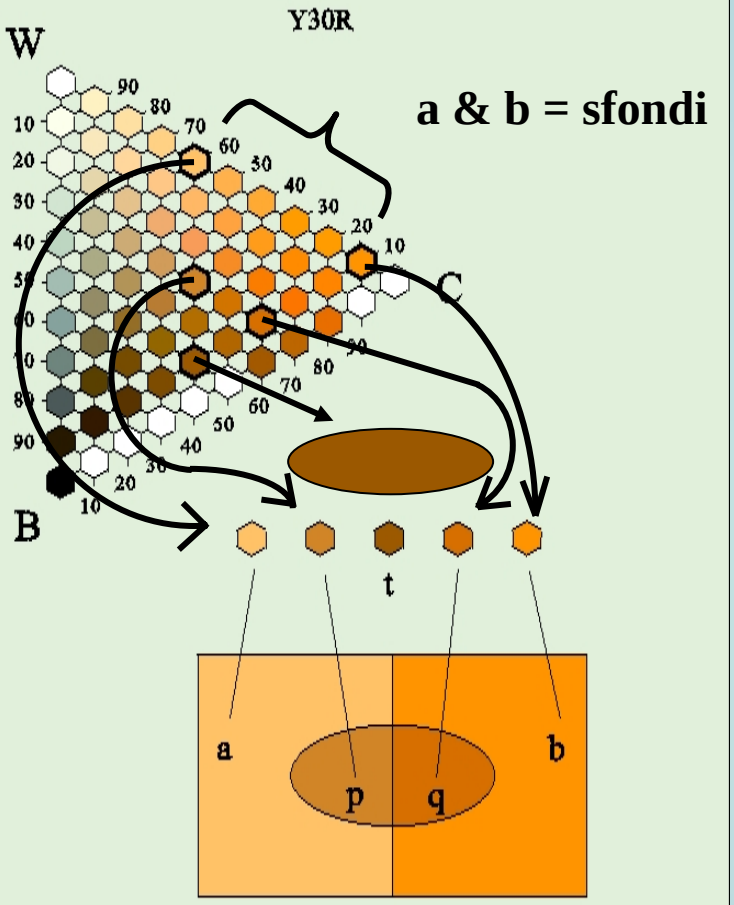


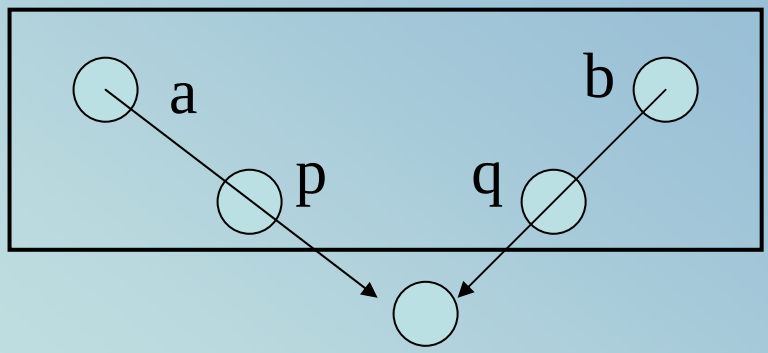
cerchio dei colori
NCS



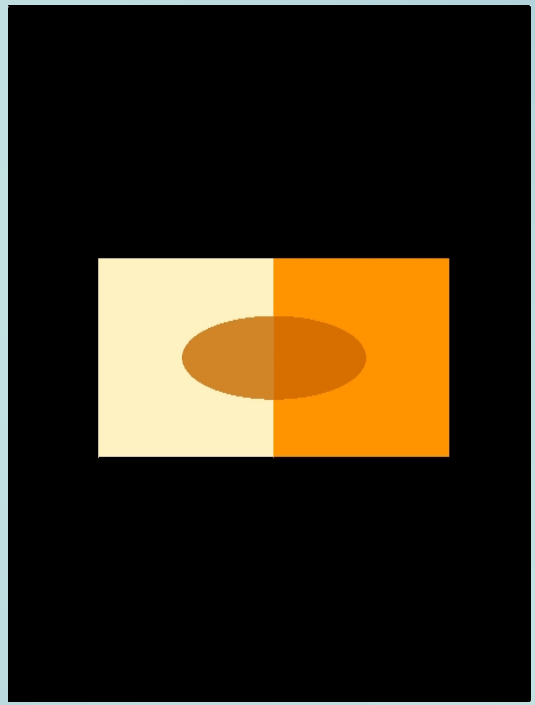
nuances della stessa tinta nel NCS



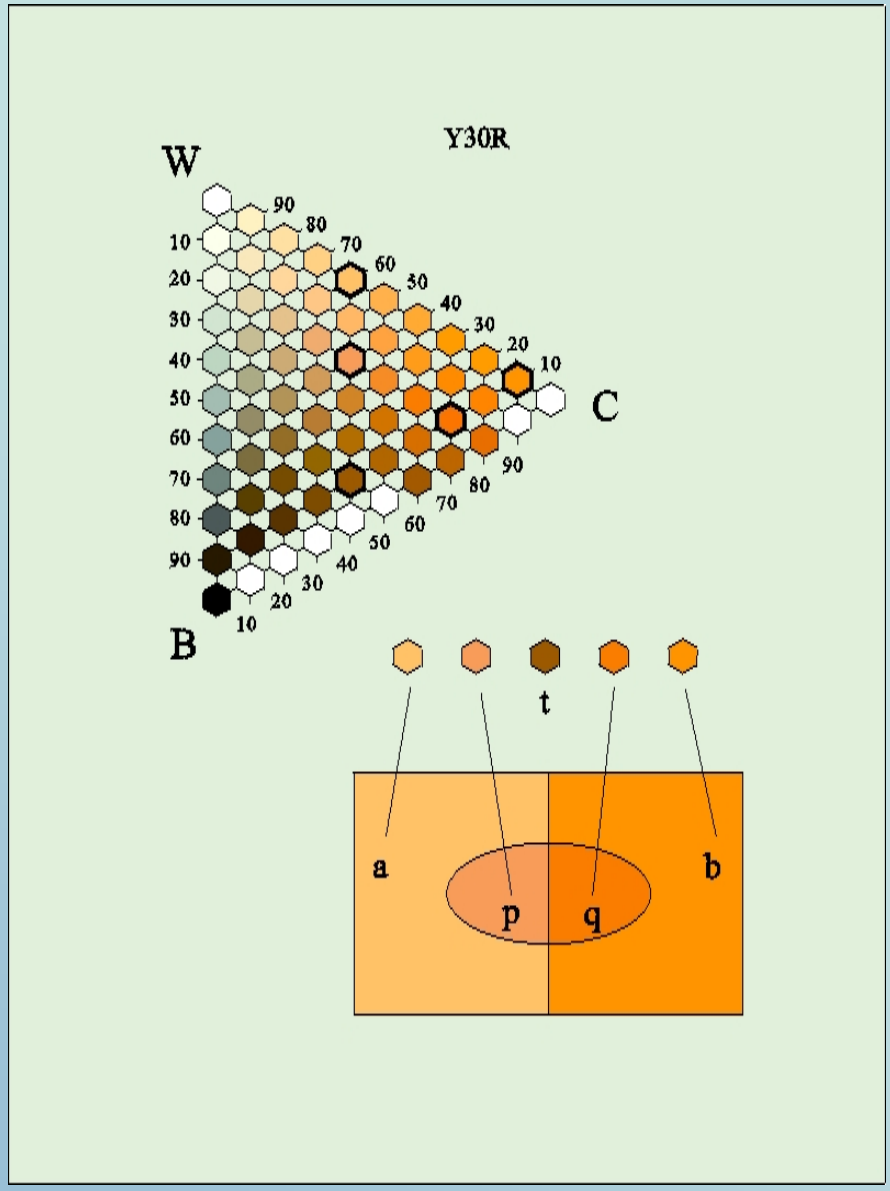


