

A Chromatic Hexagon of Psychic Dispositions

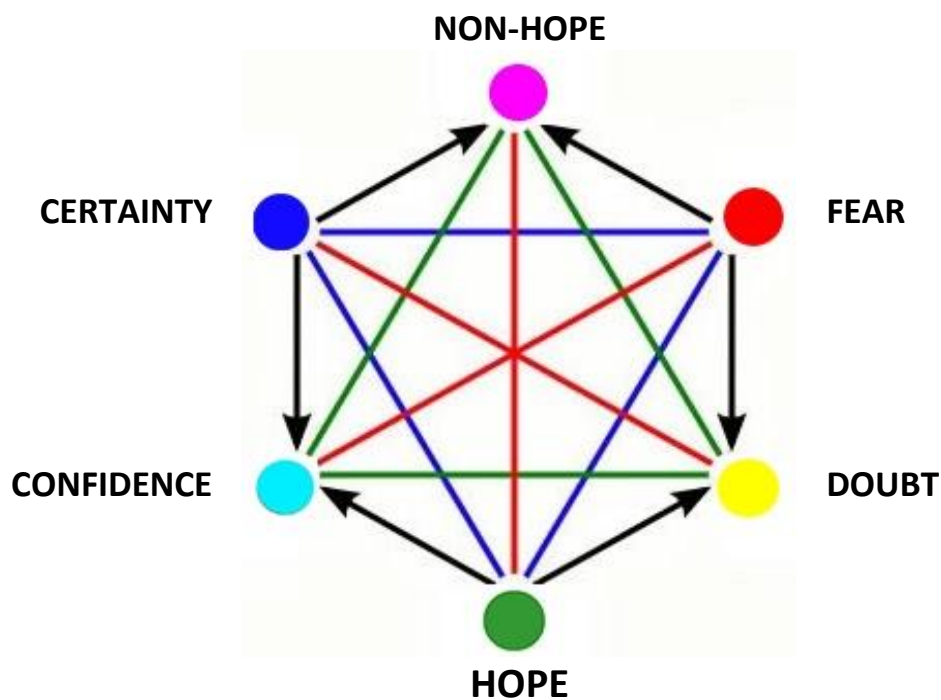
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*La peur au ventre, j'avancais dans le noir
avec l'espoir qu'un jour,
sans avoir à en voir de toutes les couleurs,
je ne douterai plus que je puisse atteindre la certitude*
Baron de Chambourcy

Abstract

We develop a theory of psychic dispositions inspired by color theory, using the latest developments of this theory using the hexagon of opposition.

Keywords

Colors, Psychic Dispositions, Emotions, Square of Opposition, Hexagon of Opposition

1. Colors, Apuleius and Psyche

The relation between colors and psyche can be developed in different ways. We can go from colors to psyche or from psyche to colors. The former makes more sense than the latter for two interrelated reasons. The theory of colors is better developed and colors are more precise. The situation with psyche is quite chaotic. We don't know how to characterize it.

The problem is right at the start, with the name. Psyche is standardly defined as: "the human soul, spirit, or mind".¹ Each of these "things" is in fact problematic. A more precise thing is the brain, but to use it would be controversial. We want to stay neutral with regards to the relation between the brain and the psyche.²

Within *psyche* we can encompass emotions, feelings, thoughts, sensations, intuitions, desires, will, intelligence ... a true Pandora's box! Pandora is really a nice girl but Psyche is not Pandora. Our choice is for Psyche in particular because Apuleius wrote the famous story of *Psyche and Eros*, part of the *Golden Ass*, and at the same time he is famous for (one of) the first square of opposition, a tool we will use here to apply colors to psyche.



We will not deal in this paper with all aspects of the psyche, only with certain moods that are not necessarily easy to qualify or distinguish from others. We decided for this paper to start by the end, having put at the beginning of our paper the result of our investigation. This is not necessarily absurd although such kind of strategy may look at first sight a bit artificial and/or authoritative. But it is rather like when telling the story of a journey starting with the picture of the castle we arrived to catch the attention of the

¹ Definition given by Dictionary.com

² We have however been working on the brain, with Patrick Suppes (*Suppes Brain Lab, Stanford University*), see (Suppes-Beziau 2003).

reader. And we don't consider our hexagon of psychic disposition as an absolute truth, just as a proposal, hopefully an interesting one.

