

**“NEARING CONVERGENCE”**  
**An Interactive Set Design for Dance**  
**The Intersection of Physical Movement and Optical Form**

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**Abstract**

In this paper, I will present the development of my collaboration with choreographer, Ellen Sinopoli, and four of her dancers in creating “Nearing Convergence.” My work alone consists of layered elements and often explores the interplay of geometrical forms and optical movement. In this collaboration, the challenge and the excitement for me was to add the dimension of physical movement of the dancers to a very large scale work. The challenge for the choreographers, the dancers, and myself together was to find and express the intersection of physical movement and optical form. In this lecture/slide demonstration, I will present slides documenting the conceptual development of the set design for “Nearing Convergence,” and I will show video clips from the premier production of the performance.

**Introduction and Background**

The knowledge of geometry has been the fundamental basis of art forms throughout history. The application of geometry pervades and forms the visual world we move through; it allows us to remember and reconstruct formations and gives artists the freedom of scale and combination of different dimensions. My own work deals with hidden images: layers of planar surfaces visible from a certain angle, which change according to distance and personal interaction. Three planar surfaces, consisting of canvas and screen, are parallax or completely unrelated in their geometrical design. The surfaces, as concrete as they are alone, together convey images with constantly changing focus and appearance. One knows what is physically present but captures, and then loses the optical images in an oscillating phenomenon.

In recent years, my interest has grown to expand the scale and interaction of my pieces. I wanted to integrate actual movement into my pieces and have the viewer experience the changes, appearances, and interactions of the work. When physical movement becomes part of a piece the perception of the viewer will change. The viewer is stationary and the piece itself begins to move in front of the viewer, changing through the interactions of light, sound, and physical movement.

In 1989 I created “Four Parallax Ellipses,” which measured 28 feet wide, 6 feet high, and one foot deep. While hanging and adjusting this long piece I had to move in and out between the two surfaces so for a moment I became an interactive part of the work. Ten years later the idea to bring physical movement into my work fully manifested itself and a collaboration began.

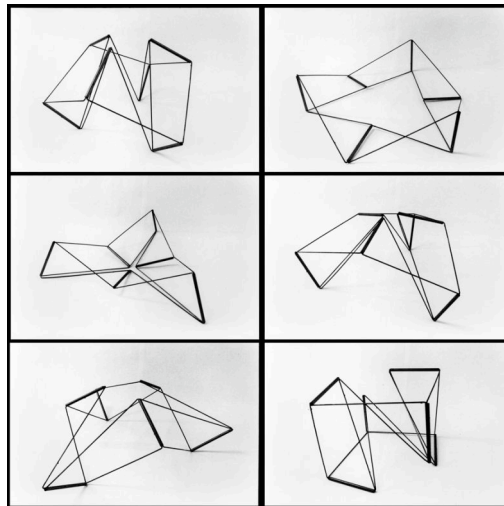
### Concept and Development

I first met with choreographer Ellen Sinopoli in 1997. We spent a lot of time learning about each other’s work before beginning the actual collaborative process. The choreographer, four dancers, a composer, a lighting designer, a sculptural engineer, and I got together a year later to create “Nearing Convergence” specifically for a premiere at the Egg, a performance center in Albany, NY in 1999. Composer William Harper, who was familiar with the nature and form of my work, was commissioned to compose a score for this project. Meanwhile I developed several conceptual ideas for the set design into preliminary sketches and a maquette. Ellen, the dancers, and I soon realized how many changes we had to make as our collaborative work developed. It was a work with multiple authors. We could no longer make decisions about the choreography or the set design single-handedly; together we were challenged to find and express the intersection of physical movement and optical form.