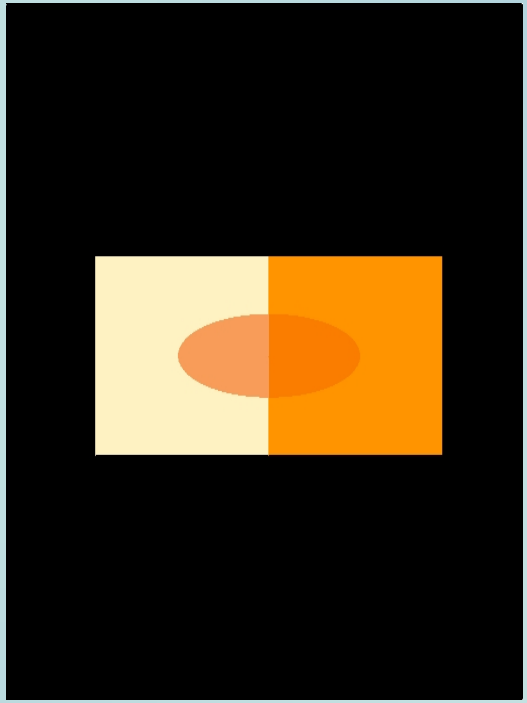


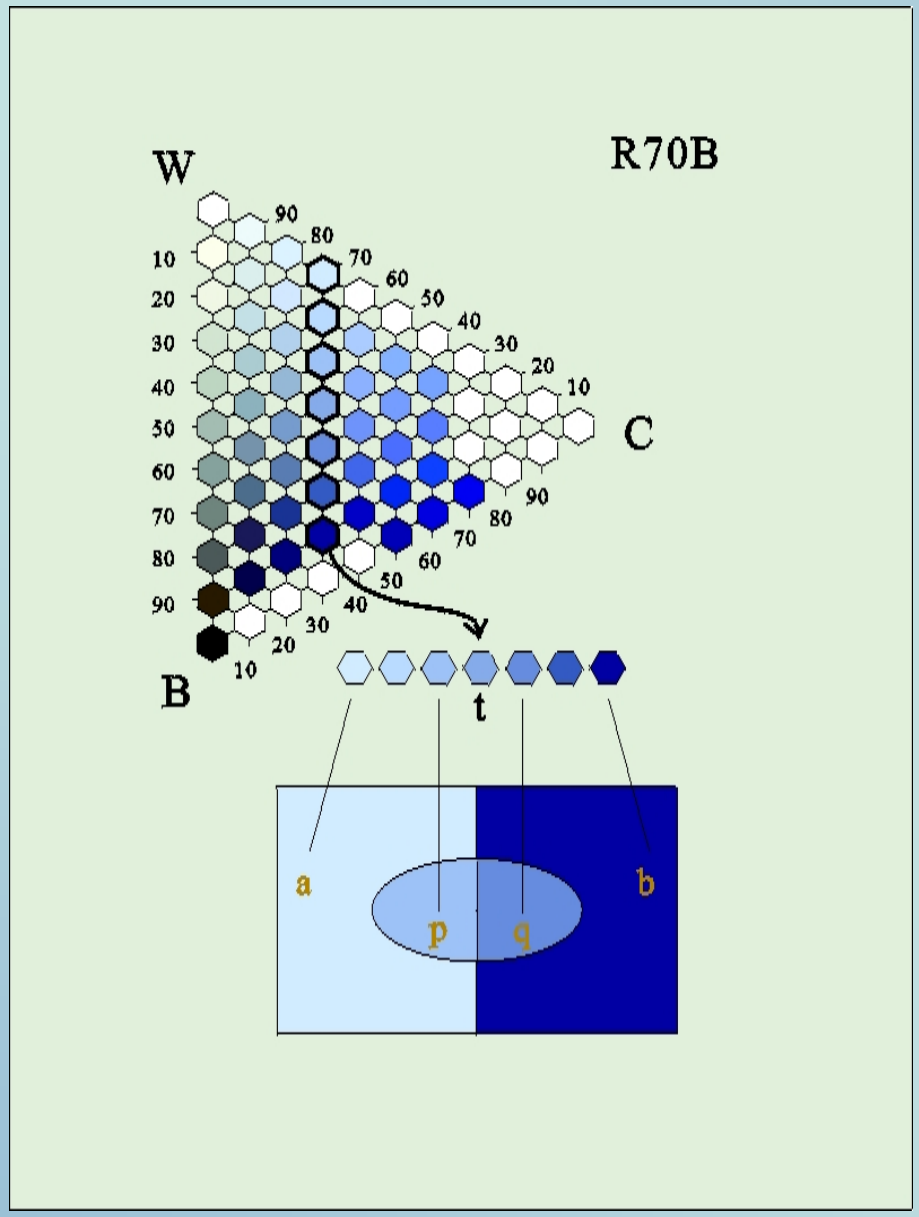
convergenza



Somiglianza tra nuance



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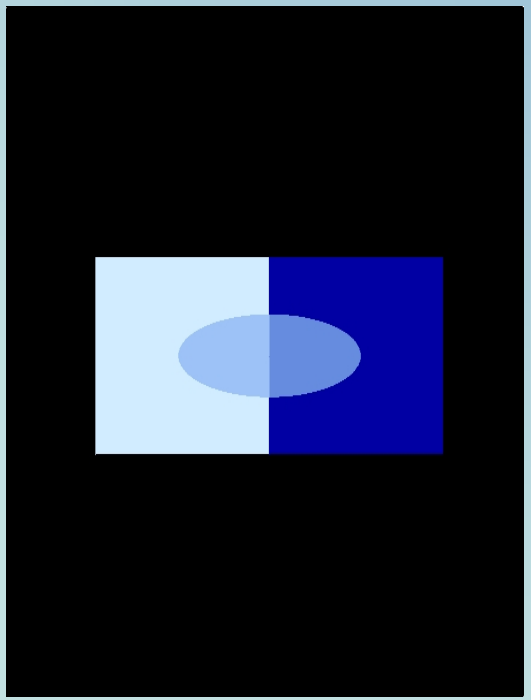

