PERSPECTIVE FOR THE REPRODUCTION OF ARCHITECTURAL SPACE:
ARCH524 AS A PRETEXT

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ABSTRACT

PERSPECTIVE FOR THE REPRODUCTION OF ARCHITECTURAL SPACE:

ARCH524 AS A PRETEXT

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Discovery of the linear perspective of the Renaissance is momentous in terms of the appearance of a new "way of seeing" that is central to the "subject" and emergence of a "subjective" "way of representing" the world. With the assumption that "perspective" is a cultural constituent of the "Renaissance paradigm" that generates the representational notions of art and architecture, perspective is considered as a "convention" and a "mode of representation" that has been influential until the "paradigm shifts" in the nineteenth and twentieth century. With the influx of the modernist avant-gardes, "subjective" linear perspective is replaced with the "instruments" of the new paradigm, and "parallel projection" becomes the mere tool for the representation and production of art and architecture introducing a new "objective" structure. The aim of this study is to reawaken and reconsider perspective through the "conventions" and the "aberrations" it reproduces. In this context, the course in the curriculum of METU Department of Architecture entitled *Arch524 Architecture and Different Modes of Representation* is covered as a "pretext" for this study. The theoretical framework and the structure of the course has a great impact on this study, since the course reconsider Renaissance perspective and its architectural production in a new context; within the modern architectural space of METU Faculty of Architecture Building. Following the traces of the selective works from the final exhibitions of the course, creating "illusionistic spaces,"

and recalling the subject "participation," it is questioned how perspective is "exhibited" and how the architectural space is reproduced.

Keywords: architectural representation, ARCH 524, METU Faculty of Architecture Building, linear perspective, perspectiv-ated space, illusionistic space, architectural reproduction

ÖZ

ARCH524/PRETEXT:

MİMARİ MEKANIN YENİDEN ÜRETİMİ İÇİN PERSPEKTİF

Kapusuz, Bilge Beril

Yüksek Lisans, Mimarlık Bölümü

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Rönesans'ın doğrusal perspektifi keşfi, bakan özneyi merkez alan yeni "görme biçimleri" olgusunun belirmesi ve algılanan dünyanın yeni ve nesnel bir "temsil biçimiyle" dışavurumu açısından büyük önem taşımaktadır. Perspektif, Rönesans tarihsel bağlamında sanat ve mimarlığın temsiliyetine ait kavram ve yöntemlerini üreten önemli bir kültürel bileşendir. Bu önkabulle perspektif, 19. ve 20. yüzyıllardaki "paradigmatik sıçrama"lara kadar, neredeyse beş yüzyıl boyunca temsil geleneği ve biçimini tarifleyen bir araç olarak ele alınmıştır. Modernist avangardların ortaya çıkışı ile değişen paradigmanın yeni araçları, subjektif perspektifi objektif bir strüktür ile değiştirir; "paralel projeksiyon" sanat ve mimarlığın üretiminde ve temsilindeki mutlak araç olarak yerini alır. Bu tezin amacı, perspektifi gelenekteki konumu ve buna karşılık geleneğin içinden türettiği sapmaları üzerinden yeniden gündeme getirmektir. Bu bağlamda, ODTÜ Mimarlık Bölümünün Yüksek Lisans Programı müfredatında yer alan ARCH 524 Mimarlık ve Farklı Temsil Biçimleri dersi bu çalışmanın ortaya çıkış sebebi olup, çalışma için bir bağlam olarak ele alınmıştır. Dersin kurmuş olduğu teorik çerçeve ve yapılanma bu tez üzerinde önemli bir etkiye sahiptir. Dersle aynı biçimde bu çalışma da Rönesans perspektifi ve onun mimari üretimini yeni bir bağlamda, ODTÜ Mimarlık Fakültesi Binasının Modern mimari mekanlarında, yeniden değerlendirir. Derse ait dönem sonu sergilerinden seçilmiş "ilüzyon mekanları" ve izleyici subjeyi temel alan çalışmaların

izlerini takip ederek, doğrusal perspektifin nasıl sergilendiği ve mimari mekanın nasıl yeniden üretildiği sorgulanmıştır.

Anahtar Kelimeler: mimari temsil, doğrusal perspektif, ARCH524, ODTÜ Mimarlık Fakültesi Binası, perspektive-edilmiş mekan, ilüzyon mekanı, mimari yeniden üretim

To my family

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CHAPTER 1

INTRODUCTION

Make visible what, without you, might perhaps never have been seen.[1]

Robert Bresson

The aim of this study is to decipher the bilateral relationship between the modes of architectural representation and its architectural production, or architectural production and its architectural representation with a critical distance.[2] Focusing on a limited frame of architectural representation, the "linear perspective" will be the object of inquiry. In the main title of the thesis "perspective" has been typed between quotations marks, not only it sustains another point of view metaphorically but also it will be literally used as a tool for the reproduction architectural space in the final discussions.

What gives reason and inspiration for this study is the course entitled ARCH524 *Architecture and Different Modes of Representation* that was first introduced in the

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[1] This quotation is from Robert Bresson (1901-1999) who is an important French film director. <http://www.goodreads.com/quotes> (last accessed in 26 August 2012)

[2] Diana Agrest is one of the sigificant authors, who will be referred again in the following chapters. According to Agrest repressentation remains embodied by the production of architecture. Therefore, representation does have a crucial role where theory and practice of architecture are interrelated. See. Agrest, Diana. "Representation as Articulation between Theory and Practice" (commentary, Pratice: Architecture, Technique and Representation. (first published in 2000), London, Routledge, 2003: 164

graduate curriculum of Department of Architecture at METU in 1997.[3] The course is covered as a "pretext" for this study while the research method follows the traces of the texts in the reading lists offered by the instructor Savaş within the course. (See Appendix A for the examples from the ARCH524 readers) This study is not the first to cover the course ARCH524 and its theoretical framework as a pretext; PhD dissertation of Emre Altürk is also based on the theoretical framework proper to the readers of the course.[4]

The course seems preoccupied with the concept of "representation", the reading list offers a wide range of texts on "vision" and "visuality", with a particular emphasis on the "act of seeing". The course and its method reside in the assumption that the act of seeing is a historical and cultural construction. Hence the theories of vision and theories of representation have a reciprocal relationship, which is the main argument that structures Jonathan Crary's seminal book *Techniques of the Observer: On Vision and Modernity in the Nineteenth Century* and makes his book one of the main references of the course[5]. According to Crary there have been radical changes –for which he uses the term "ruptures"– in the representational practices together with the modes of seeing throughout the history.[6]

At this very moment, it would be relevant to depart to Michel Foucault and his analysis of the Spanish painter Diego Velazquez's masterpiece *Las Meninas* (The Maids of Honor, 1965) (Fig.2) as the course starts with the image and a direct reference to Foucault. In Foucault's seminal book *The Order of Things*,[7] *Las Meninas* is introduced as the cover image of the book (Fig.1) and it is considered as a starting point. Foucault's approach to

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[3] The course has been conducted by Prof.Dr. Ayşen Savaş since the year 1997 and as an Master of Architecture candidate in the graduate program at METU, I participated in the course in spring semester of the year 2010, and assisted the course the following year. Each year I took part both in the lectures, weekly exercises and the preparation of the final exhibition.

[4] See. Emre Altürk. Drawing Architecture Theory on the City, published PhD Dissertation, TU Delft, 2009.

[5] Jonathan Crary. Techniques of the Observer. On Vision and Modernity in the Nineteenth Century, (first edition was published in 1990) Cambridge MA: the MIT Press, 1991

[6] Ibid: 4

[7] Michel Foucault. The Order of Things, (first published in French in 1976) New York: Pantheon, 1973. See also. Svetlana Alpers. "Interpretation without Representation,or,the Viewing of Las Meninas", Representations, , University of California Press, No.1, 1983: 30-42

Las Meninas is that the painting is significant for the "shifts" that occur in the representation; with its redefinition of the internal orders of the representation; Las Meninas is a critique of the classical orders of the "visible" and "invisible". Classical representation asserts a strict objective hierarchy within the visible, whereas in Velasquez's painting, "invisible" gives the real meaning rather than the "visible". In accordance, Las Meninas has a remarkable position for its suggestion that there are other "ways of seeing"[8] beyond what is visible at first sight. The painting has a pivotal importance for the course and for this study in parallel, since it is one aim of this study to pursue the invisible behind the visible, to interpret the internal relations of visual representation and to create a far-reaching discussion for the reconsideration of architectural representation.
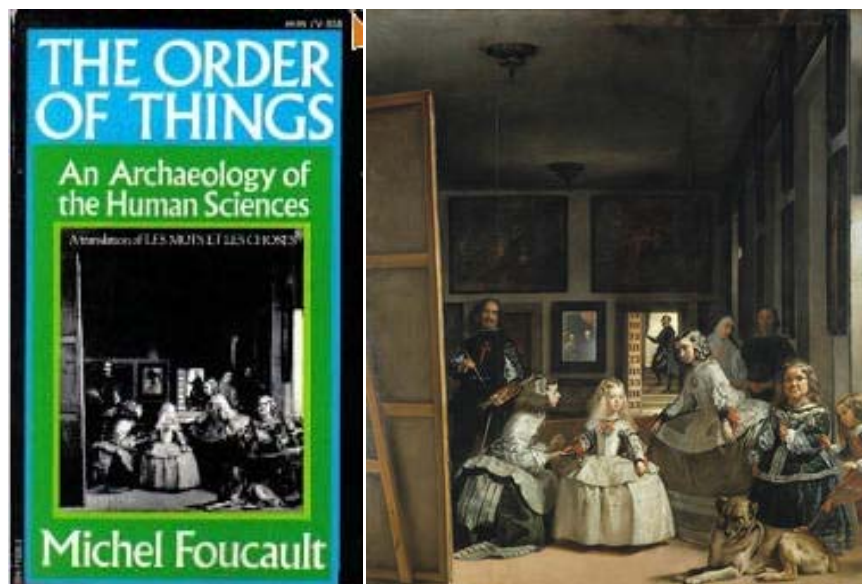
Figure 2 (left) The book cover of Michel Foucault's book *The Order of Things*.
Source: Amazon 9 September 2012 <http://www.amazon.com/The-Order-Things-Archaeology-Sciences/dp/B000KHFOCC/>

Figure 1 (right) Diego Velasquez, *Las Meninas*, 1656, Museo Del Prado, Madrid.
Source: Museo del Prado 9 September 2012 <http://www.museodelprado.es/en/the-collection/online-gallery/on-line-gallery/obra/the-family-of-felipe-iv-or-las-meninas/>

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[8] "Ways of Seeing" is the title of the celebrated book of John Berger and will occasionally be referred since it serves as an important narration of this study's method. See. John Berger. Ways of Seeing, London: British Broadcasting Corporation and Penguin Books, 1990.

The full title of the course ARCH524 is "Architecture and Different Modes of Representation," and thus the terms "representation," "architectural representation" and "modes of architectural representation" are substantial to be analyzed for their significance. As quoted in the notes of Savaş[9], Mark Hewitt is a commonly referred author for his classification of the modes and techniques of architectural representation. In his article *Representational Forms and Modes of Conception: An Approach to the History of Architectural Drawing,* Hewitt introduces three subtitles in order to generate the classification system that he suggests: "Type", "Mode" and "Medium".[10] Referring to the classification of Hewitt, projections such as "orthographic projection" including plan, section and elevation; "parallel projection" as axonometric and isometric perspective, "perspective projection" and "model" are regarded as the "modes of representation."[11] In conformity with Hewitt's classification, Robin Evans –as a key figure with his writing in the field of architectural representation- reads architectural drawings in terms of "projections" and "projection lines", he states:

> **Architectural drawings are projections, which means that organized arrays of imaginary straight lines pass through the drawing to corresponding parts of the things represented by drawing.[12]**

However the "things" represented in two-dimensional lines are the "buildings" which are not yet realized three-dimensionally, yet invisible. It is the projection which renders them visible. Accordingly, another important figure Stan Allen suggests that, in contrast to the theory of representation which calls for mimesis, representation in architecture is "deprived" of its object to imitate. Projection's presence is actually the absence of the form, as if "no body to cast a shadow."[13] Hence, projection "unlike classical theories of

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[9] Ayşen Savaş. "Mimarlık ve O'nun İmgesi, Temsil ve Mimarinin Özerkliği Üzerine Notlar III," Tol Mimarlık Kültürü Dergisi, 2004. See also. Ayşen Savaş. "Tasarlayarak Sergilemek: Bir Temsil Nesnesi Olarak Mimarlık". Arredamento Mimarlık, 4, 2002: 88-92

[10] Mark Hewitt. "Representational Forms and Modes of Conception: An Approach to the History of Architectural Drawing", JAE. Winter 1985: pp.6

[11] Ibid.

[12] Robin Evans. "Architectural Projection" Evans, Robin. Architecture and Its Image. Four Centuries of Architectural Representation, Montreal: CCA, 1989: 19

[13] Stan Allen. "Constructing With Lines: On Projection", Practice: Architecture, Technique and Representation (first published in 2000), London, Routledge, 2003: 5

imitation, its object is not prior, but immanent; not something that once was and no longer present, but something *not yet* present."[14] Robin Evans casts "perspective projection" out from the "instrumentality" of architectural representation, that of which projection lines are "coming from buildings" while those of "orthographic projection" is on the way to buildings"[15] and gives a privileged position to the "orthographic set." In contrary to Evans's argument, perspective projection has the potential to be "instrumental" as well as being "conceptual." This study also aims to sustain a theoretical and practical basis for the perspective to "strike", and reconsider its relation to architecture and architectural space.

Hitherto, the course has carried along a general discussion on architectural representation. The structure of the second chapter leaves the stage firstly to the course as a "pretext", which puts emphasis on the historically constructed "act of seeing" and "visual representation". Accordingly, the second part of the first chapter introduces the rationalization of seeing and representation, with the emergence of perspective "as a new way of seeing", as a "paradigm shift" in the sixteenth century. Rather than including all the innovations in the field of vision in the following centuries, "camera obscura" will be captured from its historical setting. It will be analyzed as a tool of "objective representation", and an "architectural space" as a room in which the "subjective seeing" could be experienced "objectively" by the subject.

To mention briefly, the Renaissance in the fifteenth century is commonly referred as the moment of the "enlightenment of vision" by its discovery of linear perspective and the most significant notion of linear perspective: the vanishing point. Regarding the Renaissance as a "paradigm[16]" perspective is considered as a cultural fragment of the model which alters and "reconstructs" the orders of the visual relations –making the subject central. Thus the representation of the space is also reconstructed both in the field of art, since Renaissance paintings were the first to accommodate the

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[14] Ibid: 6

[15] Ibid: 20

[16] "Paradigm" first gained its contemporary meaning from Thomas Kuhn who is an historian of science. Kuhn defines paradigm as such: "In its established usage, a paradigm is an accepted model of pattern." See. Thomas Kuhn. The Structure of Scientific Revolutions, (first published in 1962) The Universtiy of Chicago Press, 1996: 23

representation of architectural space; and in the field of architecture which generates its own paradigm of architectural representation.[17] The art historians Erwin Panofsky, Hubert Damisch, James Ackerman and Samuel Edgerton with their seminal books and other writings on perspective are notable and will be referred occasionally throughout the thesis. They all "contextualize" perspective, as a "convention" in the Renaissance paradigm. In this sense Panofsky regards perspective as "a promising case study" which according to him "describes the world according to a rational and repeatable procedure" attributes perspective the "symbolic form" of the Renaissance which will be mentioned and defined in the second chapter. [18] Meanwhile Damisch defines perspective solely as a "paradigm", as a "model" that accommodates interchangeable notions of perspective: view point, distance point and the vanishing point.[19] Even though it is acknowledged that perspective becomes the "convention" of representation for centuries, which has been accessible and read through the artworks of the era by the aforementioned art historians, camera obscura appears with a widespread use in the following century. Within a construction of a "dark room", the subject exists in a position that he/she is offered an "invert" "real" and "simultaneous" image of the outside. Therefore, it is used by the artists in Renaissance –and also long before- as a tool to achieve correct perspective projections.[20] Apparently as being one of the remarkable discoveries of the sixteenth century, camera obscura is an important conceptual and instrumental tool because of its relation with optics and its demonstration of the act of seeing with the

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[17] For the analysis of architectural representation as a paradigm, see. Tan Kamil Türer. and Atilla Yücel. "Bir Paradigma Olarak Mimari Temsilin İncelenmesi", İTÜDERGİSİ/a, vol.4, no:1, 2005

Internet Source: http://itudergi.itu.edu.tr/index.php/itudergisi_a/article/viewFile/944/870 (last accessed 27.08.2012)

[18] Erwin Panofsky. Perspective as Symbolic Form, Zone Books, New York, 1991: 14

[19] Hubert Damisch. The Origin of Perspective, (first published in French, 1987) trans. by John Goodman, Cambridge MA: The MIT Press, 1994: xxiv

[20] Various art historians claim that Camera was used before the Renaissance's rediscovery of linear perspective, to represent spaces "perspectivally correct", especially by the northern Europe artists such as Jan van Eyck and Johannes Vermeer. For further narration on their use of camera obscura, see. Jonathan Crary. "The Camera Obscura and Its Subject, "Techniques of the Observer. On Vision and Modernity in the Nineteenth Century, Cambridge MA: the MIT Press, 1991: 25-60. See also. Daniel A. Fink "Vermeer's Use of the Camera Obscura: a Comparative Study," Art Bulletin vol. 53, no. 4 December 1971: 493-505 and, Charles Jr. Seymour. "Dark Chamber and Light-Filled room: Vermeer and the Camera Obscura," Art Bulletin vol.46, no. 3, September, 1964: 323-331

human eye. Camera obscura is important for this thesis because it is the very medium where the act of seeing conjuncts the architectural space, where the "subject" gains a consciousness of his/her own act of seeing, and the architectural space he/she is captured in.

In the third chapter, as evident in the title, linear perspective is "reconsidered". It is not the intent of this thesis to introduce a history of linear perspective, rather the thesis captures distinct "moments" of the historical setting of the Renaissance that are defined by James Ackerman as "origins." They are the theoretical and practical innovations which afterwards become the "conventions." First experiments of rationalized and "conventional" architectural representation could be found certainly in paintings of *Quattrocento*[21]. Therefore, as stated before, architecture could be merely detached from art and it would not be inaccurate to say that architecture followed the lead of painting. It is necessary to mention here *perspectiva naturalis* and *perspectiva artificialis.* The former term connotes the perspective attested by traditional optics, namely Euclid's theory on the phenomenon of vision and on how the natural vision is constructed with the eye, the latter implies an artificial construction in relation with which "arises out of a specific cultural horizon, the Renaissance"[22]

It is acknowledged that the Renaissance architect Brunelleschi is the inventor of perspective in the early 1400s in terms of his drawings of the *Battistero di San Giovanni* (Florence Baptistery) with an accurate linear perspective projection. Nevertheless, it was Alberti –with his identity as an artist- who is the first to systematize perspective by introducing his formal apparatus *costruzione legittima* and to establish a treatise, *Della Pittura* (On Painting). However, still it is important to point to the demarcation line between the perspective approach of an artist and an architect; Alberti's concern as producing a "fictional artwork" versus Brunelleschi's concern as producing a "physical space" out of the "illusionistic space" of his painted panel of the Baptistery. Third chapter will also involve the comparison and evaluation of Alberti's "window" on which

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[21] In Italian, *quattro* refers to "four" and *cento* refers to "hundred". Namely Four-hundred *Quattrocento* is used for the artististic and cultural circumstances of Early Italian Renaissance.

[22] Alberto Perez-Gomez and Louise Pelletier. <u>Architectural Representation and the Perspective Hinge</u>. Cambridge, Mass. : MIT Press, 1997: 34

regardless of a subject and a view point, he constructs his pictorial space through a window, with a fictional vanishing point; and Brunelleschi's "mirror" on which he renders visible the vanishing point with the presence of the subject's own eye –the viewpoint; on which he creates the space with the illusion of perspective.

Although there are various important architects that are the practitioners of linear perspective the historical setting such as Il Filarete (1400–1469), Giuliano da Sangallo (1443–1516), Donato Bramante (1444–1514), Sanzio Raphael (1483–1520), in line with Ackerman's acknowledgement, the thesis seizes upon one "origin" and a "convention" which is Brunelleschi's endorsed discovery of linear perspective. Also, this study gives a privileged status to his demonstration in which he juxtaposes the real view of the Baptistery with the representation, the perceived space with the space represented, and renders the "viewing subject" the indispensible element of the setup. He praises the view point of the subject and the vanishing point, since the "consciousness" of the previously mentioned "juxtaposition" collapses unless the subject is abolished.

Brunelleschi's demonstration is significant for this study in terms of its conceptualization of linear perspective, led to the instrumentalization of perspective for the production of architectural space. Brunelleschi departs from the "images of architecture" and reaches out the "architecture of images".[23] Daniela Bertol, notes:

> **Thanks to perspective renderings architectural designs could be visualized before their construction. The use of perspective generated capabilities completely different from those made possible by previous forms of architectural representation. It allowed for creation of a two-dimensional visual simulation of an architectural composition. In other words, it made it possible to see from a two-dimensional medium what before could have been perceived only from viewing a physical, three-dimensional object. Architectural artifacts began to be communicated through images; better continuity from the design to the actual construction was established.[24]**

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[23] It is Hubert Damish who draws attention to the dual condition of perspective as "representation of architecture" and "architecture of representation". See. Hubert Damisch. The Origin of Perspective, (first published in French, 1987) trans. by John Goodman, Cambridge MA: The MIT Press, 1994: 61

[24] Daniela Bertol. "An Investigation of Architectural Representation Representations and the Visual Perception of Three-Dimensional Space," Leonardo, Cambridge: MIT Press, vol. 29, no. 2, 1996.

From here on, a contemporary figure Lorens Holm will be an important reference for the reconsideration of perspective, and will be referred for the "concepts" he introduces. He defines perspective as the "mirror stage" of architecture, since he argues that "architecture has the potential to produce space as an image."[25] In this sense this thesis acknowledges that architecture and perspective mirrors each other, which is the argument of Holm. In order to discuss the production of architecture in terms of images, Holm refers to the Brunelleschi's architectural artifacts of Renaissance, which are the cathedrals San Lorenzo and Santo Spirito in Florence. In Holms narration, the photographs of the naves of the cathedrals are used as the representation of the architectural space. However, the "photograph" is detached from its conventional meaning –which is the faithful reproduction of the scenery captured- rather interpreted as the architectural representation of the imaginary space, from the view-point of the architect, Brunelleschi. The photograph is considered as the picture plane that Brunelleschi designed and constructed his naves on. Thus the viewer of the photograph replaces the "subject position" of Brunelleschi, and the cone of vision of the "creative subject" which accommodates the architectural production as the image, overlaps the cone of vision of the "perceiving subject". Perceiving subject becomes the "occupant" of the imaginary space that Brunelleschi constructs in the depth of the two dimensional image.[26] Once the occupant is positioned in the physically constructed nave of the cathedrals, he/she is confronted with the three-dimensional architectural construction of Brunelleschi's two-dimensional illusionistic space. Because of the fact that perspective projections of the naves are generated in relation with the eye-level of the architect, the occupant experiences the same perspective effect that Brunelleschi envisaged before the realization of the naves. This perspective effect raises the concept of "perspectiv-ated space" which Lorens Holm uses for the interiors of Brunelleschi's cathedrals, and claims that "some spaces are "more perspectival".[27] Holm relates this situation to the

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[25] Lorens Holm. Brunelleschi, Lacan, Le Corbusier: Architecture, space and the construction of subjectivity. Rouledge, New York, 2010: 116

[26] Ibid.: 56-57. For the definition of the relationship between "creative subject" and the perceiving subject", see also. Diana Agrest. "Representation As Articulation Between Theory and Practice"(commentary), Practice: Architecture, Technique and Representation (first published in 2000), London, Routledge, 2003: 169

[27] Op.cit. Holm

instrumental status of perspective projection "on the way to the buildings"; that perspective renders possible the experience of the spatial effects before they are constructed. It is Rudolf Wittkower to whom Holm refers to for his analysis of the spatial notions of Renaissance space and his emphasis on the spatial "homogeneity" that makes it a "homogeneous space". Homogeneity remains as an essential feature to describe the Renaissance's rationalized perspectival space and is claimed to be evident in the gathering of architectural elements in order to maintain a metrical order in the orthographic projection of architectural space (in plans and elevations), and also to make visible the continuum of the ratios and proportions in the perspectival projection.[28] The concept of homogeneous space will be illustrated with diagrams and schemes. These conceptual and spatial readings of linear perspective are crucial for this thesis since in the fourth chapter, the discussions on the reproduction of architectural space will be broaden and conducted by recalling these concepts introduced.

Finally, in the last part of the third chapter the inquiry will move from the "orders" of linear perspective to the "disorders" of "unconventional perspective projections," in other saying "aberrations,"[29] such as anamorphosis and trompe l'oeil. However they will still be considered as images of architecture. Aberrations involve the breaking down of the conventional rules of the subject-image so the subject-space relationships, and reinterpreting those relations by re-locating the subject, who will be defined as the "eccentric observer" of the "eccentric perspective"[30]. The eccentric perspectives, *trompe l'oeil* and *anamorphosis*, requires the significant participation and positioning of the viewer since the rules are "defined" or "revealed" by the subject position. At this point the viewer becomes the eccentric observer; who is active and "who literally stands apart and is self-aware of the process of seeing"[31] and is also aware the construction of

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[28] Rudolf Wittkower. "Brunelleschi and 'Proportion in Perspective'". Journal of Warburg and Courtauld Institutes 16.3/4, 1953: 288

[29] "Aberration" is the term used by Stan Allen in order to define unconventional moments of the conventional perspective projection.

[30] The phrase "eccentric observer" is used by the author Daniel L. Collins in his article: "Anamorphosis and the Eccentric Observer: Inverted Perspective and Construction of the Gaze", Leonardo, Cambridge: The MIT Press, Vol. 25, No. 1, 1992

[31] Ibid.: 74

perspective. This chapter will sustain a critical conceptual basis for the achievement of the discussions and the authentic contribution of the thesis in the following chapter.

In the last chapter, linear perspective of the Renaissance will be sited in a different context, and the perspective construction and its architectural production will be read through the interior spaces of the METU Faculty of Architecture Building, which is an architectural production of another paradigm, paradigm of Modern Architecture. In fact, it is not the main intention to focus on the faculty building or to make an architectural analysis out of it. Indeed, the course ARCH 524 appears once again in the final chapter with a selection of its "linear perspective-centered" final works and exhibitions which determines to "reproduce" the architectural space –the interior spaces of the faculty building. The actual intention is to manifest that it is not a coincidence the course makes use of the interior spaces of the faculty for the perspective themed spatial transformations; because this study claims that there are significant perspectiv-ated spaces which renders the perspective construction literally visible from certain subject positions in the faculty building. The exhibitions of the course not only exhibits the final works as the fictive perspective images of the spaces but also the perspective construction of space itself, in which the exhibitions are set. Further it is aimed to focus on the subject who will participate in the exhibitions and how he/she is associated with the reproduction of architectural space by his/her act of "occupying" the space. Consequently, the chapter will address the "exhibition of perspective" as presented in the title.

The first part of the fourth chapter will recall the spatial notions inherent in the perspectiv-ated spaces of the Renaissance that the third chapter introduces. In this sense, "repeating structural orders," "proportional diminishment," "rhythm and illusion of depth," "symmetrical architectural composition" and the "grid" will construct the framework for the reconsideration of spatial effect of perspective and for the analysis of the interior spaces that will be determined by this study. Accordingly, it is claimed that the metrical and rational orders of the structure such as repeating columns, beams arranged in equal intervals; and other constructive elements of the building namely the lighting elements, fenestration and balustrades put remark on the concepts of repetition, proportion, rhythm and depth. They also reinforce the linearity in favor of the perspectival effect within the perspective perception of the faculty space. Another

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important structural element is the waffle-slab ceiling constituted by the repetition of square units. They exist in the ceilings occasionally and define the spaces of the design studios and the common spaces that give entrances to the studios. At this juncture, the study will refer back to the "grid" of Alberti's *costruzione legittima.* Acknowledging the perspective constructions in Renaissance paintings in an artistic context and the "checkerboard pattern" of the floor tiles in Renaissance spaces in architectural terms, the grid is the representative of the rational systematized space which aims a vanishing-axis procedure schematization.[32] Thus the checkerboard pattern, in terms of Panofsky, "becomes an index for spatial values and for the bodies that occupies it."[33] In respect to the commentaries of Ayşen Savaş, this study comes up with a correspondence between the grid of the Renaissance space and the inherent grid in the faculty building. The floor tiles of the Renaissance space become visible on the squared ceiling of the faculty.

This study will be in pursuit of "precise vanishing points" and designated subject positions in the faculty building which will highlight the previously mentioned spatial notions of perspectiv-ated space. The method will follow the approach explained in the third chapter, in the same way that previously mentioned author Lorens Holm analyzed the naves of Brunelleschi by photographic images. Likely, this study analyzes the interiors of the building through captured photographs of them. The different standing points where the photographs are taken from the designated subject positions, and they will bring the reader –who views the photograph- to the precise vanishing points, in the illustrations and diagrammatic narrations. It is necessary to mention once again that photographs are used in a way that detaches them from their context. They are still the faithful reproductions of the architectural space as a mode of architectural representation but they represent in favor of this study the perspective view of the architect and used on behalf of his/her perspective projection of the space. Indeed, as the thesis makes a "deduction" by approaching to the photographic representations of three-dimensionally constructed real space to reach the two-dimensionally constructed illusionistic space in other words the perspective projection of the architect.

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[32] Erwin Panofsky. <u>Perspective as Symbolic Form</u>, Zone Books, New York, 1991: 56

[33] Ibid.: 57

The second part of the fourth chapter, in relation to the previous part, will introduce a selection of the course's final products and aims to draw conclusions on how the architectural space is reproduced. First the definition of the "architectural space" from the point of view of this thesis will be presented. By doing so, critics of modern architecture Sigfried Giedion and Bruno Zevi will be referred as seminal figures. In common, they draw attention to the demand for the request of the classical tradition for the comprehension of modern architecture.[34] Giedion's approach requires the time-space overlap which eventually locates perspective at the center of not only space perception but also its production.[35] In this context both Giedion and Zevi emphasizes the conception of space with the "interior space" that encloses the subject, which promotes the subject-space relationship that is inherent in perspective. With the assumption of the image-space correspondence and acknowledging that "the subject occupies the space by standing before its image,"[36] the final products will be based on this framework in tandem with the recalling of Brunelleschi's demonstration as a "model". The exhibitions will be regarded as re-demonstrations of a similar model in which the "participants of the exhibition", "the occupants of the architectural space", become the perceiving subjects of a "real-size" model of perspectiv-ated spaces. Meanwhile the final works constructed as new images of illusionistic spaces are inserted into the image of the prior space. Similar to the occupant subject's overlapping of the real view of the space with the image of the illusionistic space in Brunelleschi's demonstration; in the exhibition the occupant subject who participates in the interior space realizes the same juxtaposition. The subject participates "in front of" the image, positioning him/herself in the correct subject position that verifies the designed perspective construction. In the selected works the participating subject stands in front of the image of the space that is installed in the existing space. The cases including anamorphic and trompe l'oeil projections will necessitate a single, precise subject

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[34] Sigrified Giedion. Space, Time and Architecture. The Growth of a New Tradition (fifth edition) Harvard University Press, 1967. See also. Zevi, Bruno. Architectture as Space. How to Look at Architecture, trans.by Milton Gendel,ed.by Joseph A.Barry, Horizon Press, New York, 1974.

[35] Op.cit. Giedion: xiv

[36] Lorens Holm. Brunelleschi, Lacan, Le Corbusier: Architecture, space and the construction of subjectivity. Rouledge, New York, 2010: 167

position and a view point either the subject directly or eccentrically apprehends the image.

Figure 3 Michelangelo Pistoletto, *Disegnatrice* **(Woman Drawing)**
Photograph taken by P.Pellion.
Source: Michelangelo Pistoletto 9 September 2012 <http://www.pistoletto.it/eng/crono04.htm#>

At this point, the "mirror paintings" of the Italian artist Michelangelo Pistoletto (1933-) should be referred here for its parity with the argument of this study. It is significant for the explanation of the emphasis on the mirror. The mirror has been given a pivotal importance in a sense that it duplicates the space and locates the participating subject in

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the space reproduced "in" the mirror; the perspective as the mirror stage of architecture will literally be constructed "through" the mirror. The figure below (Fig. 3) is a photograph of one of the artworks of Michelangelo Pistoletto's: *Disegnatrice* (Woman Drawing). His work is made up of two mirrors hang on the walls of a room, and a woman figure captured from her back. She is drawing the space that she is facing. It could be seen as if the room continues within two openings, with the woman standing in the threshold. The occupant of the space –other than the woman- is invisible since he/she is positioned in an oblique angle with the mirror.

Alternatively, considering the occupant's other possible position, such as facing the mirror frontally, the mirror mediates into its physical significance. (Fig.4) The space behind the observer is reflected in the mirror. Indeed, the mirror positions the subject in the mirror space, which "awakens" the consciousness of the occupant. The woman appears to be drawing also him/her now who is "in" the image, "in" the perspective and "in" the mirror stage of architecture.

It has been put stress on the notion of mirror as "a virtual plane… capable of playing with reality" between real and the representation of real.[37] Therefore, this example is also important for providing a further explanation for this study's emphasis on the mirror of Brunelleschi and his subject who is involved in the reproduced space.

Finally, It is important to dictate that it is not coincidental the interiors that the exhibitions are set in coincide with the suggested perspectiv-ated spaces of the faculty. The course uses those specific spaces for the exhibitions with the awareness of their perspectival effect, introducing them into the consciousness of its occupants by exhibiting the space and the work as a superimposition. The reproduction of architectural space is realized with the occupation of the subject, and perspective is claimed to be crucial for another consciousness of architectural space.

