

# The Colors of *Goodfellas*: How Martin Scorsese Uses Color to Convey Theme in *Goodfellas*

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## ABSTRACT

This paper analyzes how Martin Scorsese uses color to convey themes in his narrative feature film *Goodfellas*. Each scene in the film was thematically coded; the four most prevalent themes were chosen: family, brutality, violence, and money. Color data was then collected from frames taken from the middle of each scene; the researcher used these findings to draw conclusions on Scorsese's color choices in scenes for each theme. It was found that Scorsese used a high prevalence of earth-based colors to convey primal themes like family and brutality; he used a high prevalence of red, orange, and purple to convey aggression and raise audience tension. Additionally, Scorsese employed a dark and desaturated look to communicate dark themes like brutality, though saturation was raised to highlight certain visual elements. These findings hold important implications to fans of the movie *Goodfellas*, academics within the field of film studies, and filmmakers looking to better understand filmmaking. It is the researcher's strong recommendation that other films directed by Scorsese be put under analysis, possibly using better technology, in an effort to more deeply understand how Scorsese uses color to convey theme across his films and how his color choices have evolved across his illustrious career.

## Introduction

"Now more than ever we need to talk to each other, to listen to each other and understand how we see the world, and cinema is the best medium for doing this." – Martin Scorsese

To deeply understand cinema is to understand every aspect of its intricate construction. A film is a multi-faceted amalgamation of various elements, where each element works in unison to tell a story. A film's primary artist – the director (Vreeland, 2015) – determines how these elements convey the story – and thus the themes – of the film (Nelmes, 2007). Through the study of color, one of the core components of a film, this paper aimed to understand how theme is communicated in the narrative feature film *Goodfellas* (Scorsese, 1990).

Many amateur filmmakers lack a clear understanding of how color can be used to convey theme; they utilize color in a haphazard manner with little regard to its messaging (Bellantoni, 2005; Sain, 2021). Accordingly, this qualitative study on color's powerful ability to convey theme aimed to assist rising filmmakers in their understanding of what director William Ball describes as "the language of color" (Ball, 1995).

## Literature Review

### Film Studies

Film studies is an academic discipline which explores the art, history, and technology of cinema; as an academic field, it encompasses a broad range of topics, namely film history, film production, and the social and cultural

contexts in which films are created and received (Higgins, 2022). Although the techniques through which films are produced are considered a key component of film studies, the field of film studies is also concerned with the deeper meaning, themes, and implications of films.

It is common for scholars to use a variety of methodologies to effectively examine and interpret films, especially when a large breadth of films are analyzed. In the context of this study, the researcher solely analyzed *Goodfellas*; the single target methodologies of thematic coding and color analysis (see Methods) were used to understand how Scorsese used color to convey theme in *Goodfellas*.

### *Auteur Theory*

Inherent within the aim of this study is auteur theory: a dominant concept within film studies which posits that a director can be viewed as the primary creative force behind a film (Vreeland, 2015). Although countless professionals worked on *Goodfellas*, because Scorsese oversaw the production of the film, it is worth noting that, for the purposes of this study, he was considered the primary creative behind *Goodfellas*.

### Mise-en-scène & Color

#### *Mise-en-scène*

Mise-en-scène, meaning “place on stage” in French, extends beyond its traditional meaning to describe the production design – costumes, set, and lighting – of a theatrical production (Lathrop & Sutton, 2014). At its core, a film’s mise-en-scène involves describing its “visual style” (Gibbs, 2002, pp. 5–25). In the context of film studies, there are generally eight elements considered to be part of a film’s mise-en-scène: setting, lighting, color, props, costumes, makeup and hair, and action (Shackelford, 2023). While many novice filmmakers haphazardly and arbitrarily use mise-en-scène (Bellantoni, 2005), when used properly, by, for example, a masterful director like Martin Scorsese, “it elevates film from a series [of] moving pictures to an art form with purpose” (StudioBinder, 2020).

#### *Color*

Since its inception in 1916 (Technicolor, 2024), color, an impactful element of mise-en-scène, has been used throughout cinema to enhance the cinematic experience, from inciting emotions (Sain, 2021) to communicating theme (Vebrianto & Pratama, 2023). Although there are numerous methodologies for quantitatively measuring color, measuring a color by its three core elements, hue, saturation, and brightness (HSB), is one of the clearest and easiest to understand.

Hue: Hue is the primary attribute that differentiates one color from another based on its position within the spectrum of visible light, corresponding to the dominant wavelength (Huang, 2005). Serving as the foundation of color theory, hue is commonly visualized as a circular color wheel and is thus measured in a value out of 360. Regardless of an object’s saturation or brightness, its underlying hue remains the defining characteristic that indicates what color an object is (Cinco, 2019).

