The SPL Journal of Literary Hermeneutics

A Biannual International Journal of Independent Critical Thinking

Double-blind, Peer-reviewed and Open Access Journal in English

Vol. 6 Issue 1 Winter Edition 2026 e-ISSN 2583-1674 Page no. 31-52

www.literaryhrm.org

www.cavemarkpublications.com

Visual Semiotics and its Limitations in a Methodological Study of Damien Chazelle's *La La Land* (2016)

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Research Article

Keywords: Semiotics, Peirce, Film Color, Visual Communication, Film Semiotics

Article History
Received: December 2, 2025
Revised: December 12, 2025
Accepted: January 1, 2026

Abstract

Aim: *The paper examines the prevalence of C. S. Peirce's semiotics in the analysis of visual-based communication models, with a specific focus on film color systems. In the study of film colors through the semiotics of Peirce, the paper wishes to achieve two overarching objectives. It demonstrates the challenges in the application of Peirce's triadic sign system of icon, index, and symbol to film color. The paper strives to express the nuanced elusiveness of the systems of film color and its defiance of being categorized through a conventional set of meanings.*

Methodology: *The argument employs a multifaceted methodology that combines aspects of semiotics, film theory, visual hermeneutics, initiating a closely led interrogation of Damien Chazelle's La La Land (2016) as the primary text. The theoretical model revolves around the triadic system of Peirce – consisting of the Icon, Index and Symbol for the reading of the film, and observe its limitations as a by-product.*

Outcome: *The primary outcomes of the paper are derived through the mapping of Peirce's semiotics, which do not always transpose directly upon film. Furthermore, it depicts the challenges in attesting color schemes such as warm-cool colors and complementary colors as conventional symbols, as their origins lie in index signs.*

Conclusion: *The argument references various films that meet the given conditions to illustrate the layered semiotic dynamics of film color. The paper highlights the solidity of Peirce's semiotics for visual analysis. Simultaneously, it interrogates the susceptibility of color to be neatly categorized under this framework and questions the practical applicability of semiotics in tackling visual narratives.*

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The language of visual media is rich with a myriad of symbols and signs, each offering a spectrum of interpretations shaped by socio-cultural contexts. Among the foundational theories exploring these interpretations, the work of C.S. Peirce stands out for its nuanced approach to visual semiotics. Peirce and his work on communication, gathered over a multitude of papers, letters, and other writings, are generally known to be understood as semiotics. Doing so separates it from the other major work in linguistics and semiology, stemming from the works of Ferdinand de Saussure and his collection of lectures, posthumously released as *A Course in General Linguistics* (1966). Several critics claim that Saussure's work is rooted in the structural diachronicity of verbal language and thus not entirely suitable for the characterization of visual language (Barnouw, 1981, p. 260). Peirce's work, on the other hand, is based on triadic concepts and is naturally suited for the analysis of visual syntax. While being receptive to Peirce's theoretical approach to visual language, the paper shall seek to etch out the difficulties in attributing the concepts of Peirce's semiotics in practice. In doing so, the paper draws out the inherent elusiveness of visual language by illustrating the concepts of Peirce through the elaborate system of colors in media and film. The paper begins with a very brief introduction to semiotic concepts of Peirce, speculating what makes him the preferred choice for visual semiotics. This in turn is followed by the study of color in films concerning Peirce's system of the sign and the inherent challenges faced in its due course.

C. S. Peirce's training in the philosophy of pragmatism and phenomenology is what grounds the crux of his work. Pragmatism is the practical association of thought and action. Peirce defines it as 'the most striking feature of the new theory was its recognition of the inseparable connection between rational cognition and rational purpose (Peirce-Moore, 1972, p. 264). It is his pragmatic theory of linking thought with action directly that translates into the formation of his semiotic theory as a triadic, as opposed to Saussure's dyadic system. The triadic formulation of Peirce consists of the sign, the object, and the interpreter. It is this functioning of the triad that informs much of Peirce's work. Most notably, Peirce's semiotics is thought to be helpful in the attribution of visual language for its ability to be inclusive of non-arbitrary associations, or natural signs, along with conventional signs, in a language.