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[37] Ibid.

Figure 4 From the exhibition in Gallery SALT Beyoğlu, Istanbul.
Photographed by the author, June 2012

CHAPTER 2

HISTORICAL RECONSTRUCTION OF SEEING AND VISUAL REPRESENTATION OF SPACE:

THE COURSE ARCH524 AS A PRETEXT

2.1. "Architecture and Different Modes of Representation"

As indicated before, this study aims to conduct an extensive inquiry into perspective as a mode of architectural representation. Following a critical history and various theories on perspective, the study seeks a far-reaching discussion on the visual reinterpretation of architectural space. At this juncture, it would be appropriate to indicate that the previously introduced course ARCH524 "Architecture and Different Modes of Representation" is considered as a "pretext" for this study, since the structure and method of the course are notably influential upon the structuring of this thesis. The course materials, including the reading lists (known as readers) that organize the titles of the weekly discussions also constitute the conceptual path along which the study develops its critical attitude. Furthermore, the course becomes a resource with its physical outcomes as architectural productions, by which it provides the "cases" for this study. While the course becomes a bibliographical index, this thesis becomes the medium where it is possible to document the outcomes of the course within a determined and constrained framework. As evident in the title, the course subsumes different modes and techniques of representation; in particular years it concentrates solely on "perspective" and so does this study. Respectively, ARCH524 not only renders an initiative "reason" for this study, but also purveys the material in order to constitute the arguments.

2.1.1. Unfolding The Title

The title of the course inherits the concepts that are crucial to be analyzed. Therefore, it would be relevant to unfold the title of the course: "Architecture and Different Modes of Representation". Accordingly, the terms "architecture", "representation" and "mode" should be highlighted in the first step. Diverse conjunctions of the terms, then, reveal the concepts that need to be disclosed. Namely, "architectural representation" and "modes of representation" and/or "modes of architectural representation" become prominent, as it would be meaningful to decipher each concept to re-read the architectural space.

While elaborating on the architectural representation, Mark Hewitt, an architect and a scholar who wrote extensively and gave lectures on the critical history of architecture, and his article "Representational Forms and Modes of Conception: An Approach to the History of Architectural Drawing" is considerably significant as a starting point. In the aforementioned article, first and foremost Hewitt declares his approach as "[38][d]rawing, when studied as a language of thought rather than simply a medium of expression, may yield clues to the intellectual history of architecture which have gone unnoticed under standard techniques of historical inquiry." He draws attention to the state of architectural representation "as a medium of thought" regarding relationships with the theories of art and architecture of certain epochs.[39] In parallel with his definition of architectural representation, he introduces the inseparable element of the representation that is "the act of conception", which is a mental process and "can be defined as a pattern of thought, perhaps interacting with drawing or writing, which the designer follows in bringing work to full realization"[40]. This approach should be valued for the reason that it allows the study to go far beyond the conventional meanings that "representation" accommodates. Diana Agrest, another architect whose writings on architectural representation could be referred to here, portrays representation with its

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[38] Mark. Hewitt. "Representational Forms and Modes of Conception. "An Approach to the History of Architectural Drawing," <u>JAE.</u> Winter 1985: 2

[39] Ibid: 3

[40] Ibid.

conventional operation of capturing similarities as "establishing analogies"[41]. Agrest's statement on representation corroborates with Hewitt's since she stresses the state of architectural representation as an "architectural production"[42].

Returning to Hewitt, his classification of architectural drawings leads to the partial correspondence of the "mode of architectural representation". The author presents three main headings, namely "medium", "type" and "mode", the third of which addresses the title of the course.[43] "Type" is appointed to express in which way and for what purpose the drawing is realized, such as a first sketch or a diagram. Meanwhile, it is claimed that "medium" is also the material, such as collage or ink wash. For the last, which is "mode", Hewitt draws attention to another subdivision between the modes of architectural drawings and notes:

> **When we speak of a presentation drawing (type) executed in pen and ink wash (medium), we must also describe its mode of representation. Let us say in this case it is a perspective drawing. Other writers have also distinguished between *subjective* and *objective* drawings, or analogously to *perceptual* and *conceptual* drawings. Subjective drawings are made for the edification of the designer himself, or from a definite point of view. Objective drawings are measurable and generally serve to present building more abstractly – both axonometrics and orthogonal projection drawings are in this group. These kinds of distinctions can be confusing. Perspective drawings tend to be placed in the subjective/perceptual category. But cannot one make a conceptual perspective?[44]**

With the question he asks, Hewitt touches upon the significance of the debatable situation of perspective as a mode of representation, which will constitute a main discussion of the study. Nevertheless Hewitt writes his article in 1985, almost sixty years after Panofsky published his book *Perspective and Its Symbolic Form* in 1925. Panofsky, years before, raised the question of perspective along with the problems of representation long before Hewitt and in a more extensive manner.

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[41] Diana Agrest. "Representation As Articulation Between Theory and Practice"(commentary), <u>Practice: Architecture, Technique and Representation</u> (first published in 2000), London, Routledge, 2003: 165

[42] Ibid.

[43] Op. cit. Hewitt: 6

[44] Ibid.

2.1.2. "Architecture and Different Modes of Representation: Orthographic Set, Perspective, Axonometric, Model and Photography"

It remains essential for the study to go back to 1997 – the first course proposal. The documental material is acquired from the archives of the Graduate School of Natural and Applied Sciences, and the following information about the course is given accordingly. Prof. Dr. Ayşen Savaş, whose academic field of interests and expertise include the fields of vision and visuality, museology, exhibition and display design, is still conducting architectural design studios and gives lectures on architectural research methods and architectural representation at the Department of Architecture in METU. Savaş is the institutor of course ARCH524, the course that inspired and gave rise to this study. In 1997, the course proposal for the graduate curriculum of the department, which was called "Architecture and Different Modes of Representation: Orthographic Set, Perspective, Axonometric, Model and Photography", was presented. Although there have been significant changes to the content, which will be covered shortly, the course has been active in the graduate curriculum every spring semester since then.

The original title of the course gives clue for the initial insights and objectives of the course and could be regarded as considerably informative. The first title explicitly addresses a remark on the conventional techniques of architectural representation. In other words, referring to Mark Hewitt's classification of the orthographic set, perspective, axonometric and model as the modes of architectural representation, the course covered each mode conceptually and practically, as it is evident in the syllabus prepared with the proposal. Regarding the organization of fourteen-week schedule of the first course proposal, the introduction includes the concept of representation comprising both in the domain of art and architecture. Afterwards, the course promises a full three weeks of practical engagement with the orthographic set by the comprehension of plan, section and elevation by analyzing architectural drawings. The following ten weeks offer a comprehensive discussion on the theoretical means of architectural representation and the "necessity of drawing" and focuses on the theory and techniques of linear perspective and perspective as a "symbolic form", where Erwin Panofsky appears to generate the basis for his perspective discussion. Eventually, the remaining five weeks commits the same amount of time to the other techniques of

representation, namely axonometry, models, photography and computer graphics together with questioning of the "limits/conflicts" of representation.

Despite the later alterations to the course's approach, the objectives remained unchanged and constant, which makes it important to refer to once again:

> **This course is about different modes and techniques of representation in architecture. Focusing on conventional representation techniques, its objective is to study the transformations in the definition of the works of architects from "tools of communication" to "aesthetic objects." Instead of suggesting continuity in this transformation process, however, this course is organized to show the possible coexistence of these characteristics. In other words, the coexistence of these characteristics is conditioned by the recognition of both informative and formal qualities of architectural expressions.[45]**

The stress on the communicative means of architectural drawings and other techniques of architectural representation ought to be acknowledged, while on the other hand their state as also being "aesthetic objects" draws attention to the equal significance of their formal means. Therefore, modes of architectural representation should necessarily be regarded as "worthy artifacts in their own right"[46], which requires a method of "abstraction". Carving out the objects out of their contexts and relocating them with a critical distance occupies an important role both for the course method and the approach of this study.

2.1.3. The Course Material and Its Method

Each semester, a syllabus declaring the general objective and an extensive reading list is provided that organizes the weekly concepts of the course ARCH524. The syllabi build up the most important part of the documentation process because of the fact that the products of the course are mainly governed with the approach dictated by the reader. As indicated before, the reader is the practical tool that constructs the theoretical framework for both the course and this inquiry, and the manner that it assembles the names and their texts composes a new context for the discussions. The reader is handled as a referential course material, while others, such as students' weekly submissions stem

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[45] Ayşen Savaş. From the archival document, new course proposal, 1995.

[46] Ibid.

from it. Regarding the format of course reader lists of the course, it is we can see that the articles and books are organized under various subtitles, while these subtitles structure the outline of the course. Even though there are similarities within each year's reading lists, such as the seminal book by Jonathan Crary mentioned earlier, there are a number of explicit changes from one focal point to another. Strictly speaking, it is possible to observe "shifts" in course's approach. For instance, from the first active semester including 2003, for almost seven years the course followed a homogenous outline, dwelling on each subject by paying close attention to subjects that were clarified formerly in referring to the proposal syllabus. Nevertheless, in 2005 the course focused more on the periods before the modes of architectural representation techniques became conventional, when the camera obscura and the *peep show* appeared up and made an imprint on the concept of representation together with the commitment of the subject. The following year's perspective became central to the course, while it was both theoretically under discussion and the aim was to reinterpret the demonstrations that preceded its discovery.
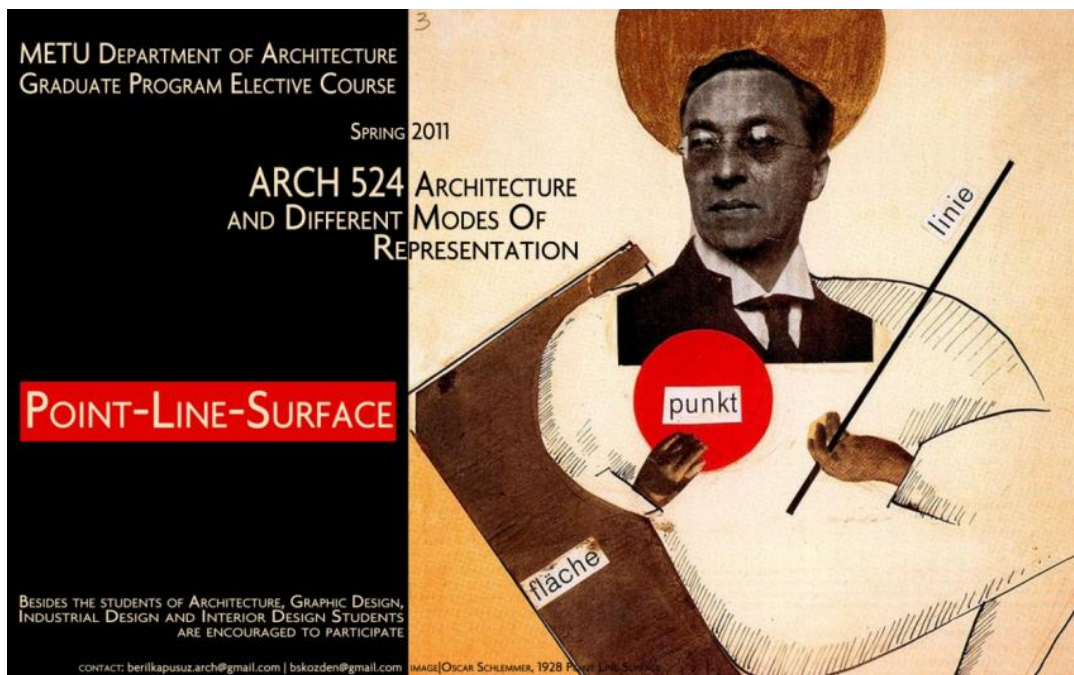
Figure 5 The poster design for the course ARCH524 in Spring 2011.
Poster designed by the author.
From the personal archieves of Ayşen Savaş.

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In the reading list of 2009 the focus shifted to the field of visual culture, partly touching upon art history and the problematic situation of visual representation. Transformations in the theories of vision and representation became another concern that would be interrelated with the reconstructions within the modes of representing architecture. In 2011, the focus was attached to "point", "line" and "surface" (Fig.5), three notions that have been the preoccupation of architectural representation beginning from linear perspective's "vanishing point", "converging lines" and the "picture plane". However, within the approach of 2011, the concepts addressed discussions on computer graphics and the computational representation of architecture.

The aforementioned weekly submissions for the course could be called "How to represent…?" exercises, in which every week a knowledge gap is filled with a conceptual term and each student is expected to submit a two-dimensional visual and/or textual expression of the term, in other words a work that represent it in an A4 format. Then, without expressing his/her own interpretation of the concept, students were asked to introduce the work to the others with a short oral presentation. The goal was to keep these verbal introductions as objective as possible without using any reference to the content. The method is simply "say what you see". The second part of the exercise includes the content and the tools of representation.

To illustrate, the following two images were submitted in A4 format for the previous years' exercises. (Figs. 6 and 7) First to describe what is seen, in Fig. 4 there is a white rectangle background. There are letters in black all of the same height. The letters are aligned in five horizontal rows, regulating the white background and leaving a number of spaces. Considering the content, the alphabet is written in order leaving the consonants visible and vowels omitted. Since the letters symbolize the segmented speech, the vowels are muted, which represents the rests in speech. With regards to this narration, the image as a whole is interpreted as representing "silence". Silence is abstracted using this visual narration. In the second image, following the exercise method, there is a background divided in two sections of one-third above a line and two-thirds below. The third on the top is in light blue, while the lower two-thirds are darker blue. A whole figure (an iceberg) is positioned in the center and is divided by the same line, which also regulates the background. There is also a small black figure (a ship) on the demarcation line. The image represents the "mind-body dualism", referring to Michel Foucault's

concept of the "medical gaze" in his *The Birth of the Clinic.* The iceberg is interpreted as the object of the medical gaze, yet the visible part of the iceberg above water represents the "body" of the patient while the unseen larger part beneath the surface is the "identity" of the patient. The horizon line is reinterpreted as the dual condition of mind and body, which accommodates the medical gaze and refers to Foucault's concept that necessitates background information on the patient as well as their body for diagnosis.
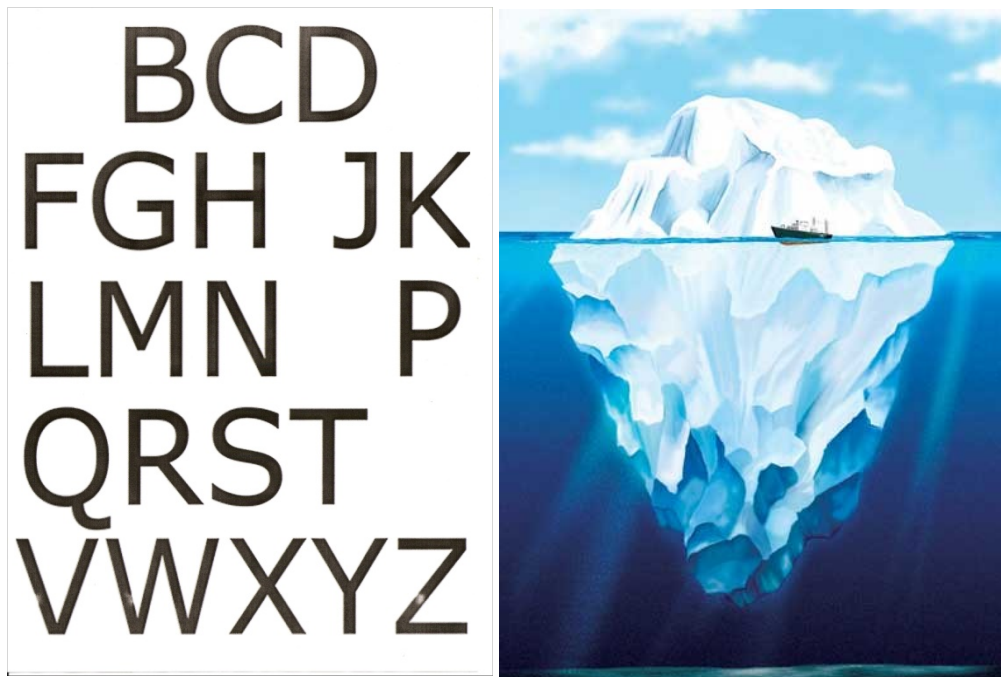
Figure 6 (left) How to represent "silence"? Image submitted by Balkın Coker, spring 2007. From the personal archives of Ayşen Savaş.
Figure 7 (right) How to represent "mind-body dualism"? Image submitted by the author, spring 2010.   From personal achieves of Ayşen Savaş.

This exercise calls for "different narrations" and "different ways of seeing" and almost an indispensible practice for further reinterpretations of architectural space and its representation. It is also based on the assumption that visual expressions have a communicative state that background knowledge makes it possible to be accessible.

To describe… it is to see and know at the same time, because by saying what one sees, one integrates it spontaneously into knowledge; it is also to learn to see, because it means giving the key of a language that masters the visible.[47]

In his article *Seeing and Knowing,* Paul Rabinow – a professor of anthropology and known for his editing and interpretations of Michel Foucault's writings –refers to Foucault and points to the relation between the possibility of accessing the visible and the knowledge, which provides the language in order to communicate with the visible. In the case of this study, "mastering the visible" is one concern, yet constructing the "invisible" out of the relations of the "visible" is another.

2.1.4. Exhibition as a Final Product

In the last week of the course, students are expected to organize a final exhibition under a specific theme, mostly around the subject that has been central to discussion in the course throughout the semester.

The final exhibitions take place in the METU Faculty of Architecture Building. Particularly, leftover spaces, such as the closed canteen, service areas and under stairs areas (alcoves) have been used for exhibition purposes. The main goal is the improvement of the spatial qualities of the faculty building and showing its display potentials. The exhibitions are carried out by reinterpreting and/or reproducing the spaces of the faculty or by displaying visual demonstrations in the faculty. One way or the other, the exhibitions transform the space by interventions directly on the tectonics of the space (architectural notions of space such as structure and construction) or by interpositions that render different views of the space.

Selective cases of the exhibitions from different years and themes, specifically ones that are perspective-oriented, will serve as the base of this study.

2.2. "Enlightenment of Vision": Rationalization of Seeing and Representation

It has been asserted previously that Jonathan Crary's seminal book *Techniques of the Observer: On Vision and Modernity in the Nineteenth Century* occupies a central role in

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[47] Paul Rabinow. "Seeing and Knowing," The Foucault Reader, Pantheon Books, New York, 1984: 114.

the structure of the course together with this study. The theories of vision and theories of representation have been acknowledged to have an important and changeable relationship, which is also a primary acknowledgement of ARCH524. Modes of architectural representation, in the same way with other modes of representation, are considered to be appearing as new "tools of communication" in relation to the way of seeing of the dominant "paradigm". In this context, it has been essential in this study to evaluate the historical reconstruction of seeing and visual representation in terms of "paradigm shifts" in respect to Foucault's use of the phrase, to which Jonathan Crary also refers in his book. In a specific period of time, problems of vision are determined proper to the cultural aggregate of the era.

John Berger's book *Ways of Seeing* is occasionally included in the reading lists of the course. Berger, in his book states that:

> **Perspective makes the single eye the center of the visible world. Everything converges on to the eye as to the vanishing point of infinity. The visible world is arranged for the spectator as the universe was once thought to be arranged for God.[48]**

In accordance with the statement of Berger, within the context of the Renaissance and its posed system of thought, perspective provides a model for thought and alters irrevocably the order of the visual relations of the universe. The change occurred in the Renaissance as a shift in paradigm would end reconstructing this relative situation by appointing the human and his eye at the center. While being solely a part of the determined visible world, the spectator is bestowed to construct the stage of the visible world of his own. "Enlightenment of vision" is a commonly used phrase for the conceptual model of the perspective of the Renaissance which is preferred to be used here as a subtitle that would cover the debates on vision and the viewing subject. As previously emphasized, the enlightenment of vision and the developments of the theories on vision would consequently generate the problems of representation in accordance with the subject's deprivation for the achievement of his/her visible world.

It is essential to mention the connection between perspective and *camera obscura*, as they are both conceptually and practically influential in the discourse of representation.

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[48] John Berger. <u>Ways of Seeing,</u> London: British Broadcasting Corporation and Penguin Books, 1990: 16

Camera obscura, the dark room*,* appeared in the sixteenth century, nearly a century after the appearance of the linear perspective. Both *camera obscura* and perspective have been associated with a significant system of thought and been constructed within the momentous paradigm, whilst each inaugurated their own paradigms that went beyond their time. Considering the complicated geometrical calculations necessary for perspective, camera obscura had a simpler solution for the problem of representation of the perceived space. *Camera obscura* operates as a tool for the reconstruction of the three-dimensionally perceived objects/landscapes onto a two-dimensional surface. Thus, in the late sixteenth century, camera obscura interferes into the age of perspective and emerges as a tool necessary for the observations and drawings that require perspectival regulations. The main difference lays in the designation of the observer, in other words the "problem of the observer"[49]. With regards the fact that camera obscura has been the material representation of the physical act of seeing, the dark room offers a space, where the observer is located independently from the construction and is capable of experiencing this act of representation. Hence, here with the use of camera obscura there occurs an objective representation, claiming that the image (representation) occurs on the walls of the *camera* (room) without the perception of the viewer. Herein, it would be necessary to point to the paradigm shifts after sovereignty of the paradigms of perspective and camera obscura for almost five centuries–as illustrated below (Fig.8)- and to narrate briefly the shifts in the status of the subject, and finally the withdrawal of the subject. The nineteenth century accommodates another paradigm shift, and the classical order of vision is replaced with the new objective order which rejects the static subject of perspective. The invention of camera and the appearance of photograph as a mode of representation lead to the "multiplication of the eye-centered view." Even though in the same sense with camera obscura, the camera also operates a mechanical seeing, and produces a faithful representation of the space by perspective projections, in contrary to the passive subject of camera obscura, the subject of the camera operates a willful representation but with a mechanical eye and way of seeing. The subject of the

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[49]In *Techniques of the Observer: On Vision and Modernity in the Nineteenth Century*, Jonathan Crary names his first chapter as "Modernity and The Problem of The Observer" and introduces the ongoing problematic situation of the observer beginning from the Renaissance that assigned the subject as the central issue of the generating system of thought.

camera has infinite possible positions and viewpoints, but has to reside in one single point yet for each construction.

With the emergence of cubism as a modernist avant-garde in the twentieth century, three-dimensionality of the Renaissance and the following centuries is articulated with the "fourth dimension" which is "time". The new status of the visual construction makes possible the movement of the subject through three dimensions of space, which concludes with a mode of representation as a superimposition of multiple images of multiple views. At the end the subject is completely omitted, and "parallel projection" brings about the withdrawal of perspective; the projection lines resigns converging into the vanishing point since the view-point is not there anymore. Instead they produced "objective representation" as a result of "axonometric/isometric view", which rejects any notion of subjectivity of space.

However, the "subjective seeing" attained by linear perspective and the "objective representation" that camera obscura exposes remain as the primary issues of the first chapter of this study, and the conceptual inquiry acts as a prologue for the comprehensive discussions on their architectural implications.

the subject "being seen"
god view

fifteenth century

subjective way of seeing and representation
perspective | perspective projection

sixteenth century

objective/mechanical way of representation
camera obscura

nineteenth century

subjective/mechanical way of seeing
camera

twentieth century

objective way of seeing and representation
cubism

objective way of representation
parallel projection

Figure 8 Diagram flow showing the "shifts" in the ways of seeing and visual representation. subject-space/image relations. Diagrams drawn by the author.

2.2.1. Subjective Seeing: Perspective and The Eye-Centered View

Dove a mi paia, fermo uno punto. (Where it suits me, I make a point.)[50]

Leon Battista Alberti

The first is the eye that sees, the second is the object seen, the third is the distance between them. [51]

Albrecht Dürer

Robin Evans describes perspective "as the great opener of Western eyes"[52] considering perspective's constitution of a new "way of seeing", which would be the reconstruction of the visual relations of the universe and the withdrawal of the human from being a "point" within the "God View", rather introducing to him/her the power to "make his/her own point" within the visible realm. Thus, perspective, with its implication of ocular-centric view, repositions the human as a central "subject" at a "point" where he is capable of constructing the visible world and determines its relationships by locating himself/herself first. Perspective requires a study of "subjective seeing" and puts stress on the "subject". Therefore, perspective should be reread as an important concept that could reconstruct not only the visual relationships but also the internal determinations of architecture, which will be covered in the following chapters.

Beginning with the Euclidian theory of optics, perspective had played a significant role in the "perspective" of the physical world. However, perspective should be studied under the paradigm of the Renaissance and be questioned as to how it became a convention and gained the status of a "symbolic form". Besides, following the traces of artworks through the Renaissance in tandem with the seminal perspective demonstrations and constructions of Renaissance artists and architects, it is crucial to talk about the transformation of both the perception and representation of space.

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[50] Hubert Damisch. The Origin of Perspective, (first published in French, 1987) trans. by John Goodman, Cambridge MA: The MIT Press, 1994: 37

[51] Erwin Panofsky. Perspective as Symbolic Form, Zone Books, New York, 1991: 67

[52] Evans, Robin. "Architectural Projection. Architecture and Its Image. Four Centuries of Architectural Representation," Montreal: CCA, 1989: 24

As one of the references of this study, Samuel Edgerton, who has written widely about the perspective and the Renaissance, begins his 1975 book *The Renaissance Rediscovery of Linear Perspective* by introducing his own chronological outline of the history of linear perspective[53]. Edgerton starts his chronological list from Euclid's *Optica* (c. 300 BC) and renders the text as the "first written application of the laws of geometry to the problems of how people see" while emphasizing Euclid's "definitions of the rectilinear visual ray and the visual cone as geometric constructions"[54]. Euclid is known to be the first Western theorist to draw attention to the geometric means of vision, regardless of its physical and physiological notions of sight. Following Euclid, Edgerton introduces Vitruvius and his *De Architecture* (c.25 BCE) with which he is claimed to be suggesting an implication of a "vanishing point". After mentioning other researchers, Edgerton concludes with the Renaissance artists and architects: Flippo Brunelleschi's first linear perspective pictures (1425), Masaccio's fresco *Trinity* (Fig.9) in the Santa Maria Novella cathedral in Florence (1425), Leon Battista Alberti's coming home to Florence from exile in 1434 and his first treatise *De Pittura* (1435).[55]

Another important author on perspective, Hubert Damisch, contrary to Edgerton's historical approach, writes in his book, first published in French in 1987, *The Origin of Perspective,* that:

> **One will not find here a history of perspective, nor its discovery, nor of its rediscovery by the artists of *quattrocento*. Work of this kind continues to appear in large numbers and with variable results, though this production has become increasingly attenuated since the publication of the famous and now venerable text by Erwin Panofsky on perspective as symbolic form, which even today… is a mandatory point of reference.[56]**

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[53] Samuel Edgerton. The Renaissance Discovery of Linear Perspective. New York: Harper and Row, 1975: xv

[54] Ibid.

[55] Ibid.: xvii

[56] Hubert Damisch. The Origin of Perspective, (first published in French, 1987) trans. by John Goodman, Cambridge MA: The MIT Press, 1994: xix
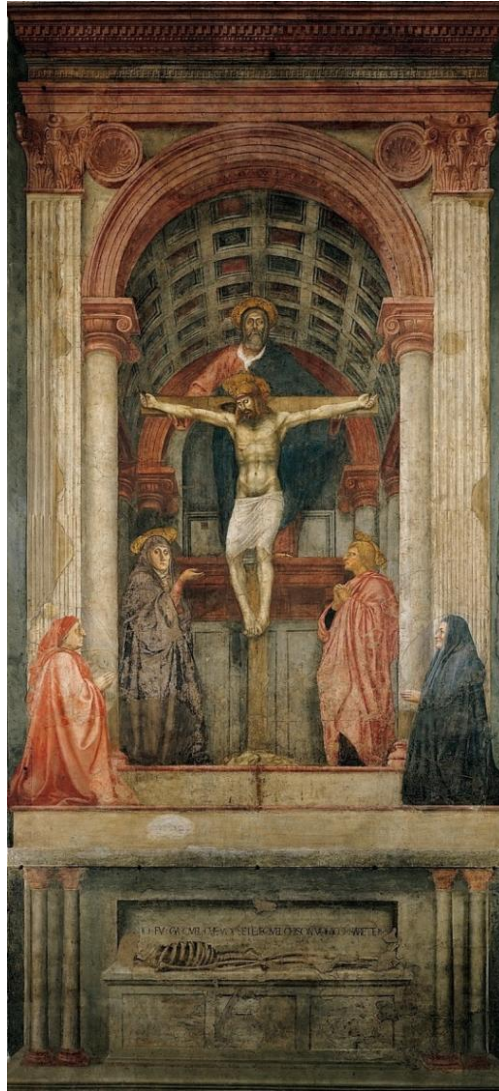
Figure 9 Masaccio, *Holy Trinity*, **Santa Maria Novella, Florence. c. 1426-28**
Source: <u>Wikipedia </u>9 September 2012
<http://en.wikipedia.org/wiki/File:Masaccio,_trinit%C3%A0.jpg>

Damisch directly refers to Erwin Panofsky, together with his noted publication of 1924
Perspective as Symbolic Form. Damisch's book has been considered as the continuation
of Panofsky's essay. Damisch refers to Panofsky's text as a "threshold" for discussions on
perspective by also asserting that it is necessary to "go beyond it". In the last part of his
chapter "Perspective, a Thing of the Past?" in *The Origin of Perspective,* Damisch answers
the question in his title. He states that perspective is not a thing of the past, rather it is
still valid for today's perception, discourse and thought. It has an informative condition.
Damisch also asserts that a historical approach would not be a solution for us to finalize

the argument of perspective.[57] Therefore, his usage of "origins" could be interpreted as an indicator of his approach for the pursuit of different conceptualizations and different origins, with another understanding of a historicist manner, without a continuous narrative.

Christopher S. Wood, who translated Damisch's book from French into English, writes in his book review that, "Damisch's great predecessor and exemplar, the art historian who took most seriously the project of thinking in or through painting, was Panofsky."[58] Both Panofsky and Damisch find artistic productions accessible to envision the accomplishments of perspective within an artistic context similar to the other moments of different contextualization. Damisch refers to Da Vinci's assertion that "perspective is the daughter of painting, she in turn demonstrates it both as structured upon its plane, while structuring the painting as well." At this point, dedicated[59] the *costruzione legittima* of Alberti's *De Pittura* (On Picture) gains importance, since for both authors perspective itself is a paradigm – a model – and "*costruzione legittima* proposes a formal apparatus"[60]. Damisch refers to *costruzione legittima* for its matching the paradigm, for the reason that *costruzione legittima* is an index of a "here", a "there" and an "over there" which corresponds with the Renaissance's perspective of the "view point" the "distance point" and the "vanishing point"[61]. The checkerboard pattern or the "Albertian Grid"[62] becomes "an index for spatial values and for the bodies that occupy it"[63]. Following Panofsky's statements, it is necessary to state that the relationship of theories of representation and theories of architecture – where both are the productions of the

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[57] Ibid.: 38

[58] Christopher S. Wood, *Review,* <u>Art Bulletin</u>, December 1995, vol. LXXVII no.4: 678

[59] Samuel Edgerton in his chronological order states that Alberti had dedicated his work of *costruzione legittima* to his former colleges, including Brunelleschi.