Our approach is theoretical, therefore it is necessarily normative. Our objective is not for example to describe all what has been understood by "fear", "Angst", "peur" or "medo". Certainly fear has thousands of manifestations, and what we are trying to do is to catch something which is invariant behind all these appearances. But we don't understand this as a kernel of fear, because it is not something purely internal, an inner nature of fear, if any.

We choose here a structural approach according to which something makes sense in relation with other things. We are considering here two levels of relations: relations between psychic dispositions, relations between these dispositions and colors. The former will be understood using the latter, since roughly speaking we will develop a structure of psychic dispositions isomorphic to the structure of colors.

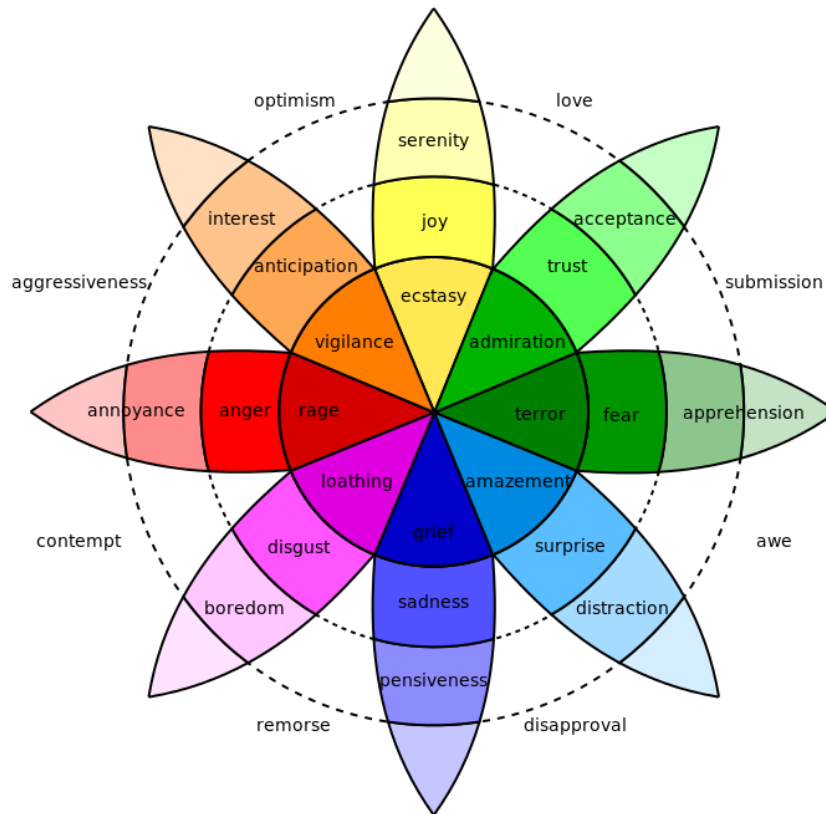
People are sometimes trying to associate colors to emotions and vice-versa. For example anger is commonly associated to red. These associations may be interesting but most of the time they seem rather arbitrary or/and confuse. Confusion is on both sides: people are using an approximate theory of colors and what they understand by emotions is not clear at all.

Our proposal here is to start to develop a theory of psychic phenomena based on colors, with the logical theory of colors recently developed by Dany Jaspers using the hexagon of opposition (Jaspers 2012).

Before starting to explain our chromatic hexagon of psychic dispositions we will first make a critical examination of something which looks very similar, Plutchick's wheel of emotions. This detour is a way to explain and justify our methodology.

2. Plutchick's Wheel of Emotions

Robert Plutchick (1927-2006) is an outstanding American psychologist who was professor at the *University of South Florida* and at *Albert Einstein College of Medicine* in New York. He has systematically studied emotions and developed a correspondence between colors and emotions that he has crystalized in a *wheel of emotions*:



Let us first admit that this picture is more beautiful than our chromatic hexagon. The curved forms are more elegant and it looks like a flower. Also the variation of colors is larger and smoother. If we had to compete with Plutchik in a beauty contest, he would most probably win. But some people may be suspicious with Plutchik's wheel because of its attractive beauty. Seduction is dangerous. Note however that all what is beautiful is not necessarily seductive.

