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COLOR COMPOSITION FEATURES IN MODERN ARCHITECTURE

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COLOR COMPOSITION FEATURES IN MODERN ARCHITECTURE

Juan Serra, Ángela García, Ana Torres, Jorge Llopis

Keywords: Architecture, Color Theory, Color Composition, Modern Architecture

0. Short summary

The color composition in modern architecture has been often characterized in a simplistic manner. In fact, this is a complex phenomenon to be studied because of the disparity of proposals and the uniqueness of the architects involved. This research starts with a comparative study of three of the most relevant color composition systems in the first half of the 20th century (Purism and Le Corbusier, Expressionism and B. Taut, Neoplasticism and TG Rietveld), and aims to find common characteristics between them, discussing the validity of some widespread ideas about it, such as the prominence of white hues, the use of “flat colors”, or the conception of color during the ideation phase.

We propose and demonstrate three principles that are not categorical about the color composition in modern architecture: it limits the variety of hues, but not only uses white color; it displays color to conform shapes, but also to transform them; and color has ethical connotations and not only aesthetic ones.

1. Objectives

This research aims to find common characteristics between different chromatic compositional systems in modern architecture, discussing the validity of some widespread ideas about it, such as the prominence of white hues, the use of “flat colors”, or the conception of colour during the ideation phase.

The aim is to contextualize in an approximate manner, never exclusive, the main contributions of the avant-gardes in relation to architectural color composition, taking into account the very personal aspect of each proposal, both by the uniqueness of the colored building as well as its author.

2. Methodology

The analytical method includes the following tasks:

1. Collection of data and relevant information to the study:

- 1.1. Literature review of the information contained in some of the main databases and repositories, with special reference to the "Chronological Bibliography on Color Theory" * held by Professor JL Caivano.
- 1.2. Visit and documentation of some of the most important modern colored buildings in the European context.

* **Chronological Bibliography on Color Theory.** <http://www.fadu.uba.ar/sicyt/color/bib.htm>. Last updated: August 1, 200. Compiled by José Luis Caivano with the assistance of Paulina Becerra. Collaborators: Juliana Agostinelli, Rodrigo Amuchástegui, Gracia Cutuli, Mario Chegaray, Julieta Garavaglia, Mabel López, Cristina Manganiello, María Luisa Musso, Manuel Net, Andrea Pappier, Pablo Valle.

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1.3. Meetings with specialists and architects involved in research on color and architecture in different international *forums* (SEDO color congresses, AIC congresses, etc.) and color research centers (*Istituto del Colore Politecnico de Milano*, *Grupo de Investigação de Cor da Universidade Lisboa Lusitana*, Colour Laboratory at Oxford Brookes University). Interviews with prestigious architects dealing with color ¹, etc.

2. Analysis and structure of the information:

- 2.1. Selection of architects to study and their main colored buildings: Le Corbusier, B. Taut and G.T. Rietveld.
- 2.2. Design of an analytical chart that systematizes the analysis of the chromatic composition of their buildings, with the following information: identification of the building, physical description of every relevant color aspect, artistic context, visual strategies, intentions and bibliography.
- 2.3. Design of a conceptual order that unifies the intentions expressed by the architects in relations with their color arrangements.

3. Interpretation and critical discussion of the results, assessing the validity of some concepts commonly linked with modern color.

3. The Modern Movement or the International Style.

In 1932, Philip Johnson (1906) and Henry Russell-Hitchcock (1903-1987) published the book of the exhibition at the Museum of Modern Art (MoMA) in New York titled "The International Style: Architecture since 1922", and set the canonical bases of an architectural style that did not exist in a conscious manner and in which it converges the work of European and American architects with different concerns.

Johnson and Hitchcock, drawing on the Heinrich Wölfflin's iconological critic (1864-1945), focused on the description of the appearance and the language of European modernism rather than on its utopian and social ideological background. They stressed three principles to characterize the new modern architecture: its conception as a volume rather than a mass; the principle of regularity rather than the axial symmetry, and the absence of decoration ². Formal aspects such as the "free ground", oblong windows, flat roofs, lack of ornaments, or the use of steel, concrete and glass as a coating, come to be the inexorable stylistic features for every building claimed to be "modern" ³.