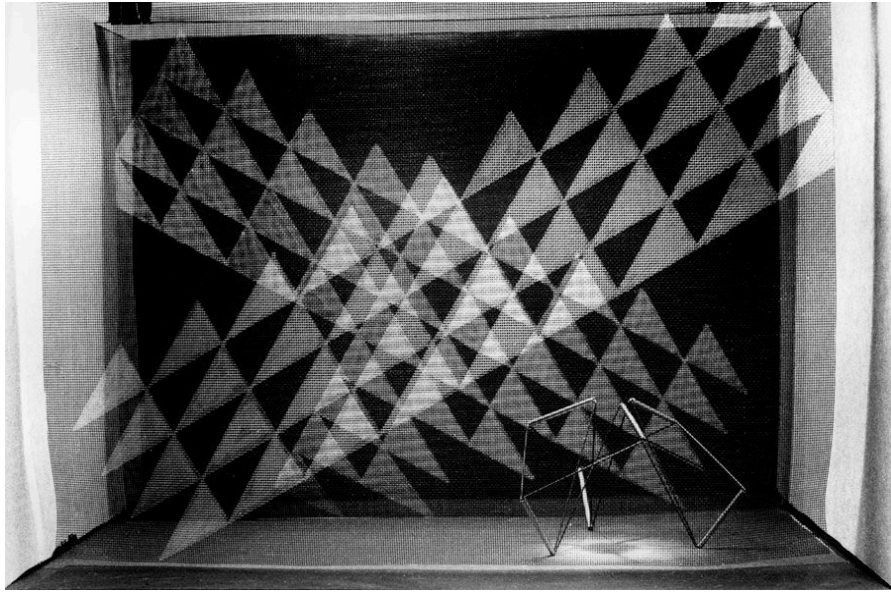
My vision and understanding of this collaboration was with the full intent of seeing such a piece as a contemporary visual art form performed for a live audience. It was about much more than just expanding the size of my work or bringing a painting to the stage. The audience could be captured for sixteen minutes to experience “Nearing Convergence.” Form, motion, sound, and time made this four-dimensional piece possible.

We started with the idea of creating a prop, which consists of six linear tetrahedrons connected to each other. These forms could create a series of shapes: an open equilateral triangle in the center, a hexagon, a closed triangle, a cube, a closed triangle, a hexagon, and again the open triangle in the center. The longer diagonal tube of the tetrahedron measured 110 inches; on the opposite side the length of the tube measured 84 inches and created a 90 degree angle with the 48 inch long rotating tube.

The linear tetrahedrons were made out of PVC and aluminum tubing and are therefore very flexible. This component was the first determination of how the dancers could interact with the piece and also change its position.



**Figure 1:** *Positions of the Linear Tetrahedron*



**Figure 2:** *Maquette (15" x 20" x 15")*

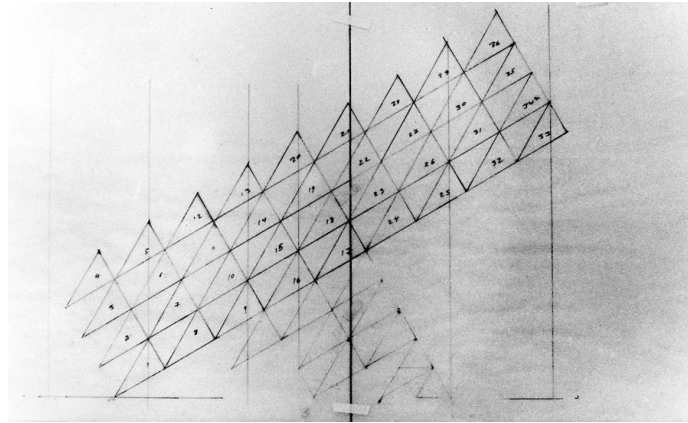
### **A Convergence of Design, Function, and Form**

The triangle now became the basic element for design.

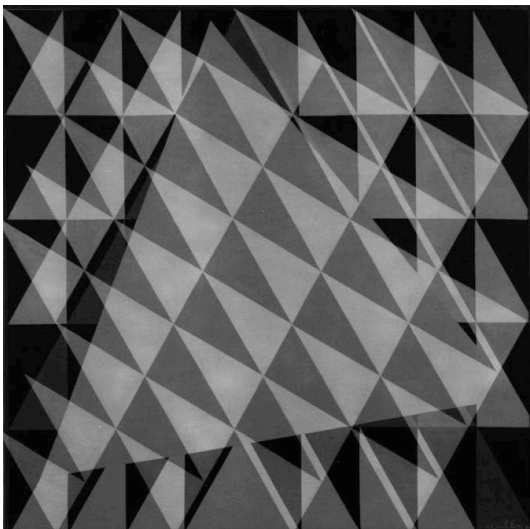
In "Nearing Convergence," two layers of suspended screens, one upstage and one downstage, become the physical and optical framework through which the choreography is interwoven. In a sense, the dancers become the third layer of physical and optical movement in the piece.