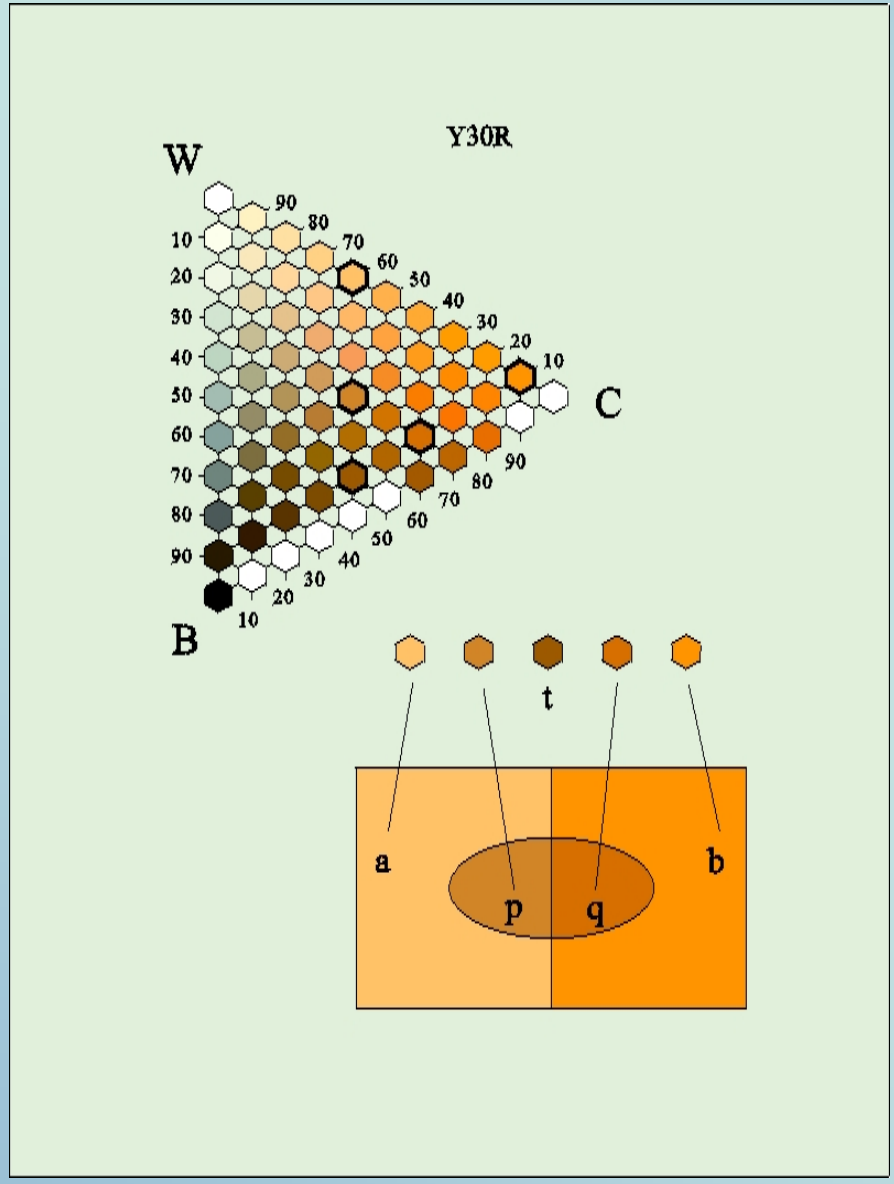
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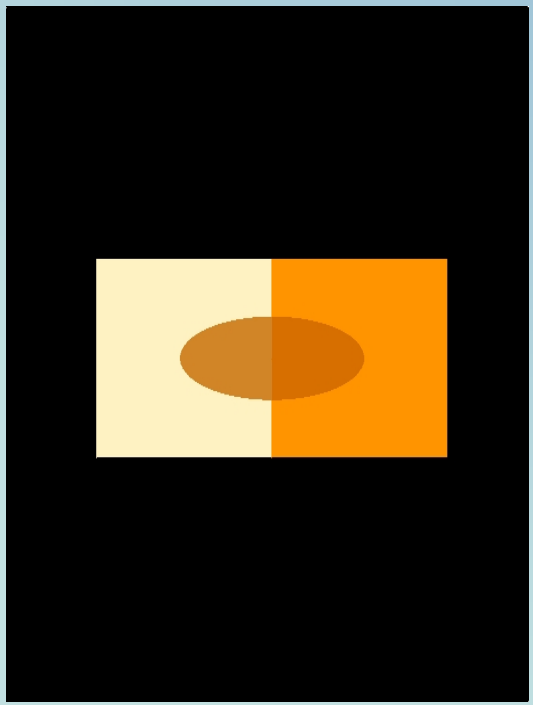

