

PERSPECTIVE AND SCULPTURE – THE SEARCH OF AN ARTIST

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Abstract: As a sculptor and painter, I have worked for over twenty years in perspective and anamorphosis, engaged in both theoretical and creative research. Geometry has marked my artistic activity both in large-scale projects, installations where the viewer is called to travel through a scenographic space, and in medium and small dimensions where the geometric framework of the perspective, albeit hidden, supports the composition of the artwork and induces the observer to move around the sculpture. In creating prospective and anamorphic plastic works I worked on the relationship between the two dimensions of the image and the three dimensions of the object. The forms of expression were varied according to the needs of projects and occasions – from ceramics, to drawing and painting, to video installations and installations with light and shade, including terracotta and bronze. These latter techniques gave me the possibility of reconciling two passions: the more impulsive act of modeling and the geometry of the relationship between form, space and observer. In this activity the first part of my artistic career in the field of dance and theater could converge, where the movement of the human body in space and its geometric analysis were protagonists.

Collaboration with the artist Gianni Miglietta for a long period of time has been fundamental, and our constant and continuous dialogue was a great stimulus and enrichment. Together we developed many projects between art and science for the Galileo Museum in Florence, as exhibitions and educational workshops.

Key words: Perspective, anamorphosis, optical distortion, sculpture, geometry, shadow.

As an artist in the field of plastic arts, I have worked in perspective and perspective distortions in both theoretical and creative research for over twenty years. In particular, I have dealt with the relationship between the two dimensions of the image and the three dimensions of the object. This led me to create works in a large range of sizes – from museum installations to medium and small artworks for private collections – and utilizing different techniques and materials including some experiments using video installations.

My long time collaboration with the artist Gianni Miglietta which included a constant and continuous dialogue was a fundamental and enriching stimulus. Together we developed many projects linking art and science for Museo Galileo in Florence, such as exhibitions and educational workshops. I continue to

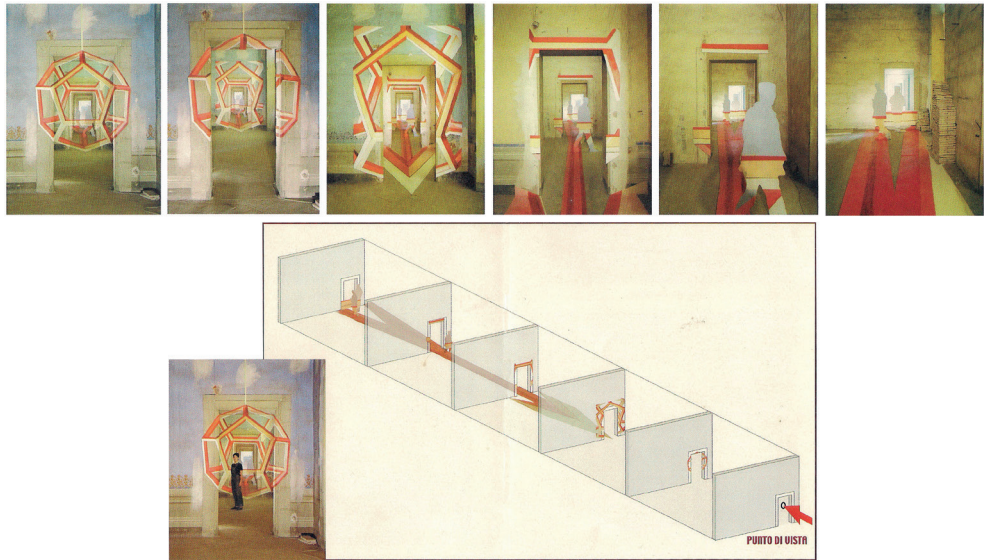


Fig. 1

conduct workshops concerning the relationship between vision and representation for both a general public and scholastic groups ranging from primary school to university.

Here, I would like to present some of my most significant works and some of Gianni Miglietta's as examples of the application of perspective geometry in different creative situations.