Saturation: Saturation, also referred to as chroma, refers to the intensity/vividness of a color in relation to gray (Kirschmann, 1896). A color’s saturation, measured on a scale from zero to 100, measures how much a hue is diluted by white, gray, or black, with high saturation appearing bold and vibrant and low saturation appearing as muted. Much like how lighting designers traditionally highlight the most important objects in frame with brighter light, production designers and colorists traditionally use high saturation to bring an audience’s attention to an object in the past (Camgöz et al., 2002).

**Brightness:** Brightness describes the relative luminance of a color, indicating how much light is reflected or emitted from it (Cinco, 2019). Commonly visualized on a scale from zero to 100, with higher values representing a greater level of brightness, the brightness of a color greatly influences the contrast, balance, and readability of visual elements within a frame. In practice, directors commonly adjust the brightness of a scene to influence mood and convey tone (Camgöz et al., 2002).

## Color Theory: The Use of Color to Convey Theme

Color serves as a powerful tool in filmmaking to convey theme, shape mood, and add further nuance and symbolism. Notable directors such as Stanley Kubrick, Wes Anderson, and David Lynch are renowned for their unique uses of color to underscore their films' narrative and thematic elements (StudioBinder, 2020).

### *Notable Examples of Color Theory Used to Convey Theme*

In Stanley Kubrick's *2001: A Space Odyssey*, HAL 9000's vivid red camera eye suggests danger; his use of the primal color green in the final room conveys death (Kubrick, 1968), much like he does in the bathroom in *Eyes Wide Shut* (Kubrick, 1999). In contrast, Wes Anderson uses more nostalgic color palettes to create a whimsical aesthetic, as seen in *The Grand Budapest Hotel* (Anderson, 2014), while still conveying social structures with vibrant blues, oranges, and reds (Vreeland, 2015). David Lynch takes a more surreal approach, utilizing dark blues and greens in *Blue Velvet* to invoke themes of mystery and illusion (Lynch, 1986).

## Goodfellas

*Goodfellas* is a 1990 gangster film directed by Martin Scorsese based on the non-fiction book *Wiseguy* by Nicholas Pileggi. The film tells the story of Henry Hill (Ray Liotta), a half-Irish, half-Italian mob associate in New York City during the mid-20th century. Beginning with Henry's adolescent fascination with the mafia, the film centers around Henry's criminal exploits and his rise through the ranks of organized crime. While his money, power, and status increase as he rises through the mob, the darker side of his criminal life – violence, betrayals, and instability – also begin to define much of his life, including his personal relationships. As the film progresses, his marriage to Karen Hill (Lorraine Bracco) begins to unravel; he also becomes addicted to drugs. Upon being caught by the FBI, Henry chooses to cooperate with the authorities, entering the witness protection program and turning on his former friends and associates. The film ends with him living as "an average nobody" who gets to live the rest of his life "like a schnook" (Scorsese, 1990).

## Literature Gap: Color Theory in Goodfellas

While numerous studies have been conducted on how notable directors have used color to convey theme, little research has been done on how Martin Scorsese, a highly influential director of modern cinema, has used color to convey theme, much less on his critically acclaimed gangster film, *Goodfellas*. Accordingly, it was the researcher's goal to answer the research question: how does Martin Scorsese use color to convey theme in his narrative feature film *Goodfellas*?

## Method

### Introduction

The researcher completed a content analysis of Martin Scorsese's narrative feature film, *Goodfellas* (Scorsese, 1990). They thematically coded the film; they collected data on the colors present throughout the film. Conclusions were formed from the comparison of these two metrics, and the researcher then extrapolated these conclusions to answer the research question: how does Martin Scorsese use color to convey theme in his narrative feature film *Goodfellas*?

### Methodology

Content Analysis: Content analysis, a well-established method in the field of media and film studies, involves systematically examining and interpreting the content of a piece of media (Merriam & Tisdell, 2016, pp. 295–297). This method is particularly valuable for uncovering underlying themes within a body of work; in the context of this study, content analysis was applied to delve into the intricate thematic layers of *Goodfellas*.

Thematic Coding: Thematic coding, a subset of content analysis, entails the systematic identification and categorization of recurring themes or patterns within a piece of media (Creswell & Creswell, 2018, pp. 179–213). For this study, qualitative data was collected as the researcher conducted observational thematic coding on each scene within the film; these results were used to draw larger conclusions about the themes of the film as a whole. A deep understanding of the themes present in *Goodfellas* is necessary to be able to analyze how Scorsese uses color to convey them.

Color Analysis: Quantitative data on color was then collected on a random sampling of frames within the film; this data covered the three qualities of color: hue, saturation, and brightness (Cinco, 2019). These two discrete metrics, theme and color, were then compared; the researcher denoted any patterns of how Scorsese uses color to convey theme in *Goodfellas*.