[60] Hubert Damisch. <u>The Origin of Perspective</u>, (first published in French, 1987) trans. by John Goodman, Cambridge MA: The MIT Press, 1994: xxiv

[61] Ibid.: xxiv

[62] Internet Source. http://www.dartmouth.edu/~matc/math5.geometry/unit11/unit11.html (last accessed in 25.06.2012)

[63] Erwin Panofsky. <u>Perspective as Symbolic Form</u>, Zone Books, New York, 1991: 56

same paradigm – is important in terms of drawing out inferences by following the traces of the conceptualizations of art to an attainment for the productions of architecture. Le Corbusier in his article *Architecture and the Arts* assumes that for centuries painting resumed a special role for its "constituting documentary archives"[64]. He questions the circumstances that determine the appearance of new techniques of representation and notes:

> **When an epoch becomes collective, or is possessed by indisputable communal needs, it then witnesses the appearance of a need to edify appropriate new systems of all kinds, and above all, there is the need to construct a new type of equipment.[65]**

The "new type of equipment" of the Renaissance and its new orders, with an ocular-centric world-view, was indeed perspective. In James Ackerman's book *Origins, Imitation, Conventions,* he states that, "[t]he approach to perspective by Italian architects remained basically the same, as gothic gave way to *all'antica* architecture in the fifteenth century – the same in the sense that recession and depth were represented not by the geometrical projection of *perspectiva artificialis,* but in an unrationalized subjective way."[66] Ackerman claims that it is possible to find a resistance to the dominant drawing technique of the period even though the rationalized methods of Alberti and Brunelleschi should have had an influential appeal. This claim defines perspective as an "artistic style" with a formalistic approach. Erwin Panofsky constructs a hierarchy for perspective, as for its "artistic value", for its being a "style" in more formalistic terms and lastly and above all for its value as a "symbolic form"[67]. Accordingly, Panofsky intends to differentiate the Antique perspective approaches from the Modern – Renaissance – perspective system, since perspective gains value as a "convention" and as a "symbolic form". Samuel Edgerton explains the previous statement by saying that the terms of "convention" and "symbolic form" indicates "only that artist of that time sought out and practiced this construction in response to specific cultural demands within the Renaissance

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[64] Le Corbusier. "Architecture and the Arts", <u>Daedalus</u>, vol.89, 1960: 46

[65] Ibid.: 47

[66] James Ackerman. <u>Origins, Imitation, Conventions,</u> The MIT Press, 2002: 49

[67] Erwin Panofsky. <u>Perspective as Symbolic Form</u>, Zone Books, New York, 1991: 14

paradigm."[68] Nevertheless, in medieval paintings the checkerboard pattern and converging lines were evident as the representatives of a quest of perspective in Panofsky's words "the modern vanishing point". The important notion was that the definition of "space" which the Antique and Medieval approaches could not define, but the Renaissance could. "Space as a system of simple relationships between "height", width" and "depth" defined by the eye of the Renaissance man, which was "symbolized" with one single view point producing its opposite vanishing point. Panofsky writes in favor of the vanishing point:

> **For the modern vanishing point, construction distorts all widths, depths and heights in constant proportion and thus defines unequivocally the apparent size of any object, the size correspondingly to its actual magnitude and its position with respect to the eye. That is precisely the enormous advantage of the modern method.[69]**

How and when *perspectiva naturalis* (the way of seeing in terms of optics) became *perspectiva artificialis* (the artificial and imaginary perspective practiced by *quattrocento* artists) have been discussed extensively. Besides, it has been questioned whether we see the way we draw, which stands as Panofsky's argument that perspective is not a natural formation or a discovery but a conventional formation or an invention.[70] In Panofsky's words the "aesthetic space" of *perpectiva artificialis* and the "theoretical space" of *perspectiva naturalis* are brought together with the "qualitative" and "intuitive" spaces of paintings and the "metrical" an "rational" spaces of Euclidian geometry, on the purpose of "unified" and "homogeneous" space. Dalibor Veseley, an architect and director of graduate studies at the University of Cambridge, has written about the relationship between architecture and representation in his book *Architecture in the Age of Divided Representation.* He refers to authors such as Edgerton on the "relationship between the nature of perspective in Renaissance paintings and medieval optics."[71]

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[68] Samuel Edgerton. The Renaissance Discovery of Linear Perspective. New York: Harper and Row, 1975: 162

[69] Erwin Panofsky. Perspective as Symbolic Form, Zone Books, New York, 1991: 43

[70] Lorens Holm. Brunelleschi, Lacan, Le Corbusier: Architecture, space and the construction of subjectivity. Routledge, New York, 2010: 213

[71] Dalibor Vesely. Architecture in the Age of Divided Representation. The Question of Creativity In the Shadow of Production, 2004, The MIT Press: 132

Vesely finds the arguments in pursuit of a clear explanation of the links between Renaissance perspective and optics insufficient. Instead of pointing out specific relationships, the author introduces his comment that "the key to a more satisfactory understanding of the continuity between medieval optics and Renaissance perspective lies in the nature of the change in the representation of reality as a whole", which according to him has its precedents in the fourteenth century and became apparent in the Early Renaissance.[72] Vesely goes on to say:

> **However, believe that there is a deeper motivation for the change: a strong desire to recognize the presence of light, intelligibility, and order – that is, the divine reality – in the human world and make it accessible to finite human understanding. This may also explain the apparent contradiction in the character of the visual art of the early Renaissance, which combines illusionistic realism with the abstract mathematical rigor of proportional harmonies and perspectival constructions.[73]**

In this sense, *perspectiva artificialis* or *costruzione legittima* was the "legitimate construction" which appeared to be the new visual structure of the era of "enlightenment of vision" and the new way of seeing and the representation of the "enlightened vision". It will be covered in the following chapter by the traces of conventions of perspective representation, specifically by Brunelleschi's demonstration and its interpretations by other theorists of his own time and beyond.

2.2.2. Objective Representation: *Camera Obscura*

> Who would believe that so small a space could contain the image of all the universe? O mighty process! What talent can avail to penetrate a nature such as these? What tongue will it be that can unfold so great a wonder? Verily, none! This is that guides the human discourse to the considering of divine things. Here the figures, here the colors, here all the images of every part of the universe are contract to a point. O what a point is so marvelous!
>
> Leonardo Da Vinci

In a camera obscura*,* from the Italian words *obscura,* which means "dark", and *camera* which corresponds to "room", a two dimensional image of the three-dimensional outside

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[72] Ibid.: 133

[73] Ibid.: 134

world appears upside down on the wall of a fully closed room as light passes through a small aperture in the opposite wall. (Fig. 10) As it is possible to observe from the image below, *camera obscura* establishes the relations between the visible object (the landscape outside), upside-down reproduction of the object (the upside-down landscape) and the subject (the painter), while at the same time hosting as the space that physically encompasses those relationships.
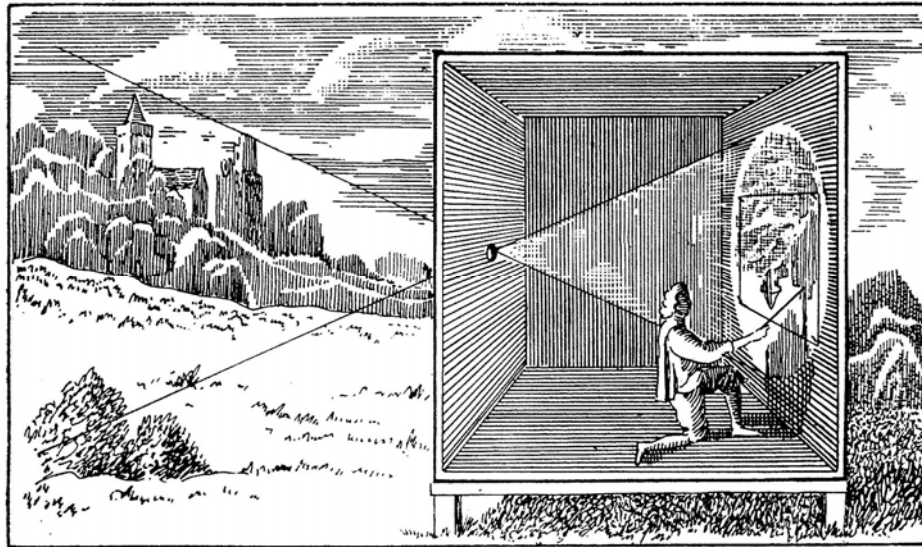
Figure 10 An illustration of camera obscura.
Source: <u>Wordpress</u> 9 September 2012
<http://1stpersontech.wordpress.com/2012/03/10/shooting-formats-0-1-camera-obscura/>

The camera obscura carves a finite "obscure" volume out of the whole entity of the luminous infinite space in which it represents what is outside. The space that the camera obscura defines becomes an "autonomous" space that accommodates an objective representation of the detached whole to which it belongs. The reproduction of the image occurs regardless of the existence of the subject, as the subject is offered infinite positions and moves freely within the construction while experiencing the representation. The image production of the real human eye is now represented with the camera obscura, which materializes the physical act of seeing; the darkroom of the subject's eye becomes the dark space of the camera obscura.

Crary, in his influential book under the chapter *Camera Obscura and Its Object,* asserts that he aims to "articulate the camera obscura model of vision in terms of its historical

specificity"[74]. The author uses the term "model" when he refers to the camera obscura as a paradigm that has been valid considering its historical context. He notes:

> **It is important, however, to make a distinction between the enduring empirical fact that an image can be produced in this way and the camera obscura as a historically constructed artifact. For the camera obscura was not simply an inert and neutral piece of equipment or a set of technical premises to be tinkered with and improved over the years; rather, it was embedded in a much larger and denser organization of knowledge and of the observing subject.[75]**

As stated above, attention has been drawn to the epistemological status of the camera obscura and it has been claimed that from the late sixteenth century to the eighteenth century, the camera obscura constituted the domain of knowledge "for explaining human vision"[76]. With a historical approach, Crary focuses on three states of the camera obscura that were valid for almost two hundred years from its emergence until the late 1700s. It served "as a philosophical metaphor, a model in the science of physical optics" and as "a technical apparatus used in a large range of cultural activities.

In the fifteenth century, it was the *costruzione legittima*'s intention to represent "what Renaissance man saw as he stood in the center of the universe"[77], though the camera obscura "as a mechanism" was now a representative of the Renaissance man's eye and was "capable of reproducing Renaissance perspectival space constructs as an approach of seeing"[78]. Joel Snyder, an art historian who writes on the history and theory of perspective and Renaissance theories of vision, in his article *Picturing Vision,* notes that even though the camera obscura appeared around the 1520s – almost a century after the publication of Alberti's linear perspective – it was being used experimentally long before.[79] There has been an agreement among the texts written on the subject that the

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[74] Jonathan Crary. Techniques of the Observer. On Vision and Modernity in the Nineteenth Century, (first edition was published in 1990) Cambridge MA: the MIT Press, 1991: 27

[75] Ibid.

[76] Ibid.

[77] Anne Marsh. The Darkroom, Photography and the Theatre of Desire, Macmillan Art Publishing, Australia, 2003: 27

[78] Ibid.: 28

[79] Joel Snyder. "Picturing Vision," Critical Inquiry vol. 6, Spring 1980: 512

camera obscura has been the more intelligible technique of realistic representation than the linear perspective drawing and this remains the reason why the camera obscura was in widespread use by the artists and architects of the second half of the sixteenth century. In the construction of linear perspective, the rule is that there is a single fixed viewpoint, in other words one "unaided" eye. On the other hand, with the aid of the camera obscura the artist/observer is given another "artificial eye" in front of his/her own.

Panofsky claims that, even though perspective was systematized with the Italian Renaissance and the discovery of the vanishing point, those in northern Europe knew and empirically practiced the vanishing point method before those in southern Europe, as is evident in the paintings of Northern European artists such as, Panofsky asserts, the Dutch painter Jan van Eyck (c.1390-1441), who is regarded as one of the most important Northern European painters in his use of correct perspective in his paintings.
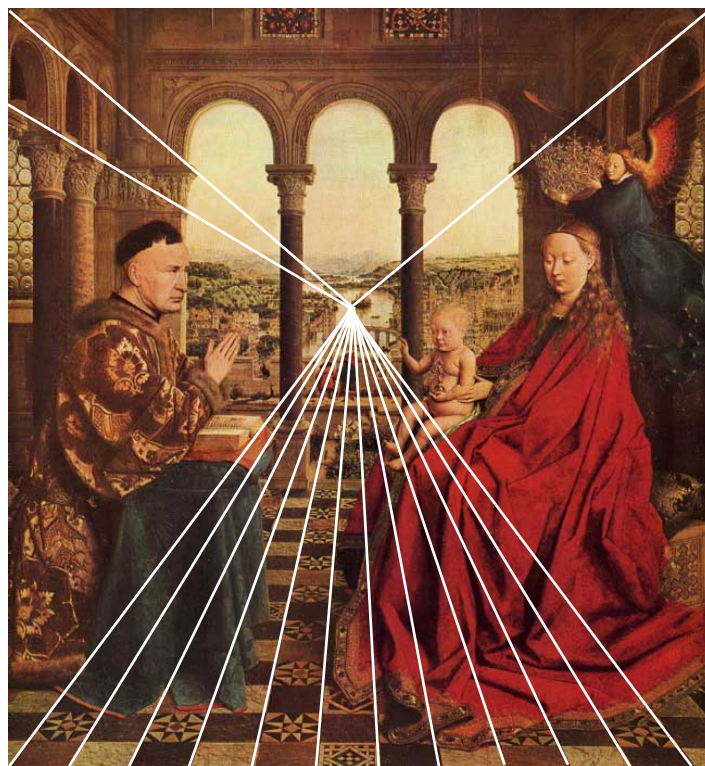
Figure 11 Jan van Eyck *Madonna of Chancellor Rolin*, c. 1435 Edited by the author
Source: Museum Syndicate 9 September 2012 <http://www.museumsyndicate.com/>

As could be traced from van Eyck's painting *Madonna of Chancellor Rolin* (Fig. 11), lines that constitute the tiles on the ground converges into a single point, like the other lines that match the colonnades. It is possible to pursue a vanishing point "as the imagined space reaches out beyond the represented space" and "the finiteness of the picture makes perceptible the infiniteness and continuity of the space"[80]. This finding has been interpreted by many art historians that van Eyck's eye could have been aided by camera obscura*,* which led to the assumption that art was being elevated by the experience of the camera obscura in terms of its scientific means with the aid of the "optical way of seeing".

It is claimed that the formal relationships of the camera obscura was also practiced by Filippo Brunelleschi during his discovery of linear perspective. There have been various discussions on how Brunelleschi managed to represent Florence Baptistery with the correct perspective construction. One assumption is that Brunelleschi used a mirror to obtain the reproduced image of the baptistery, the method that will be covered in the following chapter. Another assertion is that the panel he painted to use in his perspective demonstration was formed with the assistance of an inverted mirror image achieved with a camera obscura (Fig. 13), which was defined by the dark room behind the portals of Florence Cathedral. (Fig. 12) Likewise, in the paper *Brunelleschi and the Camera Obscura: the Discovery of Pictorial Perspective*, author Schigeru Tsuji suggests that Brunelleschi used a room-type camera obscura by referring to Brunelleschi's biographer Manetti and his book *The Life of Brunelleschi*.[81] The author proposes his proofs for his claim as such:

"*Proof 1: The picture showed a faithful reproduction of the actual scene[82]",*
"*Proof 2: The picture was a mirror image[83]",*
"*Proof 3: The picture was unusually small[84]",*

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[80] Erwin Panofsky. Perspective as Symbolic Form, Zone Books, New York, 1991: 61

[81] Shigeru Tsuji. "Brunelleschi and the Camera Obscura: The Discovery of Pictorial Perspective," Art History, vol. 13, no. 3, September, 1990.

[82] Ibid.: 283

[83] Ibid.

"Proof 4: Brunelleschi's working position as described by Manetti is situated in the optimum conditions for use of a camera Obscura method"[85]

"Proof 5: For representing the actual scene, the camera obscura method is especially convenient"[86]

"Proof 6: The history of the camera obscura will be completely revealed with Brunelleschi's experiment[87].
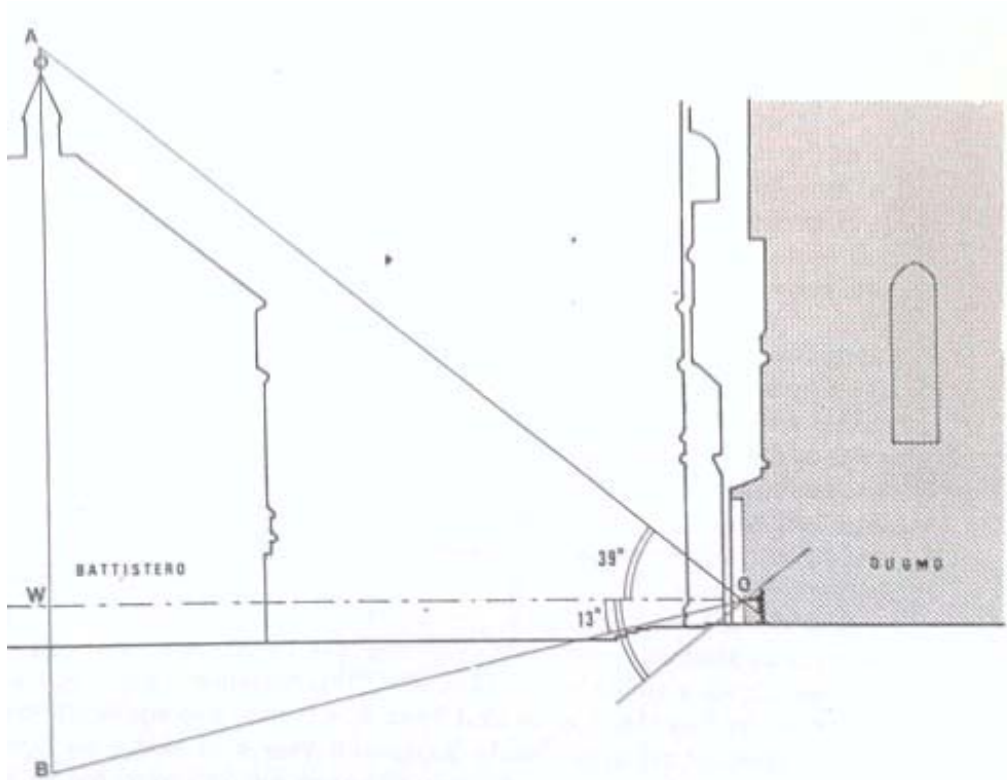
Figure 12 Sectional diagram of the reflection of the baptistery image in the cathedral by Shigeru Tsuji. Source: Shigeru Tsuji. "Brunelleschi and the Camera Obscura: The Discovery of Pictorial Perspective," <u>Art History</u>, vol. 13, no. 3, September, 1990

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[84] Ibid.: 284

[85] Ibid.

[86] Ibid.: 286

[87] Ibid.: 288
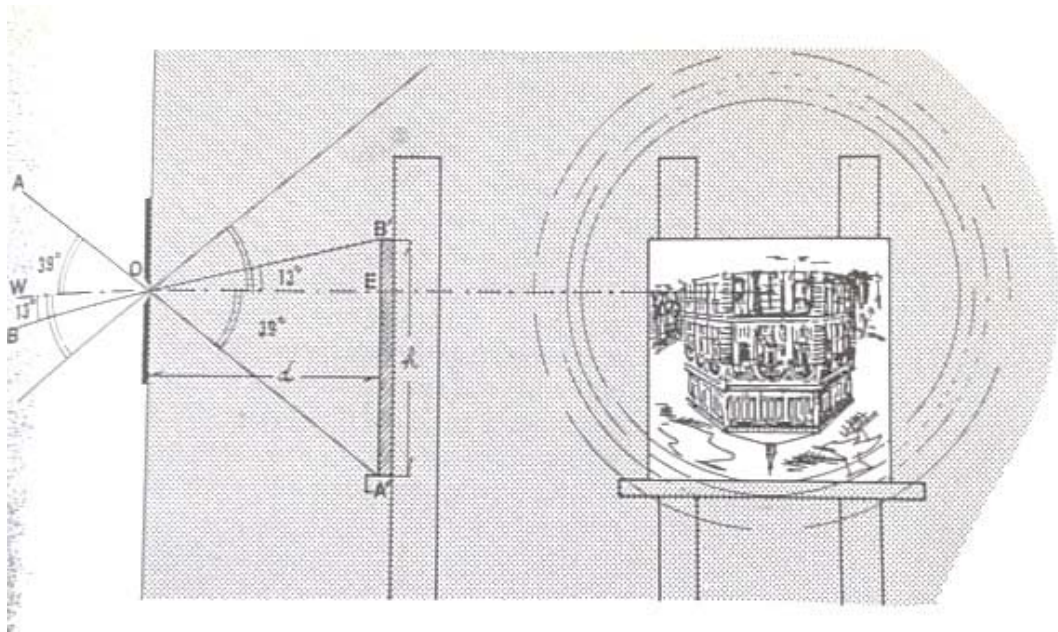
Figure 13 Diagram of the reflection of the baptistery image within the cathedral by Shigeru Tsuji. Source: Ibid.

Still, it is necessary to remark that a camera obscura's property is far beyond the establishment of correct linear perspective. As indicated before, a camera obscura has a pivotal role together with other conceptual tools for the structuring of the arguments of this study. By means of its definitive correspondence with the camera (room), it is itself both the optical tool and the architectural space. Considering the space it encloses with the architectural elements of a floor, a ceiling and four walls, regardless of its function, camera obscura is a constructed architectural space; a defined volume with its boundaries. On the other hand, when functioning for the representation of the visible image existing out of the space it defines, the pinhole on one wall and the projected image on the opposite wall redefine the space. For the course ARCH524 and for this inquiry in this sense, the camera obscura as a historical model "locates" the subject and the perceived object and as a metaphorical model "relocates" the subject and "reproduces" the space perceived by its own method of representation.

Indeed, the photographic works and the camera obscura project of photographer Abelardo Morell, in which he projects inverted images of the outside world onto the walls of his selective architectural spaces in different places, are valuable for his covering of the camera obscura, valuable for the possible observation of not only how a camera

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obscura works and reproduces the image, but also its potential to reproduce architectural space – "the room" itself. (Figs. 14 and 15) In his introduction to the book of the complete works of Morell, writer and critic Luc Sante comments:

> **Other photographers working today have employed the device as an instrument, but their pictures show only the results, tightly framed and right side up; as far as I am aware, Morell is unique in rendering the process in its complete settings, thus bringing out the full strangeness of the experience.[88]**

Morell's rereading of the camera obscura and his reinterpretation of the mechanism's internal relationships in a moment becomes part of the process of the reproduction of architectural space and accommodates the camera obscura as a tool and site of a new way of seeing, far beyond its historical context. The camera obscura ceases to be a mere "dark room" in which the subject is unsubstantial and the emphasis is on the image depicted on the interior surfaces. Rather, by Morell's determinations, the camera obscura, which inherits "room" as the architectural space is reproduced and its "walls" on which the willingly chosen vistas are depicted, defines the new reproduced space. Yet, the subject is no longer a "hollow" existence but an active observer, who not only witnesses the reproduction of an image but experiences the reproduced architectural space.

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[88] _Camera Obscura_, introduction by Luc Sante, photographs by Abelardo Morell, Bulfinch Press, NY, 2004.
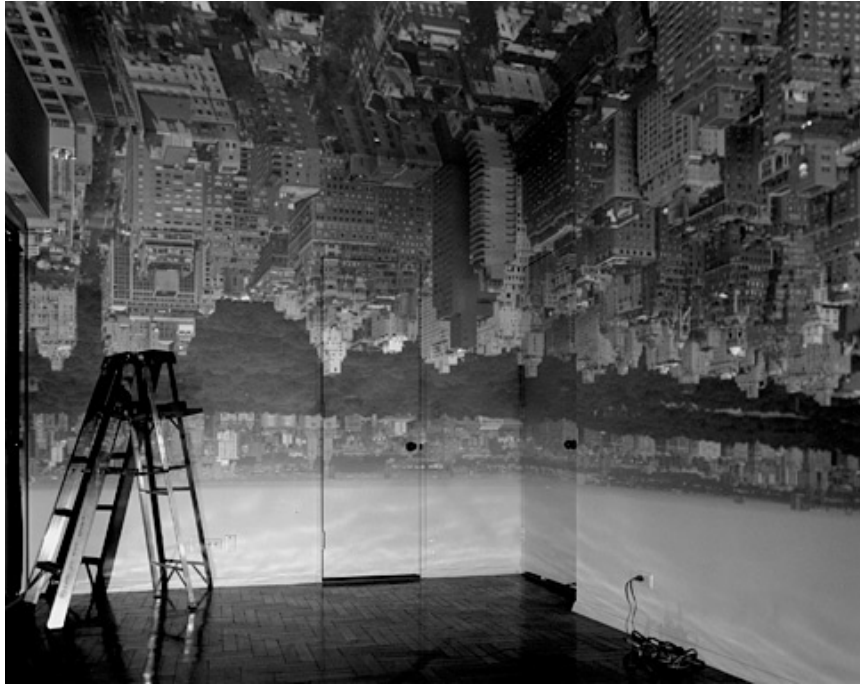
Figure 14 *Manhattan View Looking West in Empty Room.* **Photograph and authentic work by Abelardo Morell, 2001**
Source: *Camera Obscura*, introduction by Luc Sante, photographs by Abelardo Morell, Bulfinch Press, NY, 2004.

Figure 15 *The Florence Baptistery in Hotel Room.* **Photograph and authentic work by Abelardo Morell, 2001**
Source: *Camera Obscura*, introduction by Luc Sante, photographs by Abelardo Morell, Bulfinch Press, NY, 2004.

CHAPTER 3

PERSPECTIVE RECONSIDERED

3.1. Reading Perspective through Conventions

> F H. G. Welles's famous time machine were ever to be on loan to our historical
> fancy, one of the more fascinating destinations for which we could set the dial
> would be: Florence Italy, Piazza del Duomo, 1425, on that day when a short,
> middle-aged man arrived at the piazza between Cathedral and facing Baptistery
> toting a curiously small square wooden panel, and a similarly square mirror. These
> accouterments as well as the probable early morning hour, would make it easy
> enough for us to pick out Flippo Brunelleschi, solver of the unsolvable, as he made
> his way to the portal of the unfinished Cathedral, with its embarrassingly open
> crossing; the very building over which, eleven years later, a huge dome from his
> designs would be raised, a dome the likes of which hadn't been seen in the West
> since the Roman Empire.[89]

The starting point of this chapter is the quotation above and Edgerton's declaration of
curiosity for the circumstances that led Flippo Brunelleschi to invent his perspective
demonstration and hence discover linear perspective. As mentioned in the previous
chapter, the era of the Early Renaissance both constructed and witnessed the
"enlightenment of vision," and made central the human-eye, thus elevating the subject.
With this subject-centered approach, the entire understanding of the concept and
techniques of representation were altered irrevocably, which also changed the
perception and representation of space. Besides, the era transformed the intuitive
practices of perspective, providing it with the status of being a "convention." In this

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[89] Samuel Edgerton. The Renaissance Rediscovery of Linear Perspective, New York: Harper and
Row, 1975.

sense, it is stated that the Renaissance identified "space perceived and space represented in the invisible subject"[90] by the "conventional" perspective. James Ackerman, in the preface to his book *Origins, Imitation, Conventions* published in 2002, declares how he approaches the concepts collocated within the title. He uses "origins" in place of innovations, which for him places greater emphasis on their emergence in their own juncture instead of their "dependence on preceding models."[91] As mentioned previously in this study, although it is possible to locate the emergence of "ways of seeing" within a framework of a "historical construction," it is claimed that architectural representation appeared *per se,* which is also Ackerman's claim. The author states that "[o]nly the achievement of architectural drawing was apparently without precedent," yet goes on to say that the establishment of those inventions transformed their states into conventions that remained unchanged for centuries, just as perspective did.[92] The third chapter, stemming from the acknowledgements of the Renaissance paradigm and the previous discussions, will be covering perspective as a "convention," because the problems of the representation of architecture are regarded as being "accessible" through "conventions." Ackerman affirms his handling of the concept of "convention:"

> **By "a convention of architectural drawing" I mean the sign – made normally on a two-dimensional surface – that translates into graphic from an aspect of an architectural design or of an existing building. It is an arbitrary invention but once established it works only when it means the same thing to an observer as it does to the maker; it is a tool of communication."[93]**

First and foremost, referring to the title at the same time, "enlightened vision" that Brunelleschi and his demonstration rendered, essentially requires attention since "the demonstration is a machine for thinking basic architectural principles. It comes before –

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[90] Lorens Holm. "Brunelleschi, Lacan, Le Corbusier: Architecture: The invention of Perspective and the Post-Freudian Eye/I," <u>Assemblage,</u> no.18 August 1992: 24

Stable URL: http://www.jstor.org/stable/3171204

[91] James Ackerman. <u>Origins, Imitation, Convention</u>, MIT Press, 2002: ix

[92] Ibid.

[93] Ibid.: 294

not after – a building, because it models the relationships that constitute architecture."[94]

At this point, a comparison between Brunelleschi and Alberti's approaches to perspective, considering one's attempt is that of an architect and the other's is that of a painter, needs to be made with a critical approach. After reading perspective through its various states and through diverse concepts, the essential recovery of the "conventional perspective" leads to "unconventional perspectives," that is to say perspective illusions. This chapter will conclude with anamorphosis and trompe l'oeil, with the achievement of a theoretical framework for the cases of the final discussion in the fourth chapter.

3.1.1. Enlightened Vision and Linear Perspective

Sigfried Giedion defines Florence as "the workshop of the modern spirit," putting stress on it being a stage "where the *esprit nouveau* of the Renaissance broke through most strongly"[95]. Besides the cultural and social events, there took place the notable events of architecture as well. As one architectural practitioner in Florence, Filippo Brunelleschi, stood as a pioneer for, in Giedion's words, "the new space conception: perspective."[96] The "enlightenment of vision" and rationalization of seeing by geometric relationships led the "enlightened vision" to reveal its own conceptualization of space. In this context, Brunelleschi's depiction of the seminal buildings in Florence, such as the Baptistery (Fig. 18) and the Palazzo Vecchio (Fig. 21) and his first perspective demonstration (Fig. 16) remain the primary concerns of this study on linear perspective. The case of this part of the study includes Brunelleschi's "enlightened vision" and the interpretations of the other theorists adopted from various historical contexts. Key references include Antonio Manetti, who was Brunelleschi's biographer and purportedly a witness of his demonstration, Leon Battista Alberti, a Renaissance theorist who dedicated his treatise to Brunelleschi, and the contemporary figure Samuel L. Edgerton, known for his reconstruction of Brunelleschi's first perspective picture. (Fig. 17)

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[94]Lorens Holm. <u>Brunelleschi, Lacan, Le Corbusier: Architecture, space and the construction of subjectivity.</u> Routledge, New York, 2010: 104

[95] Sigfried Giedion. <u>Space, Time and Architecture. The Growth of a New Tradition.</u> Harvard University Press, fifth edition, 1967 (first published in 1941): 30

[96] Ibid.

As previously mentioned, Vesely regards *costruzione leggittima* could be associated with a "tendency to bring into explicit visibility the highly articulated inherited world"[97], whereas the contradictory coexistence of the imaginary spaces and events depicted with the "legitimate construction" were still inherent in the painterly representations of the early Fifteenth Century. Yet in this context, Vesely locates Brunelleschi's "experiments" in a more intelligible position as his approach to "make visible" the inherent physical structures – the Baptistery and the Palazzo Vecchio as architectural artifacts existent in a real finite space.[98]

Figure 16 Montage illustrating Brunelleschi's demonstration. Images reconciled by the author.
Source: (graphic) <http://longstreet.typepad.com/thesciencebookstore/2011/08/history-of-holes-the-hole-of-the-renaissance-brunellschi-14.html>

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[97] Dalibor Vesely. <u>Architecture in the Age of Divided Representation. The Question of Creativity In the Shadow of Production</u>, The MIT Press, 2004: 143

[98] Ibid.: 143. The author comments on Brunelleschi's experiment as such: "The experiments were motivated by the vision of a new coherent space with a structure derived from the geometry of the visual pyramid, correlated with the perspectival organization of the directly visible world."

Although there remains speculation on how he discovered linear perspective or whether he was aware of its value, Brunelleschi, an Italian engineer-architect and artisan, rendered his experiment real in 1425. With this contribution, Renaissance man was given the consciousness of remaking visible the "invisible perspective construction."[99]
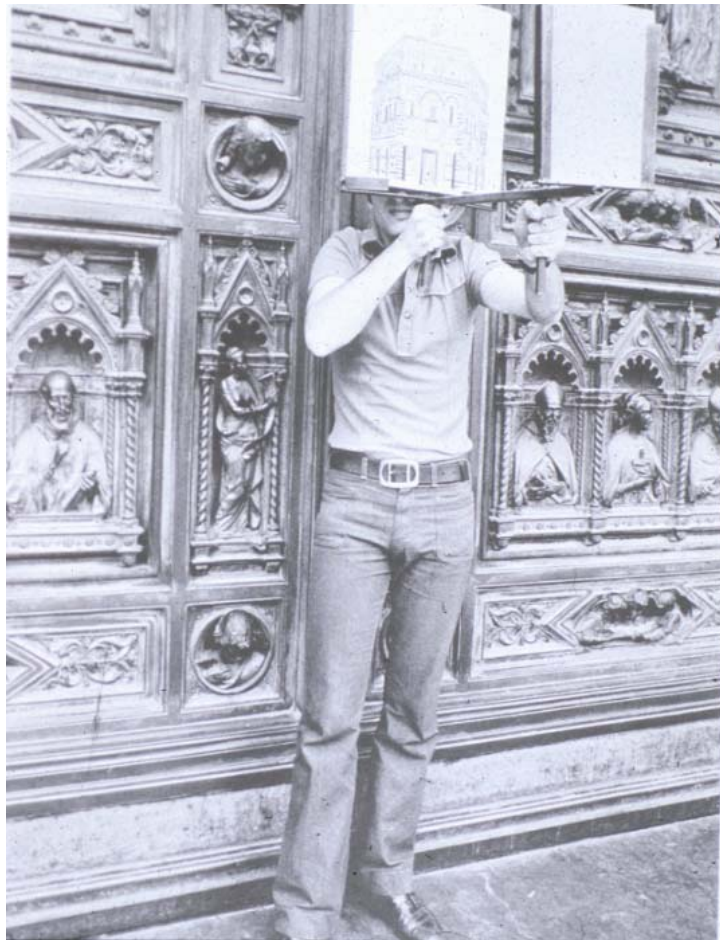
Figure 17 Reanimation of Brunelleschi's demonstration by Samuel Edgerton
Source: Intranet, Miami Uni. 9 September 2012
<http://intranet.arc.miami.edu/rjohn/images/Brunelleschi>

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[99] Vesely focuses attention on the perspective construction itself not being visible against the common assumption that it is directly related with the retinal image "because it is not an intrinsic characteristic of the visible world." At this point, he falls in counter-positions with Erwin Panofsky's approach "we see the way we draw" by declaring that "[w]e do not see parallel lines as convergent or as a ready-made geometrical projection on the retina." In this sense his statement and criticism remains in accordance with that of Hubert Damisch's. See also. Hubert Damisch. "At the Crossroads" The Origin of Perspective, translated by John Goodman, Cambridge, MA: MIT Press, 1994

In an attempt to draw accurate conclusions, it is necessary to refer to Manetti's biography of Brunelleschi and his works, as well as *De Pittura* by Leon Battista Alberti, since Brunelleschi left no written records. The absence of any written records has rendered Brunelleschi's demonstration much more prepossessing and commits us to a wider discussion with broader multilateral interpretations and discussions.

