Surface Ornamentation Techniques and Spatial Distortion

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Abstract

Several different types of surface-related ornamentation that are capable of distorting the perception of space have been developed and used since ancient times. Some examples of these are *di sotto in sù, quadratura*, trompe l'oeil and foreshortening. These techniques throw into question the limits of space and architecture and our understanding thereof. However, until now, there has been no clear classification or designation of these distortive techniques. Therefore, this article focuses on the identification and classification of three different ornamental techniques applied to surfaces that can distort the perception of space and looks to the work of various contemporary artists to exemplify the proposed taxonomy.

Keywords Ornament · Perspective · Anamorphosis · Quadrature · Sciographia · Distortion

Introduction

The word "ornament," from the Latin *ornamentum*, has a common etymological root with the verb *ordino*, meaning to organize or to order. Ornamentation can be used as a tool to organize by means of establishing hierarchies, in every possible scale. Usually, the most ornamented elements are those of more relevance, among buildings within the city, or spaces and rooms within a building. Therefore, ornament in architecture can lay the path to a better articulation of spaces and, more importantly, a better understanding of the spatial characteristics of the built environment (Massey 2013).

Furthermore, in Greek, we can also find a kinship between ornament and order, highlighting an intrinsic relationship (Picon 2013). The verb *kosmein*, has a twofold meaning—"to adorn" as well as "to arrange"—and leads to the etymological origin of

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Fig. 1 Frescoes at the cubiculum (bedroom) in the Vila P. Fannius Synistor in Boscoreale. Ad Meskens—CC BY-SA 3.0, https://commons.wikimedia.org/w/index.php?curid=12529757

cosmetics. Ornamentation can be usually understood as a cosmetic addition included for embellishment. However, a deeper examination of the cosmetic aspects of surface ornamentation, in an analogy to make-up and its attributes, shows that many surface-related ornamental techniques have tried to not only enhance the qualities of a given space but rather to present other ones that are not physically real, distorting the viewer's perception. Take, for example, the vestiges of frescoed paintings that date from ancient Roman times (Fig. 1). Some frescos present in Roman houses represent unreal spaces within a room's interior, falsifying extraordinary outdoor views or non-existent adjacent corridors or rooms. These frescoes are an example of the diverse types of perspectival techniques, already developed centuries ago, that when used as surface-applied ornamentation in architecture are capable of distorting the perception of space. The effect that these surface applied techniques achieve, questions the strong separation that architecture and the arts, and in particular, surface ornamentation suffered during the twentieth century under the influence of the modern movement. Despite this strong period of de-ornamentation suffered by architecture, these techniques are still in use today.

Moreover, although all these distortive techniques are linked to the theory of perspective, there has been no clear classification or designation of them, in particular from the spatial point of view and the distortion they produce. This lack of classification was discovered by the authors during the development of the project Ornament & Distortion (O&D). The project explored the multiple possibilities for three-dimensional distortion that the use of vinyl decals—as surface-applied ornamentation—enables with its different visual, bi-dimensional techniques. The project possessed a twofold academic focus. On one hand, from a theoretical perspective, it intended to establish an intellectual framework on how surface related ornamentation contributes to the creation and articulation of space. On the other, from a more pedagogic approach, it aimed to expose amateur, non-skilled students to CAD-CAM technologies and digital

fabrication environments, in close relation to descriptive geometry and technical drawing (Martin et al. 2018).

While developing digital tools that could create different distortive surface-applied ornamental applications, and compiling the information to instruct students during two international workshops that took place in Valencia, Spain (2017) and Berlin, Germany (2019), it was clear that the existing classifications were unclear or not relevant for the purposes of the O&D project. Therefore, the following text presents a taxonomy of three different ornamental techniques based on perspective that when applied to surfaces can distort the perception of space in different ways. These techniques will be classified depending on the spatial distortion they enable and will be supported by the work of various contemporary artists for a better understanding.

