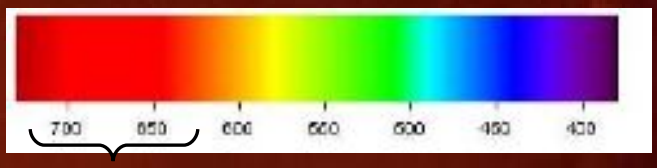
RED COLOUR

- Color coordinates -		
Wavelength		625-740 nm
Frequency		480-405 THz
Hex triplet		#FF0000
sRGB	(r,g,b)	(255,0,0)
B: Normalized to [0-255] (byte)		



The eye is sensitive to a broad band of wavelengths with the approximate range 350-750 nm. The visible spectrum represents only a small fraction of the full electromagnetic spectrum. Within the visible spectrum certain wavelengths give rise to certain visual sensations. For example, the shorter wavelengths are perceived to be violet and blue. It is important, however, to understand that the use of terms such as *blue light* is for convenience only and that this use is not intended to contradict the fact that colour exists only in the mind.

Rojo brillante
Escarlata de cadmio
Laca escarlata
Tono bermellon
Rojo de cadmio
Rojo de cadmio oscuro
Rojo widnsor
Rosa dorado
Rojo de quinacridona
Carmesí de alizarina perm.
Carmin de alizarina
Carmin permanente

BIOLOGICAL:

The human species is able to distinguish with east high accuracy this color within the chromatic scale like most of the vertebrates, since it is easy to see because it has the longer wavelength of the visible phantom (70 nm) and is the one that less deviation suffers in its luminance trajectory, reason why emphasizes of clear form on any other colour. In the human being the haemorrhagic reminiscence of the red colour follows effective and produces in automatic form, preventive effects or exacerbate violence, according to it is observed in the friend or the enemy. The rest of animals has less variety of cones than the human species, but the majority conserves those specialized in catching the frequencies of the red light. To the being red the colour better detected in the nature its relation with the vital fluid, the blood, constitutes a lucky evolutionary election; or perhaps it is that the species able to discriminate better the red one have been those that better have adapted to environment.

THEORIC IMPORTANCE

CULTURAL:

The culture has known to take from Biology the system of symbols of the red colour, something that we can observe in the colour of the road signs that shows danger, attention, or fire risk. Differences exist in as the different countries they perceive the colours since it seems that the sunny and tropical earth inhabitants, have a very sensible vision to the colours of long wave, like oranges, red and yellow. Nevertheless in cold latitudes are more sensitive to the colours of short wave (green and blue). For Buddhist the red colour is associated with the activity, creativity and life, whereas Celts understands it like death and destruction. For the Chinese culture it symbolizes the sun, the resurrection and the good luck. The Christians tie it to the passion of Christ.
In policy the red colour is associated to the left and the revolution, whereas the white is the colour of the conservatism. The Communism is also of red colour generating expressions as "the red threat" and "the red Chinese".
In economy is used to indicate debts or losses like the "red Numbers".
In Spanish culture exist some tie expressions to the red one like: "Love and pain are both the same colour", "When the sun is put red, means that has rain in the eye".

PHYSIOLOGICAL ASPECTS:

-In a study with a sample of 30 adolescents background colour (red/blue) and sound (loud/quiet) were manipulated in a series of computer games. Players using a blue screen improved gradually over the session, while red screen players peaked midway and then deteriorated. A similar pattern for heart rate was found, suggesting that arousal was implicated in the effect. Sound alone had little impact, but the red/loud combination was associated with perceptions of excitement and playing well.
The results suggest that the aura of a computer game may affect cognitive and physiological responses.

- In a study Jeavons and Harding (1975) found that all the colors of the light had an epileptic effects approximately equally. Nevertheless, Takahashi and Tsukahara (1976) found that the red one has more epileptic effects that the white.
Binnie and cols. (1984 (57)) tried to reconcile these unlike results arguing that a red deep color can annul the inhibitory interaction between diverse classes of recipients. Though it is evident that some individuals show major sensibility to a few colors of light than others, the differences are not significant in a scale of group.

- In his book: psychology of color and design, Sharpe (1979) analyzes the association between color and emotion. His results confirm the known association that is established in diverse societies and human cultures between the "warm" colors, as the red one and orange, by the energy or the excitation. Sharpe shows that the galvanic response of the skin is significantly high when the subject observe hot colors, which confirms a biological base of such association because the subjects see themselves really stimulated by them.