Firstly, it is essential to give space to Manetti's description in his book *The Life of Brunelleschi* of how Brunelleschi painted his panel of the Baptistery and how he built the perspective construction to verify its correctness, to which every writer on this subject refers. The text from Manetti, quoted in full below, is taken from Edgerton's book:

> **He first demonstrated his system of perspective in a small panel about a half *braccio* [about eleven and a half inches] square. He made a representation of the exterior of San Giovanni of Florence [the Baptistery], encompassing as much of that temple as can be seen at a glance from the outside. In order to paint it, it seems that he stationed himself three *braccia* [five feet nine inches] inside the central portal of Santa Maria del Fiore [The Florentine Cathedral]… In the foreground he painted that part of the piazza [the Paradiso and the space at either side of the Baptistery] encompassed by the eye…. And he placed burnished silver where the sky had to be represented, that is to say, where the buildings of the painting were free in the air and atmosphere were reflected in it, and that the clouds seen in the silver are carried along moved by the wind it blows.**
>
> **Since in such a painting it is necessary that the painter postulate beforehand a single place from which his painting must be viewed, taking into account the length and width of the sides as well as in distance, in order that no error would be made in looking at it (since any point outside of that single point would change the shapes to the eye), he made a hole in the painted panel at that point in the temple of San Giovanni which is directly opposite the eye of anyone stationed inside the central portal of Santa Maria del Fiore, for the purpose of painting it. The hole was as tiny as lentil bean on the painted side and it widened chronically like a woman's straw hat to about the circumference of a ducat or a bit more on the reverse side. He required that whoever wanted to look at it place his eye on the reverse side where the whole was large, and while bringing the hole up to his eye with one hand, to hold a flat mirror [*specchio piano*] with the other hand in such a way that the painting would be reflected in it. The mirror was extended by the other hand a distance that more or less approximated in small *braccia* the distance in regular *braccia* from the place he appears to have been when he painted it up to the church of San Giovanni. With the aforementioned elements of the burnished silver, the piazza the viewpoint, etc, the spectator felt he saw the actual scene when he looked**

at the painting. I have had it in my hands and seen it many times in my days, so I can testify to it.[100]

To rephrase once again briefly, after painting the panel of the Baptistery, Brunelleschi cut a hole through it, which is defined as the "point." The point designated both the painter's viewpoint and the positioning of the eye in the demonstration's participating and viewing subject. The subject located himself/herself looking towards the baptistery with a clear view of the scene of the piazza, which is the view of *perspectiva naturalis.* Afterwards, the subject looked through the hole facing the back of the panel, and raised a mirror with the other hand. The subject then stretched his/her arm to a certain distance that made it possible for him/her to see the reflection of the painting through the hole in the panel, creating *perspectiva artificialis*. Under the circumstances of this set up, it is indeterminable how the subject juxtaposed the natural and artificial view of the scene, which remains the same, with the correct perspective projection. It is necessary to point out that the demonstration is a mere consolidation of the components with the relationships that had not been realized before. "The viewer," "the panel," "the mirror," "the outstretched arm," "the cathedral door," "the piazza" and "the Baptistery" are in combination sections of one "model."[101] However, it redefines an array of relationships between the viewer, the viewed object and the image of the object, which is formed on the surface of a mirror reflecting a painted panel. The distances between them are necessarily crucial because of the fact that the view of the baptistery faithfully matches the view of the panel only "when viewer and panel are in the correct position," which will eventually call for notions of "scale" and "proportion" in perspective.[102] In addition, the existence of the determined distances between the components constitutes a defined space.

Similarly, Vesely touches upon each notion of the demonstration by indicating that:

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[100] Samuel Edgerton. The Renaissance Rediscovery of Linear Perspective, New York: Harper and Row, 1975: 44-46. Edgerton notes his copyright and gives reference to Howard Saalman, ed. The Life of Brunelleschi by Antonio di Tuccio Manetti, translated from the Italian Catharine Enggass. University Park, Pennsylvania State University Press, 2007: 42-44

[101] Lorens Holm defines the demonstration as an apparatus, a conceptual model. See. *Lorens Holm.* Brunelleschi, Lacan, Le Corbusier: Architecture, space and the construction of subjectivity. Routledge, New York, 2010: *104*

[102] Ibid.

In contrast to earlier attempts, Brunelleschi's demonstration was systematic and addressed space as a three-dimensional continuum, determined by the geometry of the visual pyramid and its projection first on the surface of the panel and eventually on the mirror. The critical part of the experiment was reconciling the actual setting and its representation, but it rested most of all in the anticipated proportional relation between them. Thus, the height of the panel and its distance from the mirror were expected to be in the same proportion as the real height of the Baptistery and its distance from the original viewing point.[103]

Going back to the components of the demonstration that we defined as a "model," each component sets forward different discussions. For instance, "the hole" in the panel leads this study to a debate on the discovery of a "vanishing point." As previously stated, there are different commentaries on this subject matter. A number of theorists, including Robin Evans, point out that Brunelleschi painted the perspective projection of the Baptistery with the aid of an orthographic projection (a means of representing a three-dimensional object in two dimensions) – in terms of it hinging on Vitruvius' *scenographia* (scenography) – and without the existence of either any diverging lines or a vanishing point. Evans declares his doubts in tandem with his acknowledgement of the assumption that the plan and the section were the precipitating factors that led the discovery of perspective. He questions to what extent this was instrumental in Brunelleschi's demonstration[104] and believes that Brunelleschi did not discover the vanishing point.

Meanwhile, other theorists indicate that Brunelleschi was apparently equipped with and had experienced long before his experiment a number of surveying and representational architectural objects (as mentioned in the previous chapter, he might have depicted the perspective projection with the assistance of a "behind-portal camera obscura" or he might have drawn the picture using a mirror reflection) and his demonstration was his

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[103] Dalibor Vesely. <u>Architecture in the Age of Divided Representation. The Question of Creativity In the Shadow of Production</u>, MIT Press, 2004: 145

[104] See. Robin Evans. <u>The Projective Cast: Architecture and Its Three </u>Geometries, MIT Press, 1995: 176. Robin Evans claims that Brunelleschi's demonstration did not intent to discover the vanishing point. Instead, Brunelleschi could have been the first to practice the Other Method, which has been associated with Pierro Della Francesca. For the Evans' essay on Della Francesca's Other Method, see Robin Evans. "When the Vanishing Point Disappears," <u>AA Files</u>, 23, 1992: 6. Of his opposition to the assumption that Brunelleschi's discovery of vanishing point, Evans notes "Brunelleschi was not seeking to exhibit the convergence of orthogonals to a point in perspective projection, though he may have understood it. Only later would the centric point become the sign of the technique.

tool of justifying his rediscovery of perspective construction (which is ascribed by his contemporaries as *prospettiva*, which had different notions than Vitruvian *scenographia*[105]). As mentioned previously and in accord with Evans, David Summers also claims that Brunelleschi was determined to "reconstruct" Vitruvius's *scenographia*. Even though it has been stated previously in reference to Ackerman that architectural representation originated from itself, Brunelleschi is accredited to Vitruvius's treatise but still sets out from his own creation of an "origin."

Primarily, it is mandatory to give a definition of *scenographia* in Vitruvius' sense. In reference to Vitruvius' original text, Panofsky first figures that there are three types of representation methods: *ichonographia,* which is associated with "the plan," *ortographia* used for "the elevation" and *scenographia,* which can be interpreted as "a perspectival display that shows the sides a well as the façade."[106] Against Vitruvius' "narrower sense," in Panofsky's words, *scenographia* suggests more than Vitruvius' annotation of it "as the method of representing buildings perspectively on a flat surface, whether for architectonic or theoretical purposes," but for its "application of optical laws to the visual arts and architecture" and "counteracting the distortions entailed in the process of seeing."[107] In this regard, Panofsky draws out from the text of Vitruvius that *scenographia* is:

> **(1) The method of the painter who wishes to represent buildings and must reproduce not their true but their apparent dimensions; (2) the method of the architect who may not apply proportions considered beautiful form the point of view of abstract mathematics but rather, striving for "*pros opsin eurithmia*" (proportion according to the visual impression," that is, fine form as a subjective impression must work against the deceptions of the eyes.[108]**

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[105] Samuel Edgerton. The Renaissance Rediscovery of Linear Perspective, New York: Harper and Row, 1975: 55

[106] Erwin Panofsky. Perspective as Symbolic Form, Zone Books, New York, 1991, pp. 97. Panofsky includes in the notes the original text from Vitruvius together with his own translation. On *scenographia* and Brunelleschi's attempt see also. James S Ackerman. Origins, Imitation, Conventions, MIT Press, 2002: 49

[107] Ibid.

[108] Ibid.: 99

Thus, it is possible to suggest that, considering his mastering of the Vitruvian doctrine, Brunelleschi was aware of his methods of representation in order to depict a three-dimensional architectural representation and was informed by the fact that proportions diminish towards a central point. Herein, if Brunelleschi's panels were meant to be mere imitations of an ancient doctrine, he would not be preoccupied with his demonstration. On the contrary, he reconstructed the *scenographia,* regardless of an attempt to make readjustments for the distortions that stem from vision in order to represent it faithfully. Despite "subject-less" Vitruvian architectural representation, Brunelleschi makes his subject central and manifests the "vanishing point" that Vitruvius had ceased to. In addition, "the mirror," which is commonly considered to be the key component in the demonstration, reinforces Brunelleschi's previously declared intention. Vesely attributes a "mediating" and "instructive" role to Brunelleschi's mirror, in which he "illustrates the detached, reflective nature of perspective."[109] In other words, the mirror reveals the reflexive nature of the perspective. At the moment the viewer looks through the hole towards the mirror, he/she sees the image of his/her eye.
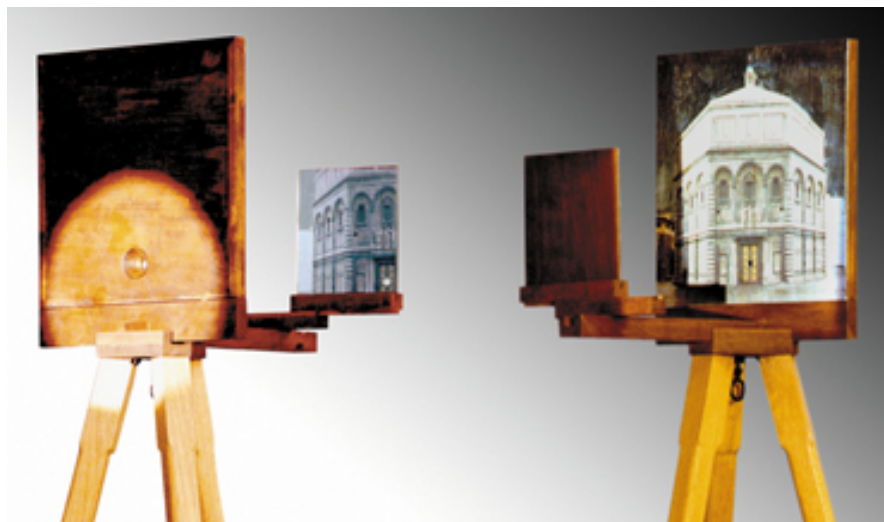
Figure 18 Model of Brunelleschi's first perspective panel of the Florence Baptistery.
Source: Albertie Firenze 9 September 2012
<http://www.albertiefirenze.it/mostra/opere/sez6/sez6_136.htm>

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[109] Dalibor Vesely. Architecture in the Age of Divided Representation. The Question of Creativity In the Shadow of Production, MIT Press, 2004: 145
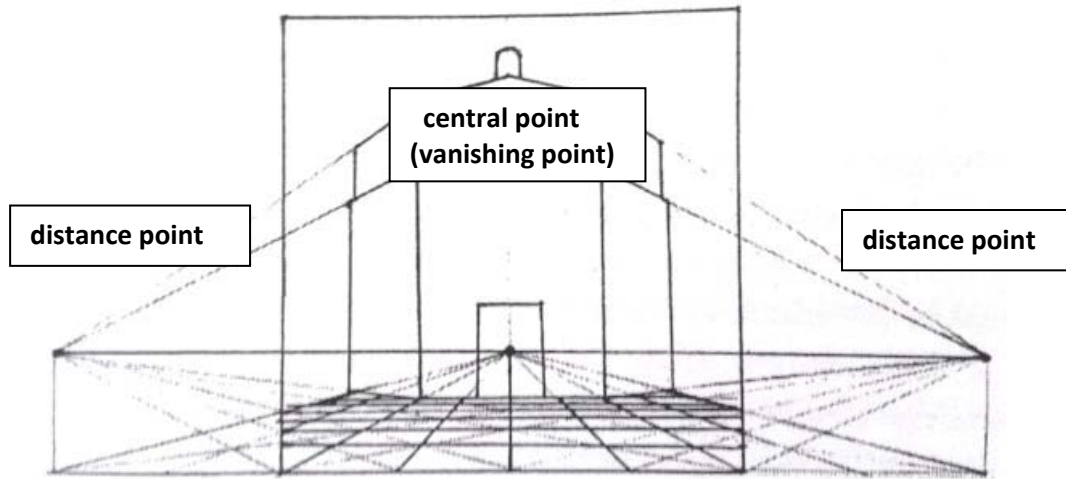
Figure 19 Brunelleschi's first perspective layout. Reconstruction by Samuel Edgerton.
Source:Samuel Edgerton. The Renaissance Rediscovery of Linear Perspective, New York: Harper and Row, 1975
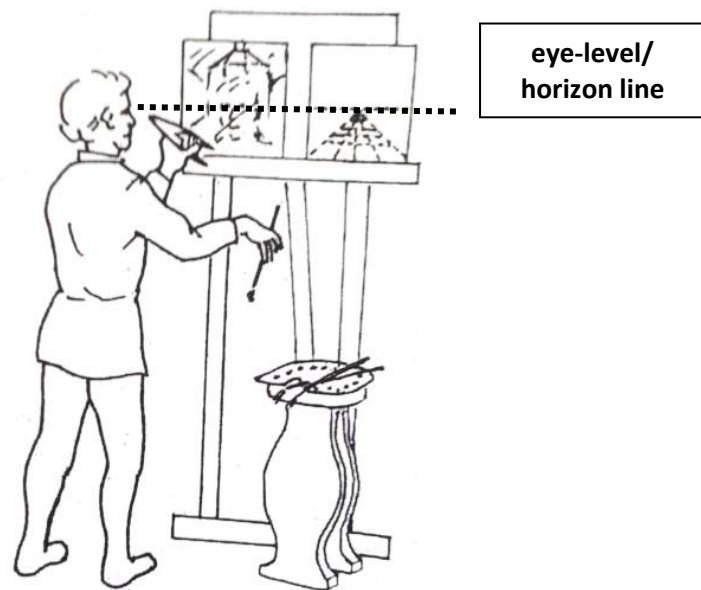
Figure 20 Brunelleschi transferring a mirror image onto his panel. Drawing by Samuel Edgerton.
Source: Ibid.

As described by Edgerton, Brunelleschi observed that the two oblique façades of the Baptistery were also foreshortened and realized that the lines defining the top and the bottom of the façades also converged towards two different points (distance points[110]). (Fig. 19) As he proceeded from the converging lines, he came up with the sequence that the two points were at the same level as the vanishing point. (Fig. 20)

The mirror reflection of the Baptistery – the "mirror image" – helped Brunelleschi to make observations from the truthfully represented image so that he could undertake a "correct" construction by assigning points and verifying the distances between them. Edgerton quotes from Filarete, who was also a Renaissance practitioner, and strengthens his argument about the instrumentality of the mirror thus:

> **If you should desire to portray something in an easier way, take a mirror and hold it in front of the thing you want to do. Look in it and you will see the outlines of the thing more easily, whatever is closer to you, and that which is farther away will appear to diminish.[111]**

For the representation of the Palazzo Vecchio in his second panel, it is assumed that Brunelleschi did not use a peephole and mirror because the building and the piazza were so wide that a "half *braccio*" would not be a sufficient distance to form the entire image on the mirror. Instead he bypassed the mirror-image process and assigned his vanishing point and distance points on a larger panel than that used for the Baptistery.

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[110] Samuel Edgerton explains Brunelleschi's observation of the lateral points on two sides of the vanishing point as the "bifocal points." See Samuel Edgerton. The Renaissance Rediscovery of Linear Perspective, New York: Harper and Row, 1975: 66. See also Robin Evans. Distance Points: Essays in Theory and Renaissance Art and Architecture, MIT Press, 1991. pp. viii Evans explains his use of the term "distance points" by asserting that "it refers to a point selected in constructing a Renaissance perspective image that fixes the distance of the observer from the object."

[111] Samuel Edgerton. The Renaissance Rediscovery of Linear Perspective, New York: Harper and Row, 1975: 67. Edgerton cites; Averlino, Antonio di Pierro (Filarete), Filarete's Treatise on Architecture, 2 volumes, translated and edited by John R. Spencer. New Haven: Yale University Press, 1965

Figure 21 Model of Brunelleschi's second perspective panel of Palazzo Vecchio.
Source: Albertie Firenze 9 September 2012
<http://www.albertiefirenze.it/mostra/opere/sez6/sez6_137.html>

As mentioned above, almost a decade after Brunelleschi's demonstration took place, Alberti theorizes *costruzione legittima* in his 1435 treatise *De Pittura* (On Painting). Alberti's *De Pittura*, celebrated for being the first written record of linear perspective, and "marks the first efforts by a painter to establish the certainty of his method of picture by deriving it from a scientific account of vision."[112] Alberti says in book one of his treatise *De Pittura* that his "words be interpreted solely as those of a painter" and so sets about defining "point," "line" and "surface."[113] A picture is formed through a point, by lines on a surface. In Alberti's own description, following Edgerton's diagrams rephrasing the construction included below (Fig. 22), *costruzione legittima* is formed as follows:

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[112] Joel Snyder. "Picturing Vision," Critical Inquiry, University of Chicago Press, vol. 6, no. 3 (Spring, 1980): 512

[113] Leon Battista Alberti. On Painting, "Book One," translated by John R. Spencer (first edition published in 1956), New Haven and London, Yale University Press, 1966: 43
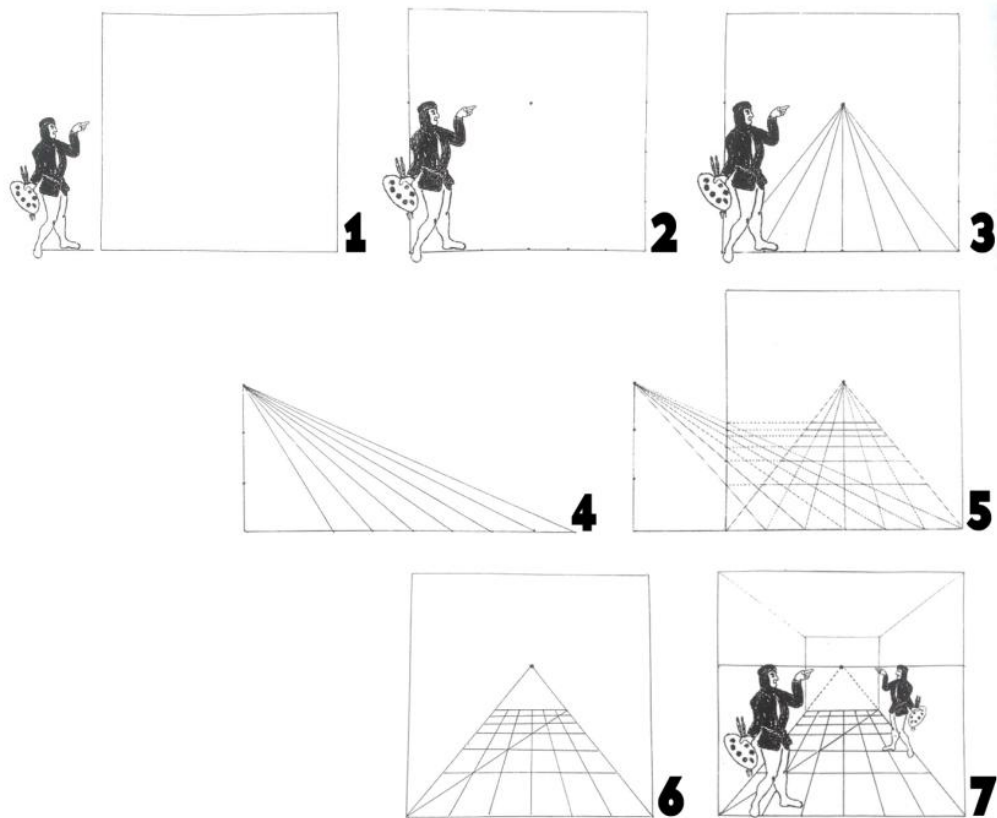
Figure 22 Layout representing Alberti's method of *costruzione legittima.*
Diagrams drawn by Samuel Edgerton, arranged by the author. Source: op. cit. Edgerton.

> **First of all about where I draw. I inscribe a quadrangle of right angles, as large as I wish, which is considered to be an open window through which is considered to be an open window through which I see what I want to paint. Here I determine as it pleases me the size of the man in my picture.**[114] (Fig. 22.1)

Alberti defines his picture plane, which he constitutes as his perspective construction, as "an open window." He uses the term "window" metaphorically, through which he sees and depth is created.

> **Then within this quadrangle, where it seems best to me, I make a point which occupies that place where the central ray strikes. For this is called the centric point. This point is properly placed when it is no higher from the man that I**

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[114] Ibid.: 56

have to paint there. Thus both the beholder and the painted things he sees will appear to be on the same plane.[115] (Fig. 22.2)

Although Alberti's "centric point" works in the same way as Brunelleschi's vanishing point, it is determined fictively on the picture plane and it doesn't correspond to the viewpoint of the subject. Yet, the viewer of the construction is incidentally positioned within the picture plane and its existence/absence would not affect the construction, unlike the collapsing construction of Brunelleschi's demonstration in the case of the subject's withdrawal.

Other steps of the construction can be observed from the diagrams presented above, and apart from the terms defined differently from Brunelleschi's, the methods are synchronous with each other. However, the first two steps encompassing the handling of the "picture plane as a window" and the "assignment of the centric point" are highlighted for being crucial for the reconsideration of perspective; fundamental for a critical comparison of Brunelleschi's attempt and Alberti's method. It is prerequisite to conceptualize the two methods in order to pursue their implications on architectural production.

3.1.2. A Comparison: "Brunelleschi's Mirror, Alberti's Window"[116]

In the previous section, Brunelleschi's demonstration has been introduced by the contributions of the texts of the theorists who have written on the issue. Thus, Leon Battista Alberti is key for being the first to theorize the construction of linear perspective. Considering the debates and reinterpretations on Brunelleschi's demonstration in comparison with that of Alberti, their handling of the picture plane has been discussed with the two different conventional terms: "mirror" and "window." As suggested in the title too, Brunelleschi's picture plane is referred to as a "mirror" while Alberti's as a "window." Departing from these principal definitions, a critical comparison is undertaken for the following discussion on perspective's collusion with architecture and its method to produce space.

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[115] Ibid.

[116] This title and the content of this part of the text has been constituted with the reference to Samuel Edgerton and his book *The Mirror The Window and The Telescope.*

To begin with, the most important comparison should be made regarding Brunelleschi's demonstration as an architect while Alberti's *costruzione legittima* as a painter. As also declared by Alberti in his treatise, his intention was to introduce the perspective construction method to painters in order to represent existing natural scenery or an imaginary space with the Renaissance's rational manner concerning the definitive rules of perspective. Meanwhile, Brunelleschi was an architect already charged with the "design" and "construction" of seminal buildings in Renaissance Florence. His demonstration – since ascribed as a participating event of the discovery of linear perspective – dates back to a time when he was a practitioner of architecture. In this sense, it is possible to say that it was not Alberti's concern to "construct" space in terms of "architectural construction" but to produce a pictorial image of space with an artistic approach. Indeed, Alberti asserted implicitly in his treatise the differences between a painterly projection and an architectural projection, which lies beneath the ways of seeing "through" a window and "by" a mirror.

At this point, Loren Holm's comparison of the two figures is an important reference point that verifies the vantage point of this part of the study:

> **In Brunelleschi's demonstration, it is possible to understand pictorial space as a projection from a point at which the viewer stands. In contrast, in *costruzione legittima* space is constructed directly on the picture plane by setting up a perspective grid using a vanishing point. Although Alberti defines the picture as a cross section of the pyramid of vision, nowhere in his texts is there a sense that it is projected through a plane from a viewer's eye point.[117]**

In terms of Alberti's "window," there is the implication of both the metaphorical window that is opened by the artist ("an open window through which I see what I want to paint" see 3.1.1) into an imaginary space and the literal window (Fig. 23) through which the artist "looks" at the real scenery. Regarding the visual construction that is constituted by the artist as the viewer observing the landscape, the physical "window" intersects the visual pyramid construction and fixes the image of the view on the transparent surface. This second implication of the window, "conceived here as a rectilinear frame gridded

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[117] Lorens Holm. <u>Brunelleschi, Lacan, Le Corbusier: Architecture, space and the construction of subjectivity.</u> Routledge, New York, 2010: 85

with a network of strings"[118] on which the artist is "literally mapping a portion of the visual world as if seen through a transparent cartographic chart and aligning the details according to a vertical and horizontal coordinate system"[119]. Edgerton defines this understanding of the method as a shortcut invented by Alberti, who was already equipped with the method and rules of *costruzione legittima*, since there was no need for him to make any calculations according either to the centric point or the horizon line. Almost a century after Brunelleschi and Alberti, German artist and theoretician Albrecht Dürer (1471-1528) produced a woodcut on which he depicted the scene from his setup of representation (Fig. 24). The set up is a glass panel with a grid on it and an eye tool that fixes the vantage point. It is "mainly intended to demonstrate a rigid method for copying nature by cutting a section literally through the cone of vision."[120] Erwin Panofsky asserts that Dürer was indebted to the Italians, yet Dürer was obviously influenced by Alberti's window.[121] In the woodcut, Dürer's depicted artist is in a fixed position in order to maintain the viewpoint. Nevertheless, Damisch describes Dürer was not concerned with the "rationalization of vision," but was instead preoccupied with the "rationalization of representation."[122] In this context, Dürer's work supports the argument that Alberti's window calls for only the obtaining of "a rendering that is perspectivally correct by purely mechanical means,"[123] regardless of the position of the viewer. Accordingly, Holm continues drawing the demarcation line between the works of Alberti and Brunelleschi and goes on to say:

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[118] Samuel Edgerton. The Renaissance Rediscovery of Linear Perspective, New York: Harper and Row, 1975: 126

[119] Ibid.:127

[120] Alberto Perez-Gomez and Louise Pelletier. Architectural Representation and the Perspective Hinge. Cambridge, MA: MIT Press, 1997: 34

[121] Erwin Panofsky. Perspective as Symbolic Form, Zone Books, New York, 1991

[122] Hubert Damisch. The Origin of Perspective, (first published in French, 1987), translated by John Goodman, Cambridge MA: MIT Press, 1994: 36

[123] Ibid.: 36
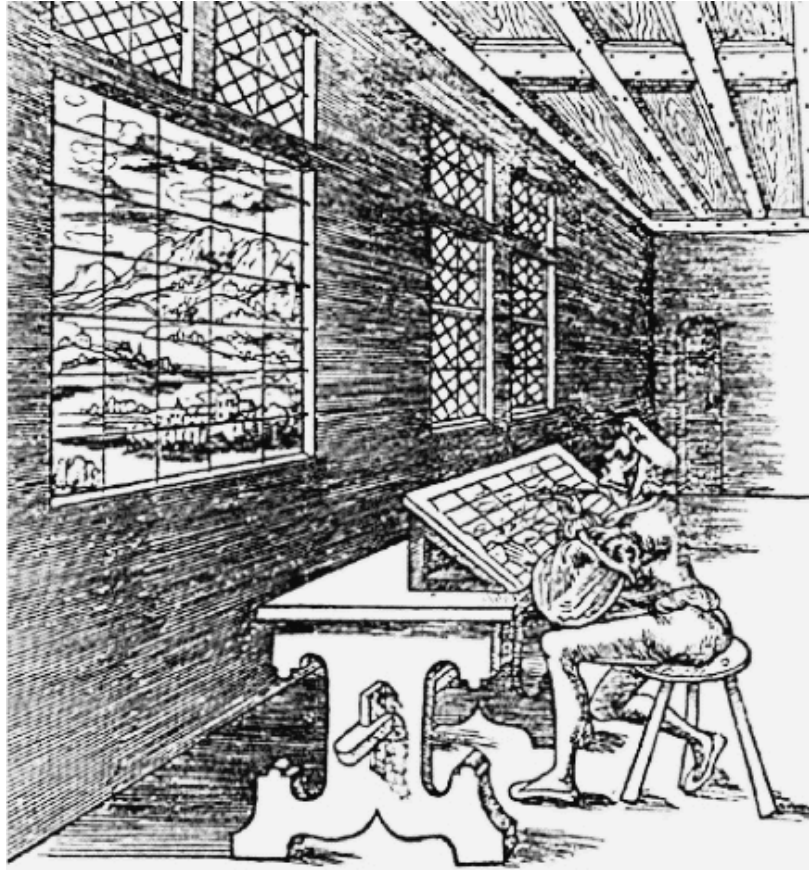
Figure 23 *Alberti's window*. **Woodcut from Johann II of Bavaria and Hieronymus Rodler, 1531.**
Source: <u>UC Press</u> 9 September 2012 <http://publishing.cdlib.org>
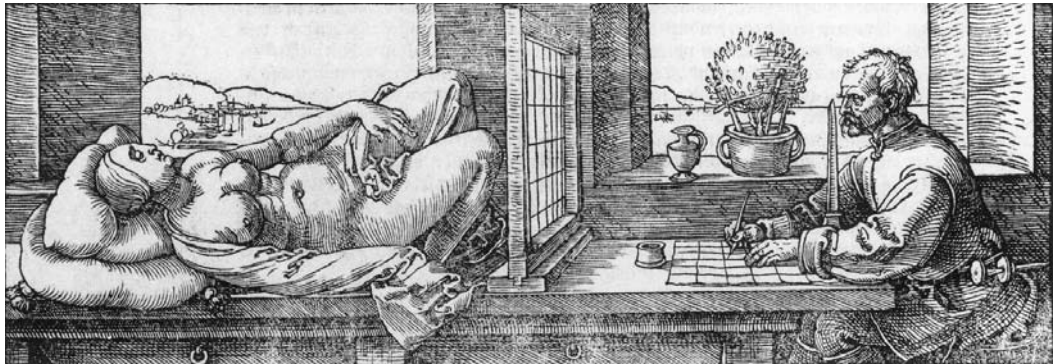
Figure 24 Albrecht Dürer. *Draughtsman Drawing a Reclining Woman*, **1525.**
Source: <u>UC Press</u> 9 September 2012 <http://publishing.cdlib.org>

One was concerned with space, the other with painting. It is the difference between illusion and fiction. Illusion is fiction which passes as reality. Whether he knew it or not, Brunelleschi is the illusionist (are not all architects?), and his panels a form of *trompe l'oeil.* His project is about making an image of a space look real; the demonstration, is about establishing the rules of correspondence between image and space, for which a great deal hinges on the position of the viewer. The illusion only works if the viewer is at the eye or projection point, a phenomenon with the Renaissance was known as *participation.* This is a problem that Alberti did not have to deal with. By contrast perspective paintings look correct even when the viewer does not stand at the eye point, and arguable, Alberti was concerned with making fictive spaces –i.e. paintings – not space.[124]

It is necessary once again to underline the notion of "participation" from the quotation above. Brunelleschi's mirror, mirrored perspective and reproduced architectural space positioned the viewer as a participant in the "space represented" (Fig. 25), yet the space is reproduced with the awareness the viewer of his/her own occupation of the space.

Alberti's window   *Brunelleschi's mirror*
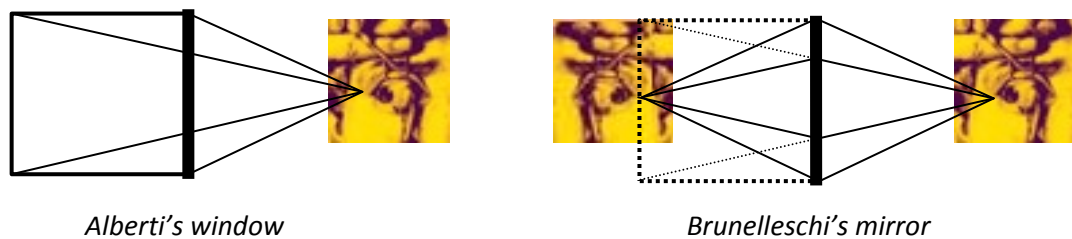
Figure 25 Comparative perspective diagrams drawn by the author.
(left) Picture plane as window, (right) picture plane as mirror

[124]Lorens Holm. <u>Brunelleschi, Lacan, Le Corbusier: Architecture, space and the construction of subjectivity.</u> Routledge, New York, 2010: 85

3.2. Reading Perspective Through Concepts

3.2.1. Perspective as the Mirror Stage: Images of Architecture

Here it is apt to refer to Jacques Lacan, who made a notable contribution to Twentieth Century psychoanalysis and philosophy. It is not the intention of this study to investigate the discourse of psychoanalysis, but it is still pertinent to briefly mention Lacan's diagram of the visual field, which has been often reinterpreted by art and architecture theorists as a diagram of representation. It has been used to make a rereading of Fifteenth Century perspective, particularly by Lorens Holm who is much referred to in this study.