Many philosophers have an aversion for visual representations, even more if they are colorful. For their mode of expression they stick to a black and white alphabetic writing. This suspicion may be traced back to Plato but in the modern world there are other reasons, spectacular colorful images are on the one hand used by advertisers to influence our choice, on the other hand by pseudo-scientists.

By *advertiser* we mean here anybody using advertisement broadly understood, including political or religious propaganda, not only sale advertisement. There is indeed a mix, nowadays publicity agencies may work both for companies or political parties. Jacques Séguéla (RSCG and Havas) is a symbol of this mixture having successfully contributed two times to the election of the French president François Mitterrand (*La Force tranquille* 1981; *Génération Mitterrand*, 1988).

Advertisers are playing with our emotions. Salers are trying to systematize this game into a winning strategy. Here is table summarizing the rules of the game:³



In the case of Robert Plutchick, it does not seem that he wanted to use colors as a selling strategy, at best to sell its own theory. But since his theory is about color, the accusation looks unfortunate. What can be criticized is the wheel of colors as a diagram expressing a theory: one can claim that it is an artificial simplistic construct trying to catch our attention, like a flag or a logo. It is a methodology frequently used by pseudo-scientists and new age philosophers. But it is not because a powerful tool is superficially or artificially used that it has to be rejected.

Symmetry, one of the characteristics of the above wheel, is not necessarily considered as simplistic; it can also be viewed as a form of harmony and has been praised by mathematicians and physicists (cf. group theory and its numerous applications). Moreover diagrams and symbols can be very useful in science and reasoning (see Lefèvre 2003 and other references in our bibliography).

Our criticisms of Plutchik are not so much about the methodology used, we are using a quite similar approach, but about the details of his wheel:

- (1) The way the colors are displayed.
- (2) What are considered as emotions.
- (3) The relation between colors and the so-called emotions.

³ About *rules of the game* see Pequeno-Beziau, 2011.

Plutchick distinguishes eight primary emotions, which he considers as pairs of opposites: <anger; fear>, <joy; sadness>; <anticipation; surprise>, <disgust; trust>. The idea to use opposition in principle is good, but it is done in a rather fuzzy way. We don't consider our hexagon itself as an improvement of Plutchick's wheel, but our methodology can be seen as an improvement of the one used by him.

3. The Various Faces of Psyche

Before applying logic color theory to our psyche, we will first investigate how we can understand it. Sometimes people graft a theory on something artificially. We want to avoid that. Let us therefore first examine and discuss our psyche. It is a quite complex thing and we will neither dissect, nor vivisect it here.

One and the same thing can be seen in a different ways. We are talking here about objective perspectives; we are not promoting a relative subjectivism that can go up to delirium.

The psyche can be divided in various manners. We will here just consider Plato's tripartition illustrated by the allegory of the chariot. This is also the reason we are using the word "psyche", the original word used by Plato, although we don't follow his theory.



The three characters of the chariot have Greek names which are not straightforwardly translatable: λογιστικόν, θυμοειδές, ἐπιθυμητικόν; allegorically corresponding respectively to the charioteer, the black horse and the white horse.

Even if we succeed more or less to understand who the three characters of this tragedy are symbolizing, it is not easy to understand to what kinds of things these creatures correspond. This is related to the problematic nature of the psyche. We can see these three creatures as three *faculties* of the psyche, a faculty being understood as similar to an organ of our body: heart, liver, stomach, pancreas, etc. But they can also be seen as three *moods*, or three tendencies.

Sometimes an analogy is made between organs of our body and aspects of our psyche, reinforcing in some way an organic view of our psyche. For example a correspondence is established between the duality reason/emotion and the duality brain/heart. Love is often associated with the heart and intelligence with the brain. But then where to put, let's say, imagination? In the bladder?

And it is not easy to isolate a part of our psyche corresponding to the word "emotion". How to identify an emotion? Everybody would agree that anger is an emotion. But are impatience, certainty, surprise, boredom, pity, loneliness, pride, laugh ... emotions? It is not at all clear that all these "things" can be put in the same bag, in the same category. Laugh for example can be seen rather as the result or expression of an emotion.

