

ISSA Proceedings 2014 - Fine Arts As Visual Argument: Optical Argument In Discourse, Technology And Paintings*

Abstract: This essay performatively critiques seventeenth-century Dutch visual culture to offer an alternative way of understanding visual argument. The formation of optical discourse is rhetorically analyzed, and a focus is given to how the relationships among paintings, knowledge and technology are rhetorically subverted, transformed and maintained along with a pre-text of optical controversy. As visibility is historically and culturally constituted, its constitution is practiced in and by argumentative discourse of optics and technology.

Keywords: camera obscura, controversy, excess, extramission theory, iconophobia, intromission theory, Johannes Kepler, optics, retinal image, seventeenth-century Dutch visual culture.

1. *Introduction*

Recent scholarship on visual argument in the field of argumentation theory has produced some fruitful areas to explore in order to re-conceptualize the relationship between verbal texts and visual images. George Roque's argument offers a promising starting point. Roque (2010) argues that it is time for visual argumentation to self-reflect this emerging field and to start conferring a thorough definition, after having grounded a legitimacy of its scholarship by collective demonstrations of numerous cases for visual arguments ever since its incipient recognition of the field. Specifically, he points out the disciplinary problem in which the visual is singled out as a means of communication to display the contents of argument, and accordingly, in which visual aspects become considered neutral and transparent, and hence subservient to the verbal (Roque, 2010, p.1723).

The points he raised - revealing a political bias of the epistemological ground for communication technology and its praxis - show the ideological problem of current scholarship. **[i]** Indeed, the unconscious hierarchy putting the verbal over

the visual underpins the iconophobic attitudes embedded in the tradition of argumentation - that which Roque (2009) identifies as "linguistic imperialism," having borrowed the term from W. J. T. Mitchell's *Iconology*.

Following Roque's critical spirit with the proposition against this disciplinary problem - and deconstructing the field of visual argument - this essay addresses the visuality of visual argumentation, and the possibility of how to locate this visuality in the history of argument. This essay argues for an argumentative history of visual images that accounts for images in history as well as images as history. Drawing from the case of seventeenth century visual culture, this approach is different in that it seeks to demonstrate how the historian of argumentation might possibly engage the visual by examining its background in scientific controversies over optics and its technology.**[ii]**

2. Cultural approach to the study of visual argument

This essay approaches visual argument by extending one of the three theoretical orientations of the field classified by Bruce Gronbeck (2007). Gronbeck observes that the three theoretical orientations in current scholarship on visual argumentation approaches the visual as:

1. evidence in arguments to give us lively experience through its information gathered in our sights;
2. cultural assumptions that enthymematically justify epistemological claim of propositional contents in an inferential process; and
3. self-contained semiotic systems that operationally code signifying activity of representations within a broader realm of culture. This essay extends the third orientation of the visual, as an independent code in a semiotic system of cultural formations.**[iii]** Along with the critical approach by W. J. T. Mitchell's iconology, it offers another way of understanding visual argument when focusing on the visuality of a particular historical period.**[iv]**

As foci of this approach, the formation of discourse becomes one location of the visual. Gronbeck maintains that "visual culture inevitably reflects the dynamics of power," and is "contextualized in on-going controversies" as a way of seeing public life (Gronbeck, 2007, p.294). The relationship between verbal (argumentative) discourse and visual material is historically established as a cultural, and thus unconscious, semiotic association comprehended in a particular space and time. The discourse becomes a context, or vice versa, of the visual

through which its cultural meaning becomes recognized.

Yet, analysis of this controversy offers more than a simple verbal exchange of propositional arguments as a context of visual material. An analysis of controversy does not offer a state of mixture between verbal text and visual images, simply blurring the line between the different categories. Rather, following Mitchell's critique of iconophobia and linguistic imperialism, I intend to trace "what is at stake in the incorporation of one medium by another, [and] what values are being served by transgressions or observances of text-image boundaries" (Mitchell, 1986, p.156). A controversy does not linearly proceed by interchangeably replacing text to images or vice versa, and it shows a subtle process of transgression. The relationship of representations among paintings, knowledge and technology change along with controversies between different theories of vision. In the process of argument, the relationships are rhetorically subverted, transformed, maintained and re-delineated for the sake of visibility. The line between text and images is transgressed so that "visualization evoke whole arguments" (Gronbeck, 2007, p.294) as a site of struggle to determine what is true to be seen. For an extension of the semiotic understanding of the visual argument, this essay focuses on the cultural constitution of the visual as a historical and cultural epistemology of vision.

This essay applies such a notion of iconology to transform the relationship to be established as association in a specific cultural space that includes fine arts. Analyses on visual argument in the fine arts are limited. **[v]** I argue that the visibility of fine arts is not (and certainly should not be) taken for granted as ocular visibility innate to human physiology. Visibility is historically and culturally constituted, and I believe such constitution is conducted through argumentative discourse of optics and its technology. Visibility of a particular picture, then, could be changed in accordance with different sorts of discourse constituting how to see the world.