For the exhibition about Masaccio and Perspective (*Nel segno di Masaccio. L'invenzione della prospettiva*, Galleria degli Uffizi, Florence, 2001)¹ the image of the Hollow Dodecahedron was the emblem of the exhibition. We drew and painted it in part around the first door, then the second, then around the other doors and on the floor (Fig. 1). When viewed from the entrance, the dodecahedron appeared whole, but while walking through the rooms the image gradually dissolved like the scenographic drawings on theatrical backdrops. I also inserted some silhouettes of figures, as visitors whose clothing is decorated by the pattern of the drawing itself. It was my intention that these flat, bodiless, shadow-like figures bore in themselves the incongruity created by the scenographic perspective, caught between two and three dimensions. Like silhouette-actors, they dramatize the play of perspective and this anamorphosis² became expressly something more than just an optical illusion. The bizarre anamorphic effect is intensified still further by the presence of a visitor, who obviously cannot stand before the dodecahedron and at the centre of the corridor at the same time. We called this effect "the incompatibility between the image of the dodecahedron and its support", between the illusory volume of the dodecahedron drawing and the real space of the rooms.

1 F. Camerota (a cura di), *Nel segno di Masaccio. L'invenzione della Prospettiva*, catalogo della mostra, Firenze 2001, VI.

2 *Anamorphosis* is a 17th-century neologism coined to indicate a genre of pictorial representation based on the study of perspective aberration, widely diffused in Baroque Art. Composed of the Greek words *aná* and *morphè*, the term describes the deformation of images that appears when the observer changes his viewing point. *Aná* expresses the idea of movement from below to above, while *morphè* indicates the shape of the object. The correct image can be perceived from one viewing point only.



Fig. 2

After this exhibition, Palazzo Vecchio Museum asked us to create another installation with a perspective gallery inspired by the Galleria of Palazzo Spada in Rome built by Francesco Borromini, in 1653. The gallery that we made presents, according to the principle of theatrical perspective, the floor sloping upward and the arches increasingly smaller to give the effect of being a longer corridor to the visitor entering the room. The real depth of the gallery is actually shorter than the illusory one (Fig. 2). Therefore, a person entering the gallery appears to become taller and taller as he moves towards the statue.

The sculpture placed at the end of the corridor appears to be a normal statue when viewed from the entrance of the gallery, but in reality it is actually a painted bas-relief on a pyramidal shape. The vertex of the pyramid is located at the height of the viewing point of the perspective gallery. Attention has been focused here on the relationship between the sculpture and the architectural space, as an installation



Fig. 3

Fig. 4



Fig. 5



Fig. 6



where the architecture participates in the race, with its perspective acceleration, and the sculpture, as a kind of scenographic “walk-on”, underlines the theatrical nature of the gallery.

Another example of scenographic perspective and space representation is *The Small Wall*, a small ceramic work (Fig. 3). Looking from a determined viewpoint one sees the image of the entrance to a traditional Italian garden. From other points of view, the artwork takes on surprising distorted forms and *The Small Wall* seems to melt under the Mediterranean sun. The space that should allow entrance to the garden is crushed by the two pillars converging at the base, the terrain is not level and the geometry of the flowerbeds is distorted. Space takes on a dream-like, surreal dimension. Considering the point of view: *The Small Wall* was presented at the Perugia Science Festival in the following way: the sculpture in the center, the viewing point of the observer on one side and on the opposite side a sort of sky painted upon a trapezoidal panel that appeared as the background of the garden. The viewing point was dramatized by a little window opening and became a part of the composition, which included the observer, the object and the distance between them, like a single-space made up of correlated elements. *The Small Wall* is in fact a three-dimensional anamorphosis, a subject that has particularly fascinated me as an investigation into the plastic potential of perspective.

Traditional anamorphosis are images recognizable only when observed from a precise viewing point or reflected in a mirror. From any other point of view, they appear distorted or incomprehensible. Traditional, historical pictorial anamorphosis of the 16th and 17th centuries are on two-dimensional surfaces (paper, canvas, or a wall). Here, I added a three-dimensional support or component. The clay was modeled within the apparent outline of the object. In other words, the image acquires a distorted material consistence: it is a wall but not a regular one.

Subsequently, this sculpture was made on a very large scale at Museo Galileo (*Geometrie dell'illusione tra arte e scienza*, Florence, 2012). When the artwork is small we can move around it, but when it is quite



Fig. 7

large we can explore and interact within the sculpture itself³. The person who enters it can feel all of the strangeness typical of a perspective space, in relation to his own bodily sensations. If an observer looks at this scene from the viewpoint and then moves around the artwork he will grasp the surreal effects, becoming a spectator watching a sort of theatrical play inscribed in the shape of the scene. Traditionally in set designing, perspective deformation is a problem to be solved. Outside of the theatre, in a decorative scheme or event, the deformation becomes, as in anamorphosis, one of the poles of expression, so that we can tell a story or create an interactive situation.