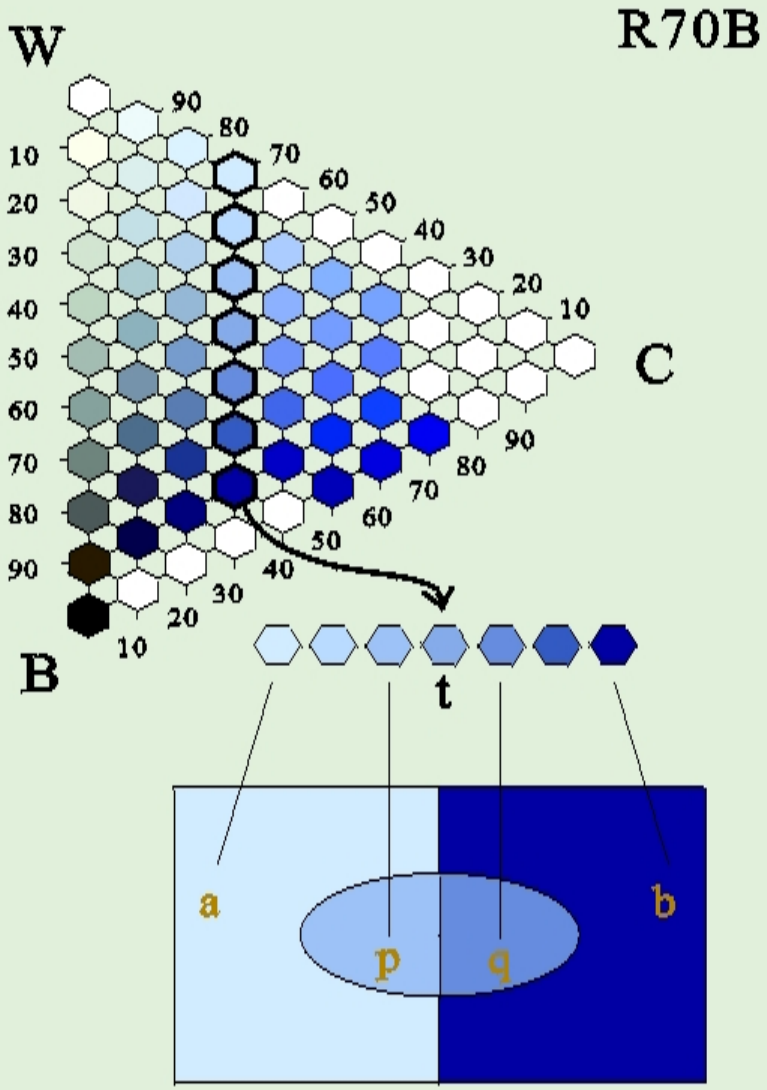
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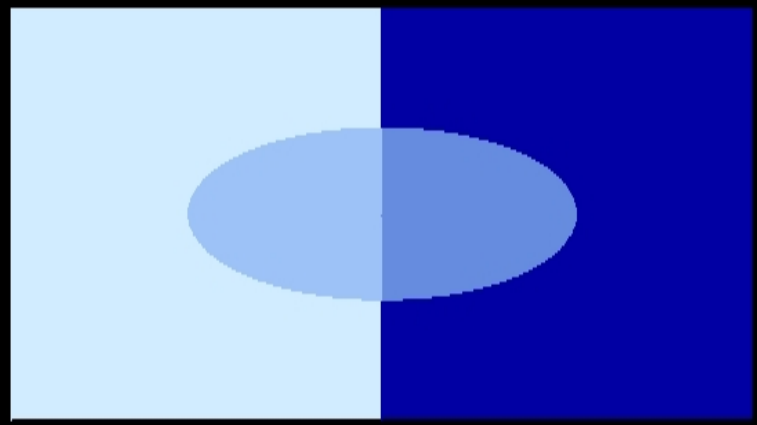

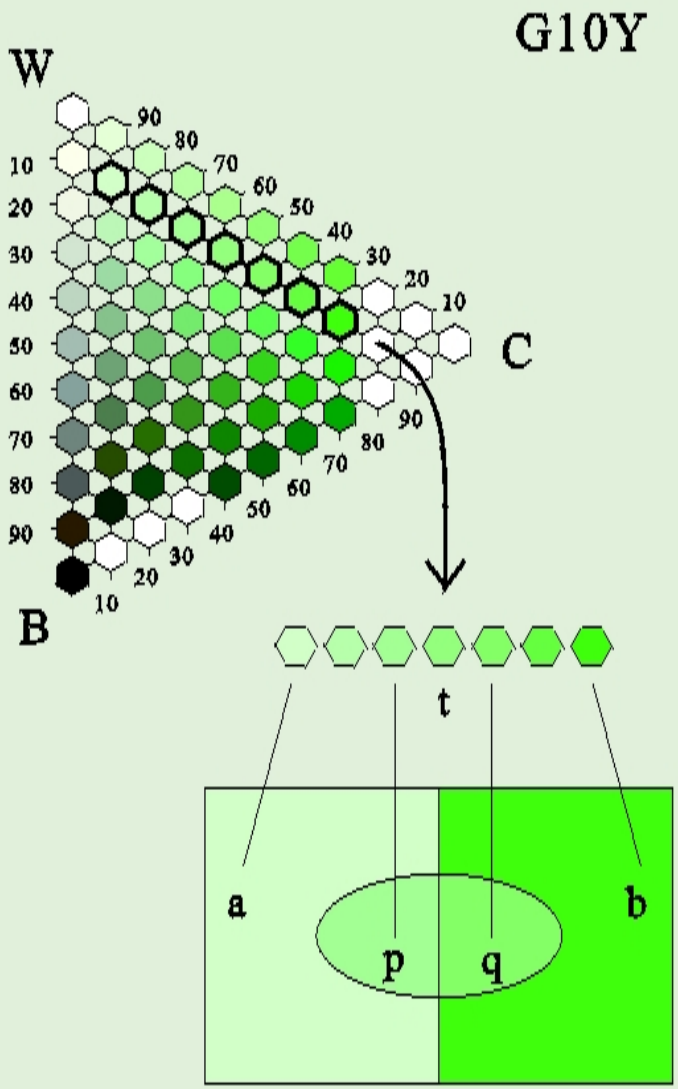
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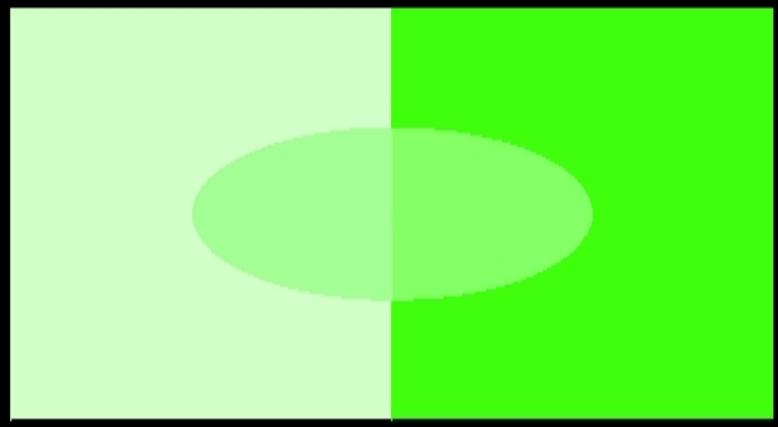
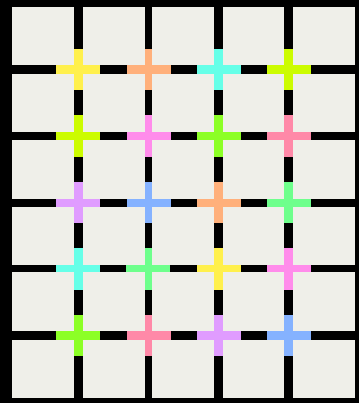
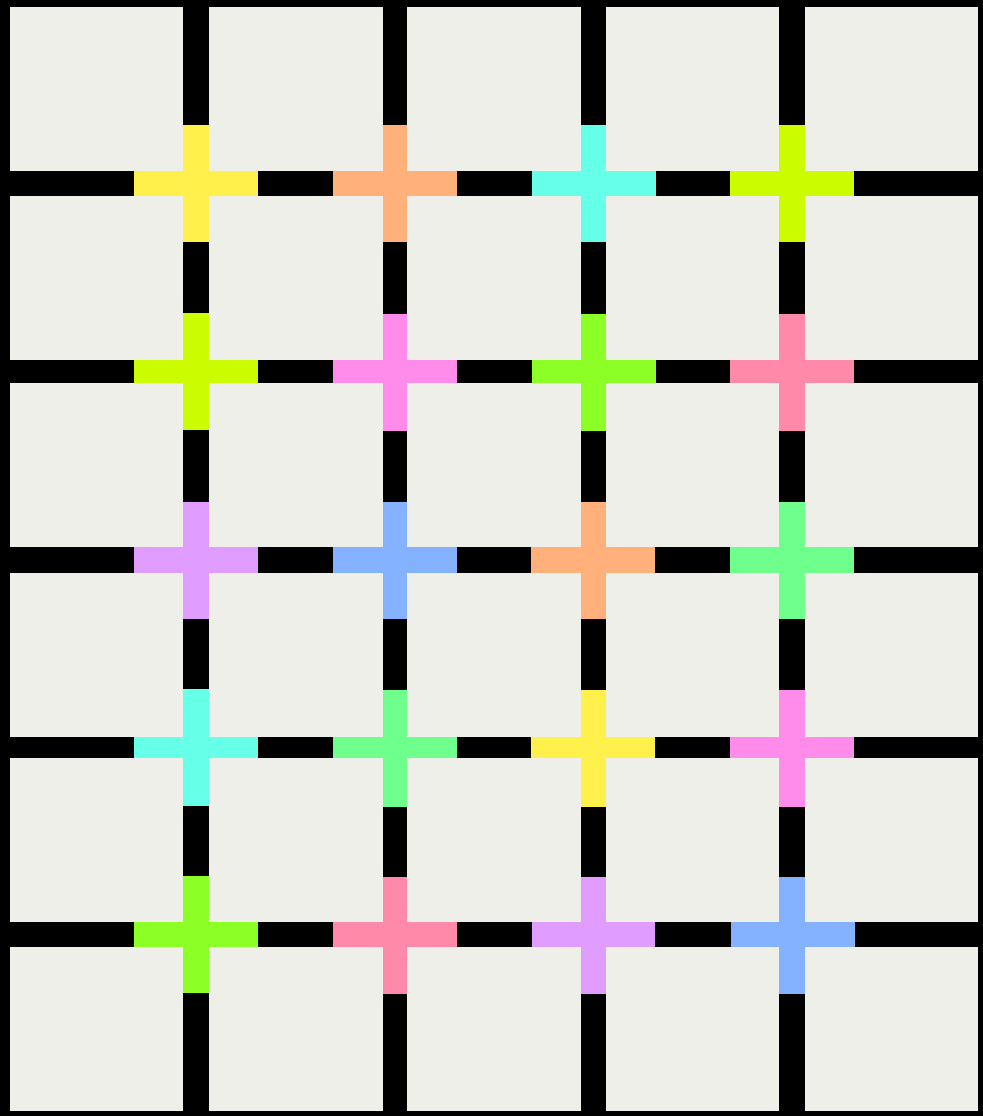