Each choice in a film's mise-en-scène is done under the direction and guidance of the director; multiple highly successful directors have utilized color in a way to convey the themes of their films (Vreeland, 2015). Magrin-Chagnolleau states that "Colors convey emotions. And they usually convey...[themes] in a very subtle way," (2021). By analyzing the themes and color choices of *Goodfellas* concurrently yet separately, the researcher aimed to determine if there is a clear correlation between both metrics when analyzing their results.

### Sampling Method

The researcher conducted thematic coding on each scene of *Goodfellas*. They then used this qualitative data to draw conclusions on the primary themes of the film as a whole. Given the long nature of the film, however, the researcher was unable to analyze the color choices in every frame of the film. Accordingly, the researcher randomly sampled a frame exactly in the middle of every scene. Scenes were defined by the researcher following a set of guidelines (described below). Should this frame have been monochromatic, a title card, or a credit screen, the researcher selected the next available frame.

Additionally, the researcher also selected the first and last non-single-color – excluding main titles and credits – frame from each film to analyze. The first and last frames of a film are generally considered to be used by the filmmaker to convey the film's themes (Vreeland, 2015). Because of this, the researcher included these frames in their analysis.

Analyzing a selection of frames is a common methodology to analyze the color choices of a filmmaker; it has been used to analyze anything from documentaries (James Kenney, 2022) to horror films (Vebrianto & Pratama, 2023). It is more common to capture frames by timestamp; few studies capture frames by scene (Ammer, 2020). However, because, during the thematic coding, themes were recorded not by timestamp but rather by scene, by capturing a frame in the exact middle of every scene, the researcher was better able to align both discrete metrics during their analysis. Accordingly, the base unit for the researcher's analysis of theme and color in this study was the scene (as described below).

### *Scene Boundaries*

The boundaries of when a scene begins and ends is fluid and subjective. Film researchers generally agree, however, that "A scene can be defined as one of the subdivisions of a play [or motion picture] in which the setting is fixed, or when it presents continuous action..." (Rasheed & Shah, 2003). Because even this definition is vague, the researcher followed three rules to ensure consistent scene detection: (1) the researcher clearly recorded the timestamp boundaries of each scene as they saw fit, (2) the researcher ensured these timestamp boundaries did not overlap, and (3) the entirety of the film, excluding credits, was broken up into scenes.

Furthermore, this process of content analysis and thematic coding was done before any frames were chosen and analyzed, and thus the researcher was unable to subconsciously bias the results to favor any preconceived notion on how Martin Scorsese uses color to convey theme in *Goodfellas*. This stage of the procedure was a simple observation of what themes are present in each scene of the film.

### Data Collection Instruments

An audience member's viewing experience changes depending on what format and device the film is viewed on (Chateau & Casetti, 2011, pp. 53–66). Although the researcher did not rate *Goodfellas*, they watched it in one continuous sitting on their home television. Blackout curtains were used to maintain a consistent level of light, the volume of the film was kept at a constant volume, and no one was permitted to interrupt the researcher while coding the film. These measures removed possible confounding variables that could have influenced the researcher's viewing experience; they ensured consistency in the researcher's thematic coding.

The researcher streamed *Goodfellas* on Netflix, a streaming service that does not alter the content of the films it hosts (Netflix, n.d.). This is an important nuance, as an altered version of the film could have changed what themes the researcher observed.

In an effort to consistently measure the color choices of each selected frame, the researcher used adobecolor.com to collect data. Adobe is an industry standard across the digital imaging and film space (Kosner, 2014); they have demonstrated a high standard of quality since their founding 42 years ago (Miller et al., 2016). Adobecolor.com is a highly effective tool that uses artificial intelligence to select the five most significant colors from a still image; it can provide data on the HSB for each selected color.

Utilizing a tool like adobecolor.com eliminated researcher bias when choosing the five most significant colors within a frame. To confirm that adobecolor.com is accurate and consistent when selecting five significant colors, the researcher conducted a 20-trial test to ensure adobecolor.com consistently chooses the same five significant colors when given the same image multiple times. Adobecolor.com accurately selected the same five significant colors when presented the same image multiple times, making it a trustworthy and accurate tool to collect data on Scorsese's color choices for this study.

## Procedure

Given the two disparate metrics being analyzed in this study, themes and colors, two different procedures were conducted to collect data on both. The researcher first conducted a content analysis with thematic coding on *Goodfellas*:

### *Phase One: Themes*

The researcher recorded their observations on the following data points after each scene in the film: scene number, opening timestamp, closing timestamp, length (in minutes), length (in frames), brief summary (no more than five sentences in length); themes observed.

Thematic analysis is a systematic process during which a piece of media – in this case: *Goodfellas* – is coded and sorted into themes (Creswell & Creswell, 2018, pp. 179–213). The researcher coded the contents of each scene in the film using emerging codes – codes generated during the data collection.