We can contrast *Emotion* to two other close fields: on the one hand *Sensation*, on the other hand *Feeling*, emotion being at the middle. Sensation can be considered as something more physical, like hunger and feeling as something more mental or/and connected with the soul, like melancholy. From this point of view, jealousy, anger and perhaps also pity would rather be emotions. We will develop this *SEF*-theory in another paper.

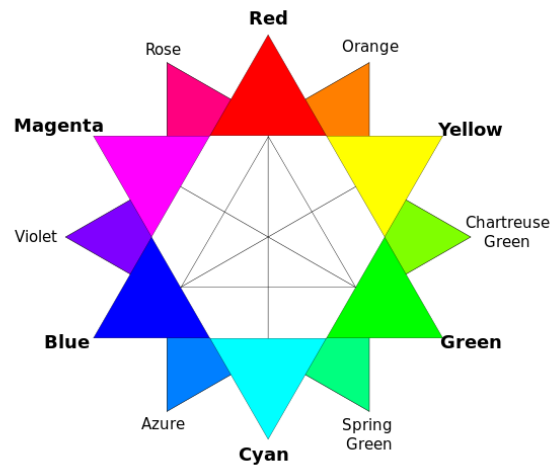
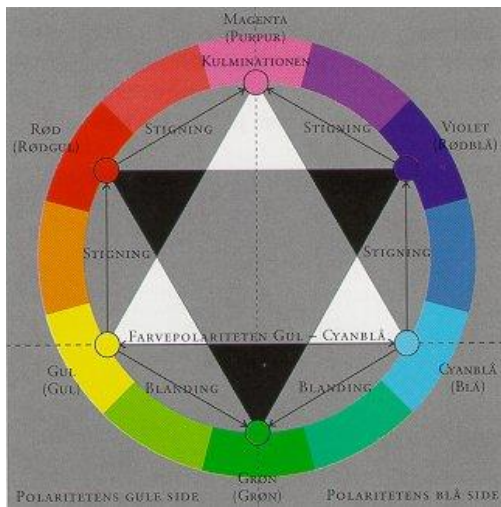
Here we are considering other aspects of the psyche, which is not necessarily completely disconnected from emotions, but what appear in our hexagon are better qualified as psychic dispositions than emotions or faculties.

Fear is not necessarily to be understood at the same level as anger, according to our *SEF*-tripartition it is closer to a sensation than an emotion but is it really a sensation like hunger? In the case of certainty or doubt it seems even more difficult to put them in the box of emotions or the box of sensations.

The dispositions we are talking about are a kind of attitudes of our psyche towards a situation or a person. But they are not all kinds of dispositions, for example surprise does not appear in our hexagon (Plutchik qualifies surprise as an emotion). Also do not appear in our hexagon curiosity, wonder, suffering, pleasure (They also do not appear in Plutchik's wheel).

4. The Logic Hexagon of Colors

Colors have been represented by different diagrams, wheels or /and polygons. Let us have a look at some of them:



In both of the two above diagrams there are 12 colors by contrast to the 32 colors of Putchnik's wheel (8 leaves with a 4 variation of colors inside each leaf) and the 6 corners of our hexagon. The diagram on the left is a wheel with inside a Star of David with slight lines suggesting a hexagon. The diagram on the right is a 12-pointed star (no lines are drawn to suggest a dodecagon) with 12 leaves in form of triangles with inside a shape of a hexagon and inside the hexagon some lines representing in particular a triangle. Note that Plutchik's diagram is indeed neither a wheel, nor a polygon, nor a star, it is a "flower" with 8 leaves. All these forms are drawn / presented without much explanation. It is a *what you see / what you get* scheme.