3. The visibility of the seventeenth century

Visibility in the seventeenth century is historically overdetermined by multiple layers of cultural representations. Here, the following three aspects of cultural representations are analyzed.

3.1 Controversy about the state of lights in the optics

Ideas about vision have been historically a controversial subject of critique among

Western theorists and philosophers as well as scientists ever since the classical Greek period. The controversy, the argumentative exchange of ideas among theorists, about the model of vision, happens around a long traditional conflict over two different modes of theory before the seventeenth century. The space of this paper, however, is limited and cannot exhaustively trace the changes in visual theory since the Greek period; rather, I would like to briefly summarize the history of the controversy, arguments and issues in two different theoretical positions. **[vi]**

The history of visual theory has witnessed frequent clashes between so called “extramission theory” and “intromission theory.” In extramission theory (or emission theory), vision depends on light that streams out of the eye and by means of the beam from the eyes, detects surrounding objects. This idea originally came from pre-Socratic Alcmaeon of Croton (ca. 450 BCE), who is said to be the first to advocate the brain as the seat of sensation and cognition and to dissect parts of the visual system. He observed fire flashing in his eye as visual gleaming, presumably when he bumped his head. This idea of vision, “fire in the eye” was extended by Plato. In *Timaeus*, Plato argues that visual fire streams out of the eye and combines with daylight to form a body as an instrument for detecting visual objects:

*Such fire as has the property, not of burning, but of yielding a gentle light, they [the Gods] contrived should become the proper body of each day. For the pure fire within us is akin to this, and they caused it to flow through the eyes. . . . Accordingly, whenever there is daylight round about, the visual current issues forth, like to like, and coalesces with the daylight and is formed into a single homogenous body in a direct line with the eyes, in whatever quarter the stream issuing from within strikes upon any object it encounters outside. So the whole . . . is similarly affected and passes on the motions of anything it comes in contact with . . . throughout the whole body, to the soul, and thus causes the sensation we call seeing. (Plato, *Timaeus*, 45b-d)*

Following Plato, great mathematician, Euclid (ca. 300 BCE), in his *Optika*, developed geometric extramission theory.

Rectilinear rays proceeding from the eye diverge infinitely [and] those things are seen upon which the visual rays fall and those things are not seen upon which the visual rays do not fall . . . (Euclid, 1948, p.257)

Euclid's idea of extramission theory was further extended by Ptolemy (127-148) in combination with Galen's (129-199) work on the anatomy of the eye. Ptolemy argues that the visual rays formed a cone or bundle of lights. The Emission of light created by fire in the eye becomes a tool to search for the object, seen in the form of cone, which suggests the perspectival cone of vision.

On the other hand, intromission theory explains vision as something entering the eye from the object seen. This class of theory forms the basis of the argument among many Greek natural philosophers for vision perceived into the eye. Democritus (ca. 420) and Epicurus (ca. 341-270) are the first intromission theorists, who believed an isomorphic image (or *eidora*) streamed off of objects and entered the eye, where they were sensed. Epicurus puts it in his "Letter to Herodtus",

For particles are continually streaming off from the surface of bodies through no diminution of bodies is observed. . . . And those given off maintain their position and arrangement . . . it is by the entrance of something coming from external objects that we see shapes and think of them. (Epicurus, 1925, 10. 48-49)

A similar view was later also held by atomist poet Lucretius (ca. 60 BCE), who called the images coming from objects *simulacra*.

Aristotle develops a detailed discussion of vision in intromission theory. He rejected the atomist view for the following ground. If objects put out copies of themselves, these would be objects themselves; but this is impossible because the copies would overlap on their way to the eye and two objects cannot be in the same place at the same time. Aristotle also argues against Alcmaeon-Plato's extramission view for its inadequacy:

In general it is unreasonable to suppose that seeing occurs by something issuing from the eye; that the ray of vision reaches as far as the stars, or it goes to a certain point and there coalesces with the object as some [Plato] think. (Aristotle, De Sensu 2, 438a26-438b2)

In so arguing, Aristotle developed a complicated intromission theory. He assumed a transparent medium necessary for vision, something like the modern ether, which could be found in air and water. Light is the state of this transparent medium. According to Aristotle, the eye can sense movement in this medium, which is continuous between the object and the eye, and this movement yields

visual sensation.