### *Phase Two: Colors*

The researcher extracted a frame in the exact middle of each scene as determined in the previous phase. They then selected the first and last non-single-color frame of each film, excluding credits. The following data was then collected from these frames using adobecolor.com's HSB color space: timestamp, scene number, hex number, hue for hex number, saturation for hex number, brightness for hex number; description (based on location on color wheel; e.g. green). Data points 3 to 7 were repeated for each of the five significant colors. It is worth noting that a color's description was based on its hue value and position on the color wheel; it falls into one of six categories: red, orange, yellow, green, blue, purple.

## Data Analysis

Using the thematic coding from the content analysis in phase 1 of data collection, the researcher explored its connection to the collected color data (from phase 2). The researcher began with exploring this connection through the explicit color data: hex number and hue; the researcher then moved beyond this to the implicit color data: saturation and brightness. These secondary explorations, implicit and categorical, added nuance to the researcher's findings; they allowed for a deeper understanding of how Scorsese uses color to convey themes in his narrative feature film *Goodfellas*.

## Results

In an effort to understand how Martin Scorsese uses color to convey theme in *Goodfellas*, the researcher split data collection into two discrete parts: a thematic analysis of *Goodfellas* through the observational thematic coding of each scene (phase one), and a collection of a myriad of data on the five significant colors of a frame from each scene in *Goodfellas* (phase two). Accordingly, the researcher first analyzed trends found during data collection phase one; they proceeded by analyzing the data collected during phase two. After selecting the most prominent codes from the film – the themes of the film – the researcher analyzed what choices regarding color Scorsese made to convey these themes.

### Part One: Theme

From the 80 scenes in *Goodfellas*, 50 emergent codes were observed. From these codes, four themes were identified: family, brutality, violence, and money. These themes occurred in at least 20% of the film; the scenes

they were present in, their total number of occurrences, and the percentage of scenes they were present in throughout the film, are shown in Table 1.

**Table 1.** The Four Most Prominent Themes in *Goodfellas*

Theme	Scene Present	Frequency	Percentage Present in the Film
Family	3, 4, 7, 14, 25, 26, 27, 28, 31, 34, 35, 39, 40, 41, 42, 43, 45, 47, 60, 62, 64, 65	22	26.25%
Brutality	1, 5, 6, 9, 17, 23, 24, 29, 33, 35, 39, 40, 41, 43, 47, 60, 62, 64, 65	19	23.75%
Violence	1, 5, 9, 15, 24, 29, 33, 35, 39, 40, 41, 42, 43, 45, 47, 60, 62, 64, 65	19	23.75%
Money	2, 8, 10, 11, 14, 19, 20, 21, 22, 23, 32, 47, 50, 53, 54, 55, 58, 59	18	22.50%

## Part Two: Color

To understand how Scorsese uses color to convey specific themes, as well as the similarities and differences between his color choices when conveying different themes, it is vital to first understand the color choices Scorsese uses throughout *Goodfellas*.

The researcher analyzed 82 frames – 80 frames from the exact middle of each scene and one from the first and last significant frame of the film – using adobecolor.com. Five significant colors were analyzed from each of these frames.

Table 2 details and ranks the presence of each common color from the 410 significant colors found throughout the film.

**Table 2.** Common Colors Found Throughout the Film

	Frequency	Percentage
Red	259	63.17%
Green	42	10.24%
Blue	40	9.76%
Orange	30	7.32%
Yellow	27	6.59%



Purple	12	2.93%
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The majority (63.17%) of all significant colors qualified as red, while 10.24% and 9.76% qualified as green and blue respectively. Only a small percentage of significant colors qualified as orange (7.32%), yellow (6.59%), and purple (2.93%).

Table 3 provides a summary of the HSB values from the significant colors throughout the film.  
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**Table 3.** HSB Data for Entire Film

	Sample Size	Mean	Standard Deviation	Range
Hue	410	62.23	86.95	355
Saturation	410	44.97	26.69	98
Brightness	410	41.45	26.39	90

In regards to hue, although a large range of 355 out of a possible 360 signifies that a very broad spectrum of colors was used, a mean of 62.23 coupled with a standard deviation of 86.95 signifies that, on average, scenes throughout *Goodfellas* are filled mostly with reds, yellows, greens, and oranges; Table 2 corroborates this observation.

In regards to saturation, a mean of 44.97 out of a possible 100 signifies that colors throughout the film were found to be generally desaturated. A range of 98 out of possible 100 shows that there are deeply saturated colors throughout *Goodfellas*; however, a standard deviation of only 26.69 signifies that the saturation of colors throughout the film mostly stay near the mean and are accordingly desaturated.