Pictorial Techniques for Spatial Distortion

Anamorphosis of Quadratura

As previously mentioned, there are existing samples of ornamental techniques dating as far back as Roman times, that try to represent an architectural illusion. The attempt to give a sense of volume to pictorial representations is almost present from the earliest examples of the Paleolithic era. In the cave paintings of Altamira (about 35,000 years old), the relief of the rocks of the cave wall was used to give depth to the drawings, where the shape of the body from the wild animals represented, adapts to the geometry of the rock (Bandi et al. 1952).

With the development of perspective, that entered into a first relevant phase during the Renaissance with Giotto, the aim was to provide a false sense of volume to flat surfaces. After reaching a high point during the fourteenth century and once the control of perspective was achieved during the Baroque period, initiated by Brunelleschi, the use of ornamental distortive techniques based on perspective was also further developed. One particular technique that was incorporated into the theory of perspective was that of anamorphosis. The word anamorphosis derives from the Greek prefix ana-, meaning "back" or "again", and the word morphe, meaning "shape" or "form". Extreme anamorphosis have been used across history to disguise images full of eroticism, scatology or mockery. Furthermore, for centuries, anamorphosis was also charged with high symbolism and esoterism. However, objectively, anamorphosis could be described as a distorted projection that requires the viewer to occupy a specific vantage point, use special devices, or both together to view a recognizable image (Collins 1992). The great investigator on the topic of anamorphosis, Jurgis Baltrušaitis (1969), describes it as a projection of shapes out of themselves and their dislocation so that they are corrected when viewed from a given point of view.

During Baroque times, many artists and painters explored the creation of spatial illusion, and the first treatises to address anamorphosis were written by Vignola (1562) and Barbaro (1568). However, one of the first to mention anamorphosis was Leonardo Da Vinci in his *Codex Atlanticus*. Among his drawings, a human eye and the face of a child made with simple lines appear (Fig. 2). Despite their simplicity,
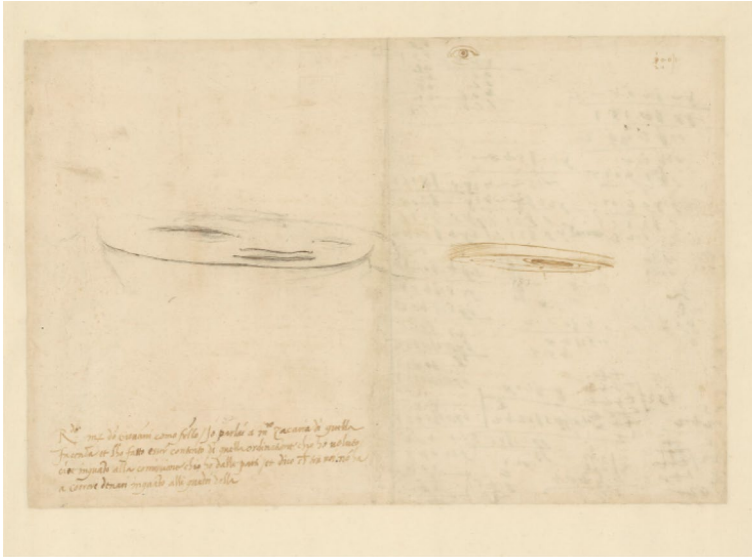
Fig. 2 Leonardo da Vinci; Anamorphosis: Study of the Eye; on the left, Juvenile Face, in Codex Atlanticus; ca. 1478–1518; Milan, Ambrosian Library; fol. 98r. (Artwork in the public domain; photo © Biblioteca Ambrosiana, Milan, Italy/De Agostini Picture Library/Bridgeman Images)

they have the peculiarity that were made with the anamorphic technique, and to be perceived, they have to be observed from a very tangential position to the paper (Gómez Rodrigo 2008).