However, the sign systems of Peirce have been extensively criticized in literature. Umberto Eco neatly aligns with the goals of this paper when he writes that, "The problem is not to find more signs, but fewer, more operative, more productive signs." (1976, p. 4) Eco criticizes Peirce-based semiotic approaches for overtly relying on logical and philosophical systems, failing to account for, and incorporate them in actual interpretive studies. The insistence of Peirce on triads and a slew of terms arising out of sign terminology lead to the classification of signs in up to 10 terms. These include trichotomies of Qualisign, Sinsign, Opsign, Icon, Index, Symbol, Rheme, Dicisign, and Argument. Such a system might come off as cogently developed and complex. However, as the paper attempts to depict through one such trilogy of Icon, Index, and Symbol, there is very little correlation between the formulation of such systems and their application in visual studies and semiotics. Furthermore, critics like Terese De Lauretis and David Blakesley, in their works *Technologies of Gender* (1987) and *Elements of Dramatism* (2002), raise concerns that Pierce's system of semiotics tends to ignore cultural dynamics when factoring in their interpretation. As the paper explores, the triadic scheme of icon, index, and symbol often fails to account for cultural development and assimilation of the sign in its characterization.

Peirce defines the sign as 'something which stands to somebody for something in some respect or capacity' (Peirce-Buchler, 1955, p. 98). The major difference between Saussure and Peirce is that for Peirce, the sign need not be limited to a verbal construct. In Peirce, the sign can be something, anything, which stimulates a reference in the mind of its interpreter and leads toward the object. Communication then, in the framework of Peirce, becomes deferred redirection of a sign where the interpreter attests a sign to an object. Thereafter, this act of interpretation itself becomes a sign for another interpreter, and so forth.

In many ways, the interpretant is the most ingenious addition to the theory of Saussure by Peirce. The interpretant is an individual or collective identity that acts as a buffer between the object and the sign. Peirce outlines three kinds of interpreters—energetic, logical, and emotional (Deledalle, 2000, p. 44). These three kinds of interpreters define what kind of sign they themselves shall become for the next interpreter. The emotional interpretant is the most primal interpretant

formed by the sign itself. It further may or may not lead to energetic or logical interpretation. The emotional interpretant governs the initial impression and outburst that take place when first recognizing a sign. It is abstract in its nature and usually requires no faculties of the mind or body. An instance of emotional interpretant is the first recognition of an abstract painting or set of colors. Energetic interpretation, on the other hand, requires cognitive effort. The signage of an energetic interpretant may lead to a logical interpretation. This includes absent-minded reading or calling out names of colors. Lastly, the logical interpretant is formed through the collective habit and convention associated with a sign, which is recognized and interpreted correctly by the interpretant. For instance, the recognition that purple is symbolic of royalty. It is only the logical interpreter that opens up the sign for further deferring by becoming a sign in itself for other interpreters to read.

The object is the final end of the triad of sign-interpretation and object. Inversely, it can also be perceived as the first peripheral that sets the sign-interpretation-object triad in motion. It is most closely associated with the sign to which the interpretant refers. Peirce gives two types of objects, immediate and dynamic (Deledalle, 2000, p. 18). In a multiple network of deferred signs and interpreters, the initial attestation of the sign with an object becomes the immediate object. It's further reading by other interpreters, who read the previous interpretant as the sign itself becomes the real or the dynamic object. The interpreter must be somewhat aware of it and be able to recognize it in order to correctly attribute the properties of a sign to an object. Peirce argues that if the interpretant is not currently aware of the object's properties, then they attribute it to the nearest object that they can conceive of. The object need not be material in nature. It can be an idea, a thought, or a feeling. It may be 'a general nature desired, required, or invariably found under certain general circumstances' (Peirce-Buchler, 1955, p. 101). The object in Peirce is ultimately linked to its referent or the sign.

The sign is the most widely known triad from the semiotics of Peirce. It is what becomes synonymous with his study of the signs. Fitzgerald (1966) calls it **'**the most important division of signs made by Peirce' (44). It is perhaps due to its often-discussed nature that it is also the one most ardently elusive to define.

Critics have noticed that while it is easier to define the triad of the sign as different from each other, it becomes increasingly complicated to define categories within the aspects of the sign (Deledalle, 2000, p. 105). The three triadic aspects of the sign, according to Peirce, are the icon, index, and symbol. The triadic identity of the sign in Peirce is what sets his semiotics apart from F. Saussure and later Umberto Eco, who maintain the signs are ultimately obtainable only through the conventions set and upheld by a specific culture (1979). Peirce, on the other hand, while acknowledging the role of cultural conventions in appending signs to objects, also maintains that some signs are generated naturally or through physical approximations. The rules that govern his signs include similarity, physical relationship, and convention.

