

II-25 (Full Sat.) #1, 1983. Acrylic on canvas, 85 1/2 x 85 1/2 in. (217.2 x 217.2 cm). Collection of The Solomon R. Guggenheim Museum, New York

## SQUARE, RECTANGLE, GRID— AND ALL THE COLORS IN BETWEEN

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Comparing Sanford Wurmfeld's approach to his artwork to that of a science experiment highlights his indefatigable commitment to asking questions and challenging himself—and the audience—to push the potential of color and color perception forward toward the impossible in the search of answers. Though perhaps the processes and goals of art and science differ, nonetheless, in both Wurmfeld's art and in a science experiment, one finds a hypothesis, an organized series of studies, a variety of tools, and a collection of conclusions. Through the execution of performing precise experiments to systematically prove or disprove a hypothesis, Wurmfeld challenges the scope of color and visual perception by first asking himself theoretical questions about color, followed by testing and completing meticulous color studies and small-scale paintings. When the results of these studies prove fruitful, the smaller-scale paintings culminate in full-scale paintings—often quite large—that stimulate rod and cone receptors, visual pathways to the brain, and the visual cortex itself, stirring up emotions and challenging the audience's intellectual understanding of perception and the intricacies of the visible color spectrum.

In the early 1980s, Wurmfeld worked primarily on large square paintings. He explored a variety of color configurations in which he made simultaneous contrast- and assimilation-effects for the challenge and the experiment, as in II-25 (Full Sat.) #1, 1983 and II-39 (Dk/Bv-Lt/YO), 1981. The contrasting effects create distinguishable divisions between colors, while the assimilation effects, on the other hand, induce the appearance of blending, and creating more continuous color transitions. In the 1970s, Wurmfeld began using a two-dimensional grid to answer questions regarding the visual relationship of form and color as they relate to a visual field; the relationship between color intervals and the perception of color and form; and the effects of

viewing time on color and form. Although the grid layout became more complex in his work from the 1980s, Wurmfeld's investigations into contrast and assimilation continued to utilize this mathematical and organized structure and the figure-ground interchanges he had established a few years prior. Each grid organization broke down into varying levels of squares—the entire image began as one large square and divided further into smaller and smaller sets of squares. In these works, he chose his ground colors, distinct in hue, value, and saturation and joined them with figure colors chosen by the same criteria. Each variation of color was then delicately painted within the designated sections of his taped-off grid across the cotton surfaces.

A keen look into Wurmfeld's process enlightens the viewer to the varied schemes he considered while aiming to find solutions to the visual possibilities of color and then forcing those possibilities to their absolute limits. In the studies for II-25 (Full Sat.) #1 of 1983 (Collection Solomon R. Guggenheim Museum), it is clear that Wurmfeld devised two different kinds of color organizations. The final studies of each organization break down into one large square, nine intermediate squares, and nine small squares. The two organizations differ by the manner with which Wurmfeld arranges the nine intermediate squares in relation to one another. The first organization emphasizes aligning colors from one section of squares to the next, such that their existing breakdown is disguised through assimilation effects. This also creates the appearance of a more congruous whole. The second organization emphasizes arranging the colors from one section to the next such that through simultaneous contrast the compositional program visually separates into clear sections of squares. For the II-25 (Full Sat.) #1 piece, Wurmfeld chose the first organization type using blue, red, green, and yellow at each corner. In an earlier work, II-39 (Dk/Bv-Lt/YO), from 1981, he used

the second organization, distinguishing through contrast the incremental steps the nine squares assume from dark violet through to light yellow.

After investigating these schemes and executing them in versions of light, dark, midrange, full saturation, and a variety of hues and values, Wurmfeld took on the next challenge: an elongated format. Earlier in 1981, Wurmfeld had made an extremely formative trip to The Hague, where he saw the Mesdag Panorama, a cylindrical painting by Hendrik Willem Mesdag, completed in 1881, which surrounds the viewer when standing in the center of the room. Experiencing an immersive work like this inspired in Wurmfeld a desire to create an equally immersive work for the ultimate color experience. A color spectrum could serve as a perfect subject for such a construction and Wurmfeld set to work contemplating possible conceptual approaches for the large-scale undertaking. His square works of the early eighties were part of this trajectory. Having the II-25 (Full Sat.) #1 piece as an example, Wurmfeld chose to challenge himself to create this continuous color progression in an elongated form. Continuing to utilize his grid structure, he sketched out the complex framework of figure-ground interchanges, and aimed to follow a clear color organization moving in precise increments across the surface to create a visual wave of color perceived in smooth succession.

The results of this endeavor were the large-scale works II-45 (B-Y) and II-45 (R-Y) each measuring 84 by 195 inches. The emphasis of continuous color was achieved through his organization of assimilation and the intricacy of his grid struc-

ture. The largest shape is a rectangle then divided into a series of squares, first made up of seven large squares horizontally and three large squares vertically. Each of these twenty-one squares is further divided into nine intermediate squares. These nine intermediate squares are finally overlaid with an appropriately sized lattice of even smaller squares to achieve the correct color assimilation given the hues involved. The smallest squares incorporate a precise scheme within the lattice of unique and repeating colors in combination to present a smoother blend of colors as a whole. He uses twenty-one distinct ground colors that differentiate the large squares. These ground colors change by hue as they progress along the width of the canvas on a diagonal, which begins in the left corner. To achieve his desired color continuity and the impression of seamless transitions, Wurmfeld, through an additional twenty-four colors—also considered the figure colors in the work—juxtaposed the organization of diagonal hues by diagonally changing the color value in the opposite direction, beginning in the right corner [Fig. 1].