In regard to the color, Johnson and Hitchcock show that, in an initial period of modern movement, '*white stucco was omnipresent*', but at a late-stage they identify the three trends selected in our study: '*Both in the Netherlands [Neoplasticism] as in Germany [Expressionism], small areas of primary colors were used; while in France [Purism], large areas of a more neutral color. Both color displays were largely due to the influence of two different trends of abstract painting: first, the one represented by Mondrian and, secondly, the one defended by Ozenfant*'. They recognize, nevertheless, that '*most of the walls were still white*' ².

In relation to color, architectural modernity was finally identified with some compositional aspects such as the prominence of white color, the use of "flat colors" or homogeneous colors (with no changes in hue, value or chroma all along its surface) or the need to integrate the color concepts from the very early stages of the building

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3 conception. Therefore, generations of architects thought that the *'modern architecture*
4 *should have no color except for the colors of natural materials, whites or grays'*⁴ or
5 trying to *'reach the purity of shapes, color should be rejected to avoid distortions'*⁵.
6

7 The reinterpretation of the modern period done in the seventies by the 'New York
8 Five Architects'[†], also resorted dogmatically to the natural color of materials and the
9 white stucco, which *'seems to be its natural color'*². The press nicknamed them 'The
10 Whites' regarding their passion with such a color, as Richard Meier states: *"For me,*
11 *white is the most wonderful color because within it you can see all the colors of the*
12 *rainbow. For me, in fact, it is the color which in natural light, reflects and intensifies*
13 *the perception of all of the shades of the rainbow (...)* *It is against a white surface that*
14 *one best appreciates the play of light and shadow, solids and voids'*⁶. The almost
15 verbatim reference to Le Corbusier's famous sentence: *'architecture is the masterly,*
16 *correct and magnificent play of volumes brought together in light'*⁷, shows the
17 influence that Le Corbusier's villas of the twenties had on "the whites" although,
18 obviously, with the "blindness" to the color that has been usual in the rereading of
19 modern architecture in that period⁸.
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22 A more accurate reading on modern color system forces to assess that the shades
23 were limited, but not only white colors were used; also the color composition was
24 consistent with the shape, color helped conforming the form, but often transformed it;
25 and finally color was motivated by ethical and not only by aesthetical reasons.
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29 4. Fewer shades, but not only white

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32 The false belief that modern architecture only used the white color has finally
33 become almost a mythic conception⁹, which has been denounced by numerous critics.
34 Le Corbusier's buildings *'were never white, anyway all'*¹⁰. The *Ville Savoie* (Paris,
35 1929-1931) is certainly a paradigmatic example, as in the collective imaginary it is
36 remembered as a white icon of modernity, but both its inner spaces and the roof were
37 colorfully. In fact, Le Corbusier painted in dark green the whole ground floor of the
38 villa to camouflage with the background forest. A color composition that "disguises" in
39 order to emphasize the purism of the upper white prism supported on *pilotis*.
40

41 If we consider that the MoMA exhibition showed a model of the *Ville Savoie* and
42 the caption in the catalog emphasizes the use of pink and blue on the roof, we have to
43 agree with Mark Whigley noting that the only possible explanation for the triumph of
44 modernity is a sort blindness, and the consequence is that color *"separates from the*
45 *main narrative of architecture"*⁸. This blindness is fuelled both by the Loosian (1870-
46 1933) hostility to decor and the Ruskinian (1819-1900) defense of "material truth", and
47 historians of the modern movement contributed to it, as they presented the avant-garde
48 architects as *"mythical heroes that faced up to academic decadence and legitimized the*
49 *values of a new morality with educational, regenerative and hygienists consequences"*
50 ¹¹. There are some other deep cultural reasons to understand what some critics have
51 identified as a genuine "chromophobia" in Western thought, with such significant
52 masters like Aristotle, Plato or Goethe¹².
53

54 Although modern architecture was not only in white color, there is a conscious
55 limitation of the color range by some of the most important architects who dealt with
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[†] Peter Eisenman (1932-), Michael Graves (1934-), Charles Gwathmey (1938-), John Hedjuk (1929-2000)
y Richard Meier (1934-)

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3 color. Both Le Corbusier, Taut and Rietveld, state differences between their job as
4 architects and painters, and distinguish appropriate tonal ranges for each field.