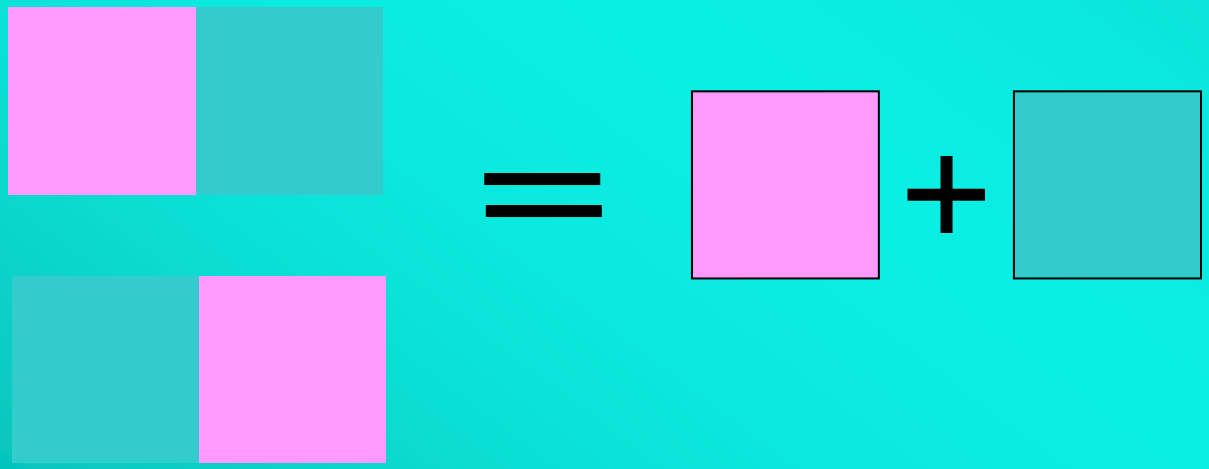




Armonia di colori

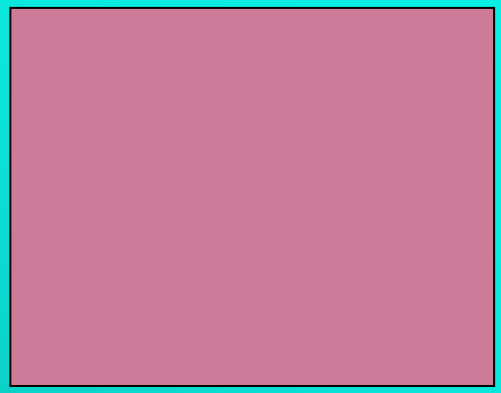
Teoria additiva …

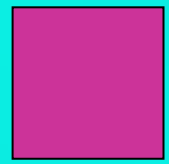
Risultato uguale alla somma delle componenti



Teoria dell'area …

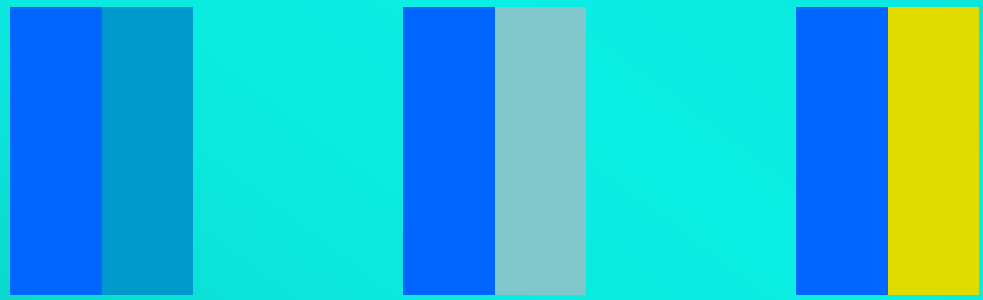
Area inversamente proporzionale alla saturazione