Viewing distance is without question a factor in the experiencing of these works. While the comparative construction of hue and value offers a continuous ripple of color and also produces a photo-like pixelated appearance at greater distances, the sheer magnitude of the works requires visual scanning and fixation at closer ranges. These experiences were most certainly considered by Wurmfeld in their construction and intention. He recognized the importance of viewing distance and scanning as an integral part of the Panorama Mesdag, and

also in works such as the *Nymphéas* (Waterlilies), by Claude Monet. Such large works of art require more active participation from the viewer as they necessitate changing viewing point to fully appreciate all of the perceptual nuances. When in close proximity to the work, one can appreciate the intricacy of Wurmfeld's smaller squares, the meticulously drawn grids, and the interchange and interaction of the perfectly picked colors. As one's distance from the surface of the painting increases, color assimilation takes effect and the viewer's perception of the work begins to change, developing heightened awareness of the tantalizing hues as they achieve apparent luminosity and mystically float along the surface of the canvas.

It is important to note that the works do not completely overwhelm the viewer as they are not quite "monumental." Purposefully, their dimensions reflect what Wurmfeld refers to as "human scale." The height of the works relates to his earlier study of Le Corbusier's human models and to the architect's proportional system dictating harmonious measurements of the human proportions of a man with vertically outstretched arms. In so doing, Wurmfeld's pieces remain within a human's reach, maintaining a tremendous presence without overpowering or dwarfing the viewer. This is critical to the type of interaction the artist aims to achieve. For Wurmfeld, the dialogue between artwork and audience should be intimate and engaged. If the works are too monumental they will dominate the object/viewer relationship as opposed to allowing the viewers to take on an active and participatory role to complete the pieces on their own.

Finishing these complex grids and meticulously planning the order of hues, while also mixing all of the colors and painting them carefully into hundreds of designated spots, took Wurmfeld about a year for each canvas. This time-consuming structure made it an unlikely solution for a cyclorama. However, in creating these works a serendipitous mistake led not only to a more practical approach for the Cyclorama, but also to an exciting new grid formation that would bring Wurmfeld closer still to achieving smooth, transitioning color sequences and expanding his color field range, while simultaneously requiring fewer actual colors. The "mistake" occurred when Wurmfeld drew one square more in a grid than he had intended. When laid over a correctly drawn grid, this extra square

created a new pattern in which the grids worked in phase with each other, and the shapes and sizes of the grid areas changed in geometric progression. Wurmfeld later developed this unique grid system to begin in phase and end in phase—aligned equal squares; then, in the distance between the grids, they would shift out of phase, creating new incrementally sized rectangles. The phasing of the grid created a more effective way to paint the progression of colored shapes resulting in smoother color transitions, more complete color visualization, and a more unified painted surface. Wurmfeld began using this technique in 1987 and has continued to do so ever since.

II-45 (B-Y) and II-45 (R-Y) attest to Wurmfeld's focused curiosity, relentless questioning, as well as a fearlessness of failure or mistakes. They serve not only as a capstone to the series of experiments from the early 1980s, but they also prompted a pivotal shift in the construction of his works in the years to follow. His intuition and talent for creating color palettes is a key component to the impactful results of his paintings. No machine could replicate the color selections and combinations he accomplished through his scientific approach of trial and error studies and years of experience. From the onset of his artistic career and regardless of the shape or size of the painted surface, Wurmfeld set out, and succeeded, in pushing the boundaries of perceptual color in new and exciting ways. The works of the early and mid-1980s were, and are, no different as true testaments to his remarkable and continued vision: The experiments were set, the results were dynamic, and the viewer always invited to experience the drama.