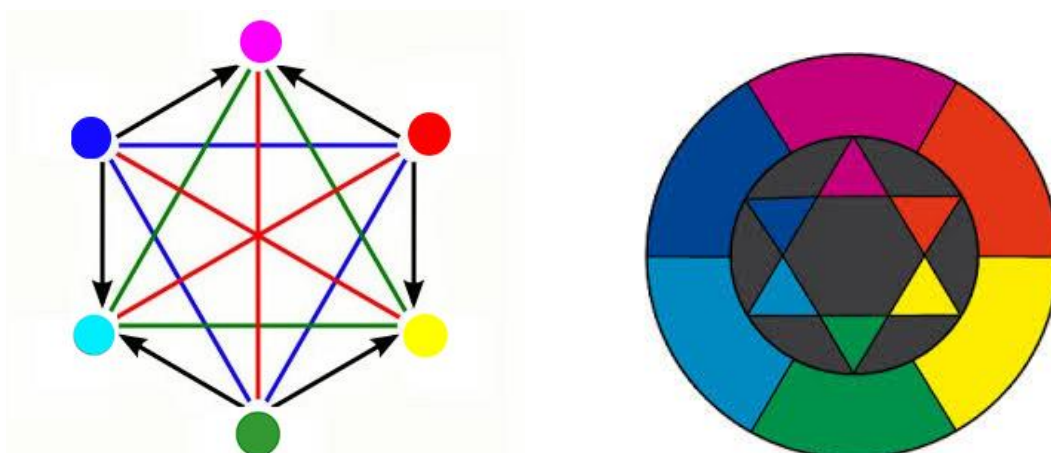
But then what is the privilege of these pictures over a rainbow (which has moreover the advantage to be a natural thing):



There are indeed much more than 6, 8, 12 or 32 colours. Here is a table with 48 colors with their names and html codes:

					
purple (#7e1e9c)	green (#15b01a)	blue (#0343df)	pink (#ff81c0)	brown (#653700)	red (#e50000)
					
light blue (#95d0fc)	teal (#029386)	orange (#f97306)	light green (#96f97b)	magenta (#c20078)	yellow (#ffff14)
					
sky blue (#75bbfd)	grey (#929591)	lime green (#89fe05)	light purple (#bf77f6)	violet (#9a0eea)	dark green (#033500)
					
turquoise (#06c2ac)	lavender (#c79fef)	dark blue (#00035b)	tan (#d1b26f)	cyan (#00ffff)	aqua (#13eac9)
					
forest green (#06470c)	mauve (#ae7181)	dark purple (#35063e)	bright green (#01ff07)	maroon (#650021)	olive (#6e750e)
					
salmon (#ff796c)	beige (#e6daa6)	royal blue (#0504aa)	navy blue (#001146)	lilac (#cea2fd)	black (#000000)
					
hot pink (#ff028d)	light brown (#ad8150)	pale green (#c7fdb5)	peach (#ffb07c)	olive green (#677a04)	dark pink (#cb416b)
					
periwinkle (#8e82fe)	sea green (#53fca1)	lime (#aaff32)	indigo (#380282)	mustard (#ceb301)	light pink (#ffd1df)

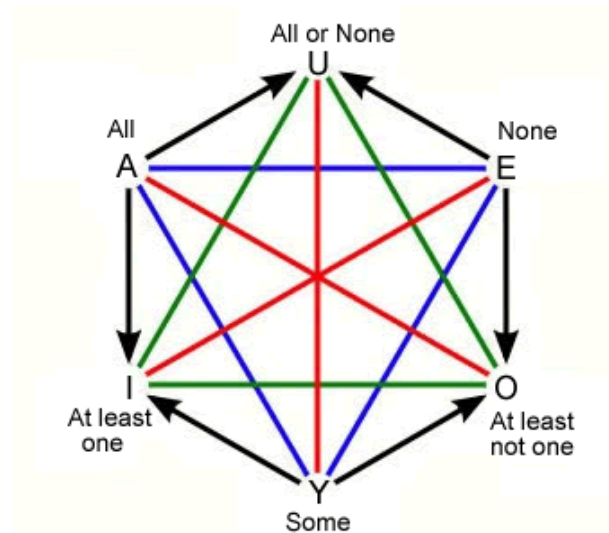
But according to the actual theory of colors, there are only three primary colors and three secondary colors. These six colors are those represented in our hexagon, they can also be represented in a wheel / star of david:



One important difference between these two pictures is the internal structure of our hexagon. Goethe focusing on the right six color wheel noted

the importance of the hexagon, but in a rather mystic way, without being able to explain its true value. He just said: “we presently arrive at the ancient mysterious hexagon” (Goethe 1840).

