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COLOR SPATIAL LAYERING IN ARCHITECTURAL INTERIORS AFTER JOSEF ALBERS' HOMAGES TO THE SQUARE AT RIT

Juan Serra^{1*} and Michael Murdoch²

¹Color Research Group, School of Architecture, Universitat Politècnica de València, Spain.

²Munsell Color Science Laboratory, College of Science, Rochester Institute of Technology, USA.

*Corresponding author: Juan Serra, juanserra@ega.upv.es

ABSTRACT

The implications of color in the perception of distances have been a matter of interest for flat representations but have received fewer attention for 3D objects and spaces. The objective of this article is to reflect about color spatial layering and its implications in the perception of the amplitude of an architectural interior. We focus on the study of one of the scarce Josef Albers's big scale Homages to the Square commissioned for an interior and painted in the lobby of the George Eastman Administration Building at Rochester Institute of Technology (RIT). This unique artwork titled Growth consists of two Homages with four shades of orange colors in reverse order that face each other on opposite walls. We have studied the original information gathered at the Josef & Anni Albers Foundation and the RIT archives to understand the circumstances of this commission, with particular interest in the debate between architectural and artistic standpoints. We have experienced and recorded our personal impressions of the colors on site, providing some possible interpretations of the spatial layering of the murals. We interpret when a color can be understood to be a square or a frame, with opaque or transparent finishing, and its corresponding spatial position. Results demonstrate that the geometric composition of the murals and their accurate disposition in the interior of the lobby let them act as modern mock perspectives with multiple interpretations of the position of the colors with respect to each other and provide a clear dynamism to the interior architecture. These color dispositions are interpreted in light with JA concepts such as "vibrating and vanishing boundaries," "color transparency," and simultaneous contrast. We conclude that JA painted a masterpiece at RIT, following his principle of do more with less, and demonstrate that the spatial depth of a color with respect to the canvas or architectural surface cannot be interpreted as an independent fact but a matter of interaction of colors within a context.

Keywords: color, distance, architecture, Albers, Homage to the Square

INTRODUCTION

The perception of color kinetics, advancing and receding colors, is a matter of interest and has been widely investigated for flat representations in two dimensions [1], but there are fewer experimentations in involving three dimensional spaces, as happens in architectural interiors. In this sense, the series of Homages to the Square painted by the artist Joseph Albers (JA), can be studied as belonging to the first group of bidimensional experimentations of color layering. JA worked on his series of Homages when he was sixty-two, over the next twenty-six years (1950-76), and made over two thousands of them [2]. He was absolutely engaged in working with these series of nested squares in different colors, experimenting the relationships, interactions, and subjective perception of color. Among the different visual effects occurring, the squares seem to shift in relation with one another, getting different spatial positions that depend on the observer's subjectivity and color illusions.

In general terms, the Homages are small scale, hand-crafted, two-dimensional experimentations of color layering, and there is still a gap to know how these interactions can be transferred into three dimensional architectural interiors, and how can these effects alter the perception of spatiality. Fortunately, among the twenty public art commissions in his life, JA made two big scale Homages for interior spaces. One commission is Let There Be Light, (Mt Bethel Church, New Haven, Connecticut, 1973), and the other and most interesting for its architectural implications are the murals Growth, painted in the lobby of the George Eastman administration building at Rochester Institute of Technology (RIT) in 1966-69. The objective of this article is to reflect about color spatial layering and its implications in the perception of amplitude of architectural interiors, after the analysis of JA's big scale Homages to the Square at RIT Campus.

THE MURALS GROWTH AT RIT

For the analysis of the murals, we have studied the original information gathered at the Josef & Anni Albers Foundation and the RIT archives to understand the circumstances of this commission, with particular interest in the debate between architectural and artistic standpoints. We have also experienced and recorded our personal impressions of the colors on site, providing some possible spatial layering interpretations of the murals.



Figure 1. Panoramic photograph of the murals Growth, taken from the main entrance to the lobby of the administration building at RIT (7/20/23).

The circumstances of the commission

The architectural project of the campus at RIT originally belonged to Eero Saarinen, but after his death in 1961 the project for the Administration Building passed to his successor firm Kevin Roche John Dinkeloo Associates, who opted for the use of the same rust-colored bricks of the rest of the campus. The lobby provided an appropriate space for large artworks located on two opposing walls and illuminated laterally by floor-to-ceiling windows, with the only limitation being the low, canopy-like segment of the ceiling which slopes, on axis, toward a corridor and impinges upon both murals, obstructing cross-lobby views of the uppermost sections of each [3, p.165] (figure 1).