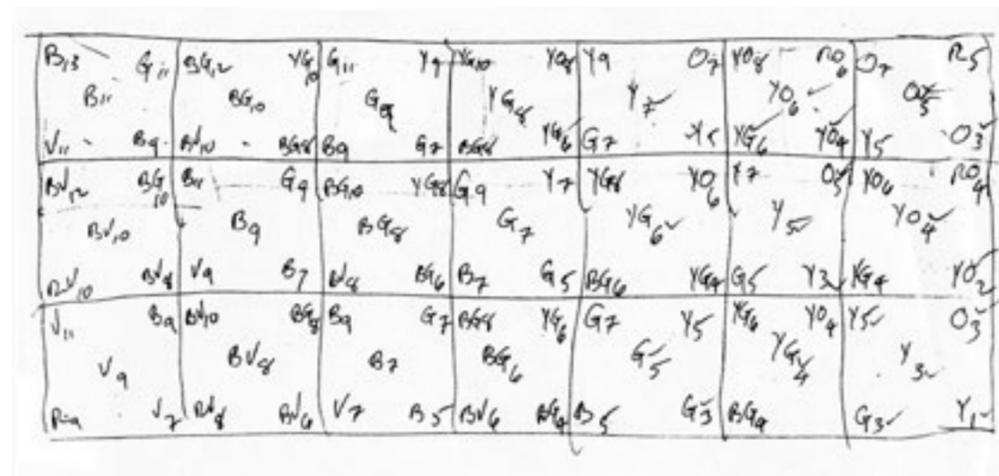
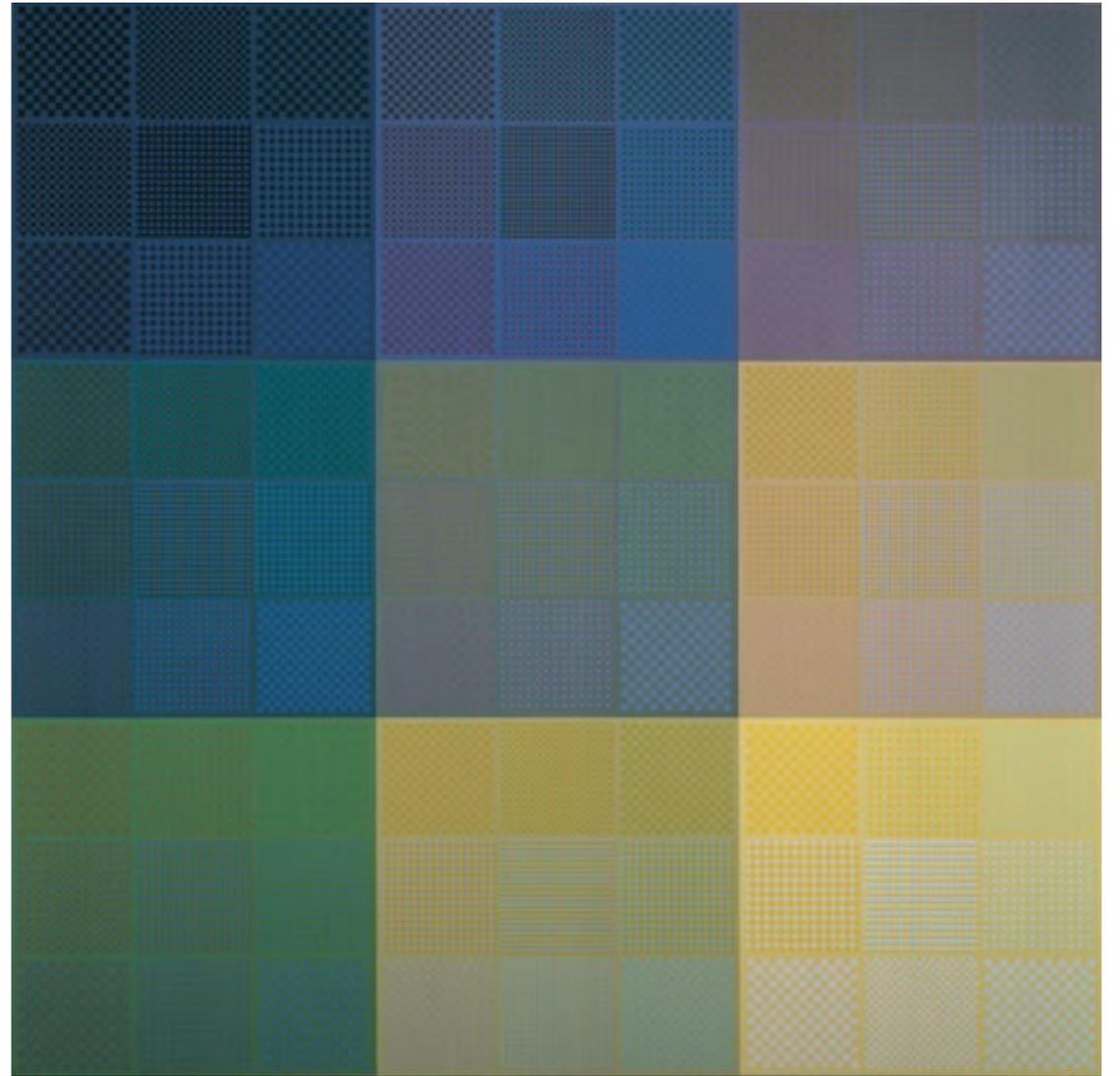