He associates the perspective diagram with Lacan's with the assumption that "the subject sees the object by seeing the image of the object projected upon a picture plane."[125] He also states that Lacan's psychoanalysis encompasses the acknowledgement that the subject "represents" the world by "images." In accordance with this statement, perspective is constructed by the depiction of the object on a plane surface as an image, between the object seen and the viewing subject. With regards, Holm attempts to engage Brunelleschi's perspective demonstration (Fig. 25) with Lacan's diagram (Fig. 24): In the former case (in terms of Lacan's theory), the subject confronts his/her own image in the mirror, in the latter the physical baptistery is confronted by the mirror image of it, formed on the mirror held by Brunelleschi or the subject participating the experiment.[126] In addition, the viewer also sees from the hole his/her own eye and comes face-to-face with them existent in the mirror image. Hubert Damisch states in his book *The Origin of the Perspective* that Brunelleschi's experiment should be considered as the mirror stage of painting, where "a painting confronted by its mirror image, literally held up by the

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[125] Lorens Holm. Brunelleschi, Lacan, Le Corbusier: Architecture, space and the construction of subjectivity. Routledge, New York, 2010: 12

[126] See. Máiréad Nic Craith. Narratives of Place, Belonging and Language: An Intercultural Perspective, Palgrave McMillan, 2012. The author describes Lacan's theory of "mirror stage" as such: "Lacan's theory of the "mirror stage" concerns the (in) ability of the child to recognize his or her own image in a mirror and usually occurs between six and eighteen months. The child looks at the mirror, identifies with the image and thinks the image to be himself/herself. The image in the mirror is that of the child and yet it is not the child. It is a reflection. It is an illusion. It is imaginary and yet is through this object that the child sees him or herself."

father of perspective, jubilates over its own existence as a coherent whole for the first time."[127]
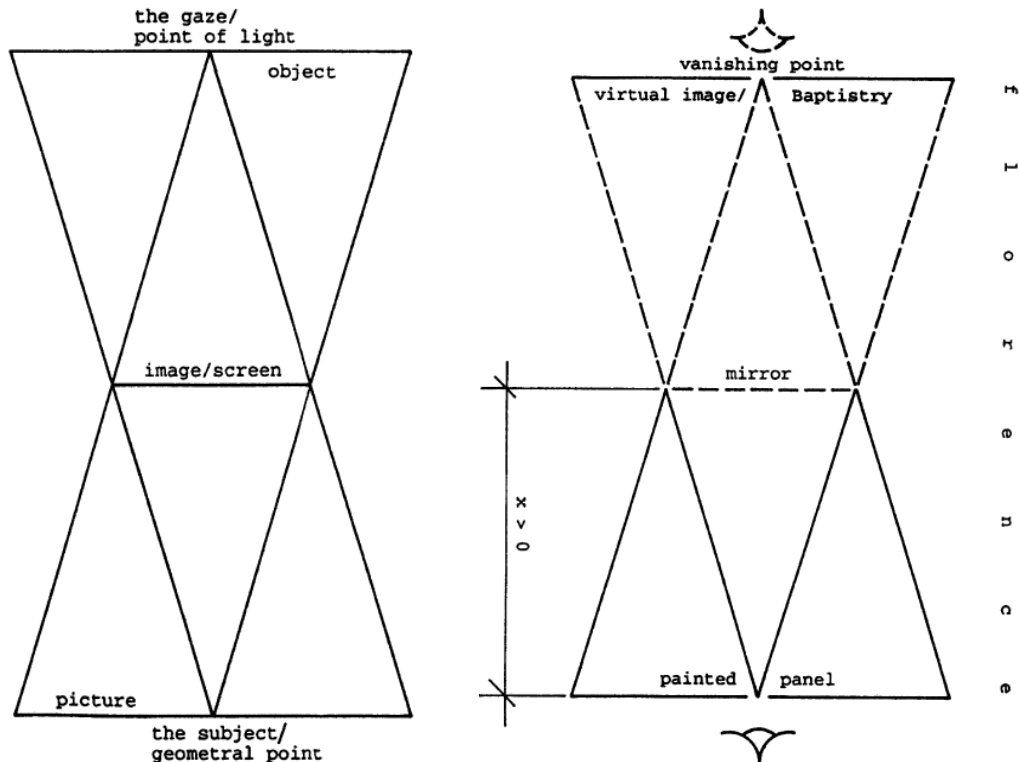
Figure 26 (left) Holm's diagram of the visual field. Source: Holm, Lorens. "Brunelleschi, Lacan, Le Corbusier: Architecture: The invention of Perspective and the Post-Freudian Eye/I", Assemblage, no.18 August 1992: 24
Stable URL 9 September 2012 <http://www.jstor.org/stable/3171204>

Figure 27 (right) Holm's perspective diagram of Brunelleschi's demonstration. Source: Ibid.

In other words, pictorial space as an image becomes an "artifact in its own right." Beyond Damisch's consideration of painting, Holm replaces "painting" with "architecture" and claims that Brunelleschi's diagram – therefore perspective – is the mirror stage of architecture. Holm gives the "image" the status of being "architecture" itself, claiming

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[127] Hanneke Grootenboer. The Rhetoric of the Perspective: Realism and Illusionism in Seventeenth-Century Dutch Still-Life Painting, University of Chicago Press, 2005: 53

that "[a]rchitecture does not represent space, it is space."[128] Brunelleschi is referred by the author to be making space, as mentioned in the previous section, differently compared with other practitioners of perspective.

Starting from the introduction of this part of the study, it is relevant to reconsider "images" from the conceptualization of perspective. Following the traces of Holm's affirmation may lead us to "architectural" implications.

Daniela Bertol discusses the historical conditions that created the interrelationship between architecture and images; in her terms "a three-dimensional world and its representation."[129] Consequently, Bertol covers a series of virtual-reality installations in order to articulate other themes such as the perception of architectural space.

> **The three-dimensional space of our experience is perceived as a projection on the two-dimensional surface of our retina. The stereoscopic effect, which causes the perception of depth, is given by our binocular vision. Of the three physical dimensions of space – width, height and depth – depth is the most "subjective" because it is related [more] to the way our visual perception works than to the physical reality of the objects of our perception.[130]**

Bertol refers to Maurice Merleau-Ponty's definition of depth, which emphasizes the condition of its being detached from the object itself rather than pertains to perspective.[131] With regards to Merleau-Ponty's definition, two-dimensional visual perception of spatial semblance differs from measurable three-dimensional space. In other words, as noted by Bertol, "perceptual space can be different from physical space."[132] This difference is explained by the fact that the size of an object decreases with as its distance from the observer increases, rectangles are perceived as trapezoids,

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[128] Lorens Holm. Brunelleschi, Lacan, Le Corbusier: Architecture, space and the construction of subjectivity, Routledge, New York, 2010: 14

[129] Daniela Bertol. "An Investigation of Architectural Representation Representations and the Visual Perception of Three-Dimensional Space," Leonardo, Cambridge: MIT Press, vol. 29, no. 2, 1996: 87

Stable URL: http://www.jstor.org/stable/1576337

[130] Ibid.

[131] Ibid.: 88

[132] Ibid.

angles change amplitude, parallel lines meet at a single point (the vanishing point) and parallel horizontal planes meet on a line known as the horizon.[133]

According to Bertol, the discovery of perspective in the Fifteenth Century constitutes the historical context for the "images of architecture," which are consequently transformed into the "architecture of images" by other modes of representation, such as anamorphosis and trompe l'oeil.[134] These will be covered in the following section as the unconventional modes of perspective.

Perspective can be defined as the re-awareness of a new way of perceiving the outside world. Even though perspective cannot exist without the "thing" (object) it represents, whether real or imaginary, its meaning is still detached from perception. Holm states that "[r]epresentation is not a perception with the assumption that perception is passive while representation is willful."[135] In this sense, perspective could be approached as an image – a willful representation. Following this argument on perspective, architecture gains status as being a mode of representation in of itself. To conclude, Holm states :

> **It is one of my claims that the invention of perspective is the foundational moment, when architecture began not only to make space, but to represent it. Architecture is first and foremost about space making. This may simply be the default mode of four walls, a floor and a ceiling, but with the invention of perspective by Brunelleschi, and the relationship that he establishes between perspective and architecture – in particular the new classical architecture which he develops out of the antique ruins – this simple default relationship between architecture and space changes irrevocably. Architecture may now be said to represent space. We call this – following Lacan – 'the mirror stage' in which architecture and space emerge together.[136]**

3.2.2. "Perspectiv-ated Space:" The Architecture of Images

Until this point, perspective has been discussed as a way of seeing and has been read through methods that appeared when it was a mode of representing architecture. The

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[133] Ibid.

[134] Ibid.: 89

[135] Lorens Holm. <u>Brunelleschi, Lacan, Le Corbusier: Architecture, space and the construction of subjectivity.</u> Routledge, New York, 2010: 88

[136] Ibid.: 13

associated discussions required a comprehensive conceptual treatment of perspective and led to its instrumentalization by the Renaissance architect Brunelleschi for the first time. Apart from its being the "eye of the mind,"[137] perspective became the "hand of the creative mind of the architect" with which the architect creates architectural space. Perspective can be considered as the dual condition of perspective, i.e., the "representation of architecture" and the "architecture of representation," as asserted by Hubert Damisch.[138] There is consensus that Brunelleschi was the first to practice perspective as an "intellectual" tool of architecture and freed perspective from being a mere mimetic tool that was only concerned with affirming nature through artistic concerns. With Brunelleschi's contributions as an architect, perspective became instrumental, as he reconsidered that "images of architecture" could be mediated into the "architecture of images," which for Damisch means the construction of architecture. As mentioned above, "Brunelleschi's architecture aspired to make clear this one-to-one correspondence between space represented and space perceived,"[139] since Rudolf Wittkower says Brunelleschi's San Lorenzo and Santo Spirito were designed using perspective. It is assumed that both of them were already constructed as an image before they were constructed physically. Holm states that "[i]f perspective is a two-dimensional representation of a three dimensional space, then architecture becomes the three-dimensional representation of a two-dimensional space, perspective and architecture mirroring each other."[140]

The architecture of the image or the architecture of perspective – in other words, a three-dimensional representation of a two dimensional representation – requires the introduction of the concept of "perspectiv-ated spaces," which some claim to be designed for "subject positions."[141] It is necessary to mention Rudolf Wittkower, whom

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[137] Term used by Samuel Edgerton.

[138] Hubert Damisch. The Origin of Perspective, trans. by John Goodman, Cambridge MA: The MIT Press, 1994 (first published in French, 1987): 61

[139] Lorens Holm. "Reading Through the Mirror: Brunelleschi, Lacan, Le Corbusier: The Invention of Perspective and the Post Freudian Eye/I," Assemblage, no. 18 (August, 1992): 22

[140] Ibid.

[141] Lorens Holm. Brunelleschi, Lacan, Le Corbusier: Architecture, space and the construction of subjectivity. Routledge, New York, 2010: 39

Panofsky also references for his definition of the concept "homogeneity" and "homogenous space," which would all together contribute to the definition of "perspective-ated space." Wittkower writes:

> **Homogenous space is never given space, but space produced by construction; and indeed the geometrical concept of homogeneity can be expressed by the postulate that from every point in space it must be possible to draw similar figures in all directions and magnitudes.**[142]

Homogeneity remains as an essential feature to describe the Renaissance's perspectival space. Homogeneity is claimed to be evident in the gathering of architectural elements in order to maintain a metrical order in the orthographic projection of architectural space (in plans and elevations), and also to make visible the continuum of the ratios and proportions in perspectival projection.[143] The nave of San Lorenzo supports Wittkower's argument of "the equal validness of proportion in perspective." With regards to the subject's movement in the nave, with each step the subject creates a new "cone" of vision and constitutes new sections with every time the subject chooses to stop moving. He claims that at each section, a perspectival view is constructed with the same proportions.

Holm argues that some spaces are more perspectival than the others. By referring to the naves of San Lorenzo and Santo Spirito, he states that the nave "looks like a perspective drawing materialized in three dimensions."[144] He also raises questions to clarify his point:

> **[W]hy are some spaces more perspectival than others? Why are not all spaces equally perspectival? And why does the nave look perspectival to the viewer even when he/she is not standing on the axis? Why do some spaces look like they are in perspective from anywhere?**[145]

This effect is claimed by the author to be only accessible through the perspective image that produces architectural space. And it is this effect that makes the space "perspectiv-ated."

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[142] Wittkower, Rudolf. "Brunelleschi and 'Proportion in Perspective.'" <u>Journal of Warburg and Courtauld Institutes</u> 16.3/4, 1953

[143] Ibid.: 288

[144] Ibid. Holm

[145] Ibid. Holm

In an attempt to define his concept of "perspectiv-ated space," Holm cites Wittkower and notes, "the perspective effect of 'proportional diminution' of 'repeating elements' is a function of the picture plane."[146] Even though the homogeneous space of the Renaissance maintains a systematical and isotonic order in plan and section, the effects of "depth," "rhythm" and "illusion" come with the perspective image created by the architect and perceived by the viewer, who is the occupant of the space. Wittkower, in his seminal 1953 text *Brunelleschi and Proportion in Architecture,* declares that his main concern is to cover "proportion" by handling the very notions of Renaissance interior space in tandem with linear perspective. Wittkower defines Renaissance space, which has been rationalized by perspective, as "an optical space of measurable quantities" and denotes that by means of perspective the "distances of objects seen by an observer can be rendered mathematically correctly in the two dimensions of a picture."[147] In this context, Renaissance architects were in pursuit of "subjective impressions" of architecture in virtue of "objective proportions."[148]

Wittkower's writing below could be read in favor of understanding perspective-ated space:

> **We all know that the way we see visual images depends on the notions in which we believe. Brunelleschi's invention of linear perspective set the seal to the Renaissance conviction that the observing eye perceives metrical order and harmony throughout space. If one is keyed up to the metrical discipline of buildings like San Lorenzo or Santo Spirito and tries to see as if through a screen the lines retreating towards the vanishing point and the quickening rhythm of the transversals, it is possible to evoke visual reactions similar to those which Renaissance people must have experienced. [149]**

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[146] Ibid. Holm: 97

[147] Ibid.: 276

[148] Ibid.

[149] Ibid.: 289
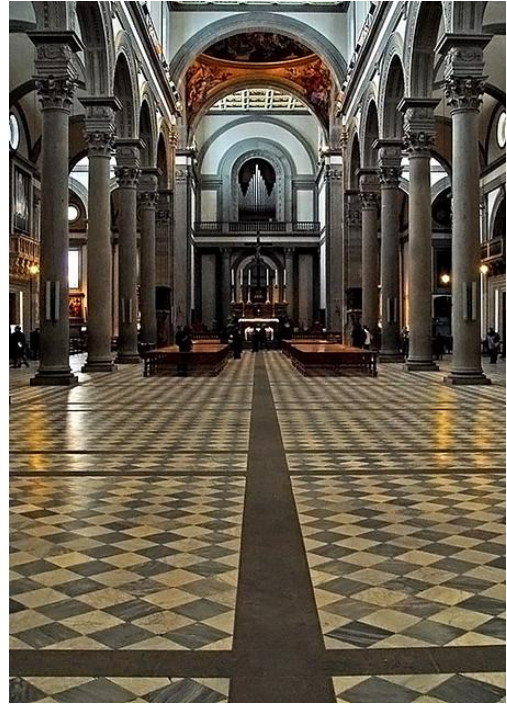
Figure 28 (left) The nave of Santo Spirito, Florence. Filippo Brunelleschi
Source: <u>Web Gallery of Art</u> 9 Sept. 2012 <http://www.wga.hu/html_m/b/brunelle/index.html>

Figure 29 (right) The nave of San Lorenzo, Florence. Filippo Brunelleschi
Source: <u>Web Gallery of Art</u> 9 Sept. 2012 <http://www.wga.hu/html_m/b/brunelle/index.html>
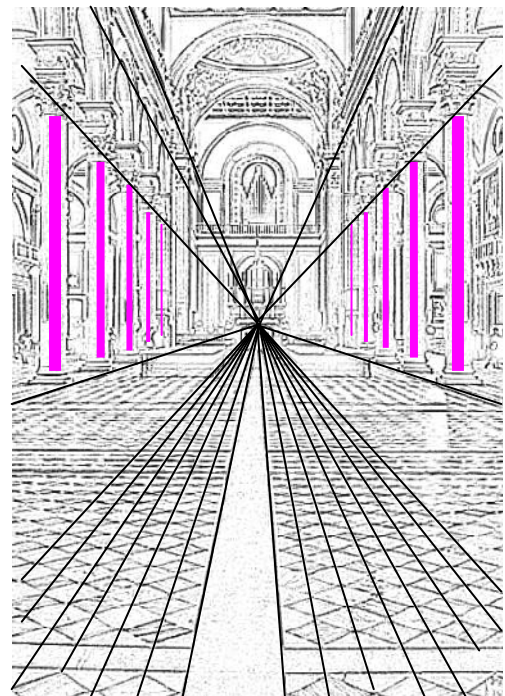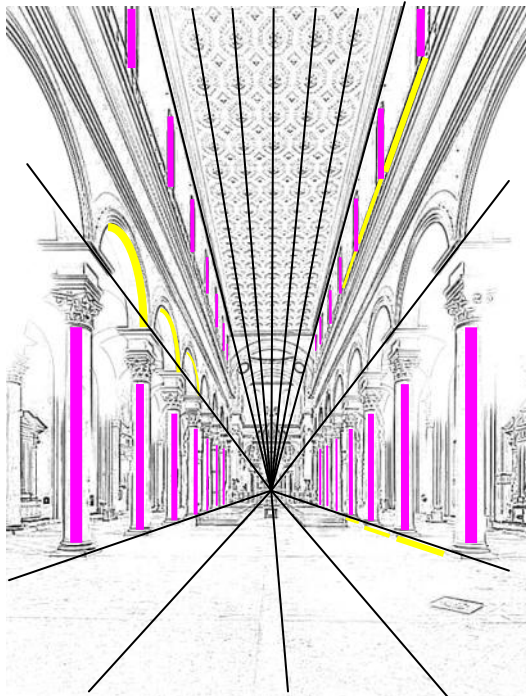
Figure 30 Diagrams of homogeneity and perspectiv-ated spaces of Brunelleschi. San Lorenzo (left) and Santo Spirito (right)
Diagrams produced by the author based on the photographs above. (Figures 28-29)

To illustrate Wittkower's commentary and to observe clues of homogeneity, proportion, and scale, perspective-ated spaces of Brunelleschi's San Lorenzo (Fig. 28) and Santo Spirito (Fig. 29) could be regarded as the embodiment of the introduced concepts. The diagrams below highlight the architectural notions that constitute perspective-ated space. (Fig. 30) Finally, the last diagram flow is a summary of this part of the thesis and narrates the process including architecture and images. (Fig.31)
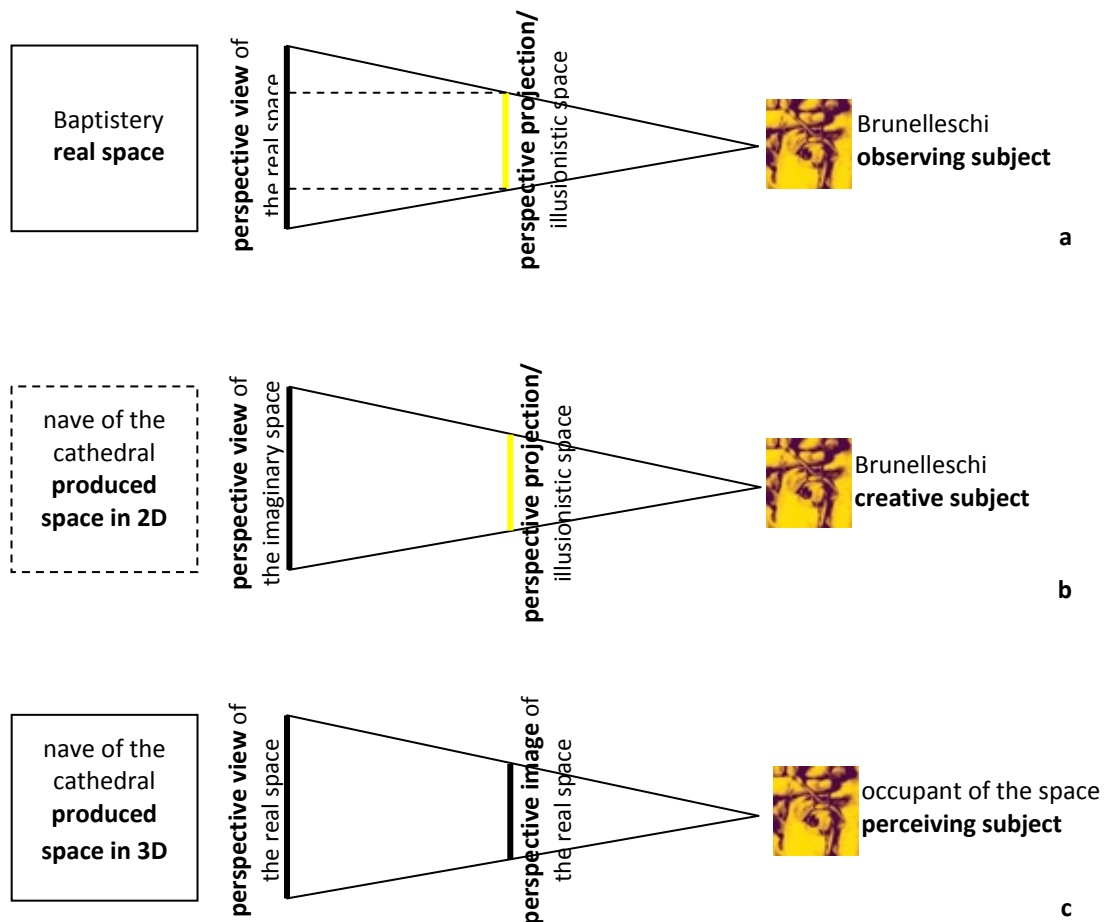
Figure 31 (a) image-space overlap/diagram of Brunelleschi's demonstration.
Produced by the author.
(b) images of architecture/diagram of Brunelleschi's perspective production of cathedral space as an image. Diagram of L.Holm, reproduced by the author.
(c) architeture of images/ diagram of replacement of Brunelleschi with the occupant of the space. Narration of L.Holm, diagram produced by the author.

3.3. Unconventional Perspective

After acknowledging the argument that perspective creates space by means of its status as an image, as a projection it has the potential to transform the space it constructs. According to Stan Allen, perspective – just as with other projection techniques – has the power to transform space because its internal relationships are open to interpretation. Any attempt to reconfigure and reconstruct those relationships may result a new transformation, i.e., a new narrative. At this point, the course's method to constitute different ways of seeing remains a crucial notion in terms of the reproduction of architectural space. Allan concludes his words in *On Projection* thus: "Projection is not a thing in itself but a relationship between things. As such, its internal relations are not fixed, and can always be reconfigured."[150]

Allan notes that the Seventeenth Century is significant as a period that caused "shifts" in the paradigm of perspective. The author uses the term "aberrations" for the shifts in the systems of projection. He states that those aberrations caused an important change in the conventional understanding of perspective not only "as a means to visually transcribe reality, but rather as a more or less coherent system that can be manipulated to produce various results."[151] At this point, Allan continues his argument by stressing anamorphosis, with which he gives his other definition of perspective as "artifice and the construction of illusion."[152]

He goes on to say: "Perspective registers the distortion and foreshortening of a perceived object by tracing lines from its outline back to an imaginary viewpoint; the image is formed at the intersection of these lines and a picture plane – a screen perpendicular to the line of sight."[153] Allan argues that perspective does not need to represent an existing object in each case and supports his argument by giving examples of G.B. Piranesi's perspective drawings (Fig. 32) and Dürer's representation diagram (Fig. 33):

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[150] Stan Allen. "Constructing With Lines: On Projection," <u>Practice: Architecture, Technique and Representation.</u> 2003 (first published in 2000), London, Routledge: 12

[151] Ibid.: 13

[152] Ibid.: 13

[153] Ibid.: 12

Figure 32 G.B. Piranesi's *Carceri*, 1760-1761
Source: <u>Wordpress</u> 9 September 2012
<http://apple0orchard.wordpress.com/2006/09/01/piranesi/>

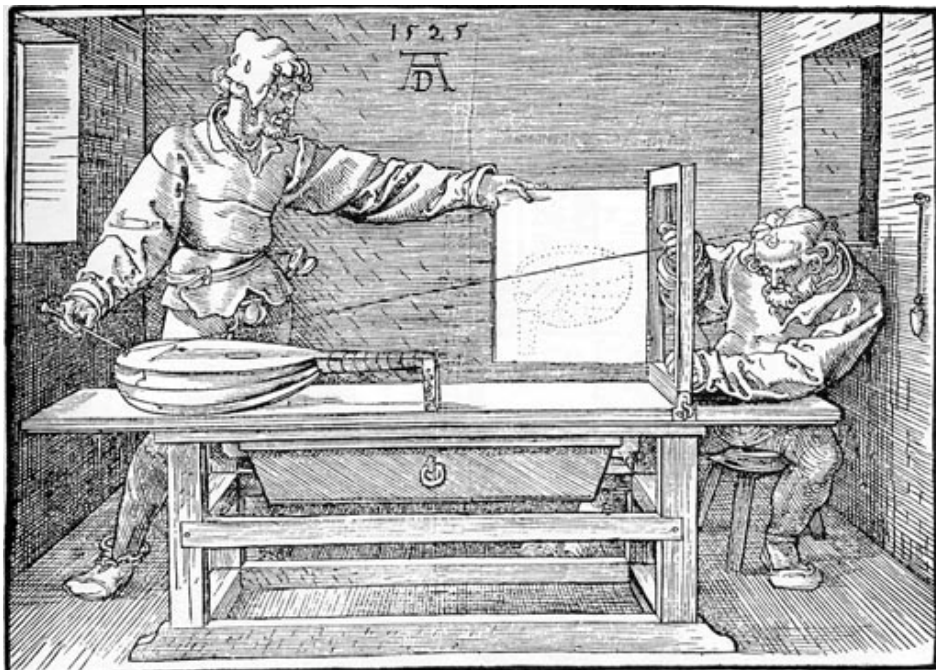**Figure 33 *Man Drawing a Lute*, Albrecht Dürer, woodcut, 1525.**
Source: <u>UW-Madison</u> 9 September 2012
<http://specialcollections.library.wisc.edu/exhibits/elsewhere_Durer.html>

The "impossible" perspectives of G.B. Piranesi's *Carceri* (1760-1761), for example, shows that perspective is not limited to recording the form of already existing spaces or bodies, but can be employed to imagine new spaces or objects. Further, within the logic of the system of perspectival projection, there exists the possibility of its reversal: the system diagrammed by Dürer to represent an object can be turned around to produce the illusion of the presence of an imaginary object.[154]

Moving on from Allan's interpretations, trompe l'oeil and anamorphosis will be the conclusion of a reconsideration of the internal relationships of conventional perspective and the reconstruction of them.

3.3.1.   Spaces of Illusion: *Trompe L'oeil*

Literally meaning "mislead the eye," a trompe l'oeil is "usually two-dimensional painting showing an arrangement of objects that look disconcertingly real, often used to suggest architectural elements."[155]

Even though there had been signs of trompe l'oeil in antiquity, whereby architecture was arranged in relation with its appearance to the eye considering the illusions of optics, it was first practiced after perspective was discovered in the Renaissance. Trompe l'oeil is known to have originated in ancient Greece and became widespread during the Renaissance and the following centuries, especially during the Baroque period. Acknowledging that architecture could merely be detached from the art of the Renaissance, and *perspectiva artificialis* was first seen in the art of that era, "rationalized" architectural spaces were first constructed in the paintings that represented them. In this sense, traditional Western art could said to be illusionistic by its nature "as a three-dimensional scene is inferred from a two-dimensional image."[156]

Although at first architectural space was a pictorial notion of the artwork, in the Seventeenth Century and on, the artwork itself became, or pretended to be, a part of the tectonics of architectural space. By means of the perspective construction of trompe l'oeil and the foreshortening technique, the limits of the architectural space were

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[154] Ibid.: 13

[155] James Stevens Curl. Dictionary of Architecture, Magpie Books, 2005: 104

[156] Al Seckel. Masters of Deception: Escher, Dali & The Artists of Optical Illusion. Sterling Publishing. New York, 2004: 9

expanded and altered with the aid of the image "that deceived the eye." The "illusion" with "architecture" emerged in the Seventeenth Century, with regards to the approaches of painters in that era. "*Quadratura*" painting is the art of illusionistic ceiling painting that went beyond the borders of ceilings and walls while changing even the appearance and so the perception of the building's structure. The remarkable work of architect and artist Andrea Pozzo (1642-1709) in the Church of Sant'Ignazio in Rome (Figs. 34 and 35) is a seminal consequence of the practices of trompe l'oeil. Al Seckel, an authority on visual illusions, explains why Pozzo intended to paint the ceiling of the church using this technique:

> **When the church was planned, it was to have an enormous dome, but the neighboring Dominican monks complained that the resulting structure would cut their library off from the light. Commissioning Pozzo to create a painted dome and an adjacent second storey on a flat surface solved the problem.[157]**

Figure 34 Andrea Pozzo's trompe l'oeil dome, the ceiling of Santa Ignazio, Rome (1685-1694)
Source: Wikipedia 9 September 2012 <http://en.wikipedia.org/wiki/File:Sant%27Ignazio_-_painted_dome_-_antmoose.jpg>

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[157] Ibid.: 11

Figure 35 *Trompe l'oeil vaults,* **the ceiling of Santa Ignazio, Rome (1685-1694) by Andrea Pozzo**.
Source: Wikipedia 9 September 2012 <http://en.wikipedia.org/wiki/File:Andrea_Pozzo_-
_Apoteose_de_Santo_Inacio.jpg>

After giving a brief historical background for trompe l'oeil, it is therefore necessary to unveil the conceptual notions it establishes for further discussion. Despite its resemblance with perspective in terms of technique – attaining a static central viewpoint – trompe l'oeil is covered as an unconventional form of it. Trompe l'oeil works differently

from perspective in that it brings into consciousness the construction of the perspective representation while perspective painting focuses the viewer's perception onto the object of representation. Trompe l'oeil is defined as "a peculiarly powerful reflexive project, a mimetic enterprise that leads its viewers to a critical self-consciousness about the construction of representation."[158]

The working of trompe l'oeil is explained as "two conflicting moments of perception:"

> **Initially, we mistake the picture for a three-dimensional object in the world, and then we recognize it as an artifice. We must first be fooled, and then we recognize it as an artifice. We must first be fooled, and then enlightened, if a trompe l'oeil imitation is to work… we derive our enjoyment from the disjuncture between the illusory image of space and the flat corporeality of the canvas; we appreciate the skill of the trompe l'oeil artifice and take satisfaction in having detected the fraud. Thus imitative art generates pleasure, not from the contemplation of a truth, but from the discovery of a falsehood."[159]**

Perspectiv-ated space, which was previously defined as the "architecture of the image," could be compared with trompe l'oeil in terms of the status of "images" that both possess. Perspectiv-ated space is "an image that turns out to be a space," whereas a trompe l'oeil "is a space that turns out to be a image."[160] Still, trompe l'oeil necessitates us to locate the viewer in a designated position otherwise the illusion collapses. Trompe l'oeil is in an important architectural representation that has been crucial for this study to decipher, together with the anamorphic perspective.

3.3.2.   Spaces of Desire: Anamorphosis

The historical emergence of anamorphosis dates back to the discovery of linear perspective in the Renaissance, as painters and architects who had mastered the techniques of perspective simultaneously challenged perspective and its rules. As a consequence, alternatives and challenging new orders appeared in the field of representation, including trompe l'oeil and anamorphosis, which became more popular during the seventeenth century and later. *The Ambassadors* of Hans Holbein (Fig. 36)

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[158] Caroline Levine. "Seductive Reflexivity: Ruskin's Dreaded Trompe L'oeil," <u>The Journal of Aesthetics and Art Criticism</u>, Blackwell Publishing, vol. 56, no. 4, 1998: 365

[159] Ibid.: 365-368

[160] Op.cit. Holm: 167

from the sixteenth century is a seminal artwork for the appearance of the anamorphic perspective and the skull (Fig.37) appears as an object of desire, which is visually accessible with an oblique point of view.

The word anamorphosis originates from the Greek "ana-" meaning back or again and "morphe" which signifies form. Anamorphosis therefore means to "form again". The projection that conventional perspective produces is unconventionally reformed by the reconstruction of internal relationships. Therefore, the "order" of perspective is replaced with the "disorder" of anamorphosis.

In the article *Perspective, Anamorphosis and Vision*, Kim H. Veltman presents the contradictory situation between the "undesired distortions of perspective and planned distortions in anamorphosis."

Figure 36 Hans Holbein, The Ambassadors, 1533.
Source: Google Art Project 9 September 2012 <http://www.googleartproject.com/collection/the-national-gallery-london/artwork/the-ambassadors-hans-holbein-the-younger/328434/>

Figure 37 The anamorphic skull.
Source: Wikipedia 9 September 2012 <http://en.wikipedia.org/wiki/File:Holbein_Skull.jpg>

The introductory text for "unconventional perspective" presents Allan and his commentary on anamorphosis. Allan reads the constitution of anamorphic images through Dürer's set up. By using the relationships of the elements of the set up, the author suggests that the correct perspectival construction might be a moment of anamorphic construction.[161] Allan states that in both anamorphic and perspective construction, four crucial components remain the same: the existing or not yet existed object, the viewpoint, and the picture plane/screen and projection lines that converge through the vanishing point.[162] In his woodcut, Dürer represents the moment of the correct projection of the image, while the author's claim is that an intervention to the set up, such as tilting the screen, would result a distortion in the form of the projection. In other words, perspective might be considered a "special case" of anamorphosis.

That is to say Dürer's set up might have the potential to say much more than simply explaining the construction of perspectival image. It goes beyond the conventions and opens the door to further discussion that "[t]he artifice is no longer hidden, and perspective can no longer be understood as the natural outcome of vision. The evidence of disorder (distortion, dissonance) is contained within the rational limits of the system itself."[163] This "narration" and the "point of view" of a reinterpretation is important for the same reason that anamorphosis is essential for this study. No matter which one encapsulates the other within its own construction, there is a crucial need for a starting point with discussions on conventional perspective. "Anamorphic projection seeks to deny the usual conventions of 'looking' in which an observer views an image frontally from a limited range of viewing angles. It is a technique of disruption or distortion."[164]

The viewer of the anamorphic projection has to be located not centrally but at a radically oblique angle according to the picture plane.