The set design is based on tetrahedrons (a life-sized kinetic prop) and right triangles painted on fiberglass screen which alternate between positive and negative. The configurations of triangles move in diagonals in opposite directions across the two screens measuring 30 feet high by 40 feet wide. Each of these screens comprises five panels measuring 8 feet wide and 30 feet high. The downstage screen consists of four rows of right triangles that move upwards from right to left on a 30 degree angle, whereas on the upstage screen the rows of right triangles move upwards from left to right. The two layered surfaces visually overlap and the triangles meet and cross, forming an equilateral triangle in the center.

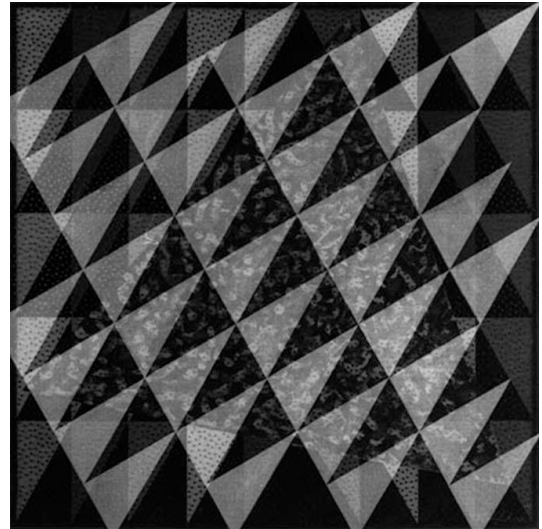
The open linear tetrahedron was placed stage left into the space between the two hanging surfaces and was slowly moved across the stage and through different positions by the dancers.