5
6 In his initial texts[‡], Le Corbusier warns against the danger of color rather to
7 encourage architects to use it. The Swiss master does not want the 'wall to become a
8 tapestry, and the architect a upholsterer' and he aims to 'reject the colors that can be
9 qualified as non-architectural, better than that, make a research and choose those
10 colors that can eminently be called architectural, and restrict to them, and say to
11 ourselves: It's enough with these!' ¹³. And that is the way he does, selecting a narrow
12 range of earthy shades, which he sets in the wallpaper color charts for *Salubra* (1931).

13
14 The German architect Bruno Taut, like Le Corbusier, differentiates himself
15 between being a painter and an architect, giving priority to later one: "*The painter I*
16 *have in me is subordinated to the architect. For me, painting can never be a main aim*".
17 He also agrees with considering that there are hues suitable for architecture and others
18 corresponding to painting. In general, Taut rejects the secondary colors (orange, violet
19 and green) because they are considered too shocking for architecture and better chooses
20 pure colors with different brightness, depending on the characteristics of the spaces:
21 "*First of all, it must prevail the maximum purity of the color composition as a main*
22 *objective, so this purity of color and light has to be consistent with the purity of the rest*
23 *of the building components, that is, space, mass and style"* ¹⁵.

24
25 Taut also warns of the danger of multicoloured provisions: "*The pure and bright*
26 *colors are wonderful, but wrong applied, they are much worse than the absence of*
27 *color. (...) Bright colors together are not yet any color, in the same way that loud*
28 *sounds all together don't compound a melody"* ¹⁶. But do not be misled; the German
29 architect is a strong advocate of bold color compositions, especially in urban areas,
30 where he ensures that "*half-measures*" are not advisable. Taut's color "purity" does not
31 oppose a great creative freedom, and certainly it is far long from Le Corbusier's rigid
32 purism and neoplasticists's narrow range of hues.

33
34 Indeed, neoplastic chromatic system stands out for using only the subtractive
35 basic colors (red, yellow and blue) and those neutral (white, black and gray). Some
36 critics link this "*essential*" color provisions to the notion of "*primitivism*" that
37 encouraged other contemporary architects to display white shades ¹⁷.

38
39 With regard to the dialectic architecture-painting, neoplasticists claim for a
40 symbiosis between both disciplines and position in favor of none. Both need and
41 complement each other as "*the painting detached from architecture (canvas) no longer*
42 *has any right to exist"* ¹⁸. Dutch painter Bart van der Leek (1876-1958) states: "*If*
43 *architects look for a painter who can find the desired image, not least the modern*
44 *painter looks for an architect who can provide appropriate conditions for a real perfect*
45 *union of visual plastic expression "* ¹⁹.

5. Colors conform, but also transform

52
53 Color in modern architecture is provided in a consistent manner with the
54 composition of form and space, so we can say that it "conforms". Thus, Le Corbusier
55 displays colour in buildings to strengthen and emphasize the geometry of the volumes
56 ²⁰. However, Le Corbusier also used color to introduce tension into the "spatial box" and
57 transform inner spaces. To achieve what Fernand Léger (1881-1955) called the "elastic
58 rectangle" ²¹. Rietveld goes further in the transformation and provides color to stress the
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[‡] *Après Le Cubisme* (1918) y *Purisme* (1921)

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3 break of the volume and the visual independence of each of the elements that compose
4 his famous *Schröder House* (Utrecht, 1924). The different planes are independent both
5 physically and visually through color, which accentuates and settles the identity of
6 every singular element. In this sense, the color not only conforms but also transforms,
7 showing the spread of the architectural parts.
8

9 In any case, it is a color provision intrinsically linked with the conception of the
10 building form, deeply consistent with it, and distant from classical color provisions
11 understood in a decorative superfluous manner, added *a posteriori*. In 1901, the German
12 architect Fritz Schumacher (1869-1947) states that "*it is difficult to introduce color in a*
13 *building which has not been designed in color, even choosing the materials or the*
14 *shades afterwards. Any aesthetic potential in a building should be supported by color*
15 *from the beginning*"^{14b}. We note, however, that modern architects not always think on
16 color during the designing process, but *a posteriori*.
17