In regards to brightness, a mean of 41.45 out of a possible 100 signifies that the scenes in *Goodfellas* were found to be generally dark. Much like saturation, although a range of 90 out of a possible 100 signifies that there were bright colors throughout the film, a standard deviation of only 26.03 shows that the majority of significant colors in scenes in *Goodfellas* remained close to the mean and thus were found to be dark.

### Part Three: Theme in Relation to Color

To understand how Martin Scorsese uses color to convey each of the four themes in *Goodfellas* – family, brutality, violence, and money – the researcher isolated data on color from scenes associated with each theme.

#### *Family*

Family has a double meaning in *Goodfellas*. In many ways it refers to Henry's blood-relations, from his troublesome domestic situation in his adolescence as shown in scene six where his father beats him with a belt to the numerous arguments he has with his wife, Karen, an example of which can be found in scene 43. Family also refers, however, to the criminal organization that Henry belongs to. A sense of brotherhood can be found between Henry and the other members of Paulie's crew, namely Tommy and Jimmy. They interact much like a family, constantly joking around and arguing, even when burying a dead body in scene 40. In fact, in many instances these two facets interact. For example, the members of Paulie's crew and their families have lunch together in scene 38. Scenes with any of these aspects of the theme of family were coded as such; color data from the 22 scenes that contained the theme of family was collected using adobecolor.com.



Table 4 details and ranks the presence of each common color from the 110 significant colors found in scenes with the theme of family.

**Table 4.** Common Colors Found in Scenes with the Theme of Family

	Frequency	Percentage	Percentage from Entire Film
Red	74	67.27%	63.17%
Yellow	9	8.18%	6.59%
Green	8	7.27%	10.24%
Orange	8	7.27%	7.32%
Blue	6	5.45%	9.76%
Purple	5	4.55%	2.39%

The majority (67.27%) of all significant colors qualified as red, while only a small percentage of colors qualified as yellow (8.18%), green (7.27%), orange (7.27%), blue (5.45%), and purple (4.55%). When compared to their prevalence throughout the entire film, red, yellow, and purple were more prevalent, while green, orange, and blue were less prevalent.

An example of this large prevalence of red, yellow, and green can be found in the frame taken and analyzed for scene 31. In this polaroid photo, three wives stand at a kitchen counter. The flowers on the counter are primarily green; the vegetables they are cutting are primarily red. The counter and wallpaper itself is colored pastel yellow. This portraiture of family – three mothers cooking for their children and husbands – is filled with primarily red, yellow, and green colors.

Table 5 provides a summary of the HSB values from the significant colors found within the 22 scenes with the theme of family.

**Table 5.** HSB Data for Scenes with the Theme of Family

	Sample Size	Mean	Standard Deviation	Range
Hue	110	56.91	85.19	349
Saturation	110	43.46	28.72	98
Brightness	110	39	26.55	90

In regards to hue, although a range of a 349 of a possible 360 signifies that a broad spectrum of colors was used, a mean of 56.91 coupled with a standard deviation of 85.19 signifies that, on average, scenes with the theme of family were filled mostly with reds, yellows, greens, and oranges; Table 4 corroborates this observation. Many indoor scenes, like scene 43, where a group of tight-knit wiseguys play cards, feature furniture with a restricted color palette of reds, yellows, oranges, and greens.

In regards to saturation, a mean of 43.46 out of a possible 100 signifies that colors throughout scenes with the theme of family were generally found to be denatured. This average is less than the overall film's (see

Table 3); scenes with the theme of family are generally more desaturated. A range of 98 out of a possible 100 shows that there were deeply saturated colors throughout the scenes; however, a standard deviation of only 28.72 signifies that the saturation of colors in scenes with the theme of family mostly steady near the mean and were accordingly desaturated.

In regards to brightness, a mean of 39 out of a possible 100 signifies that scenes with the theme of family were generally found to be dark; they were, on average, darker when compared to the film in its entirety (see Table 3). Much like saturation, although a range of 90 out of a possible 100 signifies that there were bright colors, a standard deviation of only 26.55 shows that the majority of colors in scenes with the theme of family remained close to the mean and were thus dark.

This desaturated, darker look is clearly seen in scenes like scene 60, where Tommy and Frankie Carbone go to Stack's apartment to kill him. Even though a large portion of blood splatters all over the walls, the color of the blood is more desaturated and dark than it is in, for example, scene 24.