Probably, one of the most thorough treatises from the Baroque times is the one by Jesuit father Andrea Pozzo, *Perspectiva pictorum et architectorum Andreae Putei a societate Jesu* (Rome, 1693–1700) (Cabezos et al. 2014). Besides his treatise, one of his most relevant works of architecture, and in particular, architectural illusion is the church of Sant'Ignazio in Rome (1626–1650). Father Pozzo's mural paintings on the ceiling of the church, the *Apotheosis of Sant'Ignazio*, with their unreal architecture, open up the barrel vault to the sky and connect the interior of the temple with monumental and fantastic spaces (Gómez Rodrigo 2008: 26) (Fig. 3). But probably, the most interesting painting in the church is the "Dome". Here, Pozzo, using the technique of anamorphosis, creates on the ceiling the illusion of an inexistent fully constructed high, ribbed, and coffered dome (Montalto 1958) (Fig. 4). The intention of creating an anamorphosis is highlighted by the position of two marble disks to properly observe the frescoes and perceive the distorted perspectives correctly. The first one is set into the middle of the nave floor and marks the ideal spot from which to observe the Apotheosis from Sant'Ignazio. The second marker in the nave floor indicates the ideal vantage point for the illusory dome. Pozzo makes use of the paintings to not only achieve a type of spiritual and supernatural connection of the space with heaven, but to provide new, unreal, architectural characteristics that furthermore, also enhance this spirituality.

What Pozzo is doing with his paintings is not simply an anamorphosis, but more particularly a quadratura. This technique, popular among Baroque artists,

Fig. 3 Andrea Pozzo's painted ceiling in the Church of St. Ignazio (By Sailko—Own work, CC BY 3.0, https://commons. wikimedia.org/w/index.php? curid=55814150)

focuses on extending the limits of buildings through architectural illusion. The term, normally used in English, is commonly associated with Italian ceiling painting, *di sotto in sù*, and was introduced in the seventeenth century (Wittkower et al. 1999). The etymology of the word comes from the technique developed to draw such perspectives based on the use of a grid. Therefore, the name comes from "square", *quadrato* in Italian, as part of the geometrical lattice that was used to translocate the images that wanted to be rendered onto its projection surface.

Quadratura is also frequently mixed and/or confused with trompe l'oeil. Trompe l'oeil is the name of a pictorial technique which started to be used in the early nineteenth century after the artist Louis-Léopold Boilly used it as the title for one of his paintings from 1800 (Taws 2019). However, the illusionistic technique associated with trompe-l'œil dates from long before, finding examples of murals in ancient Greek and Roman times. While quadratura is directly connected to theories of perspective and the representation of architectural space developed during the seventeenth century, trompe-l'oeil techniques or *di sotto in sù* ceiling decorations, often rely on intuitive approaches to deception.

Moreover, whereas quadratura is the pictorial technique that aims to achieve an architectural illusion, the term tromp l'oeil is regularly used in the literature to describe the deceiving effect (Gómez Rodrigo 2008; Beldon Scott 2003; Wittkower et al. 1999). Therefore, it is possible to classify quadratura as the technique and trompe l'oeil as the effect the first creates. Quadratura can be described as an

Fig. 4 "Dome" of Sant'Ignazio (By Jean-Christophe BENOIST—Own work, CC BY 2.5, https://commons.wikimedia.org/w/index.php?curid=2553801)

illusionist architectural painting, which aims to extend the real architecture where it is applied into an imaginary space. It relies on perspective theory, and can fully unite architecture, painting, and sculpture, giving a more overwhelming and realistic impression of an illusion than earlier techniques and examples (Wittkower et al. 1999).