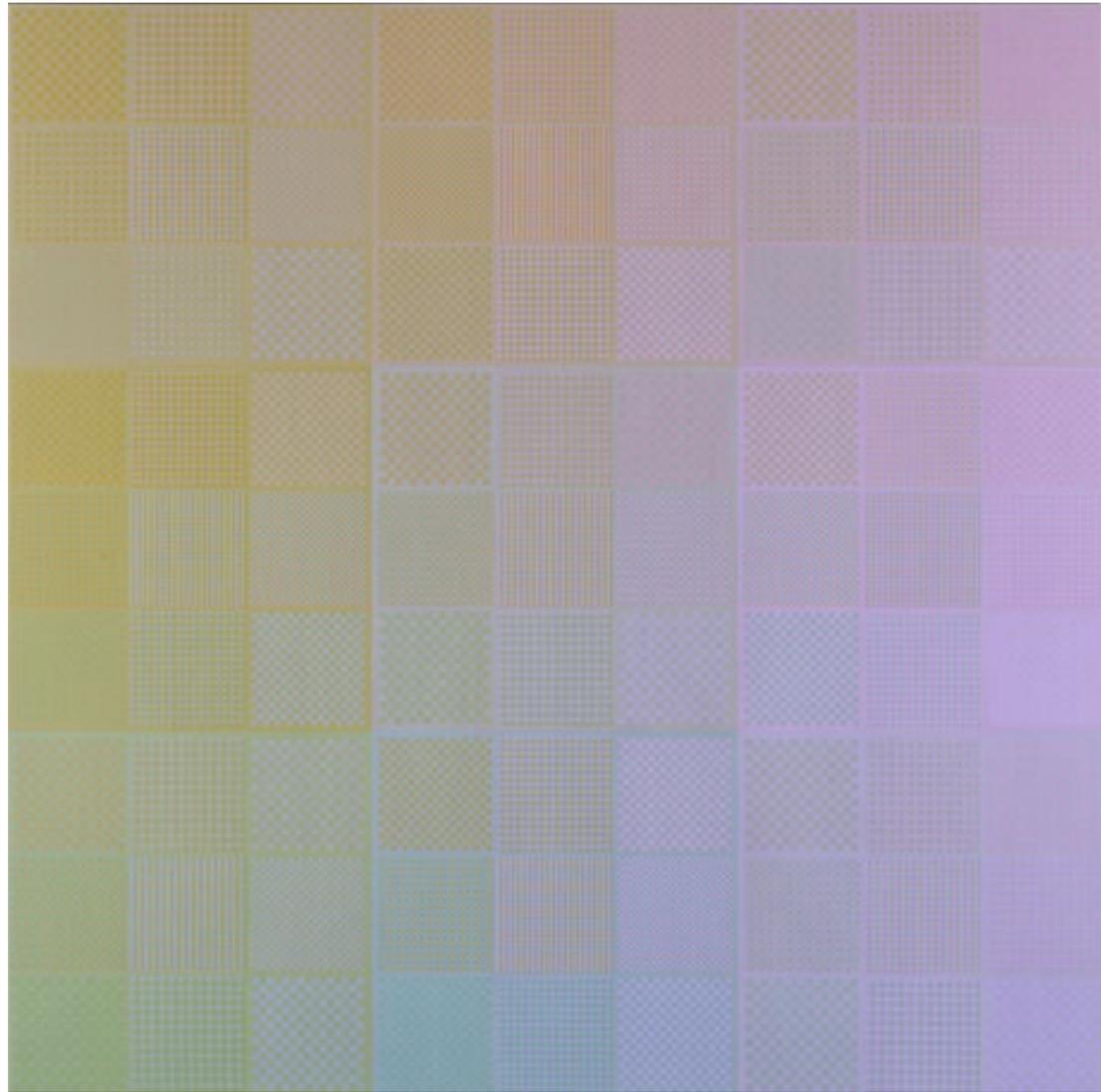