### *Brutality*

Most academic literature suggests the theme of brutality as being violent; however, brutality is a complicated multi-faceted theme that extends beyond simple violent action (Williams and Moser, 2019). While violence is simply an act, brutality is a descriptor of harshness and cruelty rooted in our most primal urges; one must choose to make an action brutal. For example, Tommy moves beyond simply chastising Spider for not bringing him a drink in scenes 41 and 43. Instead, he makes the conscious, cruel choice to shoot at Spider, eventually killing him. For members of Paulie's crew, this brutality is commonplace; it's a way to solve problems and exert dominance. In scene 64, Jimmy orders the killing of the members of the Lufthansa heist, eliminating the possibility of being snitched on. Even in scene 40, where no blood is spilled, the primal, animalistic way in which Henry throws his girlfriend, Janice, onto the bed in front of her friends is a clear show of the sexual power and dominance that runs throughout their relationship and his life. Scenes with a brutal nature, whether violent or not, were coded as *suh*; color data from the 19 scenes that contained the theme of brutality was collected using [adobecolor.com](https://adobecolor.com).

Table 6 details and ranks the presence of each common color from the 95 significant colors found in scenes with the theme of brutality.

**Table 6.** Common Colors Found in Scenes with the Theme of Brutality

	Frequency	Percentage	Percentage from Entire Film
Red	62	65.26%	63.17%
Orange	11	11.58%	7.32%
Green	10	10.53%	10.24%
Yellow	5	5.26%	6.59%
Purple	5	5.26%	2.93%
Blue	2	2.11%	9.76%

The majority (65.26%) of all significant colors qualified as red, while 11.58% and 10.53% qualified as orange and green respectively. Only a small percentage of significant colors were found to be yellow (5.26%),

purple (5.26%), or blue (2.11%). When compared to their prevalence throughout the entire film, red, orange, green, and purple increased in prevalence, while yellow and blue decreased in prevalence.

An example of this large prevalence of red, orange, and green can be found in scene 62. In this frame, Henry is trying to convince Jimmy not to brutally murder his friend Morris with an ice pick for being a nuisance. The table is a reddish-brown; as are the picture frames on the walls. The pictures, depicting bloody and violent boxing matches, are orange; Jimmy, who will later murder order one of his underlings to murder Morris by shoving an ice pick through the back of his neck, wears an orange-based tie. The walls themselves, which take up a large portion of the background, are painted a pastel green.

Table 7 provides a summary of the HSB values from the significant colors found within the 19 scenes with the theme of family.

**Table 7.** HSB Data for Scenes with the Theme of Brutality

	Sample Size	Mean	Standard Deviation	Range
Hue	95	51.25	85.43	355
Saturation	95	44.77	28.50	98
Brightness	95	39	26.03	90

In regards to hue, although a large range of 355 out of a possible 360 signifies that a very broad spectrum of colors was used, a mean of 51.25 coupled with a standard deviation of 85.43 signifies that, on average, scenes with the theme of brutality were filled mostly with reds, yellows, greens, and oranges; Table 6 corroborates this observation. Many scenes, like scene 65 where we learn Tommy was shot through the head so his mother couldn't hold an open-casket funeral, featured a very restricted color palette of reds, yellows, oranges, and greens.

In regards to saturation, a mean of 44.77 out of a possible 100 signifies that colors throughout scenes with the theme of brutality were generally found to be desaturated. This average is only slightly less than the overall film's (see Table 3); scenes with the theme of brutality were only nominally more desaturated when compared to the overall film. A range of 98 out of possible 100 shows that there were deeply saturated colors throughout the scenes; however, a standard deviation of only 28.50 signifies that the saturation of colors in scenes with the theme of brutality mostly stayed near the mean and were accordingly desaturated.

In regards to brightness, a mean of 39 out of a possible 100 signifies that scenes with the theme of brutality were generally found to be dark; they were, on average, darker when compared to the film in its entirety (see Table 3). Much like saturation, although a range of 90 out of a possible 100 signifies that there were bright colors, a standard deviation of only 26.03 shows that the majority of colors in scenes with the theme of brutality remained close to the mean and were thus dark.

This desaturated, darker look is clearly seen in scenes like scene 6, where Tony Stacks and an accomplice shove a postman's head into a bread oven. Even though postmen's uniforms were pastel blue during that era, his is dyed a much darker baby blue than found in other scenes throughout the film.

### *Violence*

Although many scenes throughout the film were coded as having both the theme of violence and brutality, such as in scene 60 where Tommy and Frankie Carbone murder Stacks, there is an important distinction between both themes: violence is an action and a topic, while brutality is the harshness and cruelty of an action. For

example, in scene 15, in which Sonny Bunz begs Paulie to protect him from Tommy, violence and its consequences are explored, though none of the action within the scene can reasonably be described as animalistically brutal. A brutal action is also not necessarily a violent one, as is clear in scene 40, where Henry throws his girlfriend, Janice, onto the bed while her friends watch in a show of sexual dominance. Violence itself takes many forms throughout the film. In scene 45, Karen holds a gun to Henry's head; he eventually wrestles it out of her hand. Even though only a small amount of violence – Henry overpowering Karen – occurs, the threat of extreme violence – death – is constantly present throughout the scene. Scenes with any form of violence were coded as having the theme of violence; color data from 19 scenes that contained the theme of violence was collected using adobecolor.com.