18 It happens with some of the chromatic provisions in urban space that B. Taut
19 oversees when he is a building town councillor in Magdeburg. These color
20 compositions on pre-existing facades often transform the visual understanding of shapes
21 in relation to their classical composition.
22

23 We know at least two cases in which Le Corbusier provides colors (thinks on
24 color) once the building is finished: the *Unité d'Habitation* (Marseille, 1947) and *Les*
25 *quartiers modernes Fruges* (Pessac, 1924-1926).
26

27 As the architect himself argues, the fact that the jambs and lintels of the concrete
28 *brisoileil* of the *Unité* are polychrome is very reluctantly and color is displayed to
29 mitigate execution errors during the building: "*In the very turmoil of construction, there*
30 *was not a waste, or an annoying wall, or a lack (...), [except for] a stained-glass*
31 *window out of regular proportion and some concrete blocks formed in inappropriate*
32 *casts (...). That rebellion of numbers against the harmonics of Modulor was so*
33 *distressing for me that arose, at the height of exasperation, the invention of exterior*
34 *polychromy of the Unité. (...) Without those mistakes, Marseille unit would never have*
35 *been painted outside*"²².
36

37 In Pessac, Le Corbusier provides colors on the facades of a residential complex
38 that, once built, seemed too compact. The color was used "*to distance each house, every*
39 *one in relation to the following, so the perspectives are open, to break the squeeze of the*
40 *walls (...). Thanks to color, we create an optical illusion, and within, different*
41 *perception of those elements*"¹³. Together with these dimensional reasons, architect
42 adds a simple vital need, as the gray cement plaster had an "*unbearable sadness*", which
43 "*involved the use color to give interest*". The arrangement of these colors could be
44 motivated by Mr. Frugés himself: "*Le Corbusier's buildings in Pessac did not success,*
45 *running out of potential inhabitants, who found them dull: these cubes all identical,*
46 *grouped in the middle of nature, unrelated to the traditional architecture of Bordeaux*
47 *or the style of the surrounding rural residences; hence the idea of the architect (or*
48 *perhaps his client Henry Frugés) to paint them*"²³.
49

50 It should not surprise that Le Corbusier provides colors *a posteriori* in buildings,
51 as some different critics remark²⁴, Purism considers the idea of form precedes color:
52 "*form is prominent, and color is only one of its accessories. Color entirely depends on*
53 *the material form: the concept sphere, for instance, precedes the concept color. A*
54 *colorless sphere is conceived, a colorless plane, no color is conceived independent of*
55 *any medium*"²⁵. The Purism, like Cubism, first interests on shapes, while other artistic
56 movements, such as Expressionism and Fauvism, prioritize color. V. Kandinsky (1866-
57 1944) discuss about that, concerning the work of Picasso, in relation to Matisse: "*If*
58 *color disturbs to solve the problem of a purely pictorial shaping, he throws it away. (...)*
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3 *These are two great ways to reach a great goal, Matisse by color and Picasso by form"*
4 ²⁶.

5
6 Whereas Le Corbusier first prioritizes the volumes of architecture and their play
7 with the light, Taut first considers light itself (color) and next form. The architect should
8 "*shape the appearance of light*". Quoting Hans Poelzig (1869-1936), Taut says "*the*
9 *color is the starting point of a new style before form is refined*" ²⁷.

10
11 Either *a priori* or *a posteriori* addition, the fact is that modern architects seem to
12 be faithful to the following principle: the color always extends up to a full architectural
13 element, and does not change its hue, value or chroma. The principle of "flat colors" is
14 shared both by Le Corbusier, Rietveld and Taut. Even Johnson and Hitchcock proposed
15 it as a criterion for "modernity", considering that "*it is important that the surface is flat,*
16 *not concave or convex, since otherwise the effect would be colorful and the impression*
17 *of multi-directional tensions would be lost*" ².

18
19 To be more precise, it should be noted that sometimes there is a change in hues
20 within a single architectural element, although it occurs abruptly, with no gradation. So,
21 it can be seen that in the *Aubette Café*, Van Doesburg (1883-1931) provides different
22 shades on the same surface, but these are always limited with a black line. The
23 beginning and ending of color shapes are clearly shown: colors are clearly defined. Or
24 color fits with the whole object or it builds its own borders.