FIG. 1 Sanford Wurmfeld, drawing showing color organization for painting II-45 (B-Y), 1984, pen on paper, 8 1/2 x 11 in. (21.6 x 27.9 cm).



Sanford Wurmfeld. II - 29 (N) No. 1, 1981. Acrylic on canvas, 85 1/2 x 85 1/2 in. (217.2 x 217.2 cm.)  
Edith C. Blum Fund, 1982. The Metropolitan Museum of Art, New York, NY.

PLATE 33 II-39 (Dk/Bv-Lt/YO), 1981. Acrylic on canvas, 85 1/2 x 85 1/2 in. (217.2 x 217.2 cm)

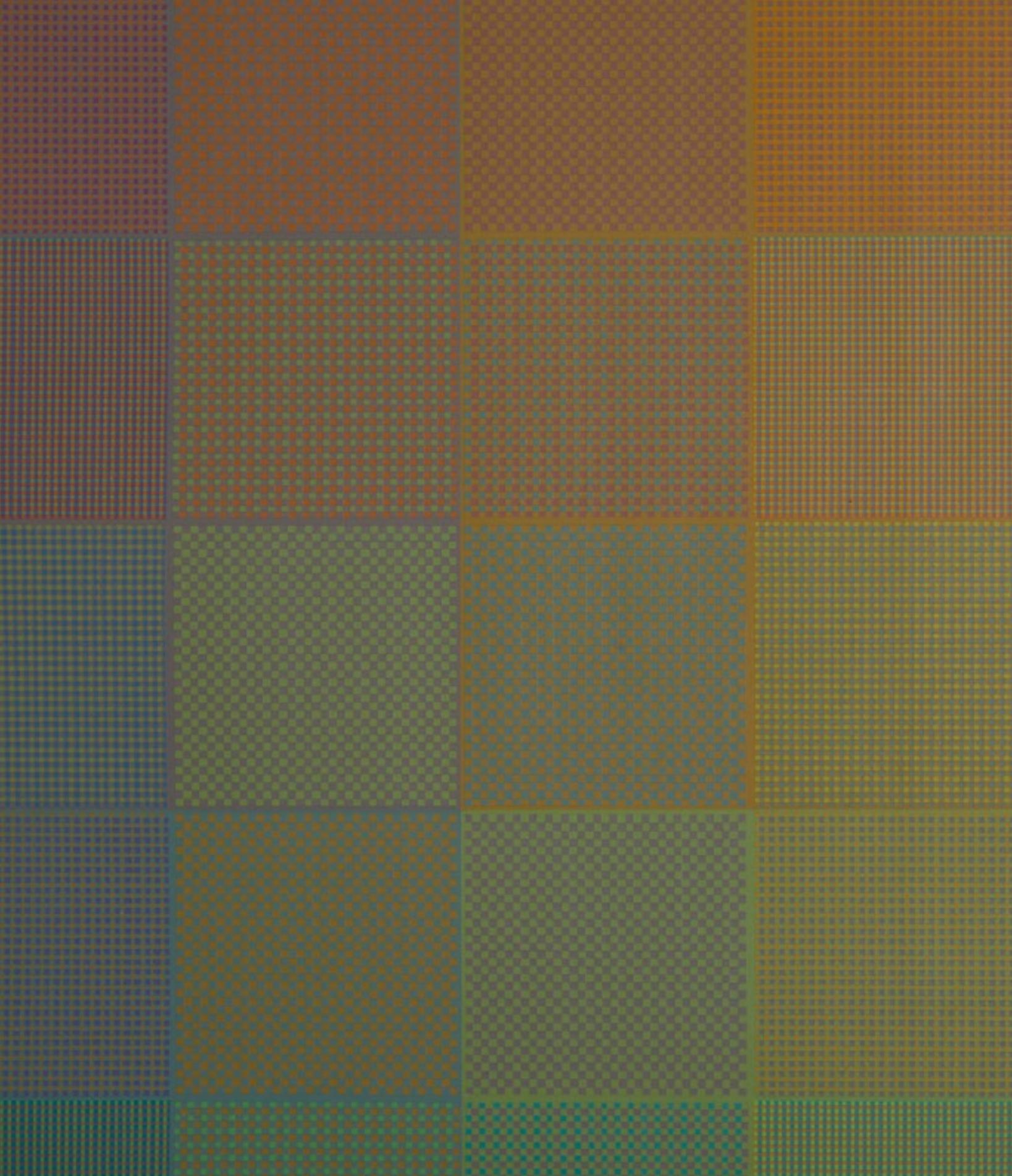
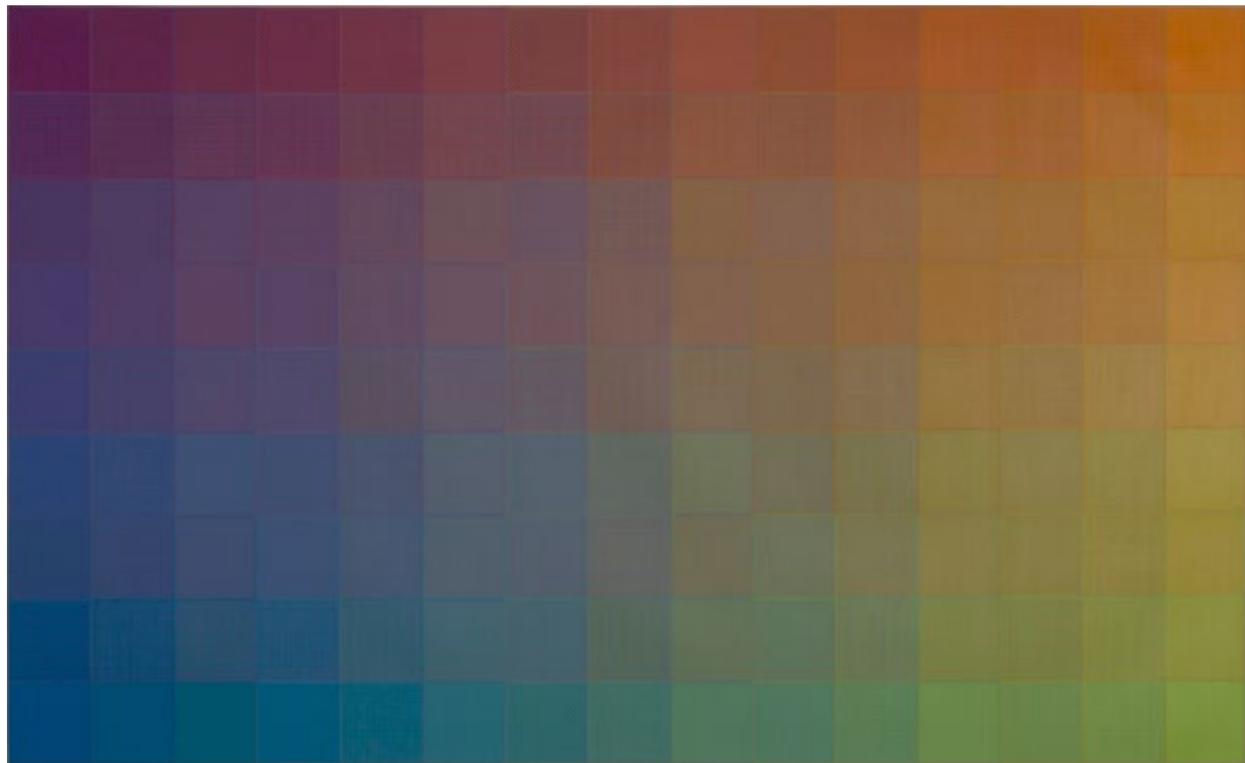


PLATE 34 II-35 (V-Y), 1982. Acrylic on canvas, 85 1/2 x 142 1/2 in. (217.2 x 217.2 cm)