Today, relevant examples can still be found and many contemporary artists still practice trompe l'oeil in general and quadratura in particular (Di Paola, Pedone, Inzerillo and Santagati 2014). Installations like the one developed in March of 2019 by the French artist Jean René (who goes by the pseudonym JR), which occupied 17,000 square meters at the Louvre courtyard, or the one covering the Palazzo Farnese, in Rome in 2021demonstrate the relevance of this technique despite its age. Among the many contemporary artists using quadratura, two present particular interest due to their somehow "simplistic" geometrical approach and their strong link to architectural spaces: Damien Gilley and Peter Kogler. Both artists explore the use of quadratura to alter the visitor's perception of architecture, but almost in opposite geometrical ways.

Damien Gilley, born in 1977, in Westlake California, is an artist and educator working in Portland Oregon. Gilley's work reshapes the built environment, creating perceptual experiences that question rational space (www.saatchiart.com, 2021). He proposes geometrically simple, rather abstract, illusionary three-dimensional elements that break the limits of space and extend the parameters of flatness. An example of his work is the installation for the Gallery Homeland in Portland, Oregon, in which the limits of the white walls of the rooms disappear as they blend in with an extensive illusory mountainous landscape, splattered with constructions that sometimes tighten to existing elements in the room (Fig. 5). Both landscape and constructions are rendered with clean black lines that avoid fully realistic representation, but with very effective results. It is particularly successful the effect

Fig. 5 "Absorption field," Gallery Homeland, Portland, Oregon. Damien Gilley. Courtesy of Damien Gilley

that Gilley achieves when the images he renders grow from or integrate existing elements in the interior. The ubiquity of these elements being real and at the same time part of an illusion, enhance the deceptive outcome of his installations.

The renowned Austrian artist Peter Kogler also explores the field of spatial distortion. Kogler studied at the Kunstgewerbeschule (today HTL Bau + Kunst) in Innsbruck, where he also was born in 1959. Later he studied at the Academy of Fine Arts in Vienna. Already from an early creative phase at the beginning of the 1980s, his interest in the power of spaces, architecture, sign systems, and signal languages began to manifest in his works (Bucher Trantow 2019). Kogler plays with the perception of the built environment by presenting highly complex and repetitive geometrical patterns. Many of his installations overtake every possible surface in the room with manifold undulating lines. These lines interfere with human perception because of their overwhelming complexity and the way they distort the spatial limits of the room (Fig. 6). The almost endless waving landscapes Kogler creates make it very difficult to recognize the hosting architecture, and therefore blur the limits of space, extending it into a sort of an endless continuum.

The works of both artists, Gilley and Kogler, exemplify contemporary cases of quadratura, whose aim is to create a three-dimensional illusion, an architectural space that does not exist. While Giley extends the size and complexity of the given spaces, and often uses the opportunity to make their illusion grow from existing
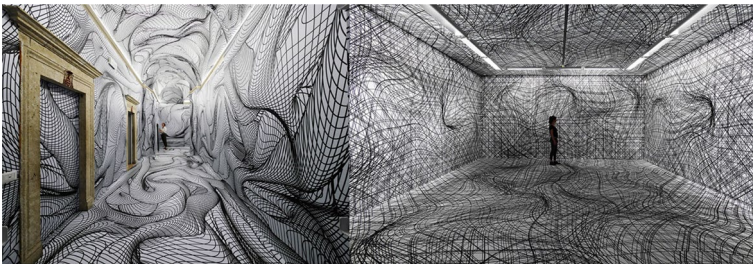

Fig. 6 "Dream," Chiostro Del Bramante, Rome, 2018 and Galerie im Taxispalais, Innsbruck, 2014. Peter Koller. Courtesy of Peter Kogler

elements in the room, Kogler's works produce the diametrically opposed effect, dissolving the limits of the interior and overwriting every defining architectural element. "Intended as action, the contrappunto among Architecture and Quadratura intertwines corporeal space (built) and visual space (represented) creating an apparent reality based upon the power of perspective" (Cabeleira 2016: 71). These illusionary perspectives can be either applied in a planar surface or extend over more than one plane, becoming a three-dimensional intervention.