The dialectic between these theories of vision originating in the Greek period frames later discussion of vision that emerge in various forms of arguments. After the death of Ptolemy and Galen, scientific inquiry shifted to Islamic centers of learning, first in Baghdad and then Cairo and Cordoba. Many Greek scientific works were translated into Arabic in the eighth century, and their achievements were actively discussed and extended in Islamic science. The nature of vision and light was of great interest for them. Among them, Al-Kindi (d. 866) defended and expanded Euclid's extramission theory. Avicenna (980-1037) assaulted extramission and reconstructed Aristotle's theories of vision. Alhazen was the most prominent figure of synthesizing the two strains in his *Book of Optics (De Aspectibus)*, which indeed dominated physiological optics in Europe for two hundred years until Kepler.

Alhazen's contribution was to introduce a new type of intromission theory incorporating both Euclid's rays and the visual cone of Ptolemy's extramission theory. He argues that while visible objects give off light in every direction, only one ray from a visible object falls on the eye perpendicularly. Only the rays from objects that fall perpendicular to the surface of crystalline humor (our lens) are sensed. The other rays fall obliquely, and are refracted and weakened virtually to ineffectiveness. The sensitive part of the eye like the crystalline humor or lens, following Galen, responds only to the perpendicular rays, and these form a cone with the visual field as the base and the center of the eye as the vertex.

The theoretical scheme of the new intromission theory Alhazen built incorporates the geometric ideas of Euclid and Ptolemy and the anatomico-physiological ideas of Galen. Alhazen's intromission theory of vision combines elements of earlier intromission and extramission theories. His theory became "enormously influential," and the basis of most of the subsequent work in optics in Europe between thirteenth and seventeenth centuries (Lindberg, 1976, p.86). Indeed, Kepler's (1571-1630) theory of the retinal image in the reverse form (1604), which had found modern visual science, was influenced by this Alhazen's idea.

At first glance, Alhazen seems to elucidate the valid visual mechanism. On closer examination, it still holds a crucial problem in his weak explanation of the selective process of refracted light rays. Kepler offers the answer to this problem Alhazen could not resolve.

Even if Alhazen succeeded in synthesizing intromission and extramission theories, there was still a crucial deficiency of discerning lights in his theoretical scheme. Countless rays of lights emitted from the vertex of the visual cone to be presented in front of the eye, it in turn comes in while being refracted into the eye by lens of the eye. In this theory, one must hold a means to discern the appropriate ray of vision from other light rays coming to pass through the center of the lens in a set of visual cone at the vertex. For this purpose, for instance, a hypothesis that power of refracted rays of light is weaker and the eye catches the strongest ray was introduced. However, there is no way, even in this case, that the light from the vertex comes to penetrate into the eye. If vision is established by discerning one light among a myriad of lights emanating from the vertex of the cone in the liquid of vitreous humor right behind the glacial humor or the lens, it is extremely difficult to prove as a true process of human vision. As long as Alhazen is concerned, facing this significant trouble, it is almost impossible to resolve this problem.

It was Kepler who offered a solution to this problem with his knowledge of optics and anatomy of eyes. Kepler's solution was to posit a reverse retinal image to be converged through a lens. By being refracted through the lens, light rays emitted from an object converge at one point in the portion of the retina within the eye. Rays of light, considered by Alhazen as the subject of exclusion in the selection of weaker rays irrelevant to vision, have been allocated to their appropriate role and rescued in the discussion of Kepler. In this way, the retinal image was discovered. Yet, it is rather the image portrayed in the pyramid of vision; it was the inverted image of the left-right reversal. Kepler states when he discusses the establishment of the retinal image that if the picture on the retina were fixed for a moment, then the one who sees it would see a precise miniature of the hemispherical world deployed in front of the eye. He elucidates the mechanism to establish the vision with his optical idea of convergence in a reversed image. At this point, he stops analyzing the manner in which this reversed retinal image forms our natural vision. He then leaves the question to the hands of natural philosophers about how the (natural, not upside down) retinal image of the both eyes is established. This unanswered question about the reversal of retinal image opens a discursive space of modern optics after Descartes and until nineteenth century.

3.2 Camera obscura as visual apparatus for the intromission theory

In seventeenth Dutch paintings, lays of light held a special status as a part of its visual culture. Dutch paintings during the seventeenth century are uniquely characterized by their realistic depiction. Dutch paintings may hold a passive attitude to remain just to be seen, unlike the Italian paintings that come to speak to the audience and ask to be actively read. Unlike major paintings of the Southern Renaissance, Dutch paintings often describe what is seen as real without a narrative. For instance, one of the genres of Dutch paintings established is still life, in which images are so real that things depicted hold its verisimilitude to our eyes by the use of light and color. The real image of things on tableau is so natural to our eyes, with a bright and dark contrast of lights and beautiful colors appealing to our vision. **[vii]**

Lights (and shadows) flowing into the visible space are one of the distinctive traits of the seventeenth century Dutch paintings. **[viii]** Johannes Vermeer is also reputed for his magic with light. Jonathan Crary analyzes two pictures by Vermeer, *The Astronomer* (1668) and *The Geographer* (1668-69) as descriptions of the subjective interior:

Each of the thinkers, in a rapt stillness, ponders that crucial feature of the world, its extension, so mysteriously unlike the unextended immediacy of their own thoughts yet rendered intelligible to mind by the clarity of these representations, by their magnitudinal relations. Rather than opposed by the objects of their study, the earth and the heavens, the geographer and the astronomer engage in a common enterprise of observing aspects of a single indivisible world. Both of them (and it may well be the same man in each painting) are figures for a primal and sovereign inwardness, for the autonomous individual ego that has appropriated to itself the capacity for intellectually mastering the infinite existence of bodies in space. (Crary, 1992, pp.46-47)

Both figures show the inwardness of the individual subject who masters and observes the world. They observe the world in the room, and in the beam of light from the window, scrutinize maps, the miniatures of the world itself to represent. These rooms filled with lights are paradoxically extensions of the world into the inner space, and at the same time outer space that immediacy are evinced in the subjective mind. Light from the outside indicate one strong aspect of visibility in seventeenth century Dutch painting, and its subjective feature suggests the important knowledge to be produced in the context of visibility and the intromission theory.

One important source of this epistemological assumption to establish optical knowledge and vision can be derived from the camera obscura, the most famous visual technology in this period. The possibility that Johannes Vermeer used the camera obscura as a device to draw his paintings has been often pointed out among art historians since the nineteenth century.**[ix]** Aside from whether Vermeer actually used the camera obscura, there is no doubt that it was re-invented in the discourse of intromission theory as an optical apparatus of the seventeenth century. In the camera obscura, like the retinal image of the eyes, an image appears reversed - upside down and right-left - on the interior wall of a darkroom. As an epistemology of vision, this visual technology was a dominant metaphor through which people could comprehend vision in the seventeenth century (Crary, 1992). The important question one must ask, then, is not how painters used these optical devices, but how the images in the camera obscura were understood and received as the paradigmatic knowledge of vision in the cultural space of fine arts. This question probes the constitution of visuality in the seventeenth-century Dutch culture. What constitutes an image in camera obscura leads to the question of how images in paintings are understood against the backdrop of this optical apparatus.**[x]**

It was the fifteenth century when a camera obscura came to be utilized among artists as a device to draw a picture.**[xi]** It is said that Johannes Kepler is the first person to coin the phrase camera obscura in 1604. In 1609, he further suggested the use of a lens to improve the image projected by a camera obscura. The pictorial image in the camera obscura indeed shows a similarity with the retinal image.

Here, Svetlana Alpers' analysis on the seventeenth-century Dutch paintings in terms of visual culture merits our attention for the sake of visual argument. Alpers (1983) demonstrates that the relationship between Kepler and seventeenth-century Dutch paintings should be understood in the background of the emergence of visual culture derived from the new technology of optics. The reception of Kepler confers enormous impact on Dutch visual culture, and it merges with a latest technological development of lens. Kepler, although he lived in Vienna, was actively welcomed by the Dutch *homo fabers* and intellectuals, and became the ideological ground of visuality. His discovery that the retinal image is not a mere optical subject of anatomy and vision; it confers a new way to see the world with a new status of human eyes.

Kepler became an important figure, not merely because he was an optical theorist who resolved the issue of the direction of light, but also because he described the eyes as the most fundamental instrument of observation by an optical mechanism of a lens with focusing properties. He argues for the importance of understanding an instrument to view, which inherently holds distortions or errors. His accounts of distortions in sight come from the retinal image, which is (regarded as) by nature distorted and reversed.

However, according to Alpers, this new vision emerged out of Kepler's performative act of scrutinizing optics. He does not try to prove the epistemological correctness of vision; rather he is interested in deception or artifice of vision, which escapes from the right recognition of the world. This parallels Dutch enthusiasm on technology including lens. There are distortions in the retinal image; this fact was known - and rather than ignoring or eliminating it - Dutch painters recreated the retinal image itself in their pictures.

Vermeer's paintings, according to Alpers, are indeed extractions of an optical lens. She construes that *View of Delft* (1660/61), Vermeer's premier painting, displays a notion of artifice, and "this picture is at the meeting-place of the world seen and the world pictured" (Alpers, 1983, p.35). For instance, white dots seen in tonnage at a barge right side of the screen are similar to the residual distortion of the circular single lens produces. This pictorial painting is a site of struggle between nature and artifice.