**Figure 3:** *Work Drawing*



**Figure 4:** *Moving Triangles Left*



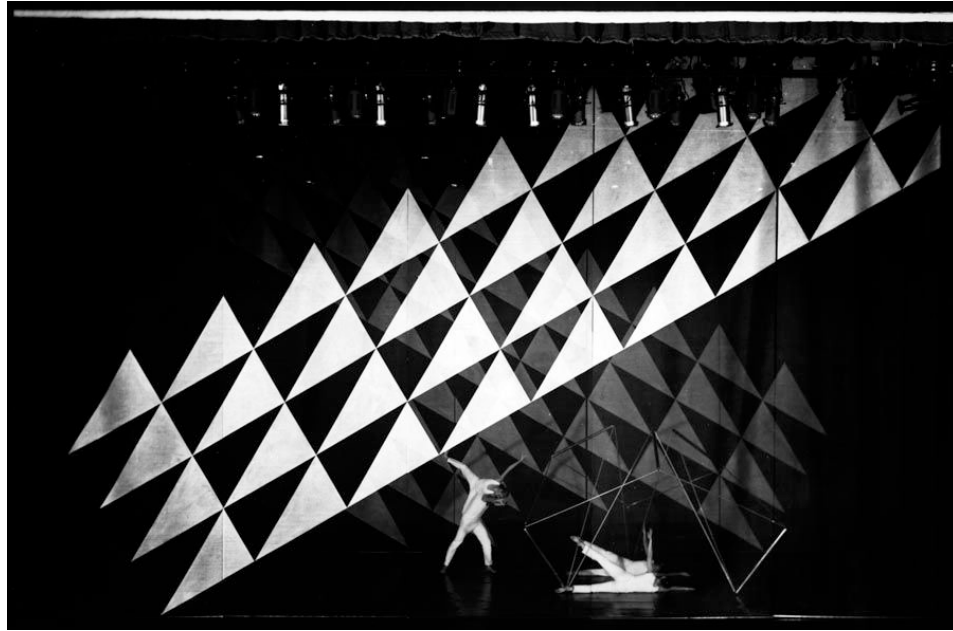
**Figure 5:** *Moving Triangles Right*

### **The Synthesis of Movement and Form**

I was forced to create a workable environment for the dancers, who began to structure improvisations as they explored the constrictions and possibilities of the space, geometrical shapes, and forms. When the four dancers enter the space, they often move in striking dissonance to their surroundings, oozing slowly over each other and making curving organic shapes. The layered effects of the screens create an intriguing confusion; it isn't always clear what dancers are on what side of each screen until they begin to interact, lifting one of the group above their heads or rolling over another's back.

The dancers enter from stage right between the scrim and the upstage screen, following the movement of the triangles, then move into the space between the upstage and downstage screens. They are now enclosed in this space, which becomes their habitat for the duration of the performance. At the very end of the piece they move through the front layer and the screens fly up.

Buddhist philosophy suggests that “space is the fundamental element of our cosmos. Its nature is emptiness and because it is empty it can contain and embrace everything...space is the precondition of all that exists.” The space in “Nearing Convergence” is the space within the piece where for a limited time the empty space is activated through movement and then changed back into an empty enclosed space [1].



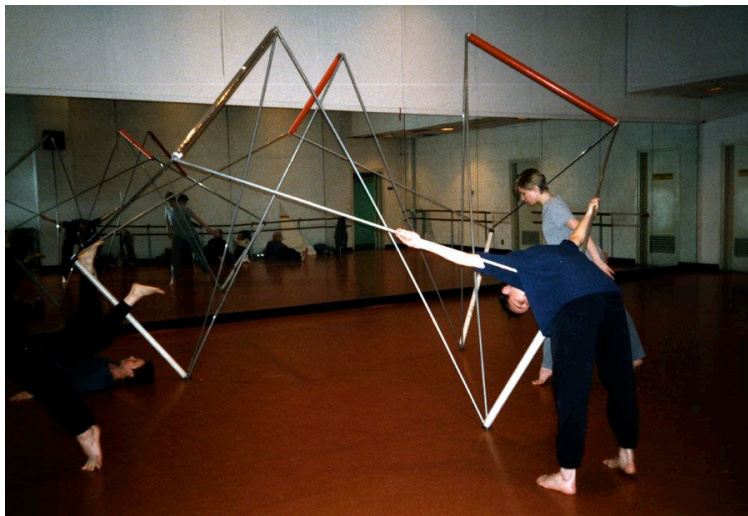
**Figure 6:** *Installation of “Nearing Convergence” with dancers*

### **Reflections**

I did not see the piece installed until the day before the performance. Neither did the choreographer, dancers, or composer. Throughout their rehearsals and improvisations the dancers worked with the linear tetrahedron, but could only imagine the enclosed space between the two layered screens. We never had the opportunity to rehearse the dance within the complete set or with the proper lighting until the dress rehearsal in the theatre.

We were collectively faced with several constraints that limited the scope of this project. Due to our non-existing budget, we could not introduce a backdrop of a 20 feet high kinetic equilateral triangle – a concept that I had developed as part of the work in progress and executed in a variation of paintings. Similarly, we required a set that could be easily transported. Thus, the tetrahedron can be taken apart and the screens rolled up in sections and together everything fits into the back of a pickup truck.

This collaborative effort was full of challenges and new discoveries. Every step and discovery in my work is important; one piece will nourish the next one or retrieve from a previous work. Outside influences only interact when a new concept or idea is already formed. I see what I want to see, and when the eye and mind are ready to store more information, I digest and recreate. With my desire to explore the intersection of physical movement and optical form I challenged the viewer to interact with “Nearing Convergence.”



**Figures 7 – 9:** *Dancers in rehearsal with linear tetrahedron*

## References

[1] L.A. Govinda, *The Psychological Attitudes of Early Buddhist Philosophy*, Rider, London, 1961.

Photo credit: David Lee, East Chatham, New York.

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