After the agreement for the commission, JA presented a first sketch of the murals to the architecture firm, that initially did not meet the architects' expectations of *"giving an expansive, airy quality to the space, of adding a dimension and character which will greatly enhance it"* [4]. From the very first moment, the architecture firm was looking for an interaction with the spatial properties of the lobby: *"I am sure you will understand that we would not wish to have paintings at all if they do not enhance the space -there is a spatial, architectural need here. The space was designed specifically for these two walls to have compositions, but compositions with certain character."*[4] Probably the architecture firm went too far recommending JA to reconsider the colors of his initial proposal, and suggesting that *"because of the architectural materials, the colors should be cool, towards green and, because of the space effect, they should be light and airy, somewhat vague and not intense. We believe strongly that the colors should be quite pale and foggy, definitively green and the composition subdued feeling."* [4]



Despite these initial discrepancies in the choice of the colors that make JA “wonder whether a further collaboration between them was possible and desired,” [5] he agreed to develop a different version of Growth in gray or off-white colors. Robert Bryde, the disciple of Albers who executed the murals, explained that “the first white on white (...) was to produce a transparency effect, like layers of tissue paper in a 4-3-2-1 pattern.” [6]

The development of a monochrome proposal was not incoherent in Albers initial experimentations with the Homages, in this case at a large scale, and should not be considered surprising [3, p. 169], but Albers was not satisfied with the results of this gray version of the mural. During the restoration process in 2004, there was evidence that just the North mural had this initial version in grayish colors over a dark surface [7]. It stood for a few months before Roche withdrew from participation with Albers on the project [8], and finally JA went his way and painted the two Homages with the existing four colors that range from orange to yellow.

In our opinion, the polemic between the artistic discrepancies is not very relevant, as the final version of Growth perfectly fulfills the initial expectations of enhancing the architectural space. Years later, Roche recognized that, “on the whole, the painting and the architectural spaces work very well together.” [9] Even more, the project was awarded the 1972 Collaborative Achievement in Architecture Medal of the American Institute of Architects, as an example of “outstanding collaboration between practitioners of the building arts.” [10]

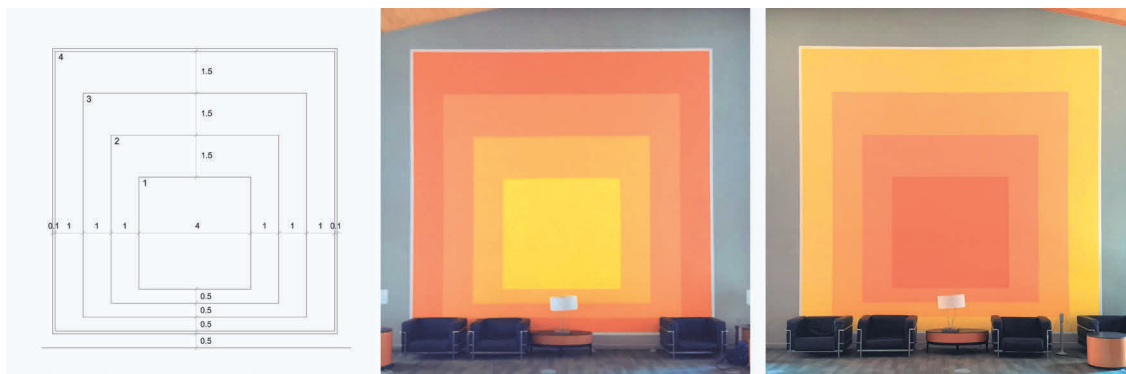


Figure 2. a) Scheme with the dimensions and labels for each of the nested squares; b) Photograph of the North mural; c) Photograph of the South mural (7/20/23).

The opposition as a compositional concept

To have the two murals paired in opposite locations, facing each other in the same lobby, is an essential feature to understand this artwork. Albers stated that “studies in pairs demonstrate clearly the desired effects.” [11, p. 10-11] and in this architectural arrangement, JA found the perfect condition to work with opponent or complementary pairs. Among the 20 public artwork commissions by JA, there are other architectural projects working with pairs, being Two Structural Constellations and Two Portals the most obvious examples to date [3, p. 171]. In Growth, both murals share the same colors but in reverse order, enhancing their differences and highlighting the multiple effects that are possible with limited means (figure 2). As a former member of the Bauhaus, Albers was committed with Mies’ statement “Less is more,” and wanted to achieve the maximum effect with the minimum means.