Teoria della differenza cromatica …

Tinte né troppo vicine né troppo lontane



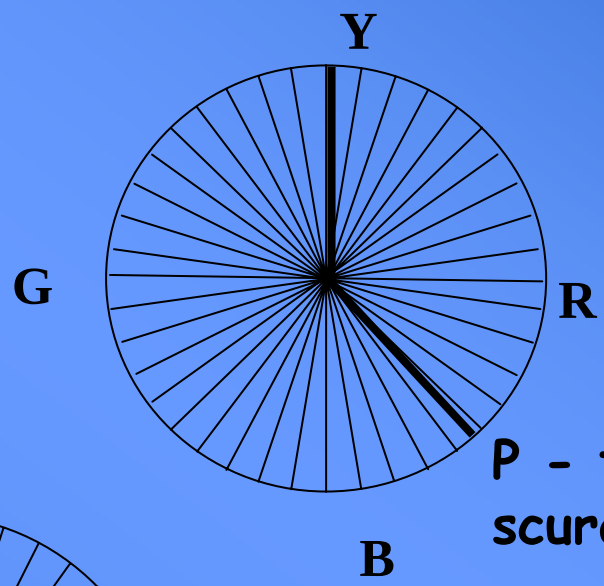
Relazioni caratteristiche:

Lightness (natural lightness of hues
chiarezza naturale delle tinte)