The icon is defined through its similarity with the object. An icon can stand in and replace the object because of its similar nature of association with the object. There are two types of instances one may account for in an Icon. The first is the image of a diagram. A diagram, or a rough drawing of mental concepts like a triangle or a perfect circle, is the literal iconic representation of the object, due to their viability as mental constructs (Deledalle, 2000, p. 11). Furthermore, icons can also be depicted in a somewhat limited capacity through the depiction of real-life objects from painting and photography. For instance, a portrait of someone can be accounted for as an Icon insofar as it is similar to the person whom it depicts and can stand in for them in their absence. However, to someone who has not met the person beforehand, the portrait as an icon sign may not be worthwhile, as they have no recollection of the real object. Similarly, photographs and drawings of objects can be treated as an icon only as far as the interpretant expresses their familiarity with the object being represented as an icon.

Index or indices are defined through the sign's physical relationship or correlation with the object (Deledalle, 2000, p. 11). The idea here is that physical motion manifests itself into signs independent of any cultural convention or habit. The index is not an iconic similarity, as it occurs in a chain reaction and is the result of a prior event taking place. For instance, stars out in the sky are an indexical sign of night-time and a clear sky. A more mainstream example is quoted right out of the ancient debate between the Stoics and the Epicureans on sickness and its manifestation as symptoms. The Stoics believed that during a

physical disease, the symptoms were not necessarily related to the condition and were either byproducts or coincidental effects that may or may not have resulted from the disease. In other words, they were conventional signs. On the other hand, the Epicureans believed that the physical symptoms in a person were the direct, related physical manifestation of a disease in a person as it becomes apparent in their body. For instance, the Stoics believed that a rise in temperature, or fever, was not necessarily indicative of a disease, whereas the Epicureans believed that symptoms like fever, cold, and a flushed complexion were part of the physical manifestation of the disease (Cobley and Jansz, 1997, p. 5). The medical symptoms shown by a patient then become the indexical sign of their condition. Index signs are mostly conceived through physical correlation and seldom based on convention. They are read off as the physical laws that govern the universe.

Symbol makes up the bulk of the sign for Peirce. Unlike an icon or index, the symbol has no prior relationship or resemblance to the object that it represents. Its association then is formed purely on the basis of habit, convention, and past experience (Fitzgerald, 1966, p. 62). The bulk of linguistic signs come under this category whereby the verbal words are symbols that represent something to which they have no inherent relation, with the exception of a few onomatopoeic words (Bredin, 1996). Apart from language, a great bulk of visual communication is also formed through symbols. The image of a rose begets no association nor similarity to ideas of love and romance, and yet it is considered one of the most easily recognizable symbols of emotional valence throughout most cultures.

The collective of icon, index, and symbol are well and easy to define based on their differences from each other. However, as mentioned, it gets perplexing to attach a specific kind of sign to particular objects exclusively. For instance, the portrait or a photograph is cited as an instance by Peirce to depict the viability of the icon. However, it can just as easily be read as an index and symbol. Peirce himself notes:

> We say that the portrait of a person we have not seen is not convincing. So far as, on the ground merely of what I see in it, I am led to for my idea of the person it represents, it is an Icon. But, in fact, it is not a pure Icon, because I am greatly influenced by knowing that it is an effect, through

> the artist, caused by the original's appearance, and is thus in a genuine obstinate relation to that original (Fitzgerald, 1966, p. 53).

The chemical reaction of the camera and the film reel through which the photograph is produced by directly placing the lens in front of the subject is dominantly a physical action that results in the correlation of the photograph being produced from a previous action. Such an association is a clear manifestation of an index. On the other hand, based on the artistic input provided in the clicking of the photograph, what part of the body the photographer chose to depict, what their angle was, and what the objects in the background are, all these aspects depict the subjectivity of the photographer through which they begin to enforce their own vision on top of the similarity of the subject as an Icon. The finished product hence becomes a symbol through which the photographer is espousing ideas of their own. The conceptualization of the sign becomes just as difficult once the consideration of the interpretant also enters the fray. Does the interpretant view the photographed image as a feeling? Do they energetically view the angles, the colors, and the craftsmanship involved? Or do they go all the way to decode the symbolic conceptualization involved in the finessing of the image?

The apparent difficulty in attributing the type of sign to a segment of the visual object becomes extant as the paper begins to apply concepts to the fashioning of colors as visual and cultural modes of communication. Color has far too long been relegated to the realm of the normative. The presence of color around us is defined by its pervasiveness. The colors of our everyday lives are seldom in the hands of people. However, color choices in marketing products, visual art, photography, film, and any other medium that allows the selective choice of color become apparent as color is regarded as a potent form of visual communication. What such instances allow is the imbibing of added visual signs without burdening the audience with verbal messages. Visual communication in this instance works on a level deeper than the consciousness. appealing directly to our faculties, and thus might facilitate the rhetorical advance of the communicator. Proponents of color studies insist that the communicative process can be understood through color psychology, a field of study that facilitates color meanings through their psychological effect on viewers (Sloanne, 1991). Yet,

other theorists claim that color meanings are inherent in their emotional valences, giving birth to interesting concepts like color therapy and color healing, whereby the wavelengths of specific colors are designed to have a predefined effect on the mind (Birren, 1950). Furthermore, certain critics go as far as to claim that all color meanings and communication are defined through the cultural conventions of societies and are arbitrary (Eco, 1986). This opens up the reading of color to be appropriate with the triadic system of signs.