From Anamorphosis to Varinism

Another contemporary example of distorting superficial ornamentation based on perspective can be seen in the work of the renowned Swiss artist Felice Varini, nominated for the 2000/2001 Marcel Duchamp Prize. Born in Locarno, Switzerland in 1952, Varini has long been based in Paris, France. His creations are based on painted surfaces, which, when observed from a particular point of view, reveal specific planar geometrical compositions (Fig. 7). Other artists, like the Belgian Georges Rousse, also explore this technique, but they sometimes incorporate three-dimensional objects (like wooden surfaces or lattices) in the composition of the geometry revealed by the specific viewing angle. On the other hand, Varini strictly makes use of flat, coloured surfaces only.

The characteristics of Varini's work clearly fall into the definition of anamorphosis, as the particular compositions that the Swiss proposes, can only be perceived from a particular vantage point. When looking from this specific position, the splattered pieces of geometry come together and describe a usually simple, but playful planar composition with strong basic colours (red, blue, yellow, and black are the most typical used by Varini). However, the effect that Varini's anamorphoses create is not comparable to what quadratura does, they are completely opposed. Instead of using two-dimensional geometry to introduce a sense of three-dimensional depth, the technique used by Varini reveals a planar geometrical composition that simultaneously belongs to the three-dimensional space. This dichotomy obstructs the perception of depth because intermediate objects look out of reference between the background canvas and the interfering foreground bi-dimensional geometry rendered (Fig. 8). This effect can be further enhanced when objects or people move

Fig. 7 "Rebonds par les poles," Unité d'habitation, Marseille, 2016. Felice Varini. Courtesy of Felice Varini

Fig. 8 "Carré aux seize disques", 2011. Felice Varini. Courtesy of Felice Varini

across the space where the anamorphosis is displayed. The elements in movement go across the planar object while moving through the space, creating a short-circuit, the impossible, in the understanding of spatial relationship between elements and the depth of space. The organization in depth happens when a particular size of retinal image or degree of convergence is objectively produced in the body (Merleau-Ponty 1956), and Varini's work distorts this organization, thus interfering with the rules of human perception, and distorting the viewer's understanding of space.

Anamorphoses have been classified and catalogued in many ways. One of the first and most relevant classifications of anamorphosis was undetertaken by the Minim Father Jean-FrançoisNiceron in his deeply studied treatise from 1638, *La Perspective Curieuse, ou magie artificielle des effets mervellieux* (De Rosa et al. 2021). Niceron presented three types of anamorphosis depending on how the anamorphic image would be recognizable:

(1) Optical: observed with the naked eye from a particular viewpoint.
(2) Catoptric: reflected in a mirror.
(3) Dioptric: viewed through a lens.

In more recent years Andrzej Zdziarski and Marcin Jonak (2020) have also focused on the analysis, definition, and classification of anamorphosis. They propose an extensive classification, distributing anamorphoses in different categories, also according to their ways of visualization.

(1) Surface anamorphoses: visualized without the use of mirrors.

   (1a) Planar anamorphoses: anamorphic images arranged on the same plane and
         visualized from a particular vantage point.
   (1b) Collapsible planar anamorphoses: created on the expanded grid of a
         specific spatial figure and visualized using a specific figure from a given
         grid and from a particular vantage point.

(2) Reflective anamorphoses – visualized with the use of mirrors.

   (2a) Flat reflective anamorphoses: Single, with one visualizing mirror.
         Complex, with a larger number of flat visualizing mirrors. Pyramidal
         (pyramid), restoring mirrors having a common point.
   (2b) Reflective cylindrical (tubular) anamorphoses: convex, concave
   (2c) Reflective conical anamorphoses: convex, concave
   (2d) Reflective anamorphoses implemented using any reflective surface (sphere,
         ellipsoid, and others).