25
26 However, the Italian architect Piero Bottoni claimed to use the gradation of
27 colors instead of flat colors in his manifesto "*Chromatismi Architettonici*" (1927), while
28 modern conceptions were still being discussed. This theoretical writing is accompanied
29 with watercolors where the color of the buildings changes its brightness in the vertical
30 edge and its hue in the horizontal one. Bottoni argues that the "*volumetric function of*
31 *color has never been studied enough and, moreover, the "mass-volume" power*
32 *attributed by a color to a geometric solid plays an important role in the aesthetic*
33 *balance and the perception of the "resistant" values of any structure*" ²⁸.

34
35 But it was clear that the gradation of color was out of the orthodoxy of "flat-
36 constructive color" and opened the dangerous possibility of an unjustifiable color, that
37 rather than conform, deform. In this sense it was inevitable for Bottoni to be criticized
38 by some colleagues (including compatriots) like Alberto Sartoris, who actually
39 evidences that "*if you provide, as it did Bottoni, on a large wall, a color that*
40 *approaches together with another that goes away, it is fully broken both volume and*
41 *surface*". And even more emphatically, asserts that "*Bottoni has provided those colors*
42 *that approach and distant, all along the facade, what should not be done. When Van*
43 *Doesburg, however, cut a façade, he did so with those colors that approach or distant,*
44 *but never mixed them together*" ²⁹.

45
46 Alberto Sartoris can not be labelled to be suspicious of rejecting color, as many
47 of his buildings are colored. Of course, he distance to any decorative conception and
48 claims for a color consistent with other properties of shapes, not as a post added: "*I have*
49 *abolished the word decoration and replaced by the word incorporation. (...) The*
50 *painters painted the wall at the end, when everything was finished, while the wall*
51 *should be an integral part of architecture and should be thought first*" ³⁰.

52
53 Alberto Neppi says about Bottoni's watercolors that "*they might be interesting*
54 *for scenography, but not for architecture worthy to be called as such*" ³¹. The young
55 Italian architect strongly replied that his was a "*truly architectural interpretation*" of
56 color guaranteed by Le Corbusier himself. Of course, it should be emphasized the
57 intellectual audacity of Bottoni's proposal and the rigor to understand and interpret the
58 color, although it achieved little influence on immediate architectural development.
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6. Ethical color and not only aesthetic

If there is an element in common for every architectural movements in modern period, it is the desire to promote a cultural change embedded in society, an ethical conception that transcends the various aesthetic assumptions and which is transferred to color composition. The Spanish philosopher J.A. Marina dares to state that *"modern art was not art but a moral and libertarian preaching. That is its greatness, what made it be chased by Nazis or Soviet dictatorships"*³².

This socio-cultural change reaffirmed itself by opposition to the proposals of the academic architecture of the XIX century. In relation to color, it causes two contradictory positions, as rightly points out Prof. Caivano, as the academicism is equally criticize *"for its lack of color" by some architects, as well as "for using color" by others"*⁴. Both the use of stark colors and full-color provisions share a common ethical background rejecting the past.

Several authors have noted that Le Corbusier theoretical interest in white color is better understood from an ideological point of view rather than a plastic one. Otherwise, it would have no sense that the Swiss master stated that *"to be honest, my homes do not seem white until I provide active forces of color and values in appropriate places"*²⁵. But Le Corbusier's interests are closer to cultural rather than social concerns. Being distant from the German *Siedlungen*, we do not find in his building complex in *Pessac* such social motivations. Le Corbusier said that it is the *"use of an absolutely new polychromy, mainly rational"*¹³ (*obra completa*, p. 85).

However, Taut believes that bold color compositions, like his Glass Pavilion for the exhibition of the *Deutscher Werkbund* (Cologne, 1914) predict the arrival of a new era. This building summarizes the utopian ideals collected by P. Scheerbart (1863-1915) in *Glass Architecture* (1914), as well as the prophetic advent of a new culture advocated by the architect Adolf Behne (1885 to 1948). Taut believes that color is able to shed light on the shadows, what must be understood not only in a metaphorical sense but also in a plastic one, color is able to "illuminate" a new society and a new architecture. Color has moral and physical effects and is justified by observing the behaviour of children, who prefer to play in those streets with cheerful colors.