The apparent range of color analysis, from natural to physical to conventional, aligns itself well with the sign system designed by Peirce, capable of tackling signs that are inherent, based on correlation, and rooted in habit. On the other hand, the object, or color itself, as defined by Peirce, can be immediately dynamic or real. Interestingly, some of the oldest debates in color studies are situated around the definition of color as mental or physical. Isaac Newton, in his work *Optics (1776),* defines color as a physical spectrum of light separated from white light. Johann Von Goethe, on the other hand, defines color as a mentalist concept. Here, the discussion of color as an immediate or dynamic object posits itself on the hypothesis of a final, dynamic, or real object (Mueller, 2017). However, even if the study of color is rooted in the pioneering works of Goethe and Newton, it admittedly takes on a different stance in its interaction with film.

In film history, color finds a humble beginning in the physical art of hand coloring, stenciling, tinting, and toning. In each of these processes, the physical reel of the film is taken and either painted over, illustrated over, or washed in specific dyes to achieve the desired effect of color (Misek 2010, p. 11). Some of the very first instances of using color were in films like The Great Train Robbery to depict the color blue for nighttime. This was done easily enough, as the entire part of the film, in this case, the sky, could be selectively colored in a single hue. The first few attempts at color in film were designed to be icon signs. In other words, color on film was attempting to depict its similarity with and stand in place of the color of the real world. With the depiction of nighttime in films like Birth of a Nation, the iconic signs become more than an icon, delving into an index sign as it attempts to depict the physical relationship between nighttime and the color blue. Soon afterward, Hollywood sees a period of what Tom Gunning calls the Cinema of Attraction (1986, pp. 3-4). This period saw the reserved color

treatment of film for a very specific instance— the female subject. This practice, evident in films like The Great Train Robbery, along with several early colored short films called the Anabelle Serpentine dance films, depicts only the female subject in color (Misek, 2010, p. 15). The underlying belief is that color is a sensual concept, aligning itself more with the sensibilities of women than with the man, who aligns himself with the form instead (Bachelor, 2000, p. 28). In such a depiction of color, then, where only a select part of the film, depicting a female character, is colored, then it should be seen as a symbolic sign. There is no apparent reason to support the proof of the sensuality of color. It is instead a habitual prejudice formed over centuries of outlook towards color, ranging from Herodotus dissing the Persians for using colored garments, to Pliny the elder preferring colorless clothing, the establishment of classy as white and colorless by Johann Winkelmann (Bachelor, 2000, p. 22), and the superficial divide between the Florence style that focuses on form, and the Venetian style, focusing on color in the *Lives of the Artists* (Vasari, 1511-1574). It is through these prejudices and habits formed against color over centuries that the mere existence of color becomes a symbol of femininity, sensuality, and desire, and gets relegated to the realm of the other. It is this perception of color that plagues the early ventures into film as well.

The film coloring process only took root post the 1940s, after the march of Technicolor and its coloring processes number two and three began to dominate the industry. The modus operandi till then had been the black-and-white mode of filmmaking, to which the Hollywood industry had accustomed itself by way of sound, sight, and ergonomics. Till the 40s, the few movies that had maintained color in a few segments did so systematically. Films like The *Wizard of Oz* (1939) helped solidify the place of color in film segments as a sequence of fantasy, musical, and the ostentatious. In The *Wizard of Oz*, Dorothy's world of black and white memorably turns into color on screen as she opens up her chambers to the world of Oz. The use of color in this case is quite clear; color in real life itself does not represent a fantastical world; on the opposite, it is the habitual world, and the world of black and white would be a non-existent and fantastical world. However, in the films of this time, the colored world represents the fantastical, and the real world is represented through the mode of black and white. This is an

instance of the symbol sign, insofar as there is no direct or clear relationship between color and the fantastic. The relationship is that of convention, habit, and norms of the Hollywood industry.