Alpers testifies that seventeenth-century Dutch culture was in a unique ambience of "empirical interests of what is commonly referred to as the age of observation" (Alpers, 1983, p.32). In the empirical observation, confidence on technology is highly placed, and strangely enough, when lens are trusted as visual technology, this retinal distortion is also granted as a matter of fact, simply because it is the representation of the observed. We can only see the representational picture in the lens, and the lens prevents our seeing of the object. "Its images and those engendered by it [lens] take their place beside the images of art, which are also, of course, representations. The artifice of the image is embraced along with its immediacy" (Alpers, 1983, pp.32-33). Because the presence of pictorial image in and by lens is observable, it is paradoxically true with such a distortion.

This conclusion is drawn only from the epistemological assumption that "there is no escape from representation" (Alpers, 1983, p.35). This recognition - which

Michel Foucault calls the episteme of the Classical age – is taken for granted as the epistemological condition in a given culture, and hence not a problem of moral view. A picture is a representation; because of its representativeness, its image is not the real object itself, and the presence of image is possible only within the epistemological ground of the vision, which is always distorted on the concave surface of retina. **[xii]**

This epistemological ground of the distorted picture, the nature of representation independent from the human subject, crystallizes a certain series of Dutch paintings in the seventeenth-century. Distinguishing the curvilinear perspective of the Northern Renaissance from linear perspective of the Southern Italian Renaissance, Alpers understands the perspective itself creates the distortions of a pictorial image. In curvilinear perspective, the image appeared on the retina of the eye is itself spherical, while the traditional linear perspective uses straight lines. Therefore, the image gets very strangely distorted at the edges, like a picture taken by a fish eye lens, as is found in Carel Fabritius' *A View of Delft, with a Musical Instrument Vendor's Stall* (1652) and Gerard Houckgeest's *Ambulatory of the New Church in Delft with the Tomb of William the Silent* (1651). Based on the appearance of wide angle or fisheye lenses, the image showed in curved lines is projected into a flat surface of paintings and therefore seems to validate the curviness of visual space. The seventeenth-century argument was that the eye is an internally convex surface, and this must cause the curvature in lines projected onto it.

3.3 *Textual politics of intellectual discourse on the optical controversy*

Kepler's influence to the philosophical discourse was immense. As the powerful metaphor of vision, the camera obscura also offers a concrete explanation of the visuality in philosophical discourse. It is clear that the intromission theory was certainly deployed in extending Kepler, when we see a figure in Descartes' *Dioptric*. In the illustration of his theory of the retinal image, Descartes succeeds Kepler and incorporates the idea of the retinal image where lights coming from the outside converge on the eyeground in crossing through the lens. The retinal image in a reverse form of picture is seen by the person in a dark space behind the retina, whose location is analogically the dark room of the camera obscura, a dark room of its inward separated from the outside filled with lights.

Kepler's discovery of the retinal image was indeed a statement of the intromission theory, and this statement then became a site of struggle to form a discourse of

optics.

Yet, Kepler's influence to a discursive formation of optics is not a simple effect of his reception and succession of his ideas in the scheme of the intromission theory. It rather produced unintended consequences from his discussion of the retinal image or *pictura*. It is easy to understand that the metaphor of camera obscura had become dominated against the backdrop of the victory of the intromission theory over the emission theory, and explained the reverse picture of the back wall by the inflow of light into a darkroom as its mechanism. However, this metaphor with a tacit cultural knowledge of lights on the intromission produces an excess of its own precisely because it backgrounds the controversy as a discursive formation.

Since Kepler's intromission theory was granted legitimacy as a scientific account by anatomy and physiology, the argumentative battle between the theories of intromission and extramission was theoretically and physiologically resolved. But, at the same time, because of this resolution, the emission theory become foreclosed, and produced as an excess of the truth, i.e., intromission theory. The counter position in the controversy taken by the extramission theory then becomes an excess of intromission, and creates a space of agency wherein a new way of thinking about vision can be produced.

The foreclosure indicated by this resolution produces a new discursive formation of vision, and makes a shift of discourse to a space of philosophical (or metaphysical) discussion of vision, while the extramission theory retreats from the academic issues in optics. Catherine Wilson (1999) points out a strange revival of emission theory as a matter of mind that is capable of observation. As she states:

One accomplishment of this [Kepler's] portrayal of perception as a passive rather than an active process is that, in epistemological discourse, an active mind or intellectual faculty takes up many of the metaphors with which vision was formerly dressed. The mind rather than eye is portrayed as a searchlight, a source of illumination, which can be turned and held steadily on material, which is thereby made perspicuous. (Wilson, 1999, p.129)

Scientifically understanding the mechanism of the eyes, philosophers cannot help but posit the subject/mind that emits lights, with a metaphor of searchlight.

Although the structure of eyes, isolated from the body, forecloses the emission theory, that theory constitutes a new discursive formation under the topic of subject and mind.