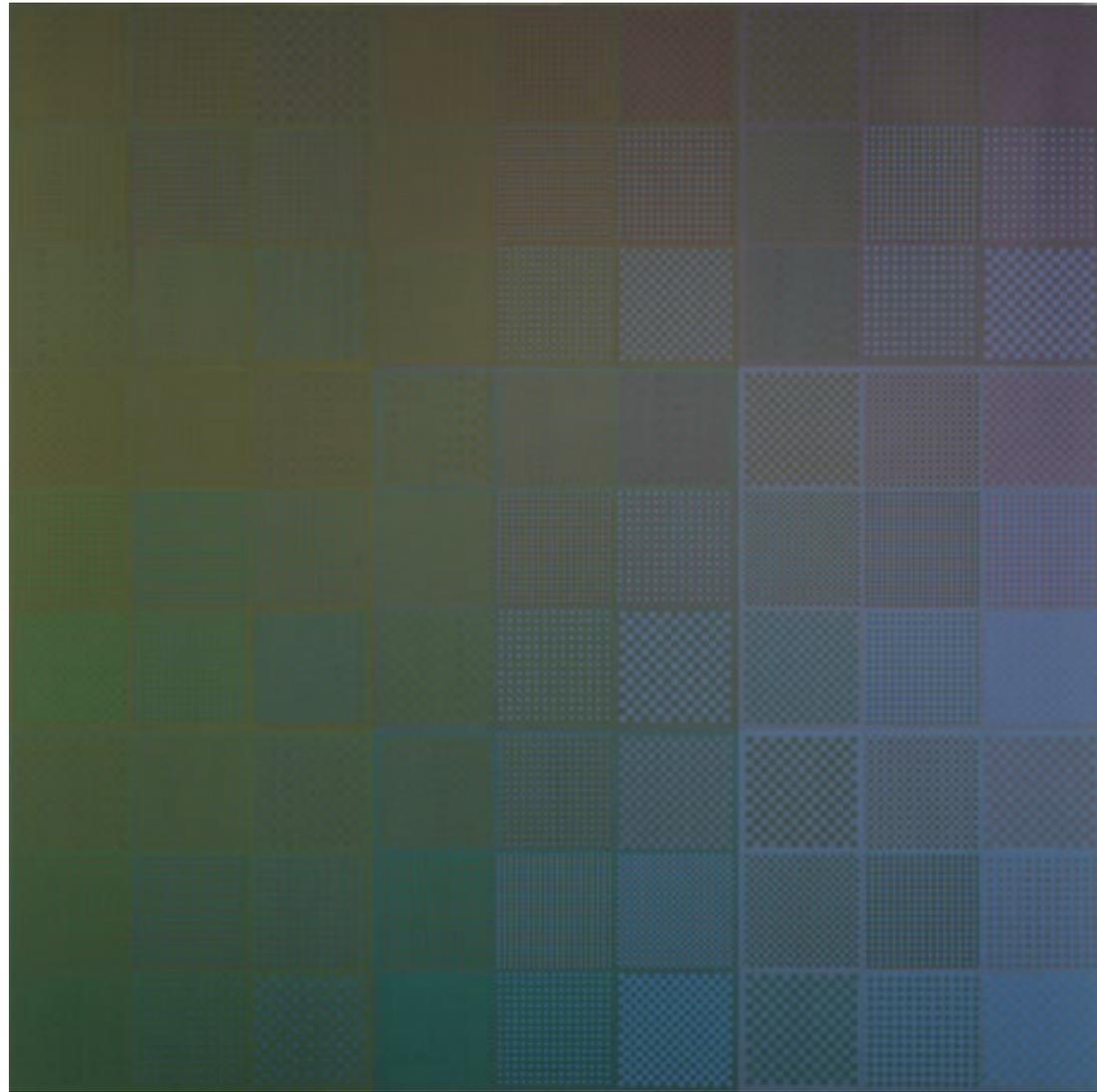


PLATE 35 II-29 (DN) #1, 1982. Acrylic on canvas, 85 1/2 x 85 1/2 in. (217.2 x 217.2 cm)

PLATE 36 II-29 (LN) #1, 1982. Acrylic on canvas, 85 1/2 x 85 1/2 in. (217.2 x 217.2 cm)

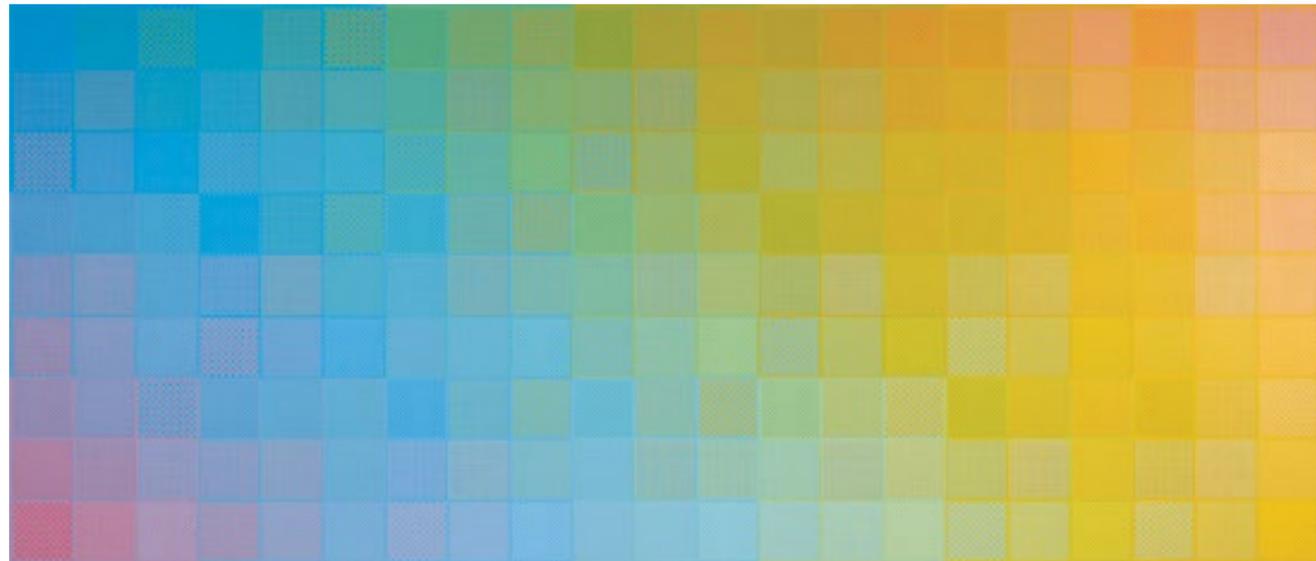


PLATE 37 II-45 (B-Y), 1984. Acrylic on canvas, 84 x 195 in. (213.4 x 495.3 cm)