Interestingly, as the company Technicolor furthers its technology and pushes for realistic standards of colors, the hierarchy of black and white and color is inverted. As more and more movies begin to use color as their dominant form of film depiction, the mode of black and white is relegated in favor of color. From the 1960s onward, and certainly in contemporary times, the mode of color, as a whole, seeks to represent the real world. This keeps in tune not only with the plans of Technicolor for their product but also with the film philosophy itself. Andre Bazin, in The *Myth of Total Cinema*, pushes the cinematic standards to the bounds of realism (2004). Deleuze, in his book *Cinema 1: Movement Image* (1986), argues for the fact that he only considers films after D.W. Griffith to be treated as cinematic images and not merely moving images. This effect is created due to the films being rooted in a narrative that is based in time and thus, realism. (29) As aspects of narration, sound, and color, along with natural or naturalistic lighting and acting, take up the sphere of cinema, the art begins to move itself from the fantastical, theatrical, and dramatic to the idea of being real. In other words, the various aspects of cinema steadily have been moving towards the realization of film as an iconic sign. It seeks to be similar to reality itself. The iconicity of the film becomes so apparent that it leads to notions like the hyperreal by Jean Baudrillard, who cites the objects of the cinema and videography in general to be the dominant form of realism, superseding reality itself (2001).

Naturally, in such an environment, where the iconic sign of black and white has been replaced by the form of color as an Icon, the mode of black and white finds no place for itself. Instead, it gets relegated to the insignia of the Symbol Sign. Black and white primarily acquires its position as the symbol sign through its immensely populous depiction of the past, as flashbacks, in black and white. Deleuze in his cinema book, *Cinema 1: Movement Image* theorizes succinctly the onset of black and white in the depiction of the past. He says that there was a certain change in cinematic narratives after the Second World War (1986, p. 212). According to Deleuze, there was a noticeable change in the framing of the narrative during these two arbitrary points in time. Before this

time, the characters in the narrative would merely react and respond with action to the events around them. After the war, however, the characters instead fell into deep thought and slumber when confronted with events around them. They began to delay, stunt, and saunter around, dilly-dallying around the town or lost in their thoughts instead of the earlier set convention of responding to an event with succinct action (Deleuze, 1989, pp. 1-2). Deleuze's theory helps identify the reason for flashbacks in cinematic mediums. He is ultimately responding to Bergson's critique in The Creative Evolution, whereby Bergson relegated the time depicted as non-authentic.

Therefore, Deleuze's entire response to Bergson is based on the depiction of time in film as realistic, akin to life itself. Deleuze substantiates his theory through the use of what he calls perception image, affection image, and action image. The perception image, frequently portrayed through the use of the wide shot, is the first in the slew of narrative images. Perception images are best used for establishing context for the narrative to take place. The perception image is succeeded by the affect image, which reflects how the context in question, or the events in the frame, have affected the character. The affect image is, again, closely reflected through the use of close-up images of the faces or the bodies of the characters. Finally, perception and affection image are succeeded by the use of action image. Action images, frequently depicted through the use of medium-length shots, are used to depict the responsive actions of the character once the event contextualized in the opening wide shot has affected them in some way (1986, pp. 64-65).

However, according to Deleuze, there is a paradigm shift in this cyclical narrative framework after the Second World War. Instead of the progression of the shots from perception, affection, and action, which directly leads to the physical response of the character experiencing an event, there is now a breaking off of the cycle. The paradigm shifts in the thinking of the war affected various spheres of society. In filmmaking, the characters are no longer able to respond directly to the events presented before them. Instead, they seek some solace in biding their time, stinting, and sauntering. Or seek comfort in the bygones or search the past for answers relevant to their problems. This type of recourse is what Deleuze calls the time image (1989, p. 98). Deleuze gives the instance of

The *Bicycle Thieves* (1948) and *Hiroshima Mon Amour* (1959) to illustrate his theory. In The Bicycle Thieves, as the new bicycle of the father and son duo gets stolen in the streets of Rome, the previous example of this event would have been their physical action of being in pursuit of the thief who stole their bike. Instead, since *Bicycle Thieves* is produced post the line of intervention within the timeline of Deleuze, the father-son duo instead began to saunter around the streets of Rome. As they do so, they encounter various kinds of people suffering from their problems—quite a few of which are bigger than the problems faced by the father and son duo who are suffering with the loss of their bicycle. On the other hand, in *Hiroshima Mon Amour*, the Japanese man and a French actress have a close encounter. Over the course of their meeting, which lasts about a day, both of them are forced to relive their memories of the past. The French actress relives her memories of the past through the subsequent instantiation of the French town of Nevers, characterized by its beautiful surroundings and also the loss of her love affair in the same town of Nevers. On the other hand, the unnamed Japanese man is suffering from the traumatic loss of the entire city of Hiroshima from which the embers of the atomic bomb is etched into his memory. In *Hiroshima Mon Amour*, instead of relishing the present, the two characters are forced to enter a pact with their past as they drown in their respective memories to search for its vessels.