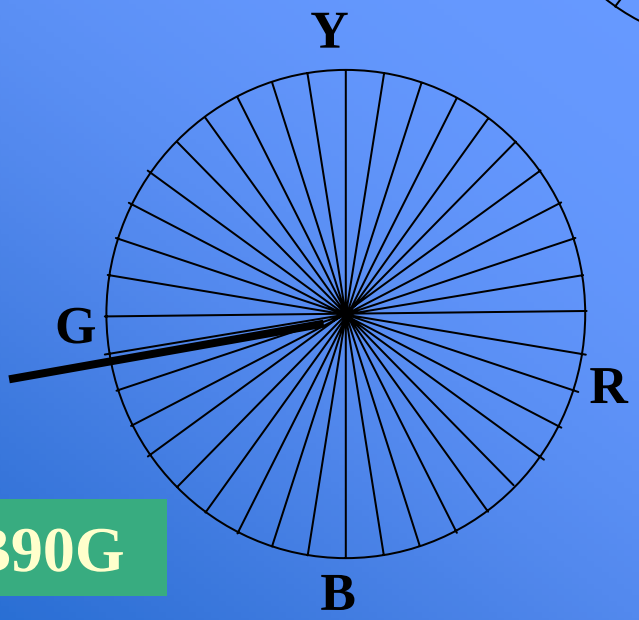
whiteness - bianchezza

blackness - nerezza

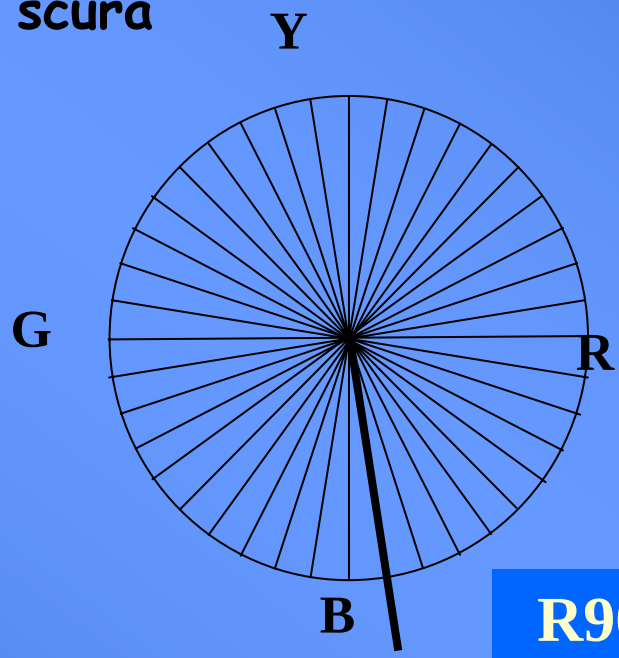
- tinta naturalmente più chiara



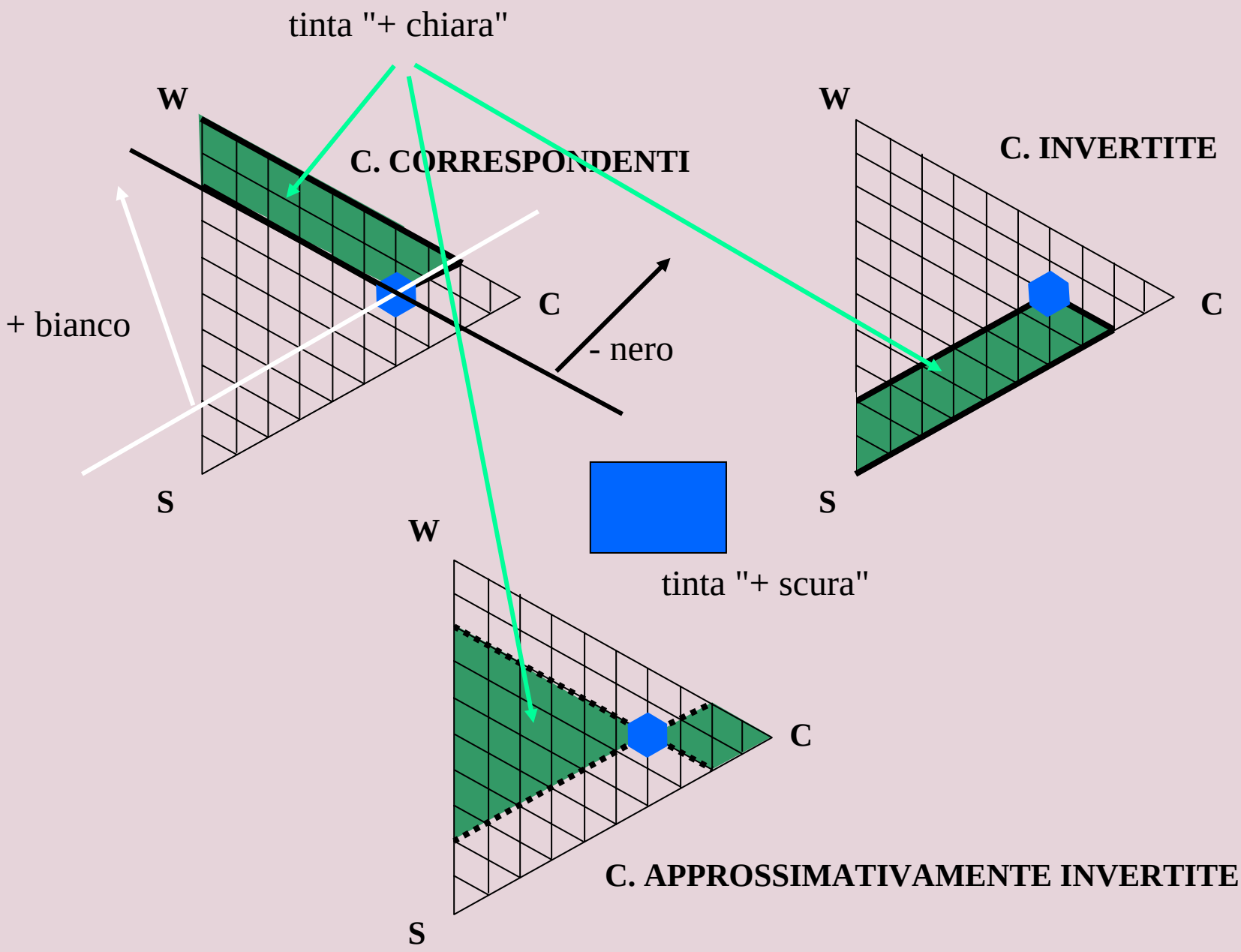
P - tinta naturalmente più scura



B90G

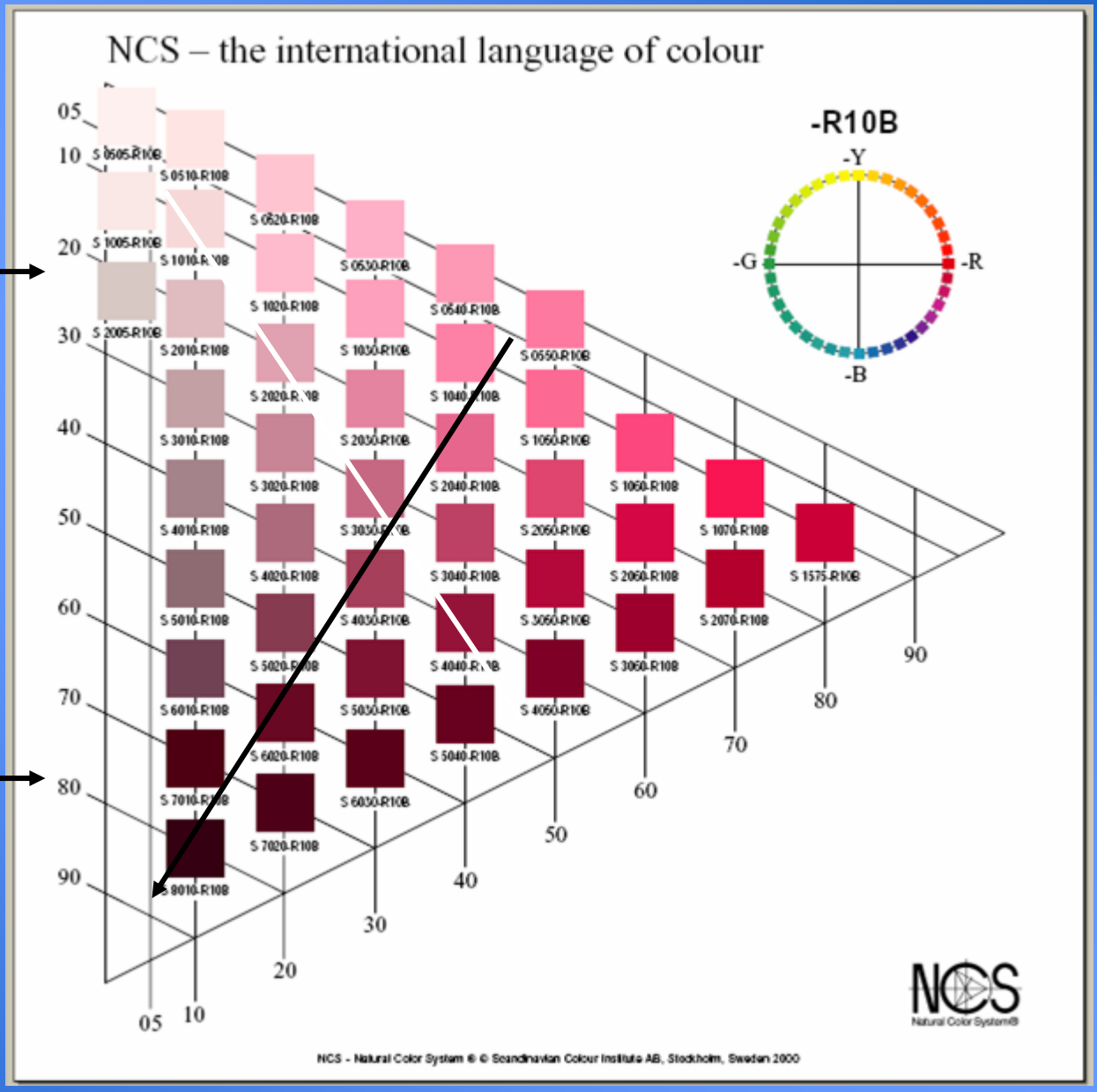


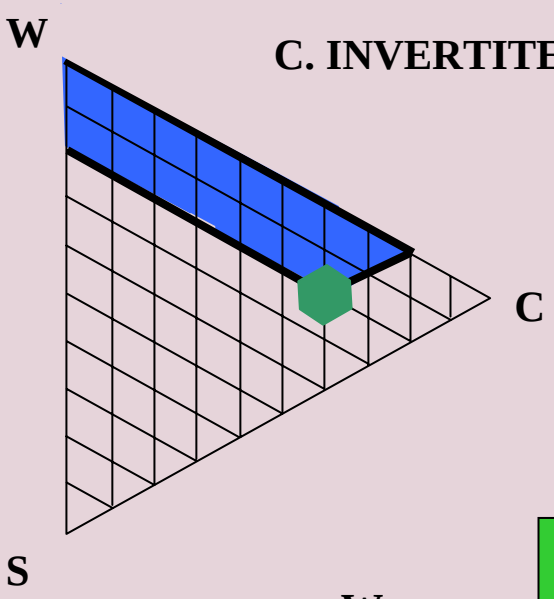
R90B


tinta "+ chiara"
W
C. CORRESPONDENTI
C
+ bianco
- nero
S
W
C. INVERTITE
C
S
tinta "+ scura"
W
C
C. APPROSSIMATIVAMENTE INVERTITE
S