Conversation at the Bar was an installation for the exhibition *Mate-Milano. Percorsi matematici in città* (Museo della Scienza e Tecnologia Leonardo da Vinci, Milan, 2004). We see the chairs of a coffee bar in the Galleria of Milan, one of the city's most famous landmarks (Fig. 4). Here, the viewing point was indicated by a fake camera. If one sat on one of the distorted life-size chairs one would have assumed a strange position,

³ See <https://www.stellabattaglia.com/portfolio/il-muretto/>



Fig. 8



Fig. 9

alluding to certain uncomfortable moments in social life that could be embarrassing and rather absurd. In the smaller terracotta model, the little frog in the red shadow, acted as the fairytale maker.

In *Poseidon*, I instead applied the plastic processing of the perspective not to an architectural space, but rather to a figure (Fig. 5). The severe, frowning face of the sea god vanishes when the observer moves around the sculpture, melting into forms evocative of waves, seaweed and the bow of a ship. It is again an “anamorphic sculpture”. A face is seen, but the modeling, materially, is not that of a head. This creates a deviance between the image and the material form that generates it.

The awareness of geometric rules allows me to foresee the variation of the relationships between the position of the point of view – distance and height – and the shape that is modeled or built, while the choice of plans and their rhythmic articulation is free, which in the variety of projective distortions con-

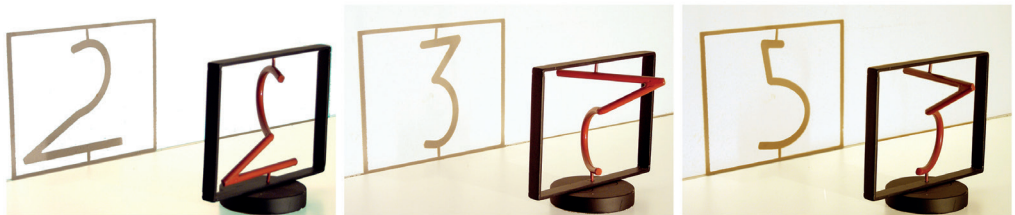


Fig. 10



Fig. 11



Fig. 12

stitutes a wide range of compositions⁴. This artistic exploration is stimulated and confirmed by historical testimonials of pictorial anamorphosis, quadraturism, perspective scenography and “material” perspective⁵, while in the field of sculpture, the deviance between the visual appearance and the material reality of an object finds its historical roots in the tradition of optical corrections made in sculptures designed to be placed in an overhead position⁶.

While in those cases the deformed part of the sculpture was not expected to be visible, here the plurality of points of view is made accessible, and the dynamics of their relationship become narrative.

Works such as those I have discussed are born from the need to turn perspective representation into a plastic sense, giving back a little of the material consistency that perspective takes away from the object. In this sense, the visual and geometrical cone of projection is imagined not only as a geometric solid, but also as a solid material that can be sculpted and shaped. According to the ancient perspective of painters, based on the common Euclidean geometric model of vision and light, forms are modeled not only by the hand but also by the eye while being guided by the laws of perspective geometry and optics. Visual rays and light rays form the invisible geometric scaffolding that supports the fleeting images of perspective and anamorphosis.

With a little different approach, I then tried to develop the dynamic aspect of the perspective distortions. While these distortions are deformed and expressive images, they are sustained by the harmonious, proportional criteria of projective geometry. An example on the theme of motion is *La Ronde* (Fig. 6) where we see three figures dancing in a circle. For the observer who walks around the sculpture the dancers appear to lose their normal anatomical characteristics. In this case the traditional image is taken as a starting point for a form that then develops spatially in a rhythmic and dynamic way. In less rigorous terms, I made some pieces of jewellery, as a part of a unique movement of wearable little sculptures.

Along these same lines but from a different approach: the geometry of the vision is combined with the geometry of light and shadow in *Elisa*, a life-size bronze sculpture (Fig. 7). Upon entering the room, we see the profile of a seated woman from behind, as if the painter hand drawn it in the air. The harmonious compo-

4 See S. Battaglia Miglietta, “Applicazioni creative della proiezione centrale. Prospettive di un’artista”, in: *La geometria tra didattica e ricerca*, atti del convegno internazionale di studi a cura di B. Aterini – R. Corazzi, 2008, 38.