In some recordings, the titles of these two murals are “Growth” and “Youth,” conceptual antonyms that emphasize the complementarity between the two compositions. In this terminological opposition, some authors see an artist’s plea for a balance between science and technology with art, an idea that Albers defended in his series of lectures at trinity College (1965) and that fits with the destiny of RIT, a university for science and technology [3, p. 172]. Despite being coherent with JA thinking, the use of these two terms, growth and youth, to title this

artwork is unclear, and JA indicates in some of his own personal notes, that the title of both Homages at RIT is “Growth.” [12]

The geometry and colors of the murals

The multiple effects of colors in the Homages series relied on a compositional framework of four nested squares. This seemingly simple framework was carefully designed to yield a vast array of illusory spaces [13]. The proportions of the squares from the one in the center are 4, 6, 8, and 10, with a thin frame of 0.1 units in white. The squares are equidistant horizontally and closer to the bottom vertically (figure 2).

When these geometries of nested squares have color, we can identify 3 variables implicit in the compositional framework that may be useful for our analysis: “(1) Each square may be seen as lying on a different layer in illusory space, thus an Homage painting can display up to four *layers of depth*. (2) Each square may be interpreted as *opaque or translucent*—an opaque square obscures shapes that lie behind it, and a translucent square reveals the shapes that lie behind it. (3) Each square may be seen as the edge of either *a plane or a frame*—a plane is a continuous square surface; a frame is a square plane with a central square hole; thus, a frame requires two squares from the 4-square compositional framework [13].

The perceptual characteristics of the colors of Growth, identified with a colorimeter NCS Color Pin, are approximately NCS S0570-Y30R, S0560-Y30R, S0570-Y10R, S0570-Y (≈Munsell 5YR 7/12; 7.5 YR 7/10; 1.25Y 8/12; 5Y 8.5/12). Therefore, we observe an harmony of colors with the same very low blackness (high Munsell value), almost identical high chromaticness (Munsell chroma) and adjacent hues that range from a fundamental yellow to a yellowish orange.

RESULT AND DISCUSSION

According to Mai’s classification, the murals Growth correspond to Homages type I, and the total amount of color layering possibilities is 120 [13]. Nevertheless, in our personal impressions of the colors on site, we identified three main spatial interpretations for each mural. We have used the following code to label them: (1) letters N and S refer to the mural placed North or South respectively; (2) the spatial order of the colors is described in order and separated with commas, where the leftmost position is nearest in illusory space and the rightmost the furthest; (3) numbers 1 to 4 identify each square in order from the center to the exterior (figure 2), the use of two numbers indicates a frame instead of a square; i.e. 1-3 is a frame with the exterior size of square 3 and a hole with the size of square 1; (4) finally letters “o” and “t” indicate if the color is opaque or transparent. All and that, our perceived interpretations for Growth are: N1= original painting; N2= 1o, 2o, 3o, 4o; N3= 1-3t, 2o, 4o; N4= 1o, 2-4t, 3o; S2= original painting, S2= 3-4o, 2-3o, 1-2o, 1o; S3= 1-3t, 2-4o, 2o; S4= 2-4t, 1-3o, 1o (figure 3).

The spatial layering suggested by the superimposition of opaque colors

At first sight, the interpretation of the colors belonging to the northern mural gives the impression of a succession of opaque nested squares put in order one onto the other, with the central yellow being the nearest, and the darkest orange the furthest and on the surface of the wall (N1). Similarly on the southern mural, the perception is of a succession of nested frames in order from an exterior in yellow that seems to be the closest and on the surface of the wall, to the central square that seems the furthest and somehow behind the wall (S1). Certainly, the slightly darkest and least chromatic orange seems the furthest, while the most vivid and pure yellow seems the closest, what is coherent with usual literature results indicating that for surfaces to appear coplanar, their lightness have to be proportional to the natural (intrinsic) lightness of the hues [14]. This effect of an opaque overlapping of squares/frames is enhanced by the effect of simultaneous contrast in the boundaries of the nested squares and therefore a kind of brighter/darker halo that appears in the contour. The closest lighter color seems to have a slight cast shadow onto the next square/frame enhancing the impression of spatial layering. This effect is slightly more evident in the upper part of the murals with wider bands and when the observer

gets closer to the mural than in the lower part with thinner bands and with the distance. The effect recalls JA's exercises about "Vibrating Boundaries," that asked students to choose two colors that would produce a vibration along their boundary producing a kind of bright fizz along the border. The effect required the combination of intense, contrasting colors that were close in light/value [15]. It also recalls what JA named the "flute effect," in exercises of color gradations in bands that stressed their boundaries.