Subsequently, a need arose for the depiction of this stinting and sauntering, the prime of which became the flashbacks of the past, to be depicted in a special mode of cinematic imagery. As the dominant form of depiction at this point had become the medium of color, the mode most suitable for the depiction of the time-image became the now obsolete, yet easily replicable form of black and white. Therefore, films that utilize a black-and-white flashback amidst an otherwise colored film, like *American History X* (1998) and *Kill Bill* (2003), utilize black-and-white flashbacks to move across a non-linear timeline. Furthermore, films like *Schindler's List* (1993), *Manhattan* (1986), and *Raging Bull* (1980), which are completely shot in black and white despite the dominant mode of depiction at the time being color, represent a shift in the Peirce framework of semiotics. The black-and-white mode of depiction was the iconic sign of realism till the production of classics like The *Wizard of Oz*. However, the same mode of depiction now becomes a symbol sign, to depict not only an era of

the bygone but also a period of the bleak and stark, dark reality situated around the horrors of the two world wars. Unsurprisingly, there is no inherent connection between the depiction of the past and the mode of black and white. Such a connection is only forged through the accidental encounters of technology, industry, and economics in the better part of the twentieth century. The repeated use of which has allowed them to survive as cultural monuments of convention, habit, and mannerism.

While the symbolism of black and white carved itself out through the cross-dicing of various factors, a major portion of color symbolism is carefully attuned to the film's visual scheme. The overlaying color scheme of a film is decided beforehand by the creative directors and executed during the film and in the post-production process by color artists, graders, and editors. Once the colored look of the film is decided upon, it is implemented through various applications of color found in color theory. Color theory itself seeks to explain how color functions individually and in conjunction with each other. While there is no general and ultimate consensus among theories of color regarding its meaning, function, and derivatives, it nonetheless provides a loose guideline upon which artists can ground their work. What remains common among some of the color theories is their insistence upon the use of the color wheel. The color wheel is a circular instructive diagram that arranges colors next to each other within the circumference of a circle. The arrangement of color, where each color sits in adjacency and in opposition, denotes the function of the color. Color theory and versions of the color wheel have been around for a while, beginning with Aristotle. They have been adequately used by painters like Rembrandt, Delacroix, and Van Gogh. Film theorists and Technicolor advisor Natalie Kalmus have long advised that the formulation of color systems has already been developed in art theory and need only be imported into film (Neupert, 1990, p. 57). Thereby, film systems largely follow the framework led in art through color theorists.

Apart from the several existing color theories, a few stand tall for their widespread usage in film history, namely, the warm-heat hue hypothesis and complementary color scheme. Incidentally, proponents of both theories stake their claim in the physical and biological world for the specific schematics to work. The idea behind the warm-heat hue hypothesis is borrowed from the light

separation process. Accordingly, colors with fewer ultraviolet rays are characterized as colder colors, whereas colors on the longer end of the spectrum are characterized as warm colors. This has been a popular way of arranging the color system and has been in use in not just film but also in architecture, marketing, and home décor.

The hue-heat hypothesis has been around for a century and was first noted by Morgensen and English in 1926. The hue heat hypothesis is the idea that notates 'the effect of color on temperature perception' (Ziat et al., 2016, p. 1), and it 'considers the change in the subjective feeling of the temperature based on the color of the object' (1). The hypothesis suggests that atmospheric, or environmental, colors that can be categorized on the warmer end of the color spectrum, like reds, oranges, and yellows, are perceived to be warmer by the subjected persons. Whereas the colors on the cooler end of the spectrum, for instance, blues, greens, and cyan, are usually perceived to give off a sensation of cooler temperature. D'Ambrosio et al. suggest that 'the hue-heat hypothesis is based on the idea that, when the spectral irradiance pattern at the observer's eye shows a great amount of short wavelengths, the space is perceived as cooler. Conversely, when long wavelengths are predominant, the space is perceived as warmer' (2019, p. 1). Along with the perception of requisite colors as either cold or warm, the perceived pain tolerance of the subjects in such controlled studies is also considered. Unsurprisingly, warmer hues tend to be associated with more pain and decreased tolerance to discomfort, whereas colder hues were found to be more tolerable with decreased sensitivity to pain. Moreover, due to the longevity of the hypothesis, it has had sufficient time to influence the cultural apparatus. Therefore, the terminology of warm and cool colors is often invoked during discussions of art. painting, home décor, architecture, furniture, clothing, and accessories. While certain color practitioners like Natalie Kalmus prefer to do away with the hue-heat terminology and instead inscribe warm colors as advancing and cool colors as receding, vis-à-vis architectural paints. The hue-heat hypothesis has largely become a part of the cultural perception, regardless of it being backed by scientific evidence or not (Higgins, 2007, p. 43). The latter argument is essential, for it dictates, for the purpose of this study, the cultural

attitudes towards temperate, warmer, and colder climates being associated with certain colors.