5 See B. Aterini, *Spazio immaginato e Architettura dipinta*, Firenze, 2012, 40, 54, 59,70; F. Camerota, *La prospettiva nel Rinascimento. Arte, architettura, scienza*, Milano, 2006, 285–320;

6 F. Camerota, *La prospettiva nel Rinascimento. Arte, architettura, scienza*, Milano, 2006, 261 e ss.



Fig. 13



Fig. 14

sure of the classical figure dialogues with more dramatic moments. We can see the line as a drawing and the shape and volume of the woman who was there, an absent body of a woman. A real model was used there.

In *Moonlight* (Fig. 8) parallel lines of light and shadow take the form of the female body. The image becomes matter in bronze with a silver patina.

Using light, from yet another approach, Fibonacci's series of numbers are placed in apparent disorder. Turning on the light, the numbers then cast a shadow spelling out the word Fibonacci. The title is: *A Moment of Disorder in the Fibonacci Sequence*. It is a shadow sculpture, another way to work with geometry of light and perspective projection (Fig. 9). The first shadow sculpture I made was for the exhibition *Mate-Milano. Percorsi matematici in città* (Museo della Scienza e Tecnologia Leonardo da Vinci, Milan, 2004). This one was created for Fibonacci Day, November 23rd 2018, in Florence.

Staying with the theme of mathematics, the small sculpture *Il Numero!* looks like a number two or a three or a five, depending on how you look at it, or on its position in relationship to the light: $2+3=5$ with the same object. It is really a three-dimensional anamorphosis (Fig. 10).

While I was exploring the plastic potentialities of perspective in different materials and themes, Gianni Miglietta was concentrating on perfecting anamorphoses with a spherical mirror – further developing the tradition of anamorphosis with mirrors – and through in-depth studies of sundials and techniques for measuring time⁷. Using a mirror tends to strengthen the bond that links viewing point and perspective representation⁸.

In his work *Hic et nunc*, a spherical mirror is surrounded by a rippling ribbon with numbers painted on it (Fig. 11). The dial of the clock observed is actually the reflection of the irregular, wavy ribbon surrounding the spherical mirror. The hands of the clock move over the spherical mirror. In this play of images, the reading of the clock is linked to the observation point. The time can be read correctly only from one viewing point; hence the title of the work, *Hic et nunc*, a Latin expression that means “here and now”, a metaphor linking time and space.

⁷ See www.anamorphosis.it.

⁸ S. Battaglia, G. Miglietta, *Il trionfo dell'illusione. Sulle orme di Andrea Pozzo*, catalogo della mostra, Mondovì, 2000; S. Battaglia, G. Miglietta, catalogue de l'exposition, Galerie BOA, Paris, 2015; G. Miglietta, “Il trionfo dell'illusione. Anamorfosi sulle orme di Andrea Pozzo” in: *Studi Monregalesi*, Anno IV– N.1 2001.

Gianni Miglietta also designed and made a sundial, using elegant forms of a sculpture. It has the precise function to measure with the shadow projected by the sun both the hours and the day of the year for that particular place on earth related to its latitude (Fig. 12).

In 2008, Gianni Miglietta created the artwork *Alla Finestra* for the Science Festival in Genoa (Fig. 13). The piece of art is a curious sculpture that circumferences a spherical mirror whose reflection appears as the image of an open window. The observer sees his double looking at him through an open window, becoming a part of the artwork. Use of a spherical mirror enforces the “optical illusion” and “wonder” effect as the observer himself remains captured in the anamorphic trick through his reflected image.

The last two works that I would like to describe are on the theme of the portrait so dear to the sculptural tradition. For the exhibition *La mente di Leonardo da Vinci. Nel laboratorio del genio universale* (Galleria degli Uffizi, Firenze, 2007) we were asked to provide three dimensional portraits of the apostles in Leonardo's *Last Supper*. To avoid an overly direct approach to Leonardo's painting, for obvious reasons, we preferred to model the clay within the outline of the profile as a shadow, to give back the volume described by the drawing⁹.