In reading Descartes' *Rules for the Direction of the Mind*, Wilson specifically points out the paradox that the mind becomes active in contradistinction to the passive eye. As Wilson points out, "if the vision of the eye is passive, that of the mind is active" (Wilson, 1999, p.129). In so saying, Descartes posits the mind as active subject and a source of vision. Wilson subsequently quotes the following Descartes: "The whole method consists entirely in ordering and arranging the objects on which we must concentrate our mind's eye if we are to discover some truth" (Wilson, 1999, p.129). This mind's eye, achieved by philosophical training, holds a faculty to connect one segment of perception to another in a long chain of being, when one sees the link by an intellectual mastery of inference. **[xiii]**

Human eyes eventually become an instrument of the mind as an active subject with a rational frame of geometry. The active subject becomes a source of light emitted through eyes to search for the object within a geometrical matrix of the perspective seen from the top of visual cone. **[xiv]** A gaze of mind, a source of light coming out of eyes, paradoxically holds power to observe with the means of geometric frame set in the eyes. At this stage, the camera obscura took the same structure of preceding the visual model of emission theory in the form of perspective, and at the same time all visual information (or rays of lights) are converged on the retinal image that establishes a visual field projecting a reversed picture. **[xv]** After all, the metaphor of the emission of light as a beam survived in philosophical discourse. **[xvi]**

4. Conclusion

I have analyzed visuality of the seventeenth-century by means of the controversy as a pre-text of argument. In this analysis, I tried to illuminate how the forms of painting argue performatively. The form itself argues in a pre-text of controversy of optics, when the visual merges with text. In the controversy, the relationships among paintings, knowledge and technology are rhetorically subverted, transformed, maintained and delineated. Visuality is constituted in such a controversy, and argumentation theory can contribute to reveal such a process.

NOTES

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i. This problem holds two disadvantages, at least, for our present theorization of visual argumentation. First, it is an ideological problem that makes visual argumentation scholars difficult to understand the nature and functions of the visual itself. The visual is so taken for granted that it is always regarded from the view of verbal structure. Visual arguments are acknowledged only as an imitation of verbal arguments, and may or may not be identified as different phenomena with the same verbal (and propositional) structure. Second, observing the visual as noticeably modern phenomena, one fails to recognize the historicity of visuality that predates modern technology. Even before the modern invention of visual technology, visual materials like pictorial paintings along with the knowledge of optics must have been subjects of inquiry for human vision in the epistemological culture of ocularcentrism or “scopic regime” (Jay, 1991). Over emphasizing the modern innovation of visual technology ignores the historicity of pre-modern vision that were supposed to be constituted by the epistemological arguments and controversy manifesting the epistemological bias toward the visuality at that time.

ii. The problem of current scholarship is ideologically found as the essentialism of argumentation over and against visual argument. This essentialism easily manifests when visual argument is defined as a product—a proper noun, if you will—that names a category of argumentative discourse that relies on something other than words or text for the construction of its meaning. Many works that call “visual argument” collapse the idea of “visual” into “image,” framing visual argument as a genre category. Subsequently, visual argument is always destined to be visual argument, while verbal argument, often with a propositional message by verbal texts, gets to be just argument. This shows the unconscious hierarchy between the verbal and the visual that discourages an analysis of the visual all along, privileging texts over the visual. In this iconophobic dominance of the text over the visual, visual argument becomes forever subordinate to the traditional artifacts of verbal argument. This is precisely the essentialism of verbal argumentation, and hence its subjection to ideological critique—yet, for my part, in the different way to critique it apart from the practice of traditional argumentation.

iii. Unlike the current efforts in visual argumentation that analyze different forms of argument in visual objects and material, here, instead of conceptualizing visual argument as product, I would like to consider it a “project of inquiry,” (Finnegan,

2004b, p.235) defined as a critical and theoretical orientation that makes issues of visuality relevant to argumentation theory. I borrow the idea of visual argument as a project of inquiry from the current effort of visual rhetoric by Finnegan (2004a, 2004b) who advances the field along with Mitchell's iconology and Barbara Stafford's (1996, 1998, 2001) "imagism," which attempts to articulate different categories by means of rhetorical analogy. The critique of iconophobia is not a simple task that easily counters essentialism as a false idea. Rather, it should be performatively conducted in and as scholar's project to self-reflexively critically inquire one's historicity of the present ideology and doxa. As a project of critical inquiry, a visual argument can be considered an effort to urge us to explore our understandings of visual culture in light of the question of argumentation theory, and encourage us to reflexively (re-)examine own aspects of argumentation theory.

iv. Against the iconophobia and the subsequent ideology of linguistic imperialism within the field of argumentation, Roque (2009) refutes its propositions one by one. Whereas the critique of linguistic imperialism is significant, critiquing it by means of verbal refutation, which is highly regarded as the traditional means of argumentation, in turn performatively endorses the linguistic imperialism.