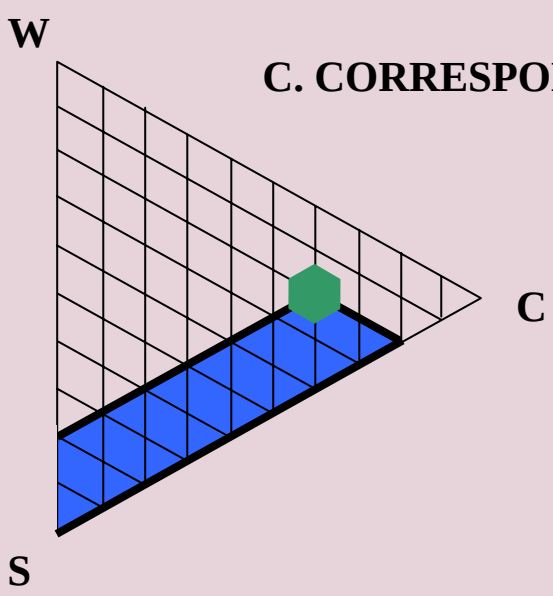
colori che assomigliano più al bianco

colori che assomigliano più al nero



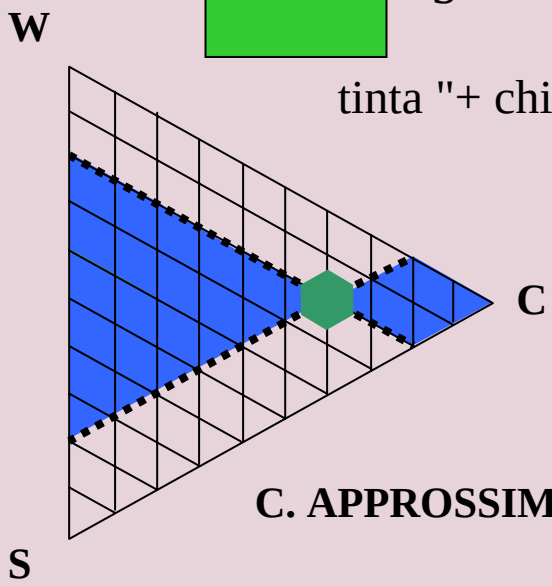


C. INVERTITE



C. CORRESPONDENTI

tinta "+ chiara"



C. APPROSSIMATIVAMENTE INVERTITE

Espressività dei colori :

caldi freddi

ricchi poveri

giovani anziani

forti deboli

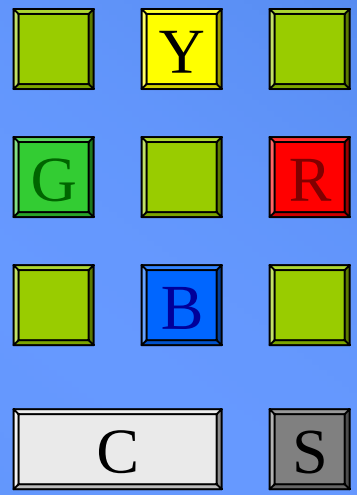
molli duri

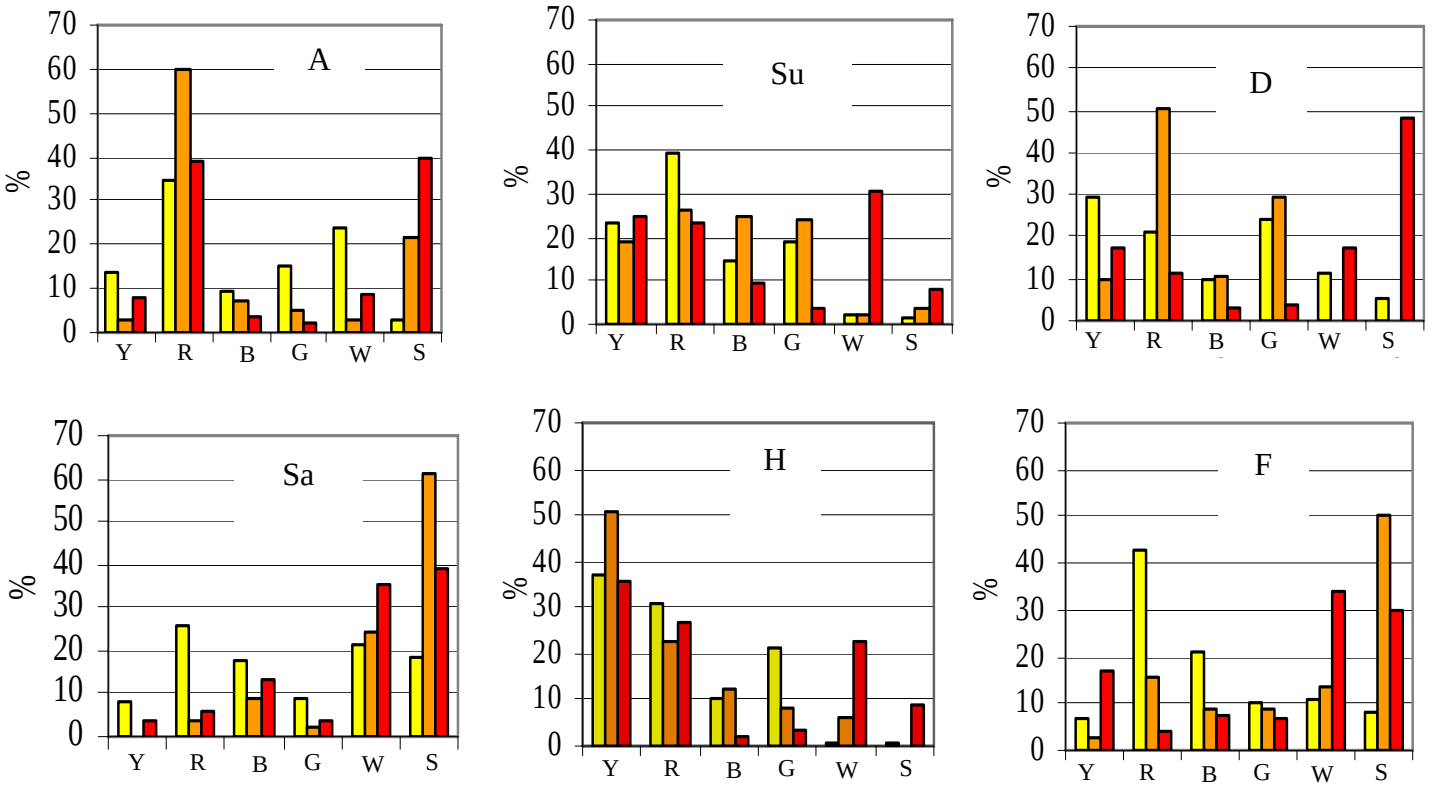
ecc.

Colori ed emozioni

Esempio di associazione colore - emozione

Tastierino numerico modificato





A= rabbia (anger); Su = sorpresa; D = disprezzo; Sa = tristezza (sadness);
H = felicità (happiness); F = paura (fear).
Giallo = Italia (da Pos, Valentini); arancione = Austria (Oberascher, Gallmetzer);
Rosso = Australia (Green-Armitage, da Pos)

animazioni ....