One of the mysterious aspects of the hexagon revealed by Robert Blanché is its oppositional configuration generalizing/improving Apuleius’s square of opposition. Let us consider the classical exemplification of the hexagon of opposition resolving the *aporia* of Apuleius-Boethius’s square of opposition:



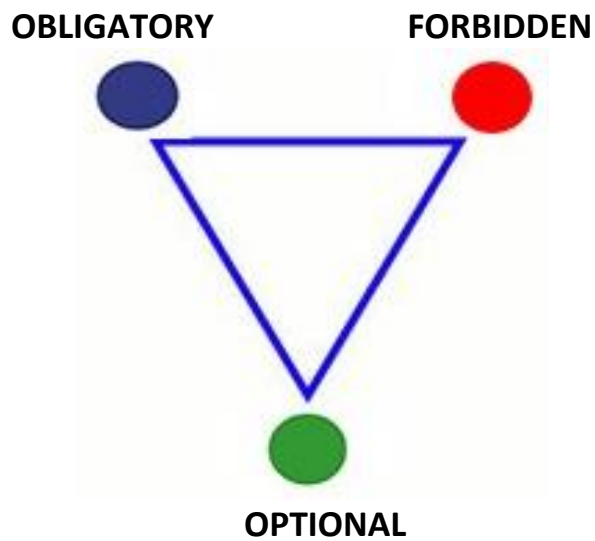
The structure of such a hexagon is based on the three notions of opposition already part of the square: in red *contradictory*, in blue *contrary*, in green *subcontrary*. This from the internal star of david, which is then “circled” by some basic arrows of *subalternation*. We will not recall here the definitions of these notions, they can be found in many places, in particular in the publications resulting of the various events we have organized on the square since 2007. We chose the coloration of the square / hexagon in 2003.

It is possible to construct many hexagons of opposition, not only for logical notions (quantifiers, modalities, etc.) but also for semiotics, music, economy, etc. What is interesting with the hexagon of opposition for colors is that colors appear at two levels: in the corners, as *decorations*, and within, as the *structure* of the hexagon.

5. Correspondence between Colors and Psychic Dispositions

Now that we have seen how the theory of colors has been represented by a logical hexagon of oppositions, let’s see how we can establish a correspondence between this hexagon and psychic dispositions.

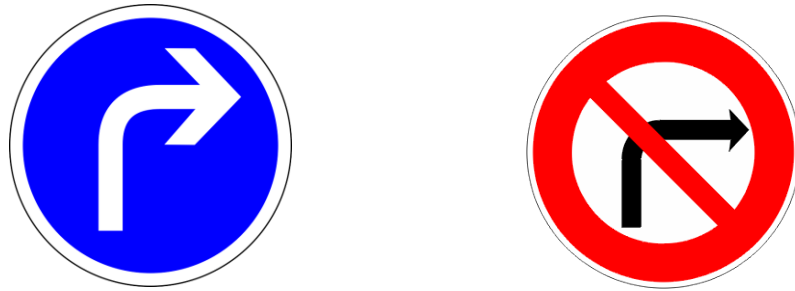
First we will see how we can apply the triangle of contrariety of primary colors to psychic dispositions. For this will make a detour through a colorful deontic triangle of contrariety.



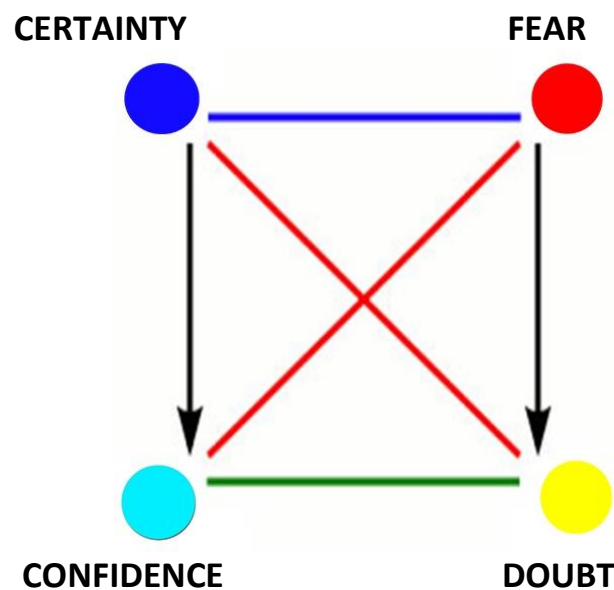
Red for forbidden has been crystalized by the *Do not enter sign*. Here is one of its appearances in front of the house designed by Wittgenstein in Vienna (nowadays the Bulgarian Embassy):