Table 8 details and ranks the presence of each common color from the 100 significant colors found in scenes with the theme of violence.

**Table 8.** Common Colors Found in Scenes with the Theme of Violence

	Frequency	Percentage	Percentage from Entire Film
Red	67	67%	63.17%
Orange	10	10%	7.32%
Green	9	9%	10.24%
Yellow	5	5%	6.59%
Purple	5	5%	2.93%
Blue	4	4%	9.76%

The majority of (67%) of all significant colors in scenes with the theme of violence qualified as red, while 10% and 9% qualified as orange and green respectively. Only a small percentage of significant colors in scenes with the theme of violence qualified as yellow (5%), purple (5%), and blue (4%). When compared to their prevalence throughout the entire film, red, orange, and purple increased in prevalence, while green, yellow, and blue decreased in prevalence.

An example of this large prevalence of red, orange, and green can be found in scene 33. After being recently released from prison, Billy Batts goes to a bar owned by Paulie to celebrate his newfound freedom. While at the bar, he insults Tommy, who proceeds to beat Billy Batts to death. Filling the background of this scene are party lights and balloons, the majority of which are red, orange, and green. The walls are also shades of orange and red; instead of glowing the traditional yellow, the lights in the bar glow orangish-red.

Table 9 provides a summary of the HSB values from the significant colors found within the 19 scenes with the theme of violence.

**Table 9.** HSB Data for Scenes with the Theme of Violence

	Sample Size	Mean	Standard Deviation	Range
Hue	100	50.38	80.41	355
Saturation	100	47.30	29.06	98

Brightness	100	41.60	28.18	90
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In regards to hue, although a large range of 355 out of a possible 360 signifies that a very broad spectrum of colors was used, a mean of 50.38 coupled with a standard deviation of 80.41 signifies that, on average, scenes with the theme of violence were found to be mostly filled with reds, yellows, greens, and oranges; Table 8 corroborates this observation. For example, the bakery in scene 9, where a teenage Henry witnesses a bleeding man stumble into, has a highly restrictive color palette of yellow and red.

In regards to saturation, a mean of 47.30 out of a possible 100 signifies that colors throughout scenes with the theme of violence were generally found to be desaturated. This average is greater than the overall film's (see Table 3); scenes with the theme of violence were generally more saturated than the rest of the film. A range of 98 out of possible 100 shows that there were deeply saturated colors throughout the scenes; however, a standard deviation of only 29.06 signifies that the saturation of colors in scenes with the theme of violence mostly stayed near the mean and were accordingly desaturated.

In regards to brightness, a mean of 41.60 out of a possible 100 signifies that scenes with the theme of violence were generally found to be dark; they were, on average, nominally lighter when compared to the film in its entirety (see Table 3). Much like saturation, although a range of 90 out of a possible 100 signifies that there were bright colors, a standard deviation of only 28.18 shows that the majority of colors in scenes with the theme of violence remained close to the mean and were thus dark.

This desaturated, darker look is clearly seen in scenes like scene 5, where Henry's father beats him as a teenager. Their clothing is dark, as is the lighting in their small, cramped kitchen. Their kitchen appliances are also much darker when compared to those in, for example, scene 32.

### Money

In *Goodfellas*, the theme of money plays a central role, reflecting characters' motivations, values, as well as the corrupting influence of wealth within the criminal underworld that they belong to. First and foremost, money is a form of power that characters like Henry, Jimmy, Tommy, and even Karen chase. As seen in scene eight, Henry, who comes from a poor background, saw the older mafiosos, who wore diamond rings and drove expensive cars, as examples of a way to gain the power to skirt the rules. This greed is present throughout the film, where, even though he already made millions from the Lufthansa heist, Henry continues to deal drugs. Scenes that contained an abundance of wealth and/or a character with a clear objective within the scene to accumulate more money were coded as having the theme of money; color data from the 18 scenes that contained the theme of money was collected using adobecolor.com.

Table 10 details and ranks the presence of each common color from the 85 significant colors found in scenes with the theme of money.

**Table 10.** Common Colors Found in Scenes with the Theme of Money

	Frequency	Percentage	Percentage from Entire Film
Red	54	63.53%	63.17%
Yellow	9	10.59%	6.59%
Orange	8	9.41%	7.32%
Green	7	8.24%	10.24%

Blue	5	5.88%	9.76%
Purple	2	2.35%	2.93%

The majority of (63.53%) of all significant colors in scenes with the theme of money qualified as red, while 10.59% and 9.41% qualified as yellow and orange respectively. Only a small percentage of significant colors in scenes with the theme of money qualified as green (8.24%), blue (5.88%), and purple (2.35%). When compared to their prevalence throughout the entire film, red, yellow, and orange increased in prevalence, while green, blue, and purple decreased in prevalence.