From these categories, the Varini work belongs to the optical or surface
anamorphoses, as they are visualized without the need for any reflective mirror
or lens. It is, however, difficult to frame them within the planar or the collapsible
planar surface anamorphoses, as the different components of the hidden geometry
are distributed among different planes and surfaces. Therefore, Varini's installations
are a combination, and they can be defined as a multiple planar and collapsible
surface (optical) anamorphosis. However, in search of an element that differentiates
Varini's anamorphoses from the quadrature described above, this is not conclusive.
The quadrature from Pozzo, Gilley or Kogler could also be categorized as planar or
collapsible surface or optical anamorphosis.

The interesting characteristic of Varni's work, and more importantly, what
differentiates it from quadrature, is not the type of anamorphosis it belongs to
regarding its generation or visualization (both are planar or collapsible surface
anamorphosis), but the spatial distortion that it produces. This lack of definition
about what Varini's work produces highlights the need to find a different type
of classification that focuses more on the perceptive side of the effect and the
relationship between viewer and space, not only on its geometrical rules for
generation or visualization procedures.

Although what Varini's work produces is widely known and described as
anamorphosis, as the perception of the distorted composition is achieved only
from a very particular vantage point, this term does not seem to cover all of what
these interventions produce. For instance, quadratura is also a specific type of
anamorphosis, but aiming for a very different approach. Leaving aside the category
of anamorphosis in regards to the way how to visualize it, and focusing on the
visualized effect and the distortion produced, it seems fair to find a way to recognize
this particular effect, and define a particular term that refers to the technique that
creates planar geometries that belong to a three-dimensional space, with the
subsequent spatial distortion it may produce due to the perversion of depth. Given
the extensive and praised work of Felice Varini that makes use of this particular type
of anamorphosis, the authors suggest the expression "varinism" in his honor.

Sciography and the Play of Shadows

Another pictorial technique that, when applied adequately as a surface ornament, can produce a distortion of the perception of space is that of "sciography." Sciography (also spelled "sciagraphy" or "skiagraphy," from the Greek words σκιά, "shadow," and γράφειν, "write"), is the branch of perspective that determines the projection of shadows (Baxandall 1997). The first development of these theories started during the Renaissance and the work of Leonardo da Vinci and Albrecht Dürer (Fig. 9). However, it reached a climax during the eighteenth century, particularly in France, where many treatises were written (Fig. 10). Sciography was considered relevant for many different disciplines beyond arts and architecture and was taught in French technical schools which taught bridge and highway engineering, of mines, of naval architecture, and of military science among others. The relevance of sciography in so many technical studies highlights the importance of the role that shadows played in the understanding of the real world.

Shadows are the result of the interaction between light, objects in space, and the very space itself; therefore, it is not possible to understand one without the existence of the others. The shape of shadows provides the viewer with information about the physical characteristics of space and objects present therein. A shadow is a projection of the shape of the object in the space, thus revealing the geometry of these two elements, and therefore becoming a key component in understanding them. The same happens when talking about perspective, as it is a tool to represent the real world. For Albrecht Dürer, "the integration of light in a perspective is necessary because vision is only possible by means of light. Thus, for him, light and shadow are an integral part of perspective" (Leopold 2014: 12), and therefore of spatial recognition. Also, when Plato speaks about perspective and its illusory potential, due to its representation of reality and the power to deceive the eye, he does not forget to mention light and shadow as inherent parts of it.

> "Thus every sort of confusion is revealed within us; and this is that weakness of the human mind on which the art of conjuring and of deceiving by light and shadow and other ingenious devices imposes, having an effect upon us like magic.
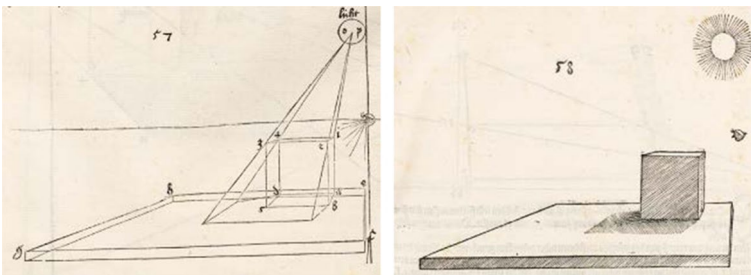> True.