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[161] Stan Allen. "Constructing With Lines: On Projection," <u>Practice: Architecture, Technique and Representation.</u> (first published in 2000), London, Routledge, 2003: 15

[162] Ibid.

[163] Ibid.: 16

[164] Daniel L. Collins. "Anamorphosis and the Eccentric Observer: Inverted Perspective and Construction of the Gaze," <u>Leonardo,</u> Cambridge: The MIT Press, Vol. 25, No. 1, 1992: 73

> **Anamorphosis makes explicit the subject's agency in viewing. It confirms that viewing itself involves projection and participates in the construction of the illusion… Like conventional perspectival construction; anamorphosis locates the viewer, but now in an oblique and decentered position… The image coalesces only in the moment of turning away from the painting. The geometric character of vision is used in order to capture the subject.[165]**

As stated above, the greatly distorted projection of anamorphosis becomes visible only if the viewer is consciously observing the construction and has located himself/herself at an "eccentric" subject position, since only under these circumstances the construction and the illusion give away their rules. At this point, it would be appropriate to define the "eccentric perspective" and its "eccentric observer," which Daniel Collins refers as the "exact" observer of the anamorphosis.

> **The gymnastics necessary for the successful apprehension of the anamorphic image casts the observer in an active role in which the conventional relationship to the object of vision is literally thrown 'off-center'. To observe anamorphic images, one must be an 'eccentric observer' that is, an observer who is not only a bit 'eccentric' in the usual sense of the term but an observer who is willing to sacrifice a centric vantage point for the possibility of catching a glimpse of the uncanny from a position off-axis.[166]**

To summarize, anamorphosis and trompe l'oeil, the latter of which has been considered as a subset of the former, both require an active observer and both are conscious of the construction of the unconventional perspective projection and the act of seeing. Nevertheless, the object of representation for trompe l'oeil is visible regardless of the observer, while for anamorphosis, the subject's position is indispensible in order to unveil the rules of the anamorphic projection and render its object visible. In this context, "[a]namorphosis is a technique for bringing that which still remains outside of the field of the gaze into the line of sight and into consciousness."[167]

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[165] Ibid.

[166] Ibid.

[167] Ibid.

CHAPTER 4

PERSPECTIVE EXHIBITED

4.1. Perspective-ted Spaces in METU's Faculty of Architecture

Previously, the course *Architecture and Different Modes of Representation* (ARCH524) has been introduced as a pretext and its objectives, methodology and theoretical framework have constituted the basis for this inquiry into linear perspective. Also, as evident in the title of this thesis, perspective in its technical terms has been reconsidered and reread conceptually and practically through various concepts and conventions. Previous discussions on perspective mentioned throughout this thesis have revealed various conceptualizations of space that have influenced the reproduction of architectural space. Leading on from a conceptual reconsideration of perspective, this final chapter will focus on physically exhibiting perspective in the faculty building as the final products of the course and will make focus on the exhibitions themselves that transformed and reproduced the spaces in the faculty.

First, it is crucial to restate the main objective of the course: By developing different ways of seeing and adopting a critical distance from both the historical and contemporary context, it is possible to reinterpret modern architecture and its space. In this sense, following the course's argument, the spaces in METU's Faculty of Architecture building can be reanalyzed with a new way of seeing – with the filter of linear perspective and the spatial notions of Renaissance architectural space. The method of this chapter will refer back to the concepts presented in the previous chapters.

METU's Faculty of Architecture building was designed by Turkish architects Behruz Çinici and Altuğ Çinici, and was constructed between the years 1961-1963. The faculty is

considered as a seminal example of Modern Architecture, much influenced by the architectural movement Brutalism[168]. Its repetitive geometries in the components of the building, the construction details and exposed use of materials have close relationship with this international movement. (Figs.38 and 39) Indeed, the faculty building was constructed largely of exposed concrete and glass.

Figure 38 View of the building from the promenade, METU Faculty of Architecture.
Source: ARKIV 9 September 2012
<http://www.arkiv.com.tr/p4175ortadoguteknikuniversitesimimarlikfakultesi.html

Figure 39 Façade from the rear, METU Faculty of Architecture.
Internet Source: ARKIV 9 September 2012

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[168] The term Brutalism was coined in 1953 as New Brutalism by British architects Alison and Peter Smithson and comes from the French term *béton brut* meaning "raw concrete," a phrase used by Le Corbusier. Brutalism was widespread until the 1980s and is characterized by building materials such as concrete, brick and glass retaining their original appearance without being concealed by other materials, such as paint, plaster or cladding. The commonest material used is raw concrete, which was shaped by "formwork." Formwork is a metal or timber construction in which concrete is poured, leaving an imprint on the concrete form when dried. Brutalists used formwork imprints intentionally and it was to become a motif of the movement.

One claim of course ARCH524 (which this thesis also acknowledges and proposes) is that if the faculty's architecture is analyzed assuming it is an autonomous entity regardless of its association with the architectural circumstances of its time – it is possible to find correspondences with another conception of space, i.e., of the Renaissance's perspectiv-ated spaces. This spatial concept will reassert spatial issues that have been previously covered by re-examining Brunelleschi's cathedral interiors: significantly the checkerboard pattern, which is "the grid" of the Renaissance, the repeating columns defining the central nave, the arches that join the columns and the windows. It is also important to note once again that "perspectiv-ated" space (see previous chapter for definition) dictates that the vanishing point is substantial for the perspectival perception of architectural space, which will be sought in the interiors of the faculty building in the following section of this chapter. At this point, it is relevant to refer to Ayşen Savaş and her commentaries:

> **METU Faculty of Architecture building is an exceptional construction for the comprehension of the term "perspectiv-ated space". The depiction of the space involves the construction of a "convincing illusion of space" on the two-dimensional flat surface of the canvas; it requires the unification of all the architectural elements such as columns, balustrades, stairs, within a single spatial system. It is indeed a linear recession of objects in the "illusionistic space." The necessary elements of linear perspective; the central vanishing point and the structural grid, which determines the location and the dimensions of the architectural elements within the illusionistic space, literally exists in the faculty building.[169]**

This study claims perspective to be the significant and indispensible way of seeing and the mode of architectural representation for the perception and production of architectural space, indeed in the unique case of the faculty. The following subchapter will discuss the precise vanishing points and subject positions in the building.

The checkerboard pattern in the Renaissance's pictorial and constructed space is an essential feature that defines the limits of the space and reinforces the illusory depth effect of perspective. The checkerboard pattern is basically an abstract grid that has appeared throughout the history of art and architecture in various guises. Thus it is important to point it out again.

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[169] Interview with Prof.Dr. Ayşen Savaş, Ankara, July 2012.

The grid is defined in Jack Williamson's essay *The Grid: History, Use and Meanings* as a "proportional system of co-ordinates intersected by vertical and horizontal axes."[170] Williamson locates the grid as an important "compositional design matrix" for Twentieth Century visual art. He also necessitates reconsidering other symbolic forms of the grid throughout history. Despite of the formal resemblance, Williamson asserts that there were changes in the meaning of the grid in relation to its symbolic meanings depending on the era.[171] During the Renaissance, when there was a "transition from a sacred to an increasingly secular world of conception," the grid attained a physical value. The coordinates defined spatial relationships relative to the distances between the points of the Cartesian system. To understand the use and meaning of the grid in the Renaissances requires a reference to the Albertian grid. The Albertian grid defines the window through which Alberti not only saw but also on which he constructed aesthetic space, moving the image of the view from his window onto the picture plane. Williamson notes that this grid's individual squares (like the axes) conveniently framed specific places."[172] Furthermore, Rosalind Krauss, in her essay *Grids,* points out that it is possible to find examples of grids in the history of art of the Fifteenth and Sixteenth Centuries, especially in the treatises on perspective. Krauss states:

> **Perspective was the demonstration of the way reality and its representation could be mapped onto one another, the way the painted image and its real world referent did in fact relate to one another – the first being a form of knowledge about the second.[173]**

In the faculty building, the grid inherent on the floor of Renaissance space is also found in faculty's ceilings in the form of concrete waffle slab (Fig. 40) and the walls of concrete brick units (Fig. 41). Considering the modes of architectural representation of the faculty building – namely the plans and sections – the grid is not represented and is invisible. On the contrary, perspective drawing and the image of the perspective view (Holms) render

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[170] Jack H Williamson. "The Grid: History, Use and Meaning," <u>Design Issues</u>, vol. 3, no. 2, 1986, MIT Press: 15 Stable URL: http://www.jstor.org/stable/1511481

[171] Ibid.

[172] Ibid. Williamson: 19

[173] Rosalind Krauss. "Grids," <u>October</u>, vol. 9, 1979, MIT Press: 52
Stable URL: http://www.jstor.org/stable/778321

the grid visible. Thus, the subject position and the viewpoint are essential for the perception and representation of the perspectiv-ated space.

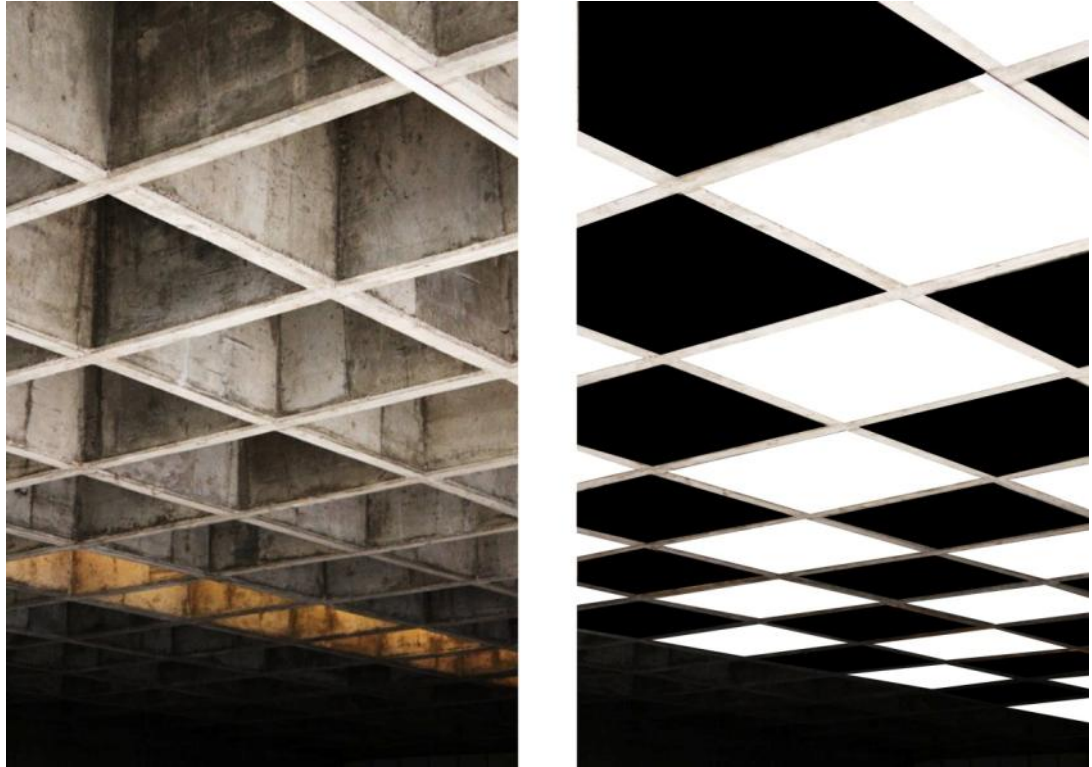**Figure 40 Waffle slab ceiling, METU Faculty of Architecture**
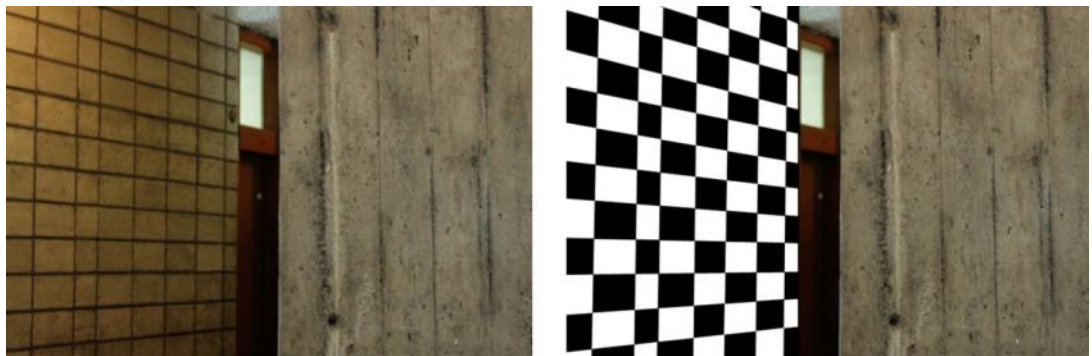Photograph and the reconstruction by the author

Figure 41 Wall detail, METU Faculty of Architecture
Photograph and the reconstruction by the author

4.1.1. Pursuit of "Precise" Vanishing Points and Subject Positions

According to Diana Agrest, the subject both perceives and creates. She draws attention to the two points of the construction of representation. The physical existence of the body locates the subject as a point defined by the position of the eye, while the picture plane – on which perspective is projected – separates/articulates it from/with the other point where the lines vanish.[174] The author argues that the picture plane (the section through the cone of vision) "connects two cones of vision: that of the architect as the creative subject and that of the observer."[175] (Fig.42) In this sense, we can suggest that while the architect creates the space with the illusions of perspective, he/she locates the observer and the subject position at the same time, as did Brunelleschi.

Viewpoint ●   ● **Vanishing point**

Cone of vision (1) of creative subject   Cone of vision (2) of perceiving subject

The architect   **The observer**
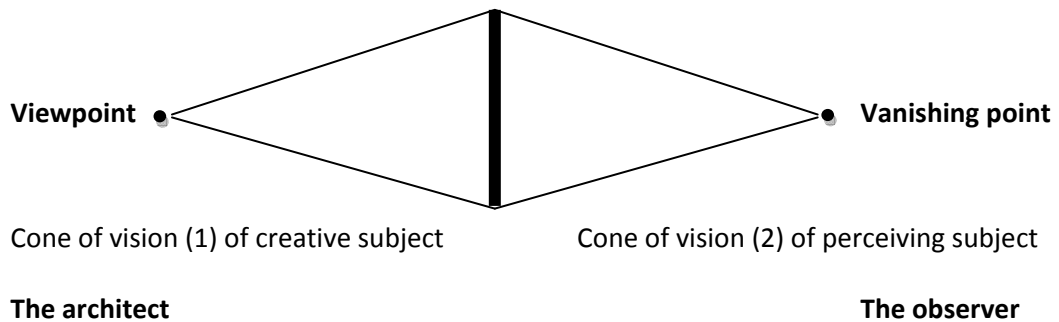
Figure 42 Creative subject|perceiving subject diagram
Diagram drawn by the author

As stated previously, this thesis suggests that there are "precise" vanishing points and subject positions in the faculty. In the same sense as Agrest's assessment, the architects who are the creative subjects of the faculty building might have created spaces that constituted the perspective image of the view. This process ends up with the architecture of the image, in other words, the realization of the building. As the spaces of the faculty are occupied by its users, they intersect with the previous positions of the architects.

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[174] Diana Agrest. "Representation As Articulation Between Theory and Practice" (commentary), <u>Practice: Architecture, Technique and Representation</u>. 2003 (first published in 2000), London, Routledge: 169

[175] Ibid.

Thus, the image of the view mediates through the cone of vision of the perceiving subject. The architect's position is then replaced by the position of the observer. Here we can refer to the concept of the "mirror stage" and to the assumption that perspective and architecture mirror each other. The two cones of vision represented in the diagram above could be read as intersecting on one picture plane, such as a mirror. We could say that this construction is self-reflexive and in fact juxtaposes the standing point of the architect and the observer.

Referring back, as an architect, Brunelleschi is cited as an important figure in terms of his conceptualization of the subject from a significant fixed standpoint, which is the substance of perspective, and his analysis of the structural constructions and spatial effects of his architectural projects with the aid of architectural drawings, especially perspective.[176] Since Brunelleschi was well aware of the effects of his projects, before the construction process they were constructed in two dimensions as perspective images – images of architecture. With this in mind, the perception of the perspective construction of architectural space and its representation as perspective drawings should be reconsidered as being "on the way to buildings."[177] Nevertheless, there is insufficient information and architectural records left behind by Brunelleschi to draw conclusions following the traces of his buildings. Lorens Holm rereads Brunelleschi's cathedrals by analyzing them through photographs, which are latter-day stand-ins for perspective drawings.

Returning to the faculty building, although there are plans, sections and elevations created by the architects, there are a few perspective drawings (Figs. 43 and 44) and it is not possible to clearly suggest whether they were drawn before or after the construction of the building. As can be observed from Çinici's drawings, the faculty's interior spaces are depicted. But what is important is that both perspectives are constructed from the subject's eye level instead of a higher or lower level, which means the architect sought to draw within their own cone of vision. Both drawings concentrate on the vanishing points,

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[176] Tan Kamil Türer. and Atilla Yücel. "Bir Paradigma Olarak Mimari Temsilin İncelenmesi", İTÜDERGİSİ/a, vol.4, no:1, 2005

[177] Robin Evans. "Architectural Projection" Evans, Robin. Architecture and Its Image. Four Centuries of Architectural Representation, Montreal: CCA, 1989

towards which space is arranged and represented with linearity. The floor tiles and outlines of the building's structural elements converge at a single point. In the first drawing, the perspective effect that the architect intends to create is achieved by repetition and diminishing of structural orders in proportion. Concrete columns, square skylights and beams repeat and get proportionally smaller towards the edge of the perspectiv-ated space, which ends with a staircase that accommodates the vanishing point. The second drawing is more heterogeneous; the converging lines are interrupted and the unified space is split in two. However, the grid structure of the walls on the right-hand side, the repetitive glazing units and the grid-pattern floor tiles converge to make central the vanishing point.

With the acknowledgement and suggestion of the inherent "perspectiv-ated spaces" in the faculty building, this section of the thesis aims to achieve the "precise" vanishing points in the faculty and reveal "several" of them by capturing photographic images. It is necessary to state the intention of the use of the term "precise" for the designated vanishing points. The use of the term is related with the assumption that this study's acknowledgement of them as precise. In better words, the perspectiv-ated spaces encompass various axes in the faculty and that axiality also reinforces the perspectival effect spatially. Even though there are other axes, this study focuses on significant ones which will be articulated with the final exhibitions of the course flowingly. While illustrating those precise vanishing points, the subject is located on the axes in order to reveal the vanishing point, but the position she chooses as the "precise standing point" leads to the acknowledged predetermined, "precise" vanishing point. The camera's lens that is beheld by the subject (who is the author) will approximate the image of the view constructed within the cone of vision of the perceiving subject. Although it is possible to present others, six standing points in the faculty building have been introduced and six perspective images belonging to the suggested perspectiv-ated spaces are reproduced from the author's eye level. These six points refer to the designated subject positions and are shown on the faculty plans (Figs. 45 and 46), hatching the horizontal visual fields that they scan. Each subject position is a starting point for the analysis of perspectiv-ated spaces and the pursuit of precise vanishing points. Because the camera has a limited field of view, we can assume that the photograph is the representative of the image of view (ignoring the actual angles of the visual field horizontally and vertically).
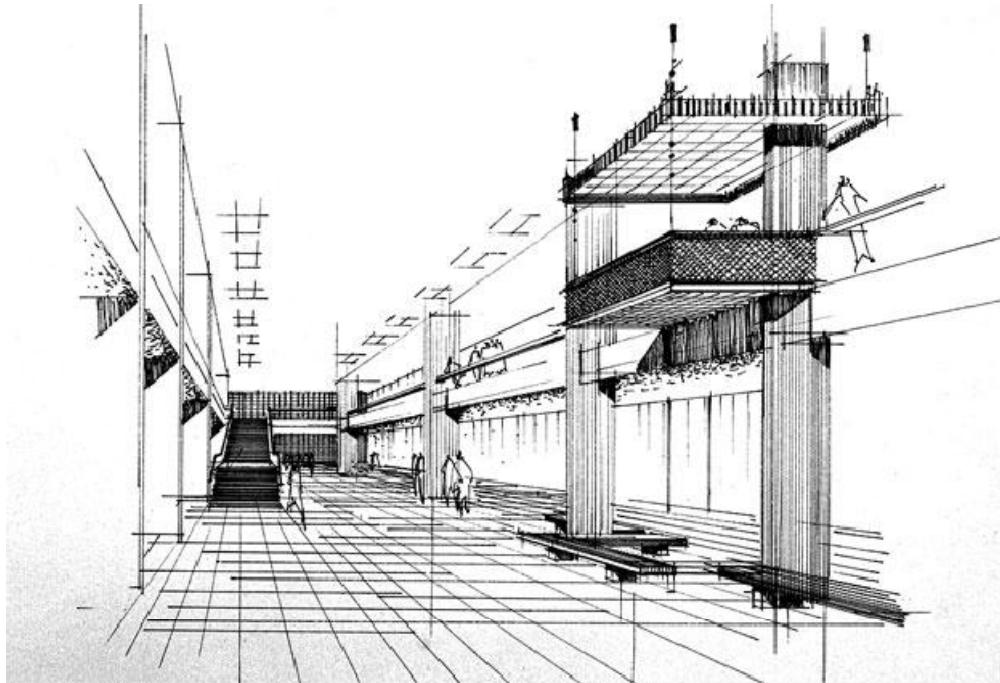
Figure 43 Interior perspective drawing of METU's Faculty of Architecture by Behruz Çinici
Source: ARKIV 9 September 2012 <www.arkitera.com>
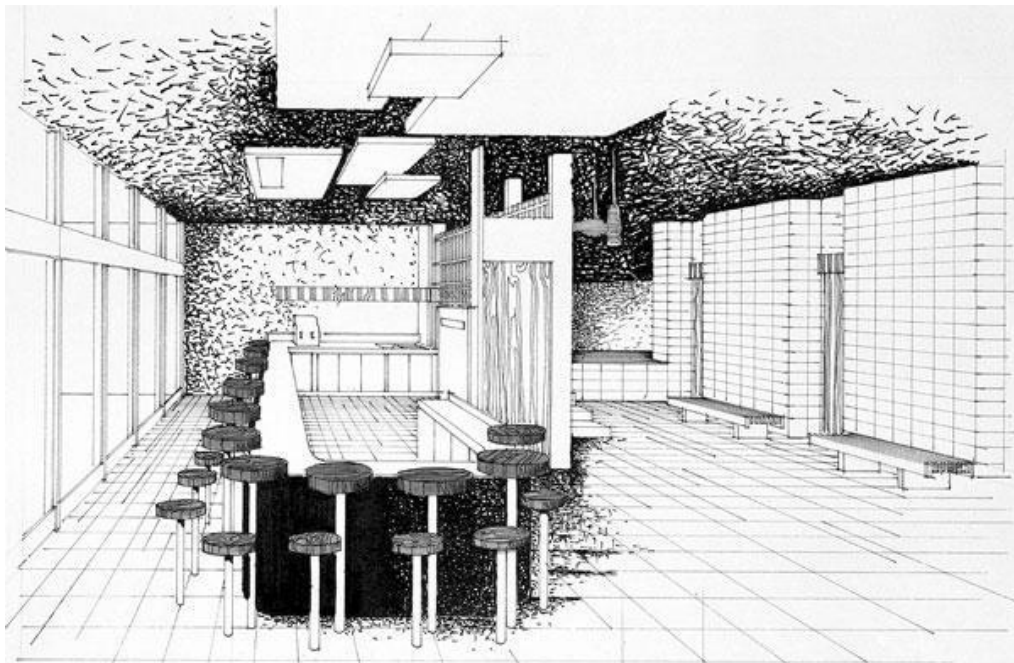
Figure 44 Interior perspective drawing of METU's Faculty of Architecture by Behruz Çinici
Source: ARKIV 9 September 2012 <www.arkitera.com>

The method of analysis includes the introduction of the perspective image of the suggested architectural space and the reproduction of the same image by schematically highlighting the notions that define the homogeneous space. As could be traced from the previously referred texts of Wittkower, these spatial notions could be suggested as: axiality, repeating structural orders, proportional diminishment, rhythm and illusion of depth, and the grid.

The subject position/viewpoint and depth are represented on the partial plans of the faculty's interior spaces, together with the representation of the picture plane that intersects the subject's cone of vision and is limited by the frame of the photographic perspective image. The diagram constitutes the perspective image and relocates the precise vanishing point by transferring the converging lines of the perspective construction of the perspectiv-ated space onto the photograph. The following diagrams attempt to illustrate the subject. (Figs. 47-52)

Figure 45 Subject positions and the perspectiv-ated spaces shown on the faculty plan.
Diagrams inserted by the author
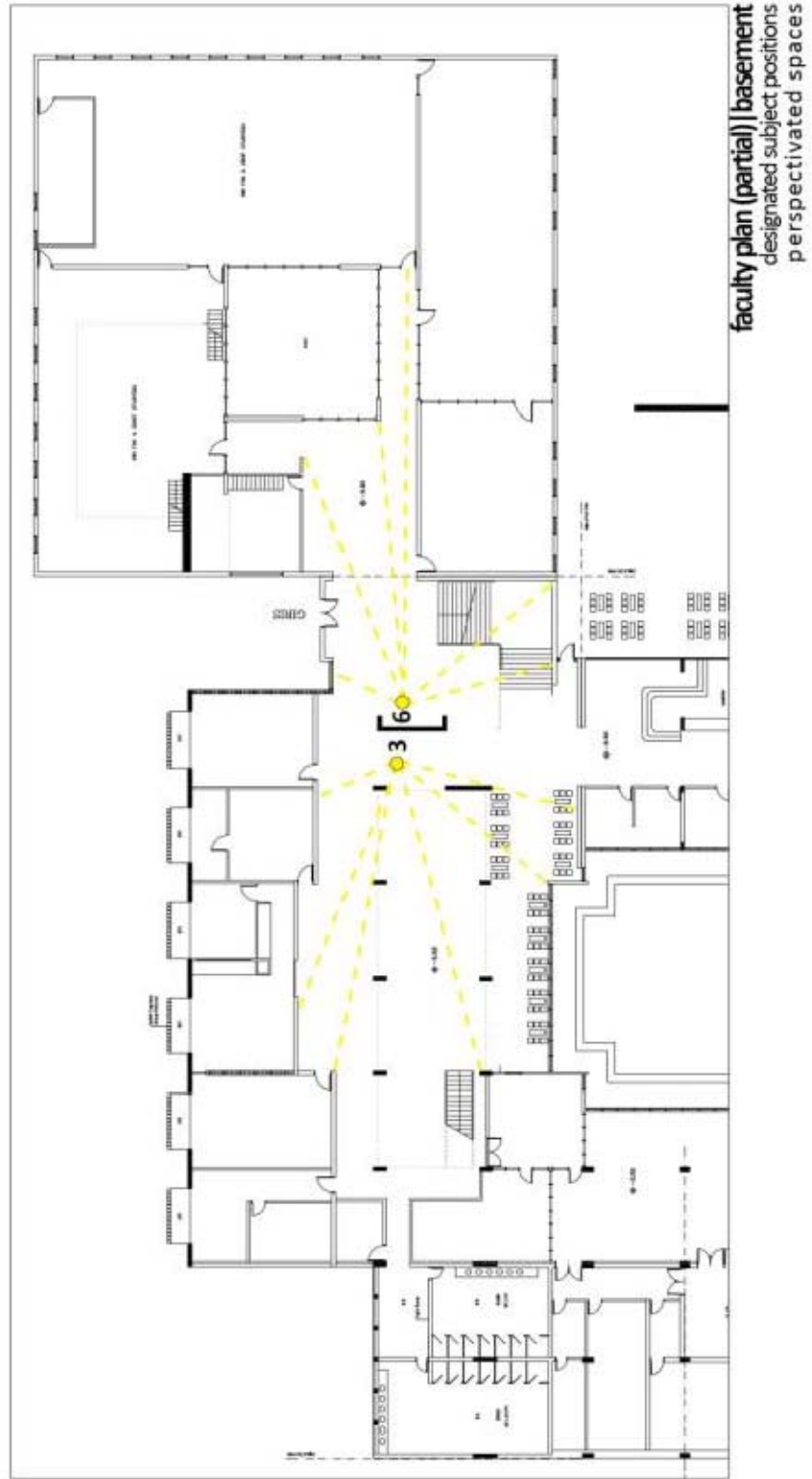
Figure 46 Subject positions and the perspectiv-ated spaces shown on the faculty plan.

Diagrams inserted by the author

plan | perspective construction
designated subject position of the perspectivated

subject position
view-point

vanishing point

perspective image
picture plane

perspective image | picture plane

regulating/converging lines
of the perspectivated space

horizon line

photographic image | image of the view

diagram of homogeneity | homogeneous space
repeating elements | concrete columns highlighted
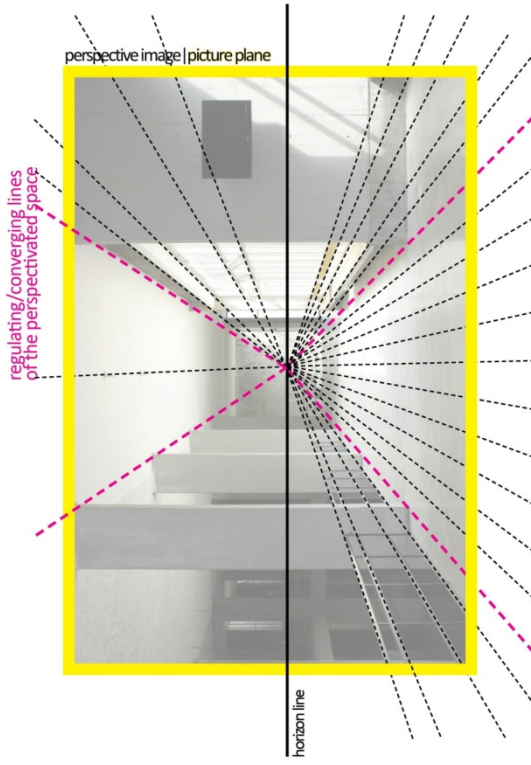
Figure 47 Precise vanishing point, Subject Position Number 1
Photographs taken. diagrams produced by the author

plan | perspective construction
designated subject position of the perspectivated space

subject position
view-point

perspective image
picture plane

vanishing-point

perspective image | picture plane

regulating/converging lines
of the perspectivated space

horizon line

photographic image | image of the view

diagram of homogeneity | homogeneous space
repeating elements | concrete columns highlighted
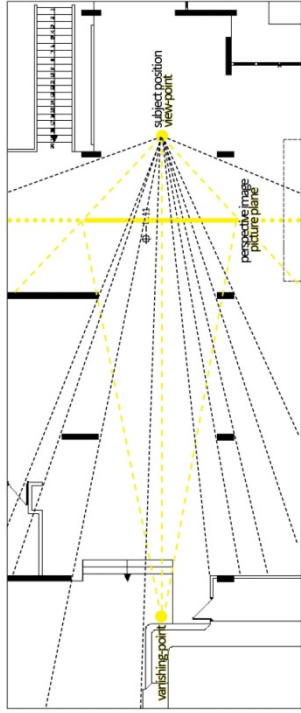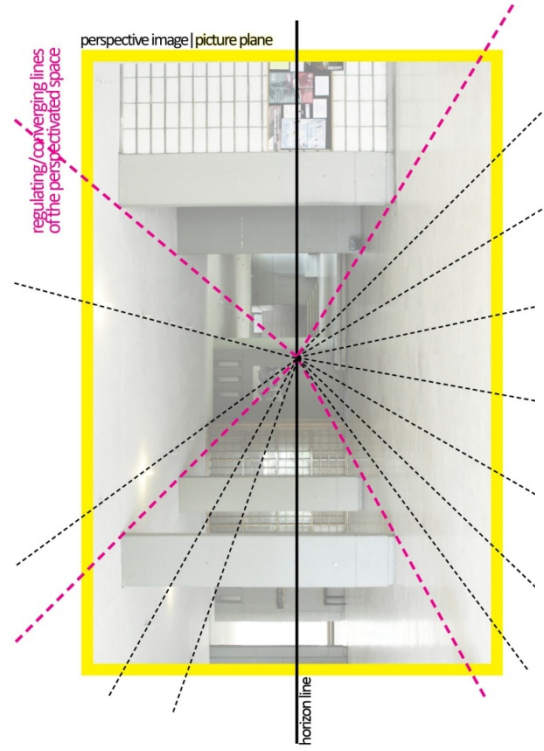
Figure 48 Precise vanishing point, Subject Position Number 2
Photographs taken. diagrams produced by the author

plan | perspective construction
designated subject position of the perspectivated

subject position
view-point

φ =5.1%

vanishing point

regulating/converging lines
of the perspectivated space

horizon line

perspective image | picture plane

photographic image | image of the view

diagram of homogeneity | homogeneous space
repeating elements | concrete columns / beams highligted
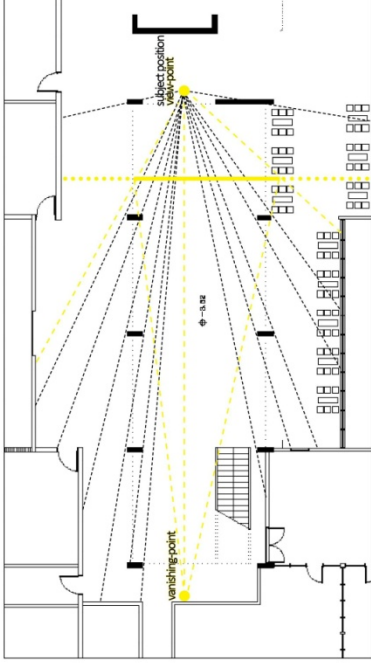
Figure 49 Precise vanishing point, Subject Position Number 3
Photographs taken, diagrams produced by the author