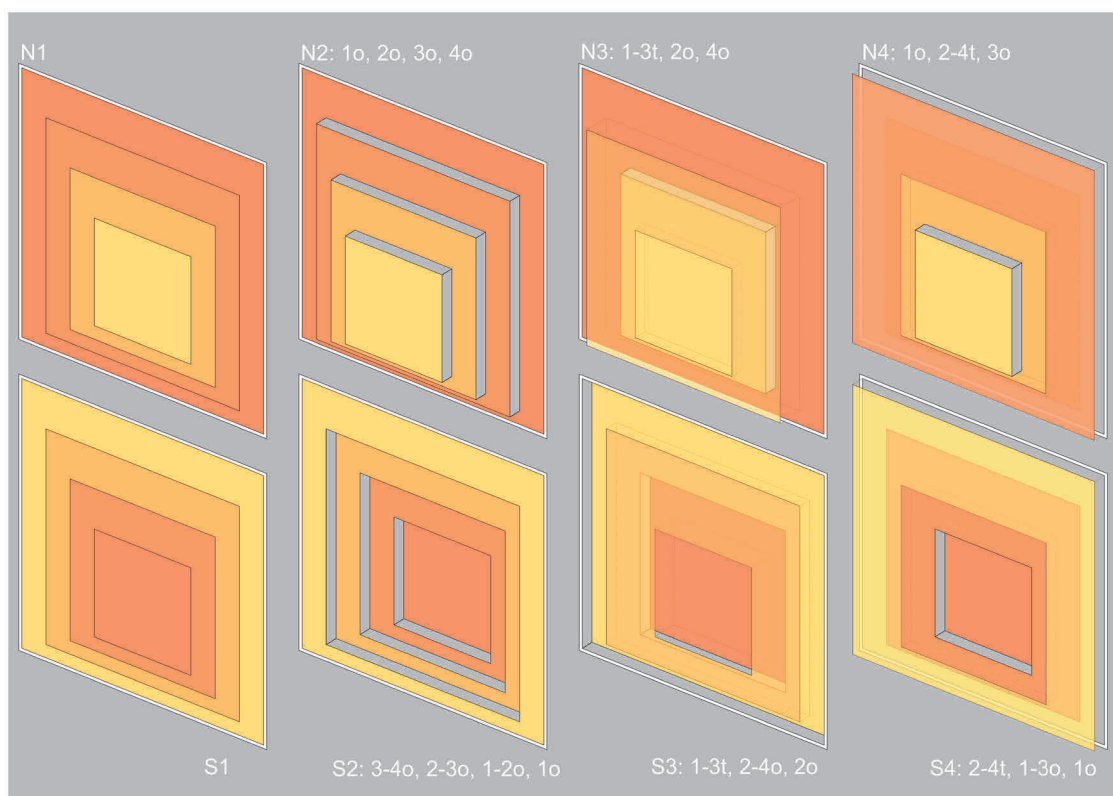


Figure 3. Personal interpretations of the color spatial layering in north (N1) and south (S1) murals. The coding indicates the squares/frames from nearest to furthest in illusory space, and if colors are opaque (o) or transparent (t).

The spatial layering suggested by the superimposition of transparent colors

The interpretation of the spatial layering in Growth is not limited to opaque colors and there are other possibilities of superimpositions of transparent over opaque colors. In this sense, the northern Homage can be interpreted to have a former transparent frame 1-3 (see N3 in figure 1), or a former transparent frame 2-4 (see N4). Similarly in southern Homage, former transparent frames 1-3 and 2-4 can be interpreted in S3 and S4 respectively. Logically, these transparent colors are always perceived to be overlapped onto the opaques and, interestingly, to be closer in distance or at the same depth as the purest yellow (see N3 and S3). Therefore, it is demonstrated JA's principle that the colors act in different ways depending on the context, and the purest yellow is not always interpreted to be the closest. In a similar way, despite the advantage due to wavelength and color stereopsis, the reddest color is not always interpreted as near, as demonstrated in other experiments [1].