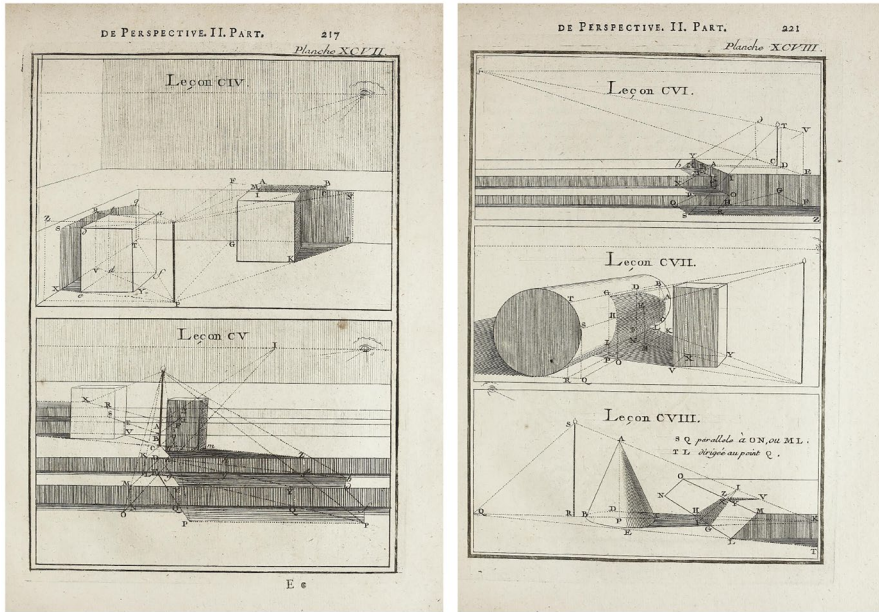**Fig. 9** Perspective drawings for the construction of shadow. Albrecht Dürer

Fig. 10 Jeaurat, Edme-Sébastien; Traité De Perspective A L'Usage Des Artistes: Ou l'on démontre Géométriquement toutes les pratiques de cette Science, and ou l'on enseigne, selon la Méthode de M. le Clerc, à mettre toutes fortes d'objets en perspective, leur reverbération dans l'eau, and leurs ombres, tant au Soleil qu'au flambeau— Paris, 1750. P. 217,221. (artwork in the public domain; https://doi.org/10.11588/diglit.9041#0233)

And the arts of measuring and numbering and weighing come to the rescue of the human understanding-there is the beauty of them- and the apparent greater or less, or more or heavier, no longer have the mastery over us(…)". (Plato 1881: 306)

The Brazilian artist Regina Silveira clearly understands this powerful relationship between light and shadow, and between representation and reality. With her installations, she has extensively exploited its possibilities for spatial distortion. After graduating with a degree in fine arts from the Arts Institute of the Universidade Federal do Rio Grande do Sul, in Porto Alegre, she established herself as an artist during the 1970s in Brazil, creating ephemeral conceptual work. In her most recognizable art pieces, she explored "subverted expected meanings through paradox and enigma with the aim of destabilizing perception" (Fajardo-Hill et al. 2017: 349). The phase of her career when she explored sciography started in the 1980s. Silveira created, what she describes as "a disorienting experience that highlights the space between presence and absence" (Fajardo-Hill et al. 2017: 349). Interventions like "In Absentia" play with the disturbing perception of shadows created by elements that are not present in the room, hypothetically created by a light source that is also missing (Fig. 11). By breaking the rules of shadow-casting, Silveira controls and distorts the relationship between
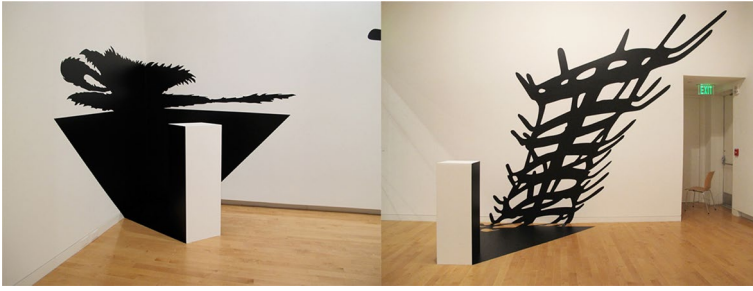
Fig. 11 "In Absentia (Collection)," The Aldrich Contemporary Art Museum, Ridgefield, Connecticut, 2012. Regina Silveira. Courtesy of Regina Silveira