In the cinematic medium, the hue heat hypothesis is utilized for marking geographical spaces. Warmer countries such as South America, the Indian subcontinent, and the Middle East are depicted through an overlaying blanket color scheme of warm colors such as yellow or, less prominently, orange. On the other hand, countries with colder climates like North America, Northern Europe, Scandinavian countries, and Russia are depicted through colder hues. As of late, there has been a prevalence in the depiction of countries like Mexico and India through the overt use of a dirty yellow filter, not merely to depict a different geospatial location but to mark the alterity of Western filmmakers towards these countries.

Following this argument, within Peirce's framework, the hue-heat hypothesis is meant to be introduced as an index sign. Index signs, as one might recall, depict the physical relationship between the sign and the object. Here, the physical relationship between warm and cold colors and their propensity to induce the equivalent metonymic emotions of rest and rage is supported through the physical wavelengths of these colors on the spectrum. However, alterity imbibed through the use of these colors to specifically mark an ideal Western society, segregated from the Idea of the East, which includes countries like Mexico in the Americas, but excludes 'Westernized' countries like Japan, in Asia, suggest that hue heat hypotheses in films are not specifically used as an index sign. Although they originate as Index Signs, the current and prevalent usage of Hue Heat Hypotheses in films like *Traffic* (2000), *Sicario* (2015), and *Extraction* (2018) and TV series like *Breaking Bad* suggests a different notation of the spaces marked by color in their respective domains. The Hue-Heat Hypothesis, originating as an index sign, gets transformed to, or can be read simultaneously as, a symbol sign within the framework of Peirce, whereby the object and the referent have no physical relationship nor similarity between each other; rather, their relationship is one built upon societal convention and habit. They are simply used as tools to mark off a rift between the East and the West, not as geographic identities, but as symbolic ones. One of the Bond films that traverses the coast of the US and Russia depicts the Russian premises in a garb of blue-colored filters. Despite the

characterization of Russia itself as different from the States, Hollywood views Russia as the civilized other among the nearly located countries of China and India. Similarly, the film Babel traverses across multiple locations, tracking different timelines simultaneously. In one of its settings located in Tokyo, Japan, the color filter selected is indeed that of a blue note, despite the geographical location of Japan marking it out as an Asian, Eastern country. The demarcation of hue heat hypothetical color filters, while loosely following the tenets of geographical space, often succumbs to the symbolic associations inherent in the prejudice towards the East.

Apart from the Hue heat hypothesis to mark geographical and environmental color schemes, the film must also figure out the specific colors of smaller objects like clothing and other props on the screen. Among the various coloring schemes available at the disposal of the creative team, the complementary color scheme stands out as the most distinguished and often used art style. The complementary colors are theorized most succinctly in the works of Johannes Itten. In his work, *The Art of Color* (1973), Itten describes complementary colors as the colors found on the opposite ends of each other on the color wheel. A complementary pair of colors would be touted for its ability to enhance each other. A pair of complementary colors, like yellow-blue or red-green, highlights itself on the screen due to its ability to play on each other. It thus attracts and demands special awareness of the audience in front of which it is being displayed. Similar to the Hue-Heat hypothesis being grounded in physical phenomena, Itten also gives a physical and biological explanation behind the working of the complementary colors. He says that when we perceive a green block of color for long and then close our eyes, 'we see, as an afterimage, a red square.' (21) Conversely, he says, 'If we look at a red square, the afterimage is a green square (21).' He says that we can repeat this with any color, and the resultant color that arrives in the afterimage will be that of a complementary color. According to him, this is an inherent biological function that the eye fulfills. 'The eye posits the complementary color. It seeks to restore equilibrium in itself.' (79) The human eye does this for its natural ability to seek rest with the tone of medium grey. Ewald Hering, another prominent color theorist remarks,

To medium or neutral grey corresponds to that condition of the optic substance in which dissimilation - its consumption by vision - and assimilation - its regeneration - are equal, so that the quantity of optic substance remains the same. In other words, medium grey generates a state of complete equilibrium in the eye (qtd. in Itten, 1973, p. 21). Therefore, according to this theory, when a color presents itself before another color, the eye will instantly try to look for the opposite color in order to receive the color medium gray and be at rest. In other words, the eye would actively seek out this pattern of color combination among a plethora of other colors on the screen. This is in part the reason behind the popularity of color complementarity in film: the ease of application, due to digital color grading automation, as well as its visual appeal makes complementary colors a popular scheme in contemporary cinema.