v. Two exceptions are Groark's (1996) analysis of fine arts and Blair's (1996) sharp contrast of fine arts to contemporary mixed media like magazines. While Groark's analysis of fine arts as a visual form of argument, along with the messages transmitted by painters as propositional contents may be valuable within a traditional understanding of fine arts as a manifestation of narratives and anecdotes, this essay instead avoids analysis of visual contents and sidesteps the analyses of narrative as argument embedded in art works.

vi. This summary of the history of optics and visual theories is based upon David Lindberg's *Theories of Vision from Al-Kindi to Kepler* (1976).

vii. For example, Pieter Claes' painting of *Still Life* (1634) illustrates a silver drinking cup, a goblet of wine and a cup with a lid along with plates with a peeled lemon. Light from the top illuminates those objects, and are shining in the water. The light comes into the frame of the canvas, emphasizing the wall behind the objects, which separates the illuminated interior from exterior world. This separation is more noticeable in vanitas paintings such as Willem Claes Heda and Jan Davidszoon de Heem.

viii. Rembrandt's fame is highly regarded for his mastery of light from the top to dramatize the pictorial scene with a moment of light, typically seen in his *A Man Seated Reading at a Table in a Lofty Room* (1628-1630).

ix. One of the most comprehensive analyses of Vermeer's possible use of this visual device is Philip Steadman's *Vermeer's Camera* (2002).

x. Technologically speaking, the history of camera obscura starts from Aristotle, who referred to the notion of pinhole projection around 330 BC, and to Alhazen, who presumably invented the optical device, or pinhole camera, around 1000 AD. In the thirteenth century, Roger Bacon observed the phenomena of an eclipse with a camera obscura. His figure is said to be the first illustration of its mechanism in the human history.

xi. Leonardo da Vinci, for instance, depicted a camera obscura in *Atlantico Manuscript* (Codex Atlanticus). Giovanni Battista della Porta, Neapolitan savant, often identified as one of its inventors, in *Magia Naturalis* or *Natural Magic* of 1558 explains the use of a concave speculum to insure that the projected image is not inverted on the wall. In the second edition of 1589, he details how a concave lens can be placed in the aperture of the camera to produce a finer image. Lens and mirrors were often used in camera obscura in the sixteenth century, and the development of a portable camera obscura was also started. By the seventeenth century, the precision of lenses had remarkably progressed such that optical devices like the telescope and microscope could be invented.

xii. Wilson (1999) points out the contradictory attitude of rationalists in metaphysics toward the camera obscura metaphor. She argues that rationalist philosophers like Descartes, Lock, Malebranche, and Leibniz "believe that the sensory world we experience is wholly different from the mental world that gives rise to it, our perceptions do not mirror nature at all. The visual mechanisms, processes, and results are explicitly held by seventeenth-century theorists of the visual who reject visual species theory to be disanalogous to this kind of copying from exterior to interior" (Wilson, 1999, p.122).

xiii. This mind's eye also leads to the ideas of human wisdom seen in such a metaphor of sunrise (Wilson, 1999, p.129).

xiv. By viewing the eye as the most basic instrument of observation, Kepler isolates human eyes from a site of vision and its mind or psychological aspects. Alpers' (1983) argument for this isolation comes from his trust of visual technology and the optical lens that distorts site of vision can be eventually understood within this new discursive formation of the subject as the source of searchlight. Kepler stops arguing no further than the mechanism of eyes: "I leave it to natural philosophers to discuss the way in which this image on picture [pictura] is put together by the spiritual principles of vision residing in the retina and in the nerves, and whether it is made to appear before the soul or tribunal of

the faculty of vision by a spirit within the cerebral cavities, or the faculty of vision. . . (qtd. Alpers, 1983, p.36). The space of question to inquire how the retinal image is viewed remains unanswered by Kepler and then this open space is filled with arguments by philosophers. By stopping the inquiry, Kepler himself opens to discuss the way in which image is put together in retina and leaves it to the question for human spirit of vision. The discursive space Kepler opened for discussion behind his conclusion of the intromission theory engenders another argument to solve the problem of distrusted perception and sensation. Alpers thus concludes: “It was the power of Kepler’s invention, then, to split apart the hitherto unified human field. His strategy was to separate the physical problem of the formation of retinal images (the world seen) from the psychological problems of perception and sensation. The study of optics so defined starts with the eye receiving the light and ceases with the formation of the picture on the retina. What happens before and after—how the picture so formed, upside down and reversed, was perceived by the observer—troubled Kepler but was of no concern to him” (Alpers, 1983, pp.35-36).