96

diagram of homogeneity | homogeneous space
repeating elements | gridal concrete walls highlighted

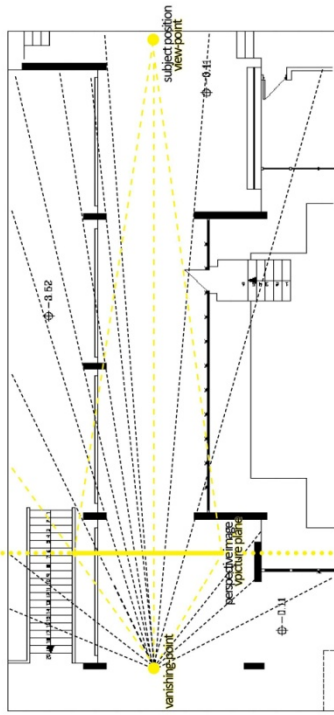perspective image | picture plane

regulating/converging lines
of the perspectivated space

horizon line

plan | perspective construction
designated subject position of the perspectivated

subject position
view-point

perspective image
picture plane
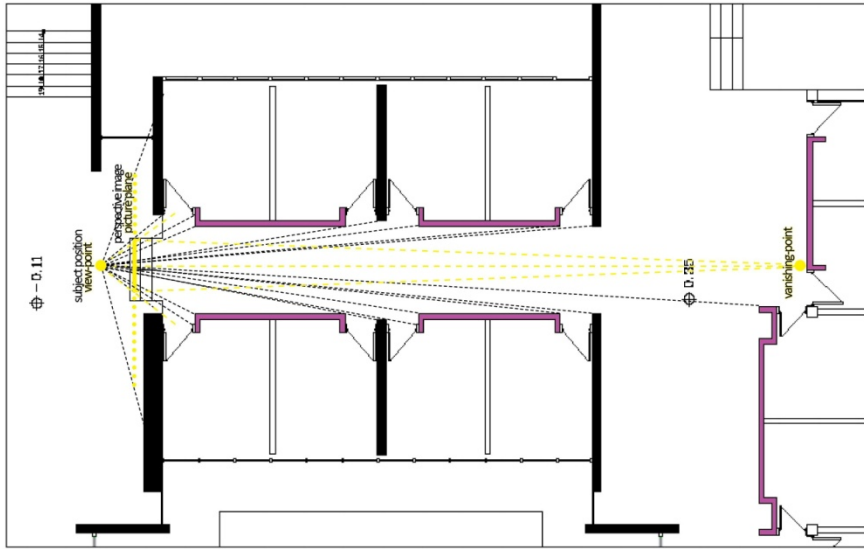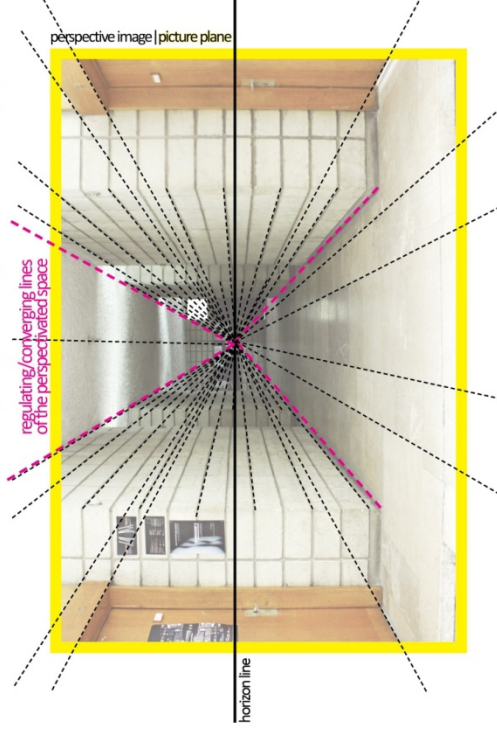
vanishing-point

Figure 50 Precise vanishing point, Subject Position Number 4
Photographs taken, diagrams produced by the author
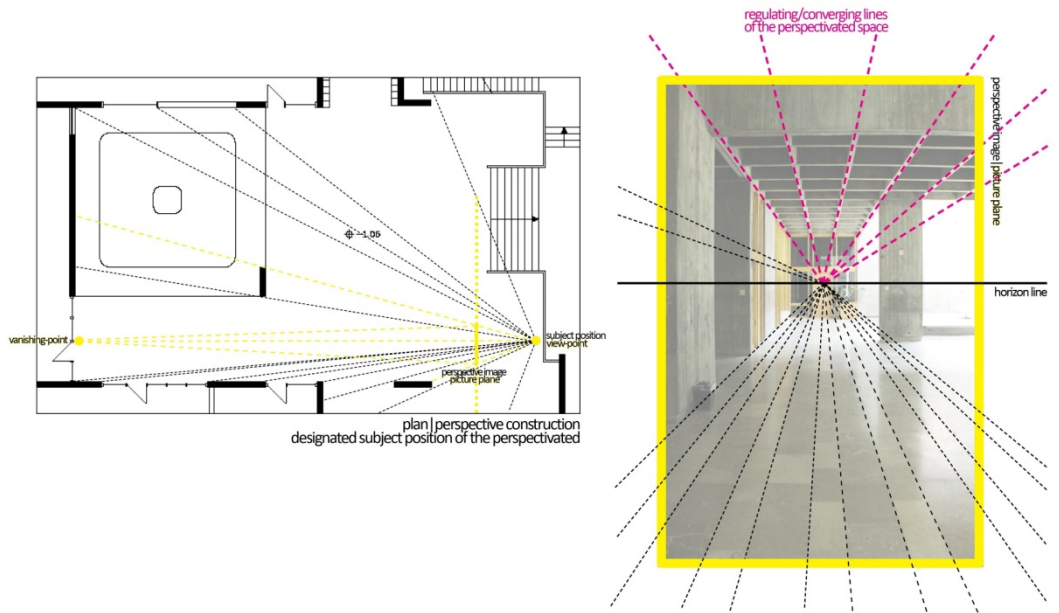
97

regulating/converging lines
of the perspectivated space

perspective image | picture plane

horizon line

vanishing-point

subject position
view-point

perspective image
picture plane

plan | perspective construction
designated subject position of the perspectivated

perspective image | upside down
the Renaissance "grid" on the floor

diagram of homogeneity | homogeneous space
repeating elements | waffle slab ceiling higlighted

diagram of homogeneity | homogeneous space
plan | repeating squares | waffle slab highlighted

the "grid" on the ceiling

Figure 51 Precise vanishing point, Subject Position Number 5
Photographs taken, diagrams produced by the author

plan | perspective construction
designated subject position of the perspectivated space

regulating/converging lines
of the perspectivated space

perspective image | picture plane

horizon line

perspective image | upside down
the Renaissance "grid" on the floor

diagram of homogeneity | homogeneous space
repeating elements | waffle slab ceiling higlighted

the "grid" on the ceiling

diagram of homogeneity | homogeneous space
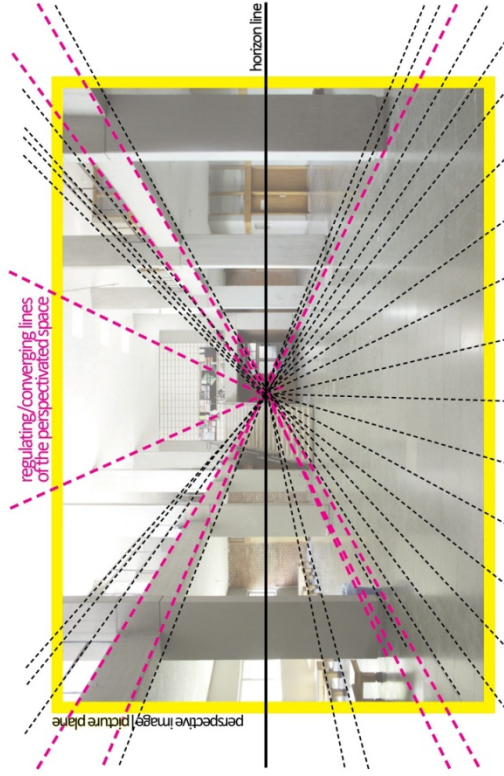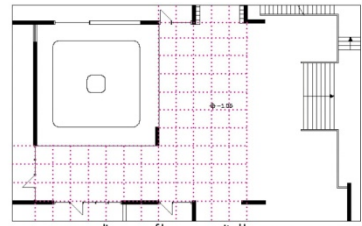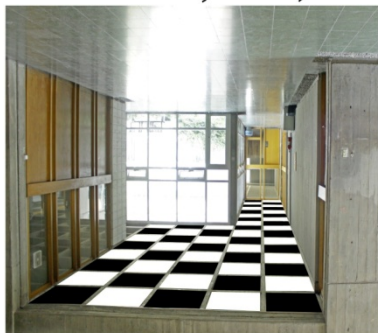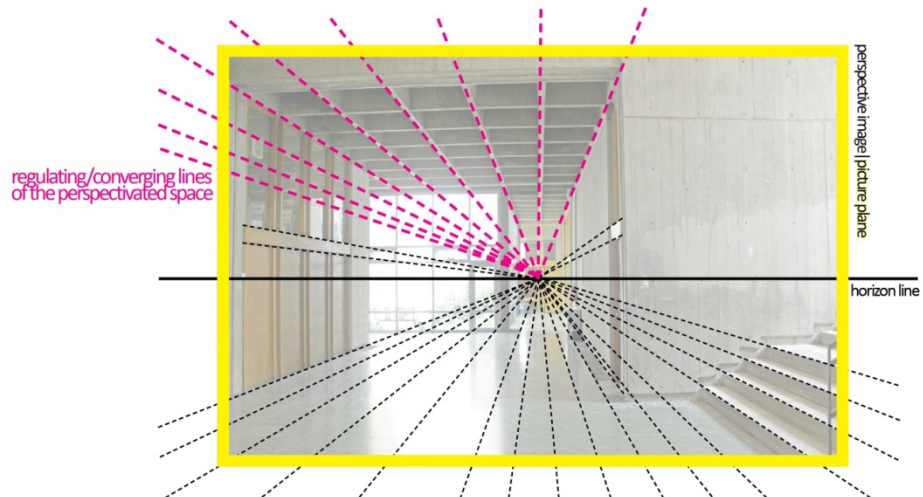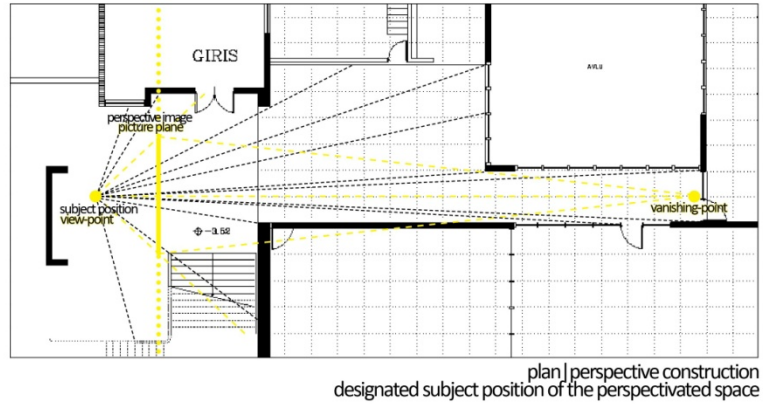plan | repeating squares | waffle slab highlighted

Figure 52 Precise vanishing point, Subject Position Number 6
Photographs taken, diagrams produced by the author

4.2. Space Occupied and Reproduced

Architecture gives us space of three dimensions in which we stand.[178]

Bruno Zevi

Sigfried Giedion declared a refusal to agree on a lone figure for the discovery of perspective, commonly referred as Filippo Brunelleschi. Instead, Giedion preferred to call perspective as a common expression of a specific time period, enclosing five centuries beginning from the Renaissance until the end of the Nineteenth Century. Giedion's approach necessitates the time/space overlap, which at the end locates perspective at the center of not only space perception but also its production.

Herein, it is necessary to look for coherent definitions of the architectural space within the framework in which this study is seeking for ways it is reproduced using perspective. At this juncture, Bruno Zevi in his seminal book *Architecture as Space: How to Look at Architecture* is an important reference in terms of his approaches to architectural space. Zevi presents a historical framework for spatial conceptions that benefit from the past and present. His approach is described as being of its time in that the author's classical training and feels for the modern architecture, in which the past and present help to explain each other.[179] With few differences, Giedion explains his approach as such:

> **To recognize and evaluate what is happening today and where we now stand needs a longer perspective than the immediate historical past. It may be advisable to project the present happenings against the large screen of historical developments.[180]**

Returning to their conception of architectural space, Giedion and Zevi refer to an interior space. According to Giedion, because of our inherent prejudgments that he says stem

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[178] Bruno Zevi. Architecture as Space. How to Look at Architecture, translated by Milton Gendel, edited by Joseph A. Barry, Horizon Press, New York, 1974: 216

[179] Architecture as Space. How to Look at Architecture by Bruno Zevi, Milton Gendel, Joseph A. Barry. Review by Paul Zucker, The Journal of Aesthetics and Art Criticism, vol. 16, no. 2 December 1957: 283

[180] Sigfried Giedion. Space, Time and Architecture. The Growth of a New Tradition (fifth edition) Harvard University Press, 1967: x|v

from antiquity and its understanding of architectural space, there is a common belief that interior space is equivalent to architectural space.[181] In the same way, Zevi notes that "[t]he most exact definition of architecture that can be given today is that which taken into account *interior space*"[182] Zevi tries to avoid defining architectural space with such limitations and makes a further explanation for the possible misinterpretation of his definition of architectural space that implies only the possibility of spatial experience "in the interior of a building." Rather, he refers to "wherever man has defined or limited a void and so has created an enclosed space," putting emphasis on the human scale. Zevi goes on to say:

> **The character of any architectural work is determined both in its internal space and in its external volume by the fundamental factor of scale, the relation between the dimensions of a building and the dimensions of man. [183]**

Brunelleschi's demonstration of perspective deserved attention. As a model, it was given an important position for the reconsideration of perspective and perspective's conception of space. The space that Brunelleschi reconsidered – the piazza, which accommodated the Baptistery and the Duomo – was excised from its context in Florence to become a crucial component of a model. With his model, Brunelleschi as the observer (subject) experienced the space in which he stood. Despite discussions on his methods and whether he was helped while making his perspectival construction, the remarkable point is that by locating the subject in the model he punctuated the "occupation of the subject" and the "consciousness of the view point/vanishing point relationship" and an awareness for the notions of scale.

In this sense, Brunelleschi defines an interior space with the enclosed piazza in his perspective demonstration, in which he locates his observing subject in a one-to-one scale model. At this point, it is useful to introduce the reasons why Brunelleschi's perspective construction and the Renaissance space remains *a priori* for the discussions in this chapter and the thesis overall. The exhibitions of spatial transformations – the final products of course ARCH524 – will be reread through Brunelleschi's demonstration

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[181] Ibid.: x|v

[182] op. cit. Zevi: 28

[183] Ibid.: 57

in turn interpreted by Alberti's window and the conceptual and constructive notions of Renaissance space. This claim of this study is that, in a similar way to Brunelleschi in 1425, the interior perspectiv-ated spaces of the faculty are captured and are part of a model. The participants of the exhibition and the occupants of the architectural space become the perceiving subjects of a life-sized model of perspectiv-ated spaces. The occupant is offered a perspective view of space, with a second perspective construction – (perspective as an image or mirror) as the mirror of the architecture superimposed onto the existing construction. The juxtaposition of both the perspective view and the mirror stage is visible only if the occupant is located in the predetermined standing point and with the precise viewpoint. The perspective image is the experienced architectural space captured by the occupant, who reproduces the perspective image and therefore the architectural space. The essay *Architecture as Image-Space-Text*, which focuses on the "inter-productive relationship between space and the subject," claims that "the role of visuality in spatial experience should be reconsidered beyond conventional optics, but instead in terms of images."[184]

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[184] Betty Nigianni. "Architecture as Image-Space-Text," <u>From Models To Drawings</u> ed.by Marco Frascari, Jonathan Hale and Bradley Starkey, Routledge, 2007: 253 See AHRA (A Project of the Architectural Humanities Research Association) Annual International Conferences.

4.2.1. Subject Participation in front of the Image

Figure 53. The book cover of the first edition of Le Corbusier's *Vers Une Architecture,* 1923.
Source: <u>ST.LOUIS PUBLIC LIB.</u> 9 September 2012
<http://exhibits.slpl.org/steedman/data/Steedman240088533.asp>

The image above is the cover of Le Corbusier's book *Vers Une Architecture* (Fig. 53). Lorens Holm uses the cover to express his thoughts on perspective as the image of architecture and claims that perspective is one of the main concerns of the book and its cover, considering the image that Le Corbusier used:

***Vers Une Architecture* demanded of architectural discourse that perspective remain central to it. On the cover of the French first edition (1923), a crystalline, zoomy, black and white interior occupies the center of an ambiguous aqua ground in which also float, without the assistance of regulating lines or other geometry to position them, the title (yet another – inverted transformation in the series).[185]**

Holm visually reads the book cover and observes that there are floating texts on a background and a black and white image located in the center of the background. He comments that the text and image are located without any regulating lines. The internals between the lines of text are uneven and there is only the rectangular frame around the image as a regulating feature. We can interpret it from another angle, beyond Holm's interpretation of this image as a similar visualization Brunelleschi's demonstration of the eye.

In accord with Holm's claim that perspective remains central for the book cover, the most notable clue is that the picture is of an "interior", a deck of a cruise. In an abstract way of seeing, the overall situation of the entire image and the linear positioning of the elements break from within the frame. Lines are freed from the horizontal and converge towards a single point. In terms of the approach of the book itself, the image might be said to put stress on Le Corbusier's five points towards the new architecture that he declares. The photograph might represent the free façade and the long horizontal sliding window following the analogy between cruise Aquitania and the form of new architecture. Nevertheless, they could have been photographed from the elevation, which would not have produced any distortions as evident in this perspective image. Rather, the attention is on the vanishing point towards which the lines that constitute the borders of the horizontal window, wall, ceiling and floor converge and consolidate. The frame – more appropriately the window the subject sees through or the mirror the subject sees an image reflected in – reconstructs the flat surface of the book cover and creates an interior and exterior and constitutes depth on a planar surface that is the representation of an architectural space, even the architectural space itself. The book cover introduces an architectural space by presenting a perspective image of it, locating a vanishing point and relocating the viewpoint on the counter position by means of a

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[185] Lorens Holm. <u>Brunelleschi, Lacan, Le Corbusier: Architecture, space and the construction of subjectivity.</u> Routledge, New York, 2010: 95

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frame. Holm dictates that the frame is one *arché* of architecture; it makes the space that makes architecture possible.[186] The frame creates space – the space of architecture. Both the frame and the framed cannot be detached from architecture, yet are architecture. For the two practitioners of perspective previously mentioned, Holm states that "[f]or Alberti and Brunelleschi, perspective was an image constructed 'by' and 'through' the frame."[187] Holm emphasizes the importance of the fact that it is valid for the perspective image from the conception to the realization of architecture. In other words, a perspective image can be considered both a conceptual tool for the visual experience in which we see through the frame and an instrumental tool for the construction of architecture in both two and three dimensions by and beyond the frame. In this context, encompassing the binary nature of architecture and perspective, and explaining the cooperation of the two, Holms asserts:

> **Everywhere in architecture, architecture frames spaces and positions the viewer, thereby creating the conditions under which we see architecture in perspective. Without architecture, perspective would cease to apply to visual experience.[188]**

This study claims that perspective might have been an instrumental tool during the design of the faculty building, since it is suggested that perspective might have been used in the way that Renaissance architect Brunelleschi designed his churches. The previously presented vanishing points are thought to be pre-designated and physically constructed in the perspective drawing created by the architect. As mentioned in the previous chapter, architecture has a direct ontological relationship with perspective, as this two-dimensional mode of representation constructs the three-dimensional architecture in form of an image before the architectural space is physically constructed in three dimensions. The architect constructs architectural space by the frame through which he/she sees architecture in perspective and positions him/herself in front of the image, which is framed. Beyond the frame, architectural space ends up with a precise vanishing point that corresponds with architect's viewpoint, in the mirror stage of the architectural space. After the construction of the architectural space, its occupant – who is the subject

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[186] Ibid. Holm: 97

[187] Ibid. Holm: 96

[188] Ibid. Holm: 96

that perceives – is enclosed in a constructed space that is the three-dimensional representation of the architect's two-dimensional perspective image. The perspective image of architecture is reconstructed once again as the subject's cone of vision intersects with that of the architects, he/she is confronted with the architect's precise vanishing point and also he/she is participating in the architect's perspectiv-ated space. The subject participates in the perspectiv-ated space by standing in front of its image.

This last part of this thesis, which concerns occupied and/then reproduced architectural space, involves fragments from the final exhibitions of course ARCH524 that are selective cases that focus on perspective. It is crucial to relocate the cases in this part within the new context created in the previous section of this chapter. One claim of this study is that it is no coincidence that the final projects (on perspective) were constructed to a great extent in the previously presented perspectiv-ated spaces. In other words, the course inherits the consciousness of the precise vanishing points in the faculty building and juxtaposes its own perspective constructions and the existent perspective construction of the building. It reproduces the architectural space by reinterpreting it. Exhibited perspective in the main title of this chapter refers to perspective that is constructed in the cases that will be presented in the following section. It can also be read as referring to the faculty's inherent perspective. Both are superimposed in a final project concluding with the reproduction of space and a perspective construction of perspective-ated space is also exhibited.

Both the course and this study aim to highlight and render visible the perspectiv-ated spaces of the faculty building with the participation of the occupants from their viewpoints. In accordance the previous chapter's reconsideration of perspective, this chapter follows the same structure. Firstly, the prevailing perspective constructions have been analyzed in the same way perspective is reread through its conventional forms. Then, as perspective is reconsidered with how it produces its own aberrations such as anamorphosis and trompe l'oeil, this section of the study aims to cover the faculty spaces in an unconventional way. After covering and bringing attention to the conventional the faculty's perspective constructions, this study aims to demonstrate how architectural space is reproduced using the final projects of the course and their unconventional techniques of the representation of architectural space, following their eccentric perspective. The creator of the project is the primary subject, like the creative architect

conscious of the perspective construction, while the occupant of the reproduced space interacts with the interior spaces in which the exhibition is held is the secondary subject and who attempts to intersect with the dictated view of the image created by the primary subject. Another point is that the reproduction of space, which is achieved by installing images of architecture into the faculty spaces, also bears concerns of artistic production with architectural implications. Yet:

> **A viewing subject who not only acknowledges the oblique and contingent nature of her point of view, but who also realizes that the full appreciation of aesthetic objects stems not from 'oblivion' (that is literally a 'forgetting') but from playing an active role in the creation of the aesthetic object."[189]**

As stated in the introduction, the course and its final products aim to conceptualize and use the modes of architectural representation not only as tools of communication but also aesthetic artifacts in their own right.

Case 1: Anamorphosis 1

The first case has been chosen from the exhibition archive, from the year 2009. The technique of this case includes installing an image on to the constructive elements of the space.

The installation was set up on the gallery floor onto which the classrooms and the inner courtyard open. This gallery floor is framed on two sides by classrooms' concrete walls and wooden doors and the inner courtyard glazing. The rectangular inner space is defined by repeating concrete columns on two sides and by a staircase and a sheer wall on the other sides. The space that this case aimed to reproduce is one of the perspectiv-ated spaces introduced by this study in the previous subtitle. The installation was applied to the perspectiv-ated space (Fig. 47 Subject Position Number 1), and the space's integrity was defined by repeating structural elements such as the concrete columns and a row of light fittings suspended from the ceiling. Alternative to the subject position that the perspectiv-ated space suggests, this case's subject position was tilted, leaving the "precise vanishing point" of the perspectiv-ated space constant. (Fig. 54)

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[189] Daniel L. Collins, "Anamorphosis and the Eccentric Observer: Inverted Perspective and Construction of the Gaze," <u>Leonardo,</u> Cambridge: MIT Press, vol. 25, no. 1, 1992: 74

Figure 54 Tilting the subject position and showing the precise vanishing point
Photomontage by the author, photographs taken by the author

Considering the image of the alternative perspective (Fig. 55), other than the structural elements that reinforce the conceptions of homogeneous and rational space, there are constructive elements such as the horizontal wooden strips on the wall and black balustrades encircling the gallery void that strengthen the linear effect and emphasize the vanishing point. From the new subject position, the primary subject superimposes images onto the surfaces of the repeating concrete columns. The images are faithful photographic reproductions of the view behind the columns, which are invisible from the existent viewpoint of the perspective construction (Fig. 55). Whenever a creative subject juxtaposes the partial perspective view of the wall behind, as if it were not visually interrupted by the columns, the image's vanishing point also converges towards the precise one. The moment the secondary subject, which was previously called the eccentric observer, finds the correct standing point, the columns become cut off and it is possible for the eccentric observer to see what is behind them from Alberti's fictionally constructed window with the repetitive wooden strips, balustrades and classroom doors. (Fig. 56)

Figure 55 Before. Photograph from the designated viewpoint of the set up taken by the author

Figure 56 After. Photograph from course ARCH524 final exhibition, Spring 2009
Installation: Aslıhan Günhan-Caner Öktem. From the personal archive of Prof. Dr. Ayşen Savaş

Case 2: Anamorphosis 2

The second case is selected from the 2007 final exhibition. It constructed an anamorphic image using distorted lines, applied again onto the constructive elements of the faculty space.

The project was located on the basement floor and encompassed a void space defined by repeating concrete rectangular columns and beams and the concrete walls of the classrooms on two sides. The void space ends with stairs on one side with a grid wall and frame constituted by two columns and a beam that links the two elements. The columns continue in the void and visually connect the ground floor with the basement. The faculty space, which this second case of anamorphosis aims to reproduce, coincides with the previously introduced perspectiv-ated space (Fig. 49 Subject Position Number 3) that was designated by the third subject position. (Fig. 44) This perspectiv-ated space again delineates its homogeneity with colonnades and beams on two sides and can be considered axial and more similar to Brunelleschi's abstracted scheme of proportionally diminishing columns in the homogeneous spaces of his churches. The rhythmic beams of faculty's perspectiv-ated space can also be compared with his arches. The precise vanishing point is oriented on the brick walls of the basement floor and the vanishing point highlights the staircase where the installation was done. The frame positioned on one side of the gallery void actually frames and focuses both the vanishing point and the stairs. The installation was also applied within this frame, but unlike the previous case, this time the creative subject does not tilt the subject position of the perspectiv-ated space. Rather the primary subject moves forward on the axis of the perspectiv-ated space, getting closer to the stairs. (Fig. 57)

In the exhibited space, where there is only one staircase on the left-hand side (Fig. 58), the installation called "Re-stair" duplicated the staircase by reproducing an image of it and then installed it onto the perspective construction from the designated viewpoint of the creative subject. The abstract staircase is constructed with white lines representing both the steps and the balustrades. (Fig. 59) If the secondary subject, i.e., the occupant of the space, positions him/herself at the designated standpoint, the three-dimensional staircase becomes visible.
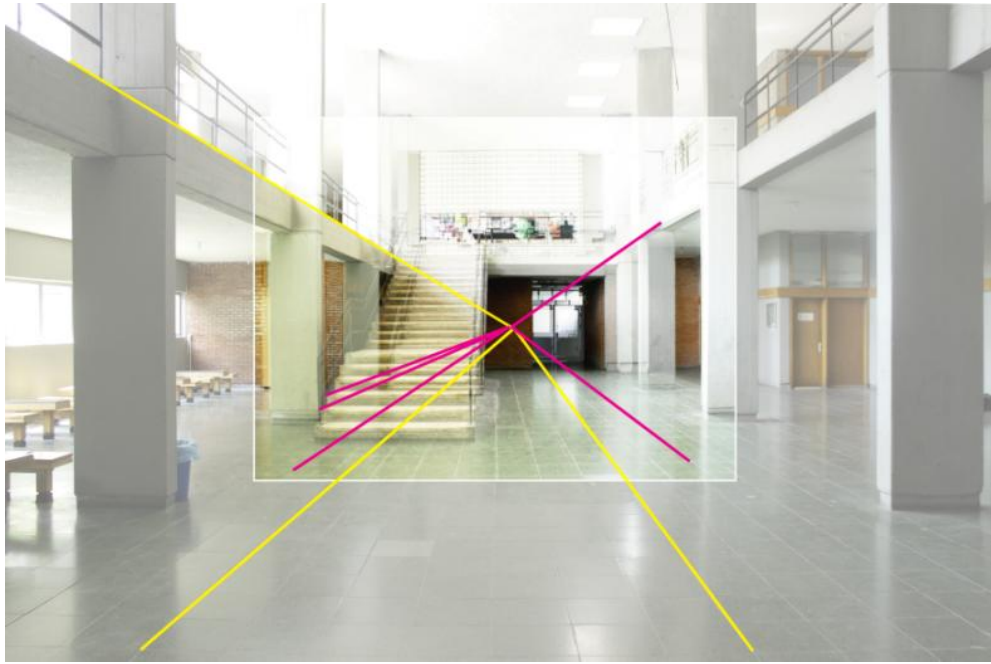
Figure 57 Changing subject position on the same axis of the perspective construction and showing the precise vanishing point
Photomontage by the author, photographs taken by the author

The image of the staircase is anamorphic because the moment that the subject position designated by the primary subject is off axis, the perspective construction of the staircase collapses and the white lines that converge towards the vanishing point and construct the staircase dissolve. The lines lose their three-dimensional integrity and break into flat surfaces. Indeed, the lines revert to mere two-dimensional stripes on the walls, columns, doors and floor. (Fig. 60) This moment of dissolution is the moment that the anamorphic perspective reveals its rules and the secondary observer discovers them.

Leaving its structural and constructive elements the same, perspectiv-ated space is reproduced by the duplication of one element – the staircase. Since it is possible to suggest a symmetrical composition in the perspective-ted space referring to the notions of homogeneous space, all the elements fit the definition except from the single handrail staircase. Once the second staircase is constructed, mirroring the existing one, the space is reproduced by putting more emphasis on its homogeneity, emphasizing the precise vanishing point even more.

Figure 58 Before. Photograph from the designated viewpoint of the set up, taken by the author.

Figure 59 After "Re-stair." Photograph from ARCH524 final exhibition, Spring 2007
From the personal achieve of Prof. Dr. Ayşen Savaş

Figure 60 "Re-stair." Revealing the anamorphic perspective construction, Arch524 final exhibition, Spring 2007. From the personal achieve of Prof. Dr. Ayşen Savaş

Case 3: Anamorphosis 3

The third case is selected from the final works of the 2005 course. In this model, similar to the first anamorphosis case, an image is applied onto the structural elements of the space. The difference here is that the image has an artistic value rather than an architectural implication. The architectural space and its perspectival value are demonstrated using an artistic image.

The space for the installation encompasses a wider area in which the subject positions him/herself at the rear of the perspectiv-ated space's central axis (Fig. 47 Subject Position Number 1). Moreover, another perspectiv-ated space (Fig. 48, Subject Position Number 2) is also articulated with the first one. Thus, the depth of the field of vision becomes deeper as the longitudinal distance increases, accenting the precise vanishing point. Spatial notions important in this case are first and foremost depth and rhythm, which are maintained by the repeating concrete columns once more.