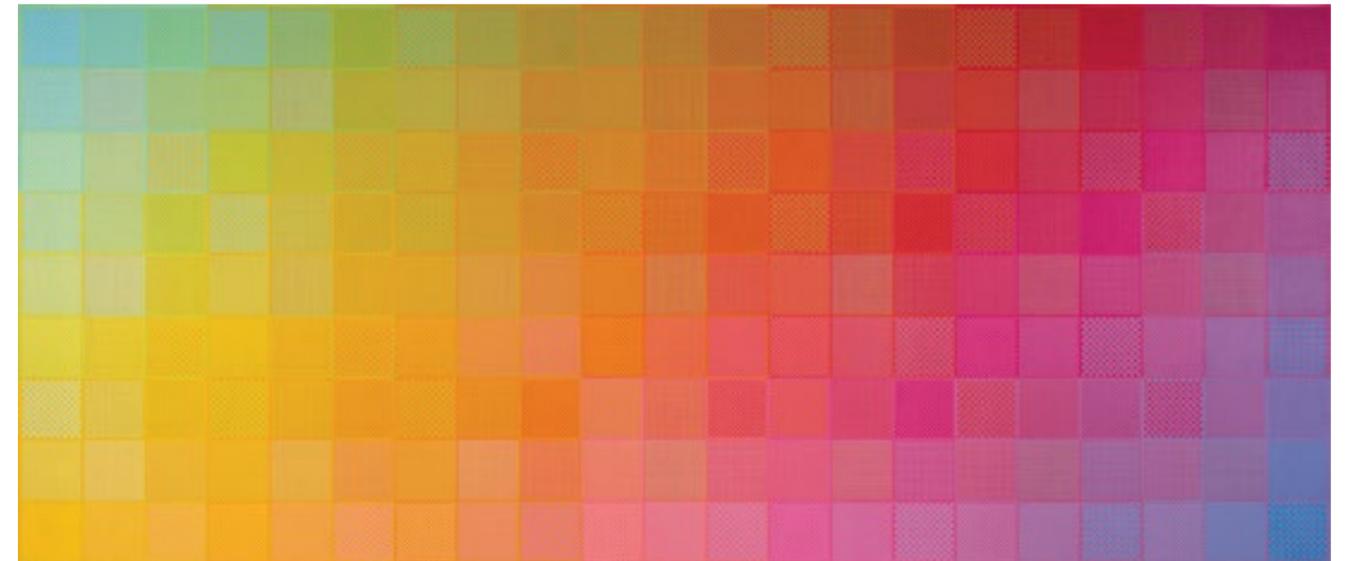


PLATE 38 II-45 (R-Y), 1984-85. Acrylic on canvas, 84 x 195 in. (213.4 x 495.3 cm)

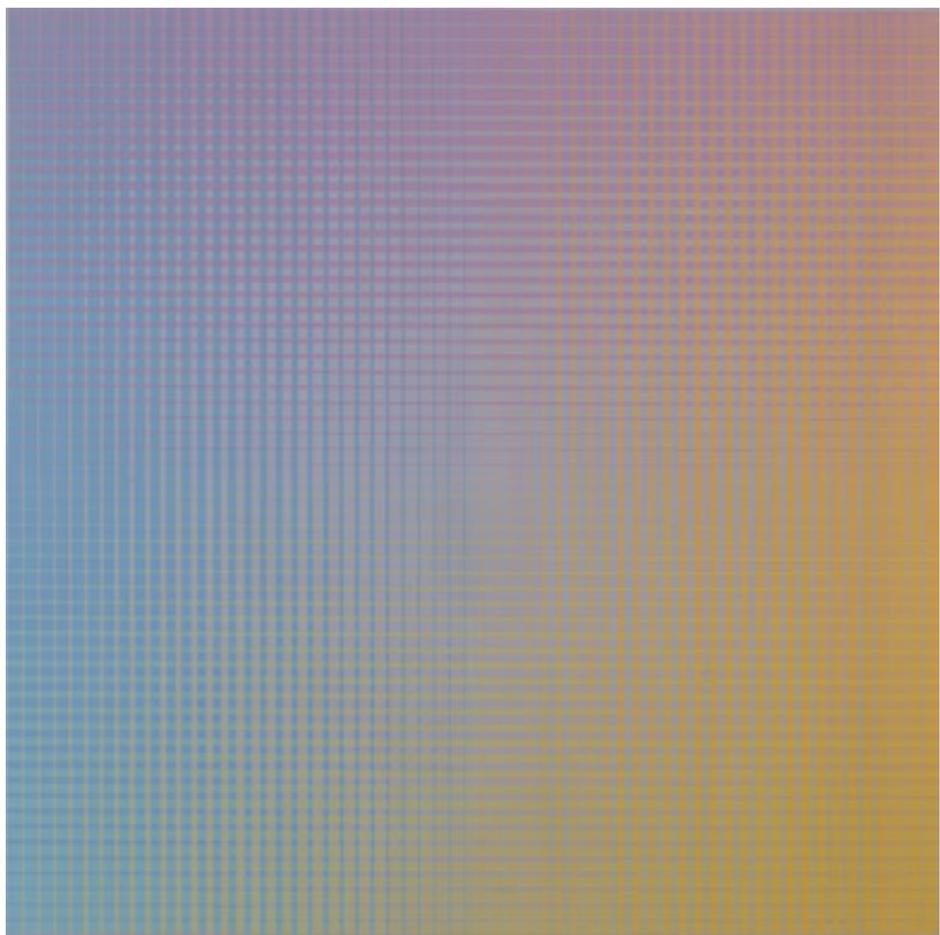


PLATE 39 II-9 (N), 1987. Acrylic on canvas, 57 x 57 in. (144.8 x 144.8 cm)