This sign is one of the strongest traffic sign. Its power goes in fact far beyond traffic, expressing the idea of prohibition. In French, it is indeed called *Le sens interdit*. In traffic sign, red is systematically used for interdiction, by contrast blue is use for obligation, see the two pictures below:



Red is related with danger and danger with fear. Fear is a particular case of doubt, a serious doubt. If fear is represented by red, doubt can be represented by yellow, seen as a very light red (intermediate case is orange). Certainty can be seen as particular case of confidence, a serious confidence. If certainty is represented by deep blue, confidence can be represented by cyan seen as a light blue. This corresponds to the following square of colors which is at the middle of the hexagon of colors:

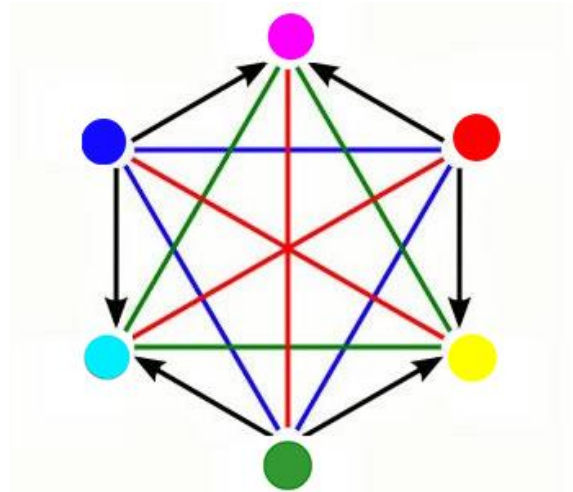


This square makes sense if we consider in particular the two dichotomies certainty/doubt and fear/confidence. The relation between fear and prohibition makes sense and justifies the red on the right top corner. The relation between certainty and obligation can also make sense and justifies the blue on the left top corner in particular if we think of the related traffic sign: obligation means there is no choice, therefore no hesitation.

The top blue line of the square is contrariety, it means that certainty and fear are incompatible (about incompatibility, see Beziau 2016). This is quite natural, and corresponding to the interesting idea promoted by Desmond

Morris, according to which laugh results as a juxtaposition of certainty with fear (see Beziau 2017).

According to this top blue line, a psychic disposition can be neither certainty, nor fear. There is a third disposition that completes the whole picture. It perfectly makes sense to consider that it is hope. Firstly because according to the hexagon, the Y vertex is the conjunction of the I and O corner: hope is the product of doubt and confidence. If we were no doubting, there would be no reason to hope and if we had no confidence, hope could not flourish; secondly because in the hexagon of color, the Y vertex is green. Hope is traditionally associated with green which symbolizes spring.



To complete our explanation, we have to talk about the top U magenta vertex, the contradictory opposite of hope. It is not a psychic disposition corresponding to a hopeless state of despair. The U-corner is a disjunctive union of the A and the E corners, here namely fear and certainty. On the one hand If there is certainty, there is no despair but we don't need to hope; on the other hand if there is a deep fear, something diagonally opposed to confidence, the situation is hopeless.

Now why non-hope should be magenta? A color traditionally associated with tranquility. We have to understand that magenta is a kind of mix of blue and red, a mereological union of the two (see Jaspers 2012), in the same way that non-hope is a mix (but not the classical conjunction) of fear and certainty, a mix that can be expressed with "but": we are afraid to die, *but* we are certain that we will die, so there is not much to do. This puts us in a state which is beyond, or above, fear and certainty, corresponding to "inshallah" or "let I be":



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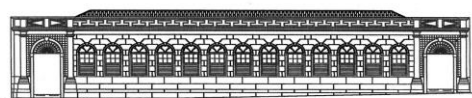
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Ad Veritatem



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