xv. The metaphor of emission theory crystallizes in the apparatus of the magic lantern. In extramission theory, the idea of emission, lights coming out of the eyes, is in tandem with a projection of a beam, leading toward the object to be seen, and reaching beyond the screen of what can be seen as the virtual space of gazing back from the behind. This visual excess is more than a simple reversal of lights flowing in the intromission theory. The light beams are rather supposed to be emissions from a magic lantern, which exceeds supposedly the original picture in retina, emissions coming out of the projection apparatus of magic lantern. With emissions of light, an excess of intromission, molded in the optical structure of camera obscura, projects a slide on a flat screen or smoke in a dark room by magic lantern. It is not an accident that the description of which camera obscura should be used as a projection apparatus in setting up a candle inside of the device is given by della Porta, and the topic of this book, the most famous book that describes the uses of camera obscura, is *Magia Naturalis* or *Natural Magic* (1558).

xvi. The metaphor of emission, light stemming out of the eye, has still persisted in our beliefs about the evil eye and the power of the love’s gaze (Gross, 1999). The famous ads of the 1997 negative campaign against Tony Blair by the Conservative Party used a picture of him, replacing his eyes a pair of demon eyes with a caption of “New Labor, New Danger.” This picture is precisely embedded in the metaphor of the emission theory and comes to be a proof of the persistence power

of this discourse.

References

- Alpers, S. (1983). *The art of describing: Dutch art in the seventeenth century*. Chicago: Univ. of Chicago Press.
- Blair, J. T. (1996). The possibility and actuality of visual arguments. *Argumentation and Advocacy* 33 (1), 23-39.
- Crary, J. (1992). *The techniques of the observer: On vision and modernity in the 19th Century*. Cambridge: The MIT Press.
- Descartes, R. (1958). Theories of vision as expounded in the Dioptric. (N. K. Smith, Trans.) *Descartes Philosophical Writings* (pp.145-159), New York: The Modern Library.
- Epicurus, (1925). Letter to Herodotus. (Trans. R. D. Hicks) *Diogenes Laertius: Lives of eminent philosophers*, Volume II, Books 6-10. (pp.577-579), Harvard Univ. Press.
- Euclid (1948). Optics. In M. R. Cohen and I. E. Drabkin (Eds.), *A source book in Greek science* (pp.257-261). Cambridge, MA: Harvard Univ. Press.
- Finnegan, C. A. (2004a). Doing rhetorical history of the visual: The photograph and the archive. In C.A. Hill and M. Helmers (Eds.), *Defining Visual Rhetorics* (pp.195-214), Mahwah, NJ: Lawrence Erlbaum.
- Finnegan, C. A. (2004b). Visual studies and visual rhetoric. *Quarterly Journal of Speech* 90 (2), 234-256.
- Groarke, L. (1996). Logic, art and argument. *Informal Logic* 18, 105-129.
- Gross, C. G. (1999). The fire that comes from the eye. *The Neuroscientist* 5, 58-64.
- Gronbeck, B. (2007). Theories of visual argumentation: A comparative analysis, In S. Jacobs (Ed.), *Concerning argument: Selected papers from the 15th biennial conference on argumentation*. (pp.290-297), Washington, DC: National Communication Association.
- Jay, M. (1991). Scopic regimes of modernity. In H. Foster (Ed.), *Vision and visibility* (pp.3-28), Seattle: Bay Press.
- Lindberg, D. (1976). *Theories of vision from Al-Kindi to Kepler*. Chicago: Univ. of Chicago Press.
- Mitchell, W.J.T. (1986). *Iconology: Image, text, ideology*. Chicago: Univ. of Chicago Press.
- Roque, G. (2009). What is visual in visual argumentation? In J. Ritola (Ed.), *Arguments cultures: Proceedings of OSSA 09*, CD-ROM (pp. 1-9), Ontario,

Canada: Ontario Society for the Study of Argumentation, University of Windsor.

Roque G. (2010). *Visual argumentation: A Reappraisal*. <http://rozenbergquarterly.com/issa-proceedings-2010-visual-argumentation-a-reappraisal/> Proceedings of ISSA 2010, (pp.1720-1734), Amsterdam, Netherlands: International Society for the Study of Argumentation, University of Amsterdam.

Stafford, B. (1996). *Artful science: Enlightenment entertainment and the eclipse of visual education*. Cambridge, MA: The MIT Press.

Stafford, B. (1998). *Good looking: Essays on the virtue of images*. Cambridge, MA: The MIT Press.

Stafford, B. (2001). *Visual analogy: Consciousness as the art of connecting*. Cambridge, MA: The MIT Press.

Steadman, P. (2002). *Vermeer's camera: Uncovering the truth behind the masterpieces*. Oxford: Oxford Univ. Press.

Wilson C. (1999). Discourse of vision in seventeenth-century metaphysics. In D. M. Levin (Ed.), *Sites of vision: The discursive construction of sight in the history of philosophy*. (pp.117-138), Cambridge, MA: The MIT Press.