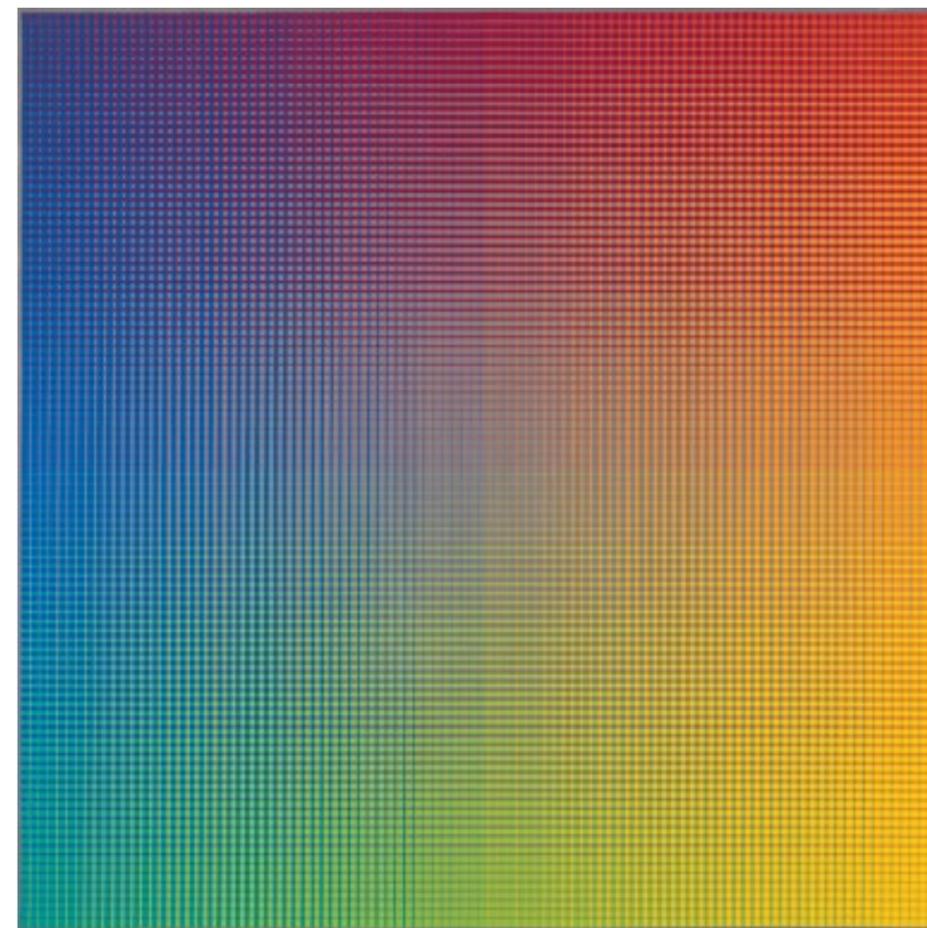


PLATE 40 II-9 (Full Sat.), 1987. Acrylic on canvas, 90 x 90 in. (228.6 x 228.6 cm)

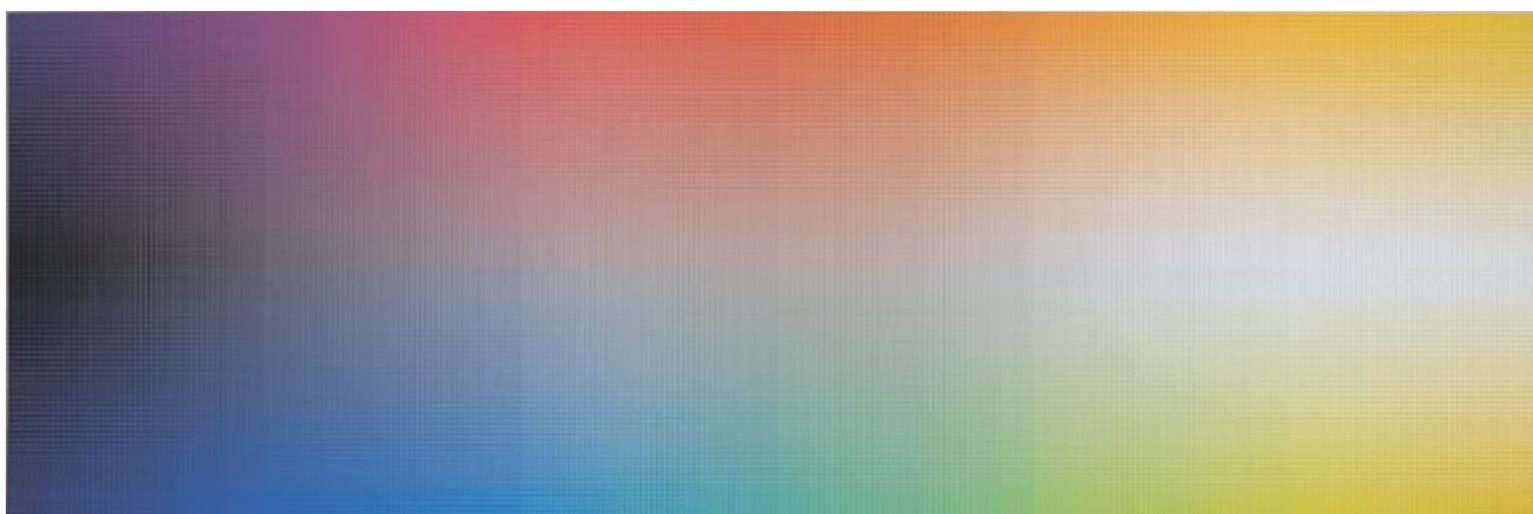


PLATE 41 II-19 (Bk-W/Full Sat.), 1989. Acrylic on canvas, 7 ½ x 22 ½ ft (2.3 x 6.9 m)