The argued physical relationship of the complementary colors with the human eye and its tendency to seek and restore balance can be surmised under the semiotic sign of the Index. However, just as the hue heat hypothesis can be read not only as an index but also as a symbol sign, so too can the usage of complementary colors in film complicatedly be inferred to be either an index or a symbol sign. The symbolic sign association of the complementary colors proves the abstract and conventional nature of the symbol sign. This is so because the complementary colors read as a symbol sign represent what is the exact opposite of the Index Sign.

Typically, the films that generally employ the complementary color scheme across a large run-time are action-adventure movies. Notably, what the complementary color repeatedly suggests through these movies is the presence of certain strife, either external or internal. The scenes that contain the complementary color scheme usually come to suggest some sort of conflict, violence, turmoil, or strife that must take place in the plot at the given period. Either this conflict or strife may be reflected externally, pitting one character in the film against another, or it can be done internally, wherein it comes to pitting the mentality of the protagonist or some character against themselves. In both cases, the complementary colors support the narrative by forming an important nexus in the plot point as it strives to show areas where the plot may progress through some sort of struggle inflicted upon or by the characters to themselves or

those around them. The idea of this struggle solidifies itself mostly through film history repeatedly over the use of it as a societal convention, a habit, and a manner of recognition. In establishing themselves as symbol signs of conflict, complementary color schemes stand in direct opposition to their use as index signs. As index signs, the motive behind the use of complementary colors is to restore harmonious order across the screen. As the principal behind complementary color laid the biological power of the eye to restore and maintain balance by seeking the color medium grey, this harmony is symbolically destroyed when the symbol sign of complementary colors seeks to instead promote strife and conflict.

Just as the color yellow plagues the hue heat hypothesis for its obnoxious ability to depict the alterity of the West, so too does there exist an obnoxiously overused version of yellow in the complementary scheme—the teal and orange color combination. The teal and orange colors are nigh complementary, also known as split complementary. They do not exactly cross each other at the opposite end of the circle to be qualified as purely complementary. However, they are a run-of-the-mill success in movies from the turn of the century. Blockbuster Hollywood action movies tend to make excessive use of these colors. Instances include films like *Transformers* (2007), *the Fast and Furious* series, *and Batman Begins* (2005). The use of complementary colors in such films incorporates both the instantiations of the complementary as a semiotic sign. The complementary scheme of orange and teal is used in action blockbuster movies as an index sign due to its physical relationship with the human eye. The visual colors in this case tend to pop out, giving the film a glossy look that naturally demands attention from the viewers. On the other hand, the complementary color scheme simultaneously functions as the symbol sign in such films. The symbolic aspect of complementary colors comes out of the societal and habitual convention formed by itself over a period of time. As such, it has come to be associated with conflict, strife, action, and progress. In doing so, it stands adrift from the indexical property of complementary colors to seek out harmony in the eyes but instead depicts an unnerving sense of conflict.

The paper has attempted to achieve a couple of outlooks. It briefly laid out the design systems associated with C.S. Peirce in the analysis of a visual media

block. By taking note of one of the most notoriously slippery forms of visual language, color, the paper depicts how even nuanced forms of visual language can be addressed through Peirce's semiotics, as compared to other theories. In doing so, the paper also addressed the difficulties of attributing the sign triad in Peirce to specific objects. Admittedly, while the sign triad of Peirce—icon, index, and sign—is easily enough describable through differentiation from each other, the practical attenuation of each becomes a complicated affair. The overlapping of sign systems as discovered in the discussed examples—black and white standing in as Icon and symbol, the hue heat hypothesis working out to be on the terms of index and symbolic, and the similar yet different tenets of complementary colors, which can also be read as both index and symbol—attest to this fact. The findings of the paper do not wish to disprove the methodology of Peirce in the visual analysis of colored filmmaking. On the contrary, it acknowledges the fact of multiple tangents through which meaning is created, both actively and passively. Culturally coded meanings of colors are a complex phenomenon to decode, the reduction of which into simple categories without considering various other factors would be an oversight. Peirce's sign system, consisting of index, symbol, and icon, does a succinct and remarkable job of describing elements of visual appetite. However, Peirce's semiotics includes several other triadic systems—the phaneramics of first, second, and third; the role of the interpreter being divided into energetic, logical, and passive; and the type of sign being denoted itself as qualisign, sinsign, and legisign. All of these can be further used to funnel out and excavate the final, ultimate meanings in visual cultures, indicating themselves to the ultimate end of semiotics—the transcendental sign at the end of an infinitely looped, deferred semiosis.

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