light, space, and viewer, interfering with the way the viewer understands the three-dimensional space observed.

In the application of illusory shadows to imply shapes and elements that do not exist, sciography is a pictorial technique based on perspective that also creates a three-dimensional illusion via surface-applied ornament. Light becomes a mediator between the architecture and the viewer, and therefore, the creation of distorted shadows can trigger the understanding of an illusory architectural scenario.

Conclusion

From the aforementioned categories, it is possible to conclude that there are three different pictorial techniques based on perspective drawing that, when applied as surface ornamentation, can create architectural illusions and distort the perception of space: quadratura, "varinism" and sciography. The first one, quadratura, creates an illusory three-dimensional space in a bi-dimensional or three-dimensional one; the second, varinism, creates an illusory bi-dimensional element in three-dimensional space; and the last, sciography, creates an illusory three-dimensional element or space employing shadow projection. Both quadratura and "varinism" are based on the technique of anamorphosis, but they produced different effects in the perception of space (Table 1).

These three techniques break the rules of human perception and distort the recognition of space in different ways and present new architectural scenarios. "The decoration becomes a 'constructive' element of the architecture and not simply the ornamentation of the wall" (Rossi 2016: 580), showing how ornament can become a key element in the construction of architecture, of space. This view contradicts what for many years was established as a regular practice in architecture triggered by a misleading interpretation of Loos's criticism of ornament (Gleiter 2012). Modernists had a major interest in the quest for a new space, placing the focus on the structural, not on the surface-related aspects of architecture—understanding structural not as loadbearing capabilities but as the configuration of space. However, the division between architectural space and pictorial expression and the absence of ornament that

Table 1 Classification of distortive surface-applied ornamental techniques

Distortive ornamental technique	Perspectival technique	Unreal object/ effect depicted	Space applied	Distortive effect
Quadratura	Anamorphosis	3-D space	2-D or 3D	Unreal architecture or spatial characteristics
Varinism	Anamorphosis	2-D geometry	3-D	Perversion of depth
Sciography	Sciography	Shadow	2-D or 3D	Unreal shadow from a non-existent object and/or light source

the modern movement contributed to, removed from architectural expression some of the potential to create space, spaces that go beyond its physical limits. The criticism of ornamentation has been a recurrent topic in architecture in general, and even the use of distortive ornamental techniques in particular also dates back to Pozzo's times. Guarini reacted to these excesses and wrote against exaggerated illusionism in his *Architettura civile* that "Architecture ought not to be as unrestrained as perspective" (Beldon Scott 2003: 209). However, rather than something to be avoided, techniques like quadratura, varinism, and sciography are powerful tools for creating space, allowing architecture to go beyond its physical limits.

These techniques manifest how, contrary to what Guarini said, architecture does not get restrained by perspective, but it gets expanded. The use of perspective rules and techniques to create space illusion allows architecture to overcome tectonic constraints. By coupling three-dimensional reality with two-dimensional illusion, perspective overrides the built space. A metamorphosis happens in which the projected image turns into a structural fact, transforming the perception and reasoning of the tectonic truth (Cabeleira 2016).

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