The artistic convictions of neoplasticists also lean on a spiritual or even mystical substrate, influenced by the writings of V. Kandinsky, who talks about the *"inner eye"* that *"passes through the outer form, penetrating to the depths of things and allows us to perceive with all senses his intimate pulse"*²⁶. Still, neoplasticism has less committed social positions than other movements, as J.J.P. Oud (1890-1963) ensures: *"From there it could not emerge a healthy, universal and comprehensive social architecture, that is to say, from such an abstract aesthetic. However, the Neoplasticism has given to us, with no doubt, architectural values that I would not like to lose. My situation is similar to that of ancient alchemists, who seeking gold, found no gold but another precious material"*³³.

In the late twenties, Van Doesburg said that *"white is the color of the new age"*³⁴. So we can conclude that the neoplastic approach to color is not dogmatic, as both the primary colors and white have the ability to lead the arrival of the new culture. Curiously, and in a contradictory manner, in European countries ruled by totalitarian regimes during the thirties, polychromy was rejected as it was considered the expression of democracy³⁵.

Regardless the range of shades used, the common ethical conscience of every movement to reject academism, leads them to avoid the use of color in a decorative

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3 way. They use several mechanisms: the imitation is left in favour of the "material truth",
4 figuration is abandoned in favour of abstraction and, in general, color becomes
5 intellectualized to prevent arbitrary or capricious rules.
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7 Neoplasticists achieve so by robbing the color of "any emotional content,
8 understanding it as an abstract matter that can be organized according to rational
9 principles"³⁶. They believe that Cubism has not gone far enough in its abstraction and
10 are suspicious about Expressionism for being too private³⁷. The members of *De Stijl* are
11 not interested in the representation of the sensual experience, or "the stimulating effect
12 on the nerves" or the "concentrating effect" that Taut feels in his *Glass Pavilion*³⁸, but
13 imagine the artist as a scientist in his laboratory, intellectually analyzing the form and
14 color³⁹. Neoplasticists aim to reach a more universal and ethical culture: "In the future,
15 the fulfillment of pure figurative expression in the tangible reality of our environment
16 will replace the work of art, but to achieve this it is required to shift it towards a
17 universal representation and a separation from the pressure of nature"⁴⁰. This
18 separation from nature is achieved by reducing architecture to what it is essential: the
19 plane or line in regard to shapes, and basic hues in regard to color. That is, those colors
20 that are at the root of any others, that Neoplatonic philosopher M. J. H. Schoenmaekers
21 (1875-1944) endowed with a metaphysical sense: "Yellow is the movement of the beam
22 (the vertical). (...) Blue is the color that contrasts with yellow (the horizontal sky). (...)
23 Red is the coupling of yellow and blue"⁴¹.
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27 Purism leaves decoration by looking for invariant and universal rules: "The work
28 should not be accidental, exceptional, impressionist, inorganic or picturesque, but
29 instead, general, static and expressive of what is invariable"⁴². So Purism suggests an
30 "ultra-rationalist" theory which aspires to intellectually dominate color and reach a
31 formal clearance. Although Le Corbusier and Ozenfant believe that color is a hazardous
32 component in the expression of volume, as it is often destructive or disruptive, its
33 effects can be known and directed¹³. Indeed, Le Corbusier sometimes provides color to
34 scatter an architectural shape from another and both to be perceived as autonomous
35 objects, but rarely to reduce the volume itself to its component elements (lines and
36 planes), something usual in Neoplasticism. Paradoxically, the rupture of a volume by
37 using color in Le Corbusier's buildings, serves for a better understanding of the volume
38 itself, which gets free of those secondary additions, as it has been noted with regard to
39 the *Ville Savoie*. Le Corbusier said that color can put into order, prioritize or unify the
40 final space¹³, referring to the *Salubra* color system. His attempt to rationalize and
41 control the chromatic variables, is comparable to the system of proportions of *The*
42 *Modulor* (1948 and 1953), although this was never used in such a dogmatic way in
43 architecture as he did with respect to the metric system.
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47 Bruno Taut also evolved from initial expressive provisions in the beginning to
48 functional color provisions in last period. With regard to his own house in *Berlin-*
49 *Dahlewitz* (1927), he says that "what it is purely aesthetic... here it is just the
50 consequence of the practical"³⁹. The architect ends up rationalizing the color
51 composition, brandishing functional arguments to support his formal decisions.
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55 7. Conclusions