In the work *Fra-Ma-Pi, Brothers* I made plaster busts of three brothers looking at one another. It is a scenographic sculpture with video projection (Fig. 14). The video mounting of lines and colors stops just for an instant and dresses the busts as a skin. The busts were specially modeled to obtain a sculpture where the polychrome effect is conferred by the colors of the light itself. A sort of union between the perspective tradition and the plastic arts with technological innovations¹⁰. Before I close I would like to share that geometry has marked my artistic life since the beginning in the fields of dance and theater, where movement of the human body in space and its geometric analysis were the protagonists. The creation of works in a wide range of materials including terracotta and bronze gave me the possibility of reconciling two passions: the more impulsive act of modeling and the geometry of the relationship between form, space and observer. It has been fascinating to me to discover in perspective geometry a compositional grid that can be used not only to create highly dynamic forms sustained by the force of the geometric scaffolding, but that can also evoke a narrative. The work itself becomes the creator of images that are different, but intrinsically connected to one another, while the observer becomes an active part of the work as he moves around it.

Recently I was requested by the Opificio delle Pietre Dure to study some Renaissance and ancient sculptures, in particular the perspectives of Donatello's bas-reliefs. I had the opportunity to revisit the ancient conception of the arts, where Geometry was part of the liberal arts along with Arithmetic, Music and Astronomy, and where *Perspectiva*, the science of vision, was considered *ancilla* of Geometry, as a study of appearances based on the geometric model of vision developed by Euclid in the fourth century BC. This experience for me became a grid of thoughts and knowledge supporting what is commonly called creative inspiration.

Apart from my individual works, we know how artists' perspective is purely an interdisciplinary topic, that involves anatomy (the eye), psychology, physics, mathematics, geometry, religion and philosophy. The perspective representation has arrived to us today through photography, cinema, 3D images and augmented reality. At the same time, perspective geometry is part of projective, conical and parallel geometry, which offer multiple modes of representation, expression and meaning. In our modern day, different sectors are constantly looking for a connection between the scientific and humanistic worlds.

9 S. Battaglia Miglietta, “Interventi d'artista”, in: *La mente di Leonardo. Nel laboratorio del genio universale*, catalogo della mostra, a cura di P. Galluzzi, Firenze, 2006, 373.

10 See <https://www.stellabattaglia.com/portfolio/fra-ma-pi-fratelli/>

It seems to me that plastic arts can draw upon the history of perspective and projective geometry as a working canvas to inspire and develop new areas of creativity.