In the exercises about color transparency, JA challenged the students to find the right opaque color that, placed between other two, seemed to be the perfect mixing. This exercise is interesting because it has spatial implications. I.e., if a yellowish orange is placed between a yellow and a red, the effect would be of a transparent yellow layer overlapped onto the red, and the reverse would happen with a reddish orange, a transparent red layer would be seen overlapped onto the yellow. An intermediate color can make the colors beside move back and forth.

In the interpretation of Growth, we can also see an effect of “vanishing boundaries,” that JA indicated to be “confined to adjacent, neighbouring colors and depends most decisively on equal ‘light intensity’” [11, p.63]. In the opinion of some authors, the distinction of the boundaries between adjoining colors is greater at the bottom of either mural, and more elusive at either side, and particularly at the top. “While the lower ranges suggest a four-color Homage, the upper bands of Growth lead us to perceive only three colors” [3, p.170].

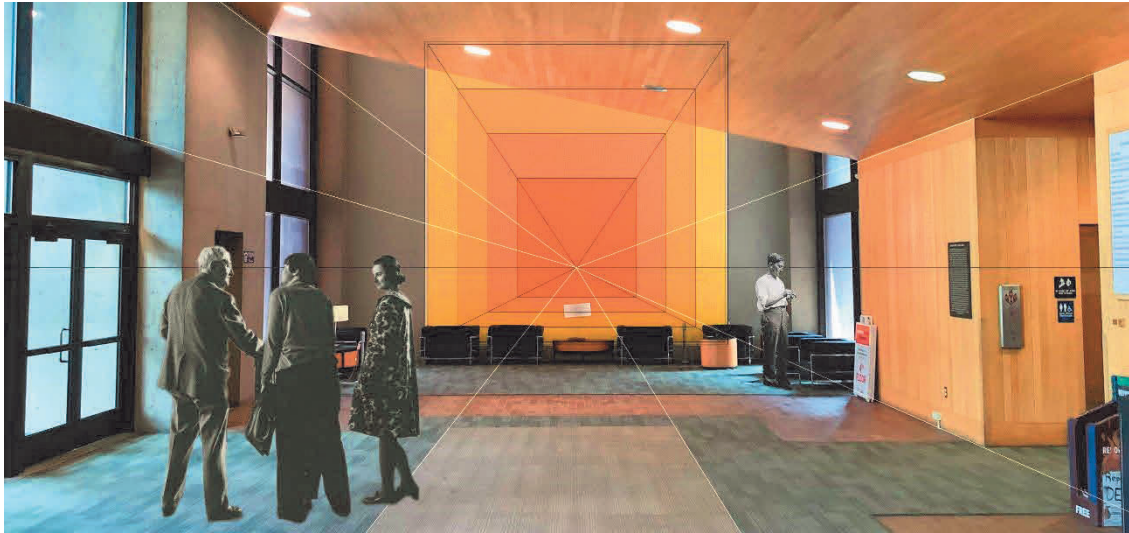


Figure 4. The perspective of the existing architecture (white lines) is coincident with that of the nested squares (black lines), obtaining a modern mock perspective. Photomontage with images of Josef and Anni Albers from [16] and [17].

The space suggested by the geometric patterns

There is an interesting finding regarding the position and size of the geometry of the Grouth murals. The four nested squares might be interpreted as an abstract representation of squares with identical size in conical perspective, so it is possible to find the corresponding position of the horizon and central vanishing point of this 2D representation (see black lines in figure 4). Interestingly, when an observer is placed in the center of the lobby facing to any of the murals, the position of the horizon and the vanishing point of existing architecture are coincident with those of the mural (see white lines in figure 4), obtaining a modern mock perspective, an artistic resource that has its roots in the history of architectural paintings, particularly during the Renaissance. Albers accurately increased the size of his Homages to the Square and painted them in a position that is not vertically equidistant to the ceiling but closer to the floor, following the same proportions of the nested squares. This decision enhances the coherence between the existing spatiality of the lobby and that suggested by the nested squares. Both spaces, real and suggested, geometrically match.

CONCLUSION

The analysis of the big scale Homages to the Square that Josef Albers painted in the lobby of the administration building at Rochester Institute of Technology, demonstrate that JA painted a masterpiece at RIT, following his principle of do more with less. The geometric composition of the murals and their accurate disposition in the interior of the lobby let them act as modern mock perspectives with multiple interpretations of the position of the colors with respect to each other and provide a clear dynamism to the interior architecture. Albers artwork demonstrates that the spatial depth of a color with respect to the canvas or architectural surface cannot be interpreted as an independent fact but a matter of interaction of colors within a context.

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