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59 When investigating three of the most relevant color compositional systems during
60 the first half of the 20th century (Purism and Le Corbusier, Expressionism and B. Taut,
Neoplasticism and TG Rietveld), three non categorical principles have been

demonstrated in relation to modern color: (1) it reduces the amount of shades, but not only uses white, (2) color conforms shape, but also transforms it, and (3) color matches with ethical and not only aesthetical wills.

(1) Once refuted the "myth of white", it stresses that the three architects studied, limit the range of colors they consider appropriate for architecture: Le Corbusier chooses tertiary hues, Taut rejects secondary hues, and Rietveld only uses primary ones. This way they try to avoid "color excesses" of the painted decoration, and debug form.

(2) Color in modern architecture is consistent with the composition of spaces and shapes, so we state that "conforms". It is distant from the nineteenth century color conceptions, which were added *a posteriori* and not always were consistent with the composition of shapes. It has been proved that the architects were not dogmatic about the moment to introduce color in the designing or building process, with examples of Le Corbusier himself, who provided color to transform already built architecture.

It is usual in modern period the colors to extend up to fulfil a whole architectural element, or generate their own border, and to be homogeneous in hue, value or chroma. Nor is this principle of "flat colors" categorical, as Piero Bottoni raises the possibility of chromatic gradations in modern period: color not always conforms, but transforms.

(3) Modern color meets ethical concerns that go beyond individual aesthetic tenets. The color provisions, whether restrained or strident, aim to bring about a cultural change against the past: the imitation is abandoned in favour of the "material truth", figurative is abandoned in favour of what it is abstract and essential (Neoplasticism); universal rules to control color are looked for (Le Corbusier); with a greater or lesser extent, color attends to social and utopian concerns (Expressionism), and in general, color becomes intellectualized.

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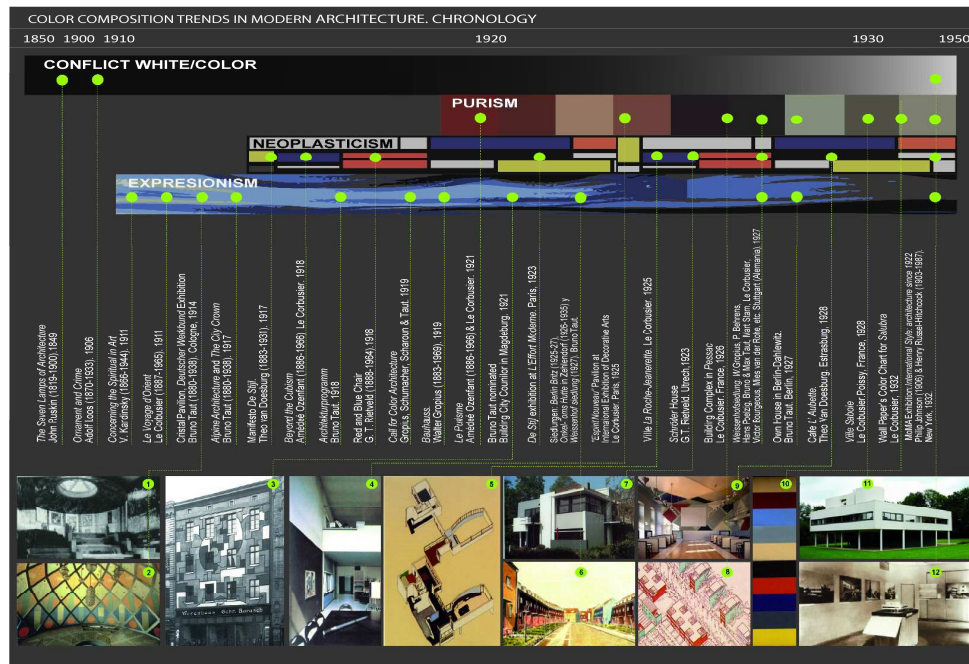
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