Translated by Karen Marie Giacobassi

ILLUSTRATIONS

- 1: Stella Battaglia and Gianni Miglietta, *Dodecahedron. Scenografic Perspective*, installation for the exhibition, in *Nel Segno di Masaccio*. L'invenzione della prospettiva, Florence, Galleria degli Uffizi, 2001, acrylic and oil on wood, length 30 m.
Стела Батаља и Ђани Миљета, *Додекаедар. Сценографска перспектива*, инсталација за изложбу *У знаку Мазача*, Проналазак перспективе, Фиренца, Галерија Уфици, 2001, акрил и уље на дрвету, дужина 30 м.
- 2: Stella Battaglia and Gianni Miglietta, *Perspective Gallery*, Palazzo Vecchio, Florence, 2002.
Стела Батаља и Ђани Миљета, *Галерија перспектива*, Палацо Векио, Фиренца, 2002.
- 3: Stella Battaglia, *The Small Wall*, ceramic, 1998, anamorphic sculpture, cm 27×27×27.
Стела Батаља, *Мали зид*, керамика, 1998, скулптура-анаморфоза, 27×27×27 цм.
- 4: Stella Battaglia, *Conversation at the Bar*, anamorphic sculpture. Model: polychrome terracotta, 2001, cm 37×47×30; installation: resine, life size, for the exhibition *Mate-Milano. Percorsi matematici in città*, Museo della Scienza e Tecnologia Leonardo da Vinci, Milan, 2004.
Стела Батаља, *Разговор у бару*, скулптура-анаморфоза. Модел: полихромна теракота, 2001, 37×47×30 цм; инсталација: смола, у природној величини, за изложбу *Маџе-Милано*. Градске математичке стазе, Музеј науке и технологије Леонардо да Винчи, Милано, 2004.
- 5: Stella Battaglia, *Poseidon*, polychrome terracotta, 1998–2009, anamorphic sculpture, cm 64×55×56.
Стела Батаља, *Посејдон*, полихромна теракота, 1998–2009, скулптура-анаморфоза, 64×55×56 цм.
- 6: Stella Battaglia, *La Ronde*, bronze, 2007, anamorphic sculpture, cm 47×57×37
Стела Батаља, *Круг*, бронза, 2007, скулптура-анаморфоза, 47×57×37 цм.
- 7: Stella Battaglia, *Elisa*, bronze, 2012, life size.
Стела Батаља, *Елиза*, бронза, 2012, природна величина.
- 8: Stella Battaglia, *Moonlight*, bronze, silver patina, 2017, scultura anamorfica, h cm 105.
Стела Батаља, *Месечина*, бронза, сребрна патина, 2017, скулптура-анаморфоза, висина 105 цм.
- 9: Stella Battaglia, *A Moment of Disorder in the Fibonacci Sequence*, shadow sculpture for the Fibonacci Day November 23, 2018, wood, LED light, permanent collection of Il Giardino di Archimede, Florence.
Стела Батаља, *Тренушак нереди у Фибоначијевом низу*, скулптура сенке за Фибоначијев дан 23. новембра, 2018, дрво, ЛЕД светло, стална колекција у музеју Архимедова башта, Фиренца.
- 10: Stella Battaglia, *Il Numero! 2+3=5*, enameled metal, 1996, anamorphic sculpture, cm 10×13×5.
Стела Батаља, *Број! 2 + 3 = 5*, емајлирани метал, 1996, скулптура-анаморфоза, 10×13×5 цм.
- 11: Gianni Miglietta, *Hic et Nunc*, clock, oil on resin, 2012, anamorphosis with spherical mirror Ø cm 15.
Ђани Миљета, *Hic et Nunc*, сат, уље на смоли, 2012, анаморфоза са сферним огледалом, пречник 15 цм.
- 12: Gianni Miglietta, *Meridiana Cabel Bank*, bronze, 2010, Empoli (Florence), m 2,00×2,20.
Ђани Миљета, *Меридијана Кабел Банка*, бронза, 2010, Емпולי (Фиренца), 2,00×2,20 м.
- 13: Gianni Miglietta, *Alla Finestra*, mixed media, 2010, anamorphosis with spherical mirror Ø cm 80.
Ђани Миљета, *На прозору*, комбинована техника, 2010, анаморфоза са сферним огледалом, пречник 80 цм.
- 14: Stella Battaglia, *Fra-Ma-Pi, fratelli*, plaster bust, scenographic sculpture with video projection, 2009, life size.
Стела Батаља, *Фра-Ма-Пи, браћа*, гипсано попрсе, сценографска скулптура са видео пројекцијом, 2009, у природној величини.

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Стела Батаља

ПЕРСПЕКТИВА И СКУЛПТУРА – УМЕТНИЧКО ИСТРАЖИВАЊЕ

Резиме: Овде представљена уметничка дела, као примери примене перспективе као 3Д модела, резултат су дугогодишњег истраживања. Створена су из потребе да се поврати материјална доследност коју перспектива умањује код представљеног предмета, стварајући девијацију између слике и материјалне форме предмета који је генерише. Облици изражавања варирали су према потребама пројеката и прилика, укључујући различите теме као што су фигуре, линије, сценографска перспектива. Нека уметничка дела била су прецизне анаморфозе – скулптуре, нека друга су разрађена истицањем динамичког аспекта перспективних дисторзија. Предмети малих димензија били су намењени уметничким колекцијама, док су они већи, као инсталације које повезују уметност и науку, осмишљени за музеје, изложбе, научне фестивале и сајмове савремене уметности. Коришћене су различите технике и материјали, од керамике, цртања и сликања до видео инсталација и инсталација са светлом и сенком, укључујући теракоту и бронзу. Фасцинантно ми је било да у геометрији перспективе откријем композициону мрежу која се може користити, не само за стварање веома динамичних облика подржаних снагом геометријске конструкције, већ такође она може изразити, дочаравањем или појашњавањем, однос између различитих деформација и сагледавања пропорција. Само дело постаје творац слика које су различите, али су међусобно повезане, док посматрач постаје активни део дела крећући се око њега. Штавише, веза између посматрача и дела као својеврсног континуума буди емоције, размишљања и сугестије прилагођене савременој осетљивости. Перспектива и пројективна геометрија представљају инструмент креативности, како са композицијске, тако и са практичне тачке гледишта, посебно дијалогом са модерним технологијама које садрже формалне елементе и могућности реализације које треба истражити.

Кључне речи: перспектива, анаморфоза, оптичка дисторзија, скулптура, геометрија, сенка.