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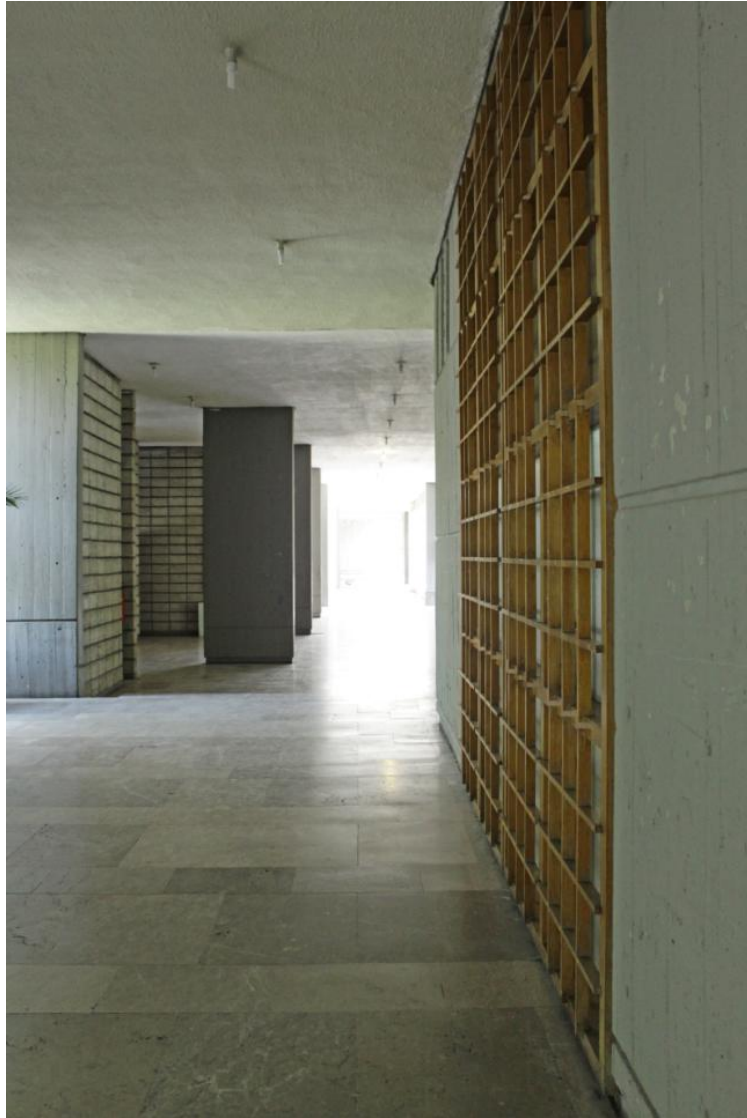
Figure 61 Before. Photograph from the designated viewpoint of the set up taken by the author

Their arrangement in this perspective construction differs from the others because from this viewpoint they appear assembled together. This makes it impossible to recognize their three dimensionality, since the columns appear orthogonally rendering their width invisible. The columns appear flat or as flat surfaces layered on top of each other. The scale of the layer's surface areas reduces towards the vanishing point. (Fig.61) Contrary to the emphasis on perspectiv-ated space, in this case it is possible to suggest a different interpretation that turns the depth inside out.
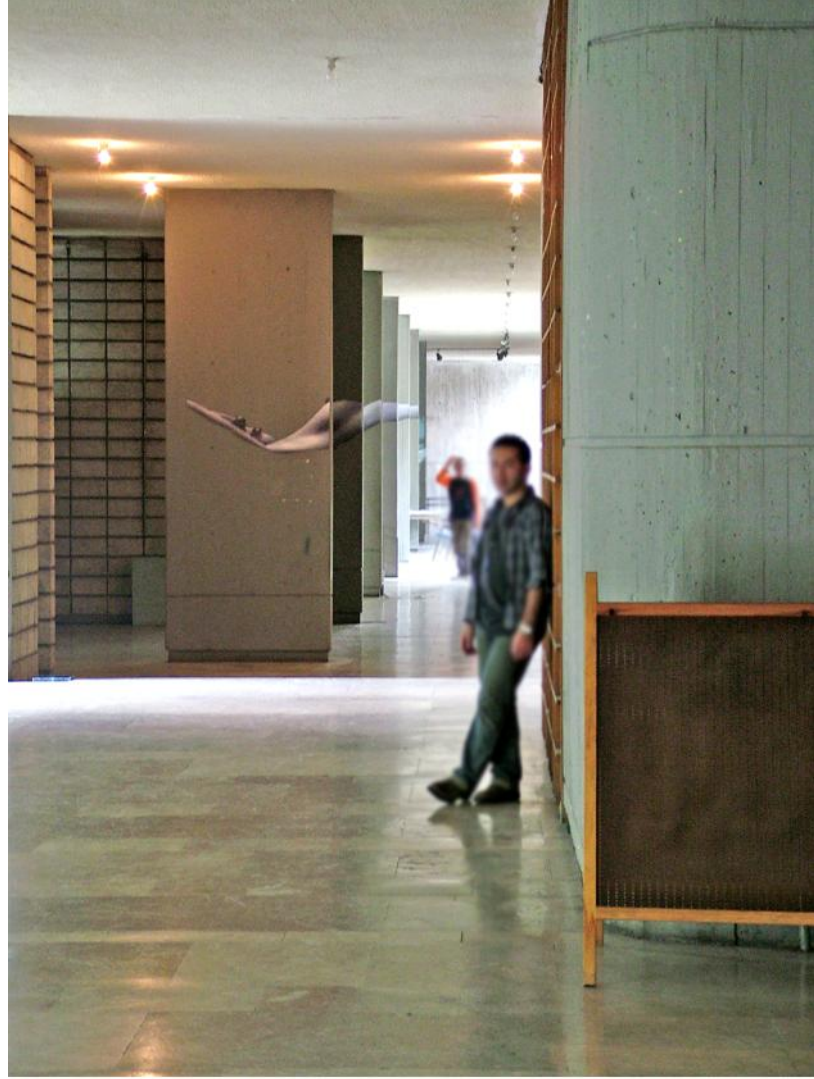
Figure 62 After. Anamorphosis. Photographic images from the ARCH524 final exhibition, Spring 2005 From the personal achieve of Prof. Dr. Ayşen Savaş

Despite the linearity reinforced by the vertical joints of the floor tiles, the row of light fittings and the horizontal constructive elements on the walls on two sides, the perspective view of the columns is abstracted from its perspective construction by superimposing a unified image that is actually split up on each surface when not seen from the designated subject position. Because the image does not proportionally diminish towards the vanishing point but preserves its unity, the columns function as if they were is a flat surface exhibited by perspectiv-ated space. (Fig.62) The architectural space is reproduced in a way that its structural implication is altered and at the moment the eccentric observer's viewpoint becomes the viewpoint of the primary subject the anamorphic image becomes unified and visible. In the previous case, "Re-stair," the anamorphic image was two-dimensional but turned out to be three dimensional, whereas in this case the image transforms three-dimensional space into two-dimensional space.

Case 4: Anamorphosis Trompe L'oeil 4

The fourth anamorphosis is a piece in the 2007 exhibition. The set up is again realized with the participation of the subject standing in front of an installed image. The image is not anamorphic but the anamorphosis is established again with eccentric perspective by an eccentric observer.

The selected space is on the basement floor, in a hall onto which the faculty design studios open and the stairs from the upper floor ends. In the entire faculty, as indicated before, the common spaces that allow access to the studios are defined by the grid ceiling made concrete waffle slab. This space assigned to the installation coincides with one of the perspectiv-ated spaces of the faculty. (Fig. 52, Subject Position Number 6). The primary subject who designed the set up changed the designated subject position of the perspectiv-ated space. It was tilted away from the stairs, as the viewpoint confronts and focuses on the edge of the concrete wall. (Fig. 64) A painted perspective image on a canvas was installed into this new oblique view of the perspective construction, which made the edge of the wall central. The painting depicts a girl sat on the floor resting against the concrete wall, as well as the wooden door of the design studio and the green floor tiles. (Fig.65) As the secondary subject occupies the space and intersects with the primary subject's alternative subject position, the perspective construction of the

painting and the perspectiv-ated space overlap. All of a sudden, the vertical joints of the floor tiles of both *perspectiva artificialis* and the real perspectiv-ated space retreat to the vanishing point, together with the lines from the waffle slab and the steps of the staircase. The painting establishes a transition of focus from the edge of the wall to the vanishing point. Specifically, this case could be reread as a reinterpretation of Brunelleschi's demonstration. Similar to Brunelleschi's panel, which was an image of a building by *costruzione legittima,* and Alberti's window on which he picked a point and organized his pictorial space with the correct perspective, the installation depicted the pictorial representation of the space it is exhibited in. As Brunelleschi juxtaposes the real scenery of the space perceived and represented by positioning himself in the correct position and leaving the correct distances, likewise the eccentric observer makes the juxtaposition possible, and visually accessible, by replacing the position of the creative subject. (Fig. 63)
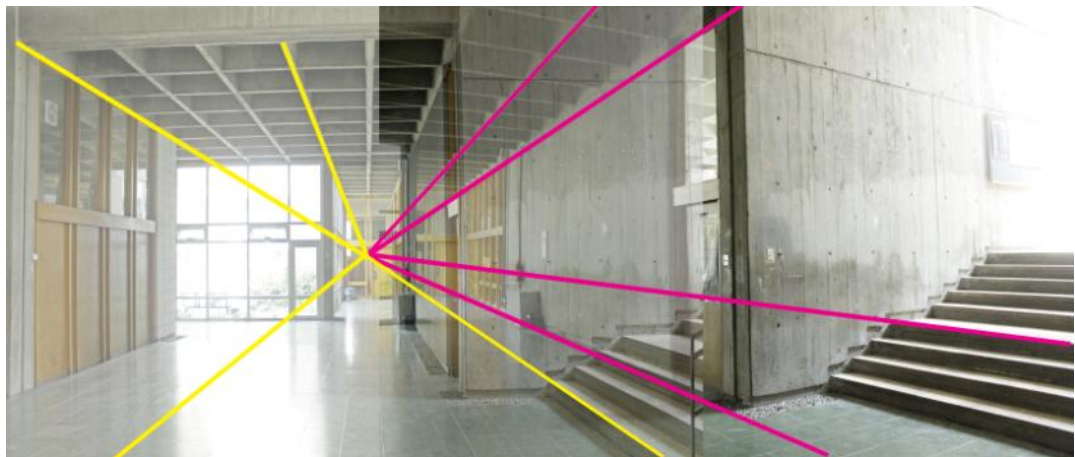

Figure 63 Tilting the subject position and showing the precise vanishing point
Photomontage of photographs taken by the author

Figure 64 Before. Photograph from the designated "viewpoint" of the set up taken by the author

Figure 65 After. "Overlapping Perspective I." Photographs from the ARCH524 final exhibition, Spring 2007. From the personal achieve of Prof. Dr. Ayşen Savaş

Case 5: Trompe L'oeil 1

This work is selected from the final exhibition in 2005. Including this and the following cases, the context and the method of the works appear to be changing. The space in which the installation was set, unlike the previous cases, does not reproduce one of the perspectiv-ated spaces of the faculty, rather seeks to construct a new perspectiv-ated space and so tries to perspective-ate it, so to speak.

The exhibition space is another gallery void, which provides natural lighting for the common spaces where the design studios meet. The void is cuboid and is defined by the wood-clad square ceiling, which looks cut off from the concrete walls by the horizontal strip windows.

The installation is a two-dimensional square image constituted of grid of black stripes. The grid is not made up of equal squares, instead the scale of the units get smaller from the periphery to the center, until there is a larger square left. This two-dimensional mesh was a sort of a trompe l'oeil that had been arranged with the correct perspective construction, created with *costruzione legittima.* The stripes that formed the image represented the glazing bars in the horizontal windows, therefore they were black. The image was suspended in the void from its four corners with seamless string and fastened at the level where the balustrades of the gallery floor ends. (Fig. 66) It was not applied directly on the flat surface of the ceiling, rather the creative subject positioned him/herself on the floor looking up to the ceiling and determined the correct distance to overlap the square of the image with the square of the ceiling. In this way, the mesh accurately fitted the view of the ceiling framed by the horizontal stripe windows. Identical to Andrea Pozzo's *quadratura* paintings, which transform the flat ceiling into a dome with a great sense of depth, this installation reproduced the ceiling as a truncated pyramid by giving the two-dimensional surface a three-dimensional appearance. (Fig. 67) With the contribution of the installed perspective construction, a not pre-existent vanishing point was inserted into the space. By virtue of the transformation of the limits of the space, the space was reproduced with its architectural notions. The eccentric observer occupied the space by looking up and the entire perspective construction was rearranged relative to the proportional relations and his/her viewpoint that counterpoints the vanishing point of trompe l'oeil.

Figure 66 Before. Installation of the two-dimensional trompe l'oeil image into the gallery void
Installation: Gökhan Kınayoğlu. From the personal achieve of Prof. Dr. Ayşen Savaş
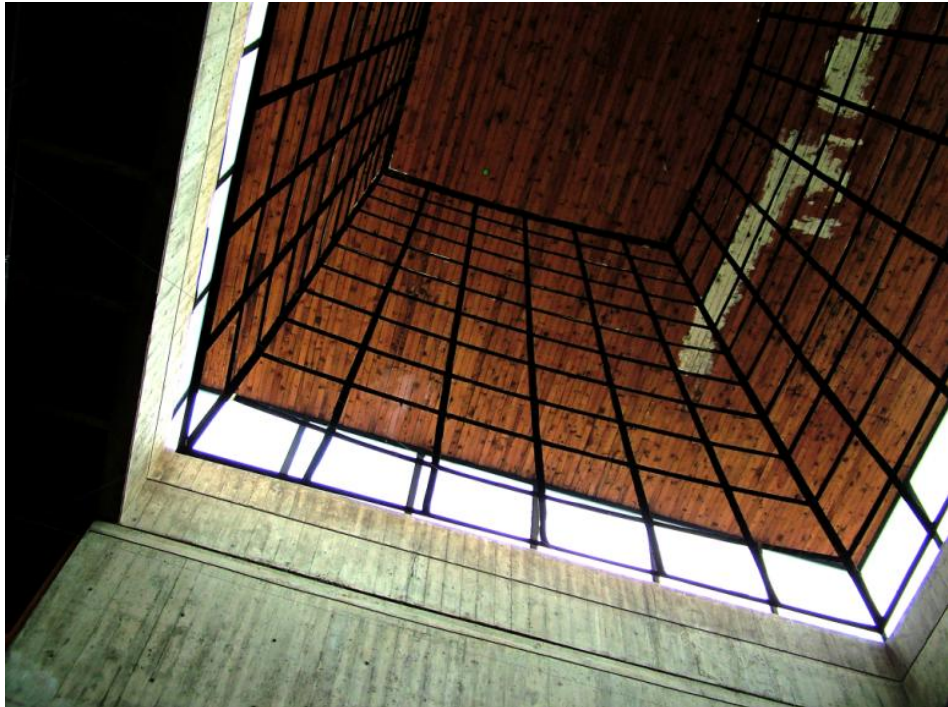

Figure 67 After. "The Cage." Photograph from the ARCH524 final exhibition, Spring 2005
Installation: Gökhan Kınayoğlu. From the personal achieve of Prof. Dr. Ayşen Savaş

Case 6: Trompe L'oeil 2

This last case, which required the subject to stand in front of the image, is chosen from the 2009 exhibition. As mentioned before, like the previous case the objective of this final work was also to produce a new perspectiv-ated space by affixing a perspective image onto the structural elements of the space, which was the "stage" of the installation, and to exceed the limits of the existent space.

The installation was on the basement floor in one of the perspectiv-ated spaces that also accommodated Case 4. However, different than the conditions of Case 4, for which the precise vanishing point of the perspectiv-ated space was central, Case 6 avoids the vanishing point. Rather, the creative subject of the installation preferred to direct the view to the periphery where exist the discontinuous concrete walls of the classrooms. Selected walls build up the boundaries of the perspectiv-ated space defined on one side, two rectangular surfaces with equal surface area positioned on the left and right-hand side of the wooden door that gives entrance to the architectural space behind. (Fig. 68)

Both walls were covered by the two black and white collages, from the floor to the wooden strips at door level. (Fig. 69) The important feature of this case was that the trompe l'oeil "demolishes" the walls onto which they were applied and transformed them into large openings as if they were windows opening onto the rooms behind. In other words, it was then possible with the correct perspective to see what was behind. The creative subject assigned vanishing points for each collage and reconstructed the architectural space by depicting it with faithful photographs relative to *costruzione legittima.* The installations had their correct perspective constructions, but from the correct subject position that the creative subject defined, the created perspectiv-ated space became the extension of the outer existent space. In other words, as could be seen in Fig. 70, the vertical joint lines of the floor tiles exceeded the frame of the trompe l'oeil images and overlapped with the linear edges of the walls. The converging lines of both perspective constructions met at their own vanishing point.

The case succeeds in the reproduction of architectural space, in virtue of altering its limitation. In perspective perception, the two-dimensional wall façades are given a depth and become three-dimensional spaces. These two installed images could certainly be considered as images of architecture. So to say, when the occupant of the space passed by or stood in front of the installation, it was possible for him/her to intend to move into the spaces depicted, as if they were physically constructed. Despite the architectural authenticity of the images, the notions of absurd elements that were montaged by the creative subject banish them from reality. Nevertheless, it fit the actual purpose of the process of reproduction of space, reinterpreting it with an unconventional point of view, creating an eccentric perspective and an eccentric observer.

Figure 68 Photographs taken and photomontage produced by the author

Figure 69 Trompe l'oeil. Photographs from ARCH524 final exhibition, Spring 2009
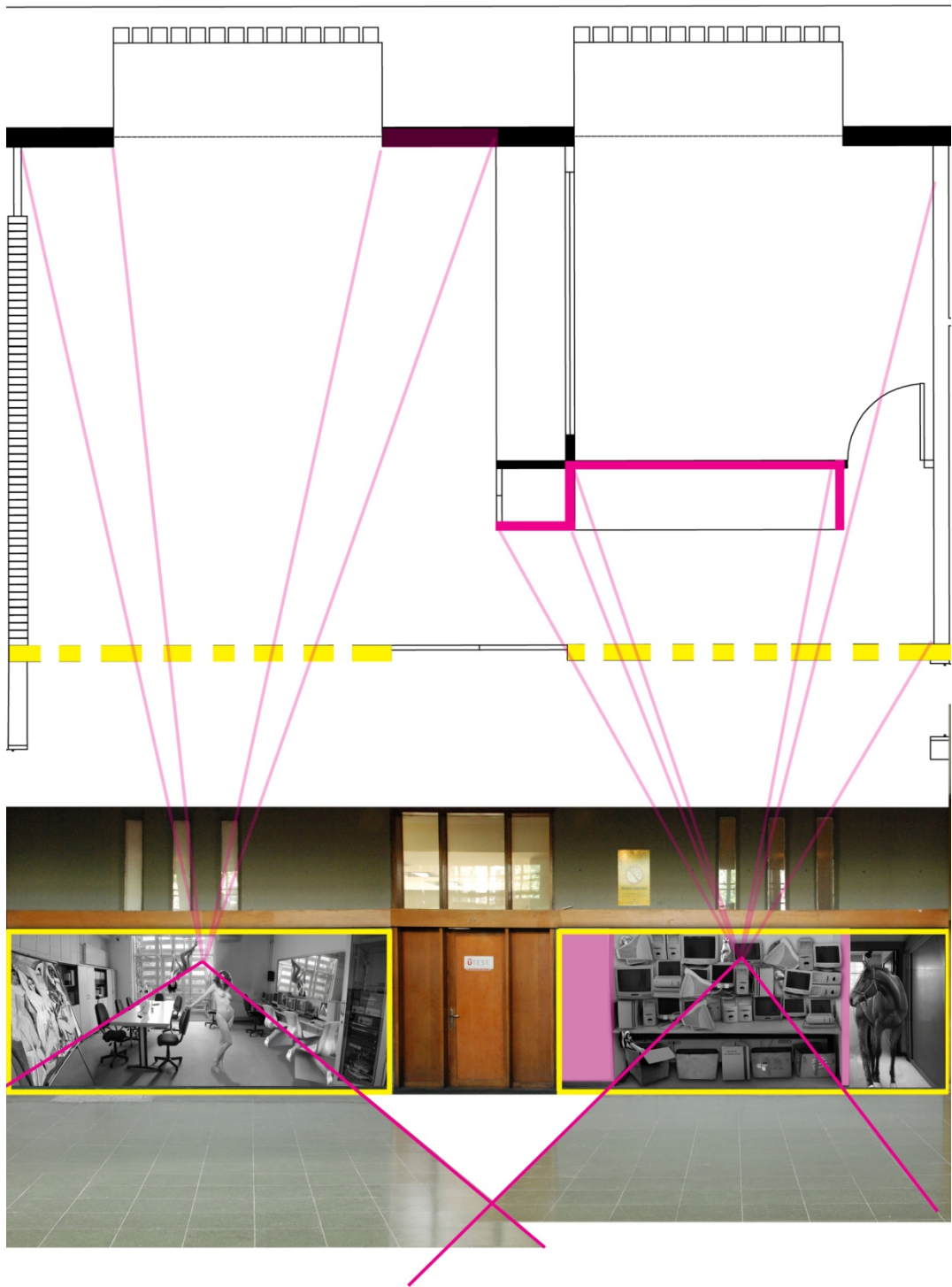Installation: Seray Türkay. From the personal archive of Prof. Dr. Ayşen Savaş

Figure 70 Collages applied onto the walls produced by Seray Türkay from the ARCH524 final exhibition, Spring 2009
Plan scheme and photomontages produced by the author

CHAPTER 5

CONCLUSION

> Desire for space is ambiguous for being space and having it. The mirror goes up and down like a camera shutter flickering between a view and an image of a view, identifying them, overlaying them, alternating them. The viewer is offered space, but given only an image of it; instead of a view; a vanishing point. Space is withheld. We need to occupy the space, move around in it, possess it, perhaps even be it.[190]

This study has investigated the reproduction of architectural space, considered to be realized by the reconsideration of "perspective" as a way of seeing and a mode of representation. In this sense, ARCH 524 has been regarded as a pretext for this thesis. The course initiated the discussion on the reciprocal relationship between architecture and different modes of representation as the course title accommodates it. The course has been directive and influential in generating the content of this thesis, and while structuring the theoretical framework, it has contributed as a bibliographical index which guided this study.

With respect to one of the important objectives of the course, which necessitates the development of different "ways of seeing" for the reinterpretations of architectural space in relation to the "subject", this thesis has constituted its own way of seeing through linear perspective. The method has been constituted in such a way that the conventional situations of perspective have been used to reach to its unconventional

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[190] Lorens Holm. <u>Brunelleschi, Lacan, Le Corbusier. Architecture, space and the construction of subjectivity.</u> Oxon: Routledge, 2010: 140

circumstances. In the third chapter, the linear perspective was reconsidered with a theoretical and practical basis to form the framework of this study.

In order to be able to propose a "new way of seeing", ARCH 524 and its final products have been revisited. Following the traces of the selected cases of the final works from the exhibitions of the course, the thesis has illustrated inherent perspective constructions of the specific interior spaces of METU Faculty of Architecture Building. These are the spaces in which the course exhibits its own creative perspective constructions in order to reconstruct the existing perspectival spaces. In better terms, this study has promoted a situational awareness to achieve a correspondence with the perspectiv-ated spaces of the Renaissance and the spaces of the METU Faculty of Architecture Building. It is suggested that, it is possible to find implications of "precise vanishing points" and "subject positions," which addresses mere "subjectivity" in the production of architectural space. In a similar way, the interior spaces of the faculty building are analyzed from conventional subject positions. Thus, the structure of the fourth chapter shows a parallel approach to that of the third chapter which has introduced conventional techniques of perspective, then its unconventional practices.

Perspective has been argued to be the "mirror stage of architecture". While questioning the interrelation between perspective and architecture, the potentials of perspective to reproduce the architectural space has been the main concern of this study. Therefore this thesis argues that contribution of the perspective view of space is necessary for the production of architectural space and the participation of the subject –which is central to perspective-, is principal for the reproduction of architectural space. Hence the mirror – in both the literal and the metaphorical sense- has a key role in order to conclude this study. It refers either to the picture plane in perspective construction which juxtaposes the architectural space produced by the architect and the representation of architectural space perceived by the viewing subject, or to the mirror of Brunelleschi on which he was confronted with the image of architectural space and his own eye. If Brunelleschi had discovered perspective with the aid of the mirror, then it is possible to argue that the mirror makes visible the perspectival setup: [t]he mirror produces an exact copy, "it is the paradigm and natural model of the projection of a three-dimensional reality onto a

two-dimensional plane"[191]. Moreover, it must be stated that mirror renders visible the invisible subject of the perspective.

Figure 71 Spatial transformation in the women's lavatory at the exhibition, 2009
From the personal archives of Prof. Dr. Ayşen Savaş

The installed images of ARCH524 that were presented in the previous chapter are regarded as metaphoric mirrors that give the consciousness of his/her participation for the subject. As could be observed in the figure above (Fig.71) which recalls the work of Pistoletto presented in the introduction, the mirror is used in order to create another consciousness of the architectural space, including the viewer/the subject as the participant in the construction of a captured perspective image of the space in the mirror. The subject becomes an active observer, as the occupants are offered different "models" with different visual relations (conventional or eccentric); they need to locate

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[191] Holm, Lorens. "Brunelleschi, Lacan, Le Corbusier: Architecture: The invention of Perspective and the Post-Freudian Eye/I", <u>Assemblage,</u> no.18 August 1992, pp.22

themselves in the single, correct position in order to justify the construction of the creative subject.

At the very moment of the viewers' correct positioning, the perspective of the real space is exhibited, the illusion of the imaginary space is revealed, thus the occupant arrives in the consciousness of him/herself as the indivisible subject, to reproduce the architectural space.

To conclude, it is necessary to go back to John Berger affirmation that "[t]he relation between what we see and what we know is never settled."[192] With this thesis, perspective has been reconsidered and exhibited; carved out from its historical context with the aid of a Foucauldian approach to display and make visible –physically and metaphorically- in a new context, trying to "settle" the way we see in relation to what we "know."

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[192] John Berger. <u>Ways of Seeing,</u> London: British Broadcasting Corporation and Penguin Books, 1990.

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Spring, 2009

ARCH 524 Architecture and Different Modes of Representation

Inst. Assoc.Prof.Dr. Ayşen Savaş

Spring 2009

Week I .

xxö*Introduction* I Visual Culture

-Jonathan Crary. Techniques of the Observer. On Vision and Modernity in the Nineteenth Century, (first edition was published in 1990) Cambridge MA: the MIT Press, 1991.

Week II . *Introduction* II Visuality

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Week III . Vision and Visuality

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-Rosalind E. Krauss. "The Originality of the Avant-Garde and Other Modernist Myths," Cambridge MA: the MIT Press, 1985.

Week IV. Art History

-Heinrich Wölfflin. "Principles of Art History," The Art of Art History: A Critical Anthology, Oxford: Oxford University Press, 1998, pp. 115-126.

-E.H. (Ernst Hans Josef) Gombrich. "Norm and Form: The Stylistic Categories of Art History and Their Origins in Renaissance Ideals," <u>Norm and From: Studies in the Art of the Renaissance I</u>, Chicago: University of Chicago Press, 1966, pp.81-98.

Week V.   On Vision

-Jonathan Crary. "Modernizing Vision," in <u>Vision and Visuality</u>. Hal Foster eds. Dia Art Foundations Discussions in Contemporary Culture no.2, Seattle: Bay Press, 1988.pp. 29-49.

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Week VI. On Architectural Representation

-James Ackerman. "Architectural Practice in the Italian Renaissance, "<u>Journal of the Society of Architectural Historians</u>, no. 13, October 1954, pp. 3-11.

-Mark Hewitt. "Representational Forms and Modes of Conception. An Approach to the History of Architectural Drawing," <u>JAE.</u> Winter 1985, pp.2-9.

-James Smith Pierce. "Architectural Drawing and the Intent of the Architect," <u>Art Journal</u>, vol. 27, Fall 1967, pp. 48-59.

Week VII. On Perspective

-Fred Dubery and John Willats. <u>Perspective and Other Drawing Systems</u>, London: Van Nostrand Reinhold Company, 1983 (first published in 1972).

-Hubert Damisch. <u>The Origin of Perspective</u>, trans. by John Goodman, Cambridge MA: The MIT Press, 1994 (first published in French, 1987).

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Week VIII. On Perspective

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-Catherine Ingraham. "The Faults of Architecture: Troping the Proper," <u>Assemblage,</u> no.7, October, 1988, pp. 6-13.

Week IX. Perspective vs Axonometry
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Week X. On Optical Illusions and Camera Obscura
-Diana I Agrest. "Architecture of Mirror/ Mirror of Architecture<u>," Architecture From Without. Theoretical Framings for a Critical Practice</u>, Cambridge MA: The MIT Press, 1993 (first published in 1991).
-Jonathan Crary. "The Camera Obscura and Its Subject," <u>Techniques of the Observer. On Vision and Modernity in the Nineteenth Century</u>, Cambridge MA: the MIT Pres, 1991 (first edition was published in 1990), pp. 25-60.
-Daniel A. Fink. "Vermeer's Use of the Camera Obscura: a Comparative Study," <u>Art Bulletin,</u> vol. 53, no. 4 December 1971, pp. 493-505.
-Charles Seymour, Jr. "Dark Chamber and Light-Filled room: Vermeer and the Camera Obscura," <u>Art Bulletin</u> vol.46, no. 3, September, 1964, pp. 323-331.
-Arthur K. Wheelock, Jr. <u>Vermeer and the Art of Painting</u>, London: Yale Univ. Press, 1995.
-A.Hyatt Major. "The Photographic Eye," <u>Metropolitan Museum of Art Bulletin,</u> vol.5, no.1, Summer 1946, pp. 15-26.
-Heinrich Schwarz. "Vermeer and the Camera Obscura," <u>Pantheon</u> vol.24, May-June 1966, pp. 170-180.
-John J. Hammond. <u>The Camera Obscura: A chronicle</u>, Bristol, 1981.
-Aaron Scharf. <u>Art and Photography</u>, New York: Harmodsworh, 1974.
-Arthur K. Wheelock. "Constantijn Huygens and Early Attitudes Towards the Camera Obscura," <u>History of Photography</u>, vol. 1, no. 2, April 1977, pp. 93-101.
-Joel Snyder. "Picturing Vision," <u>Critical Inquiry</u> vol. 6, Spring 1980, pp. 499-526.
-Colin Murray Turbayne. <u>The Myth of Metaphor</u>, New Haven, 1962, pp. 154-158 and 203-208.

Week XI. On Section
-Jennifer Bloomer. "Vertext and Vortex: a Tectonics of Section," <u>Perspecta</u> 23, 1987. Pp. 38-53.

-Jacques Guillerme and Helene Verin. "The Archeology of Section," <u>Perspecta</u> 25, 1989, pp. 226-255.

-Gordona Koralija Fontana Giusti. "The Cutting Surface: On Perspective as a Section, Its Relationship to Writing and Its role in Understanding Space," <u>AA Files</u>, Winter 1999, vol. 40, pp. 56-64.

Week XI. "The Artificial Eye"

Stereoscope, Camera Obscura, Diaroma, Peep-show box, Ames Room, Catoptrics boxes, Trompe-l'oeil, afterimages, Ponzo Illusion, Animation, anamorphosis.

Spring, 2011

ARCH 524 Architecture and Different Modes of Representation

READER: Spring 2011- "Point, Line, and Surface"

Week I . *Introduction* I Visual Culture
- Crary, Jonathan. "Modernity and the Problem of the Observer, " <u>Techniques of the Observer. On Vision and Modernity in the Nineteenth Century</u>, (first edition was published in 1990) Cambridge MA: the MIT Press, 1991 pp. 1-25
-Phillips, David. "Modern Vision," <u>The Oxford Art Journal</u>, vol. 16, no.1 1993.

Week II . *Introduction* II Visuality
-Berger, John. <u>Ways of Seeing,</u> London: British Broadcasting Corporation and Penguin Books, 1990.

Week III . Vision and Visuality
-Foucault, Michel. <u>The Order of Things</u>, New York: Pantheon, 197-
-Alpers, Svetlana, "Interpretation without Representation, or, the Viewing of Las Meninas," <u>Representations</u>, no.1 February 1983, pp.30-42.

Week IV. Vision
-Rabinow, Paul. "Seeing and Knowing," <u>The Foucault Reader</u>, Pantheon Book, New York, 1984, pp. 107-122
-Savaş, Ayşen. "Mimarlık ve O'nun İmgesi, Temsil ve Mimarinin Özerkliği Üzerine Notlar III," <u>Tol Mimarlık Kültürü Dergisi</u>, 2004.

Week V. Architectural Drawings I
-Pierce, James Smith. "Architectural Drawings and the Intent of the Architect" <u>Art Journal</u>, vol. 27, no. 1, (Autumn, 1967), pp. 48-59
http://www.jstor.org/stable/775191
-Alberto Perez-Gomez. "Architecture as Drawing", <u>JAE</u>, vol. 36, no. 2. (Winter, 1982), pp. 2-7.
-Hewitt, Mark. "Representational Forms and Modes of Conception. An Approach to the History of Architectural Drawing," <u>JAE.</u> Winter 1985, pp.2-9

Week VI. Architectural Drawings II
-Evans, Robin. "Architectural Projection" <u>Architecture and Its Image. Four Centuries of Architectural Representation</u>, Montreal: CCA, 1989, pp.19-33
-------------------. <u>Translations from Drawing to Building</u>, Cambridge MA.: The MIT Press, 1997.

Week VII. Visual Representation III
- Hewitt, Mark. "Representational Forms and Modes of Conception: An Approach to the History of Architectural Drawing" <u>Journal of Architectural Education</u>, vol. 39, no. 2 (Winter, 1985), pp. 2-9
http://www.jstor.org/stable/1424961

-W. J. T. Mitchell. "Picture Theory: Essays on Verbal and Visual Representation", Chicago: University of Chicago Press, 1994.

Week VIII. Discourse-Representation
-Golden, Leon. "Plato's Concept of Mimesis" The British Journal of Aesthetics. vol.15, Spring 1975, pp.118-131
-Agrest, Diana. " Framework For A Discourse on Representation" Architecture From Without : Theoretical Framings For A Critical Practice, MIT Press, 1991, pp.157-169
-Owens, Craig. "Representation, Appropriation & Power," Issues & Commentary, May, 1982, pp.9-21
-Le Corbusier, "Architecture and the Arts"

Week IX. On Perspective I
-Evans, Robin. "When the Vanishing-Point Disappears" AA Files 23, pp.3-16
-Panofsky, Erwin. Perspective as Symbolic Form, Zone Books, New York, 1991.

Week X. On Perspective II
-Merleau-Ponty, Maurice. "The Sensible World and the World of Expression," In Praise of Philosophy, NW University Press, 1977, pp. 72-79
-Damisch, Hubert. The Origin of Perspective, trans. by John Goodman, Cambridge MA: The MIT Press, 1994 (first published in French, 1987).
-Tsuji, Shigeru. "Brunelleschi and the Camera Obscura: The Discovery of Pictorial Perspective," Art History, vol. 13, no. 3, September, 1990,
pp. 276-290

Week XI. The Ortographic Set
-Martienssen, Heather. "Aesthetic of the Plan," The British Journal of Aesthetics, vol. 14, no. 4, Autumn 1974
-Wright, Frank Lloyd. "In the Cause of Architecture" The Architectural Record,

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Week XII. Student Presentations
-Agrest, Diana. "Representation as Articulation Between Theory and Practice," Practice: Architecture, Technique and Representation, (written by Stan Allen, Commentaries by Diana Agrest) Routledge, London, 2003, (originally published in 2003) pp. 163-177.

Week XIII. Student Presentations
-Krauss, Rosalind E.. "The Originality of the Avant-Garde and Other Modernist Myths," Cambridge MA: the MIT Press, 1985. Pp.150-170
-Douglas, Charlotte. "Beyond Reason: Malevich, Matiushin and Their Circles,"
- Bois, Yve-Alain. "Mondrian and the Theory of Architecture"

Week XIV. Exhibition
-Stan Allen, Points+Lines: Diagrams and Projects for the City, (New York: Princeton A.P., 1999).