Comparative studies:

Comparation of principal colors		Comparation of secondary colors	
Synesthetes(N=110)	Normal(N=50)	Synesthetes(N=110)	Normal(N=50)
A (43%)	A (32%)	A (17%)	A (24%)
E (20%)	E (24%)	E (17%)	E (16%)
I (38%) (White)	I (40%)	I (28%) (black)	I (12%) (black)
O (57%) (White)	O (20%) (Black)	O (12%) (black)	O (16%) (white)
U (23%)	U (26%)	U (18%)	U (18%)
C (33%)	C (22%)	C (16%) (White)	C (16%)
F (28%)	F (12%)	F (15%)	F (12%)
N (31%)	N (8%)	N (18%)	N (14%) (black)
R (30%)	R (40%)	R (15%)	R (10%)
S (28%)	S (18%)	S (20%)	S (18%)
Y (44%)	Y (28%)	Y (11%)	Y (16%)
B (26%)	B (36%)	B (18%)	B (20%)
D (27%)	D (16%)	D (16%)	D (16%)

Comparation of principal colors		Comparation of secundary colors	
Synesthetes (N=6)	Normal(N=50)	Synesthetes(N=6)	Normal(N=50)
1 (50%) (white)	1 (20%)	1 (33%)	1 (18%) (white)
2 (33%)	2 (32%)	2 (33%)	2 (28%)
3 (33%)	3 (26%)	3 (16%)	3 (24%)
4 (33%)	4 (26%)	4 (16%)	4 (20%)
5 (66%)	5 (26%)	5 (33%)	5 (22%)
6 (50%)	6 (22%)	6 (16%)	6 (16%)
7 (33%)	7 (24%)	7 (16%)	7 (18%)
8 (50%)	8 (20%)	8 (16%)	8 (16%)
9 (50%)	9 (18%) (black)	9 (33%)	9 (17%)
0 (50%) (white)	0 (52%) (white)	0 (33%)	0 (30%) (black)

Comparation of principal colors		Comparation of secundary colors	
Synesthetes(N=6)	**Normal(N=50)**	Synesthetes(N=6)	Normal(N=50)
Monday (50%)	Monday (24%) (black)	Monday (33%)	Monday (22%)
Tuesday (33%)	Tuesday (26%)	Tuesday (33%)	Tuesday (22%)
Wednesday (50%)	Wednesday (26%)	Wednesday (16%)	Wednesday (20%)
Thursday (33%)	Thursday (30%)	Thursday (16%)	Thursday (22%)
Friday (50%)	Friday (32%)	Friday (16%)	Friday (16%)
Saturday (33%)	Saturday (28%)	Saturday (33%)	Saturday (16%)
Sunday (50%)	Sunday (24%)	Sunday (33%) (black)	Sunday (20%)

Explanations:

With the consulted studies do not coincide all the percentages with regard to the colors that the synesthetes associate to the letters and numbers.
The information of the normal sample has been gathered and analyzed by us and the information of the synesthetes has been garthered and analyzed from several studie. has to be born in mind, that the association of letters and colors might influence the language of the subjects being in case of the normal sample fastened Spanish, and the sample of subjects synesthetes were english speakers.

Conclusions:

-There are some coincidences between normal and synesthetes subjects, for example both see the letter "A" in the same color, in both conditions.
-With regard to the numbers, the only one that we can see a great coincidence between both groups of subjects, is the "0", which the white color is associated.
-We can see that both groups associate the same color to Tuesday (green), and secondly they associate the color blue to monday.
- There are more coincidences , but we do not consider it significant (see tables)

Bibliography:

-http://redalyc.uaemex.mx/redalyc/pdf/582/58242403.pdf
-http://www.oftalmo.com/ergo/ergo1998/08cap08.htm
-http://www.sensequence.de/indexen.html
-http://home.comcast.net/~sean.day/html/synesthete_experien
-http://www.ugr.es/~setchift/docs/tesina_matejhochel.pdfces.html
-http://hera.ugr.es/tesisugr/16134540.pdf
-http://es.wikipedia.org/wiki/Rojo
-Day, Sean A. 2001. "Trends in Synesthetically Colored Graphemes and Phonemes" http://www.trismegistos.com/IconicityInLanguage/Articles/Day/default.html
-Day, Sean A. 1996. "Trends in Colored Letter Synesthesia." http://web.mit.edu/synesthesia/www/trends.html
-http://www.encuentros.uma.es/encuentros104/cables.htm
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-http://wwwscielo.isciii.es/pdf/aue/v29n9/com_esp.pdf
-http://www.silosgalery.com/es/acuarela-artist.html
http://www.mtc.gob.pe/portal/transportes/asuntos/proyectos/pvis/tramo_3/eia/etapa_i/8/8.2/rehabilitacion_y_mantenimiento.pdf

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