A clear example of this large prevalence of red, yellow, and orange can be found in scene 14, where Henry, Tommy, and a group of wiseguys sit in the Copacabana, eating and drinking to excess. The room is filled with red-colored objects, from the lampshades to the tables; Henry's suit is yellow-based. Splashes of orange can be seen throughout the background; the walls are primarily orange-based.

Table 11 provides a summary of the HSB values from the significant colors found within the 18 scenes with the theme of money.

**Table 11.** HSB Data for Scenes with the Theme of Money

	Sample Size	Mean	Standard Deviation	Range
Hue	85	52.65	83.96	355
Saturation	85	48.88	26.40	98
Brightness	85	41.18	25.98	90

In regards to hue, although a large range of 355 out of a possible 360 signifies that a very broad spectrum of colors was used, a mean of 52.65 coupled with a standard deviation of 83.96 signifies that, on average, scenes with the theme of money were filled mostly with reds, yellows, greens, and oranges; Table 10 corroborates this observation. For example, scene 20, where Henry and Tommy steal hundreds of thousands of dollars from Air France, features a background lit by red lights and a foreground lit by an orangish-yellow light.

In regards to saturation, a mean of 48.88 out of a possible 100 signifies that colors throughout scenes with the theme of money were generally found to be desaturated. This average is greater than the overall film's (see Table 3); scenes with the theme of money were generally more saturated than the rest of the film. A range of 98 out of possible 100 shows that there were deeply saturated colors throughout the scenes; however, a standard deviation of only 26.40 signifies that the saturation of colors in scenes with the theme of money mostly stayed near the mean and were accordingly desaturated.

In regards to brightness, a mean of 41.18 out of a possible 100 signifies that scenes with the theme of money were generally found to be dark; they were, on average, nominally darker when compared to the film in its entirety (see Table 3). Much like saturation, although a range of 90 out of a possible 100 signifies that there were bright colors, a standard deviation of only 25.98 shows that the majority of colors in scenes with the theme of money remained close to the mean and were thus dark.

This desaturated, darker look is clearly seen in scene two, where Henry watches a group of mafiosos interact in a restaurant across the street. Both the lighting in Henry's room and the lighting in the restaurant are dim; the walls on the outside of the restaurant are painted with a darker green than found in, for example, scene 9.

## Discussion

Through an intimate content analysis of both the themes and color choices in the hit gangster film *Goodfellas*, the researcher aimed to understand how Martin Scorsese, the film's director, uses color to convey theme in *Goodfellas*. Data was collected in two phases: first, each scene in the film was thematically coded; second, one frame from each scene throughout the film was analyzed. From this thematic coding, four prominent themes were identified throughout the film: family, brutality, violence, and money (see Table 1).

### Family

Family, the most prominent theme in *Goodfellas*, is a multifaceted constantly evolving theme throughout the film. From the domestic violence Henry faces in scene six to him arguing with Karen, his wife, in scene 43, in its simplest form, the theme of family encompasses the events and conflicts that arise around Henry's blood relations. In the context of *Goodfellas*, however, family refers to much more: the criminal organization that Henry belongs to. On a larger scale, Paulie's crew operates as a pseudo-extended family. Scene 38 shows that they often have lunch together; scene 7 shows all the men hanging out at a barbeque. On a smaller scale, the crew that Henry primarily engages with, namely Tommy and Jimmy, operate much akin to a tight-knit family. They can be found cracking jokes even in the most morbid times, like scene 40 where they are forced to bury a dead body.

In scenes with the theme of family, there was a high prevalence of red, yellow, and green (see Table 4). In fact, when compared to the entire film, scenes with the theme of family had more red and yellow hues. These three colors, especially when presented together, are very earth-based; they originate in the natural, primal world around us (Ender et al., 2016). Family, both blood-relations and the community present in a criminal organization, is also a very primal theme; it's deeply rooted in human nature (Sharma, 2019). Scorsese's choice to use a palette of these primal, ancient colors to convey the primal, ancient theme of family is clearly purposeful.

In the polaroid photo presented during the family gathering montage in scene 31, Scorsese chose to fill the scene with a high prevalence of red, yellow, and green. In the photo, three wives stand at a kitchen counter preparing a traditional Italian-American meal. The flowers in a vase on the counter are mostly green; the counter and wallpaper itself is colored pastel yellow. The peppers they are preparing are primarily red and green; the outsides of the onions have a reddish tint. Though a composition of three wives cooking for their family is a traditional way to express the theme of family, Scorsese further emphasizes the theme of family by utilizing reds, yellows, and greens throughout the *mise-en-scène* of the scene.

The theme of family, though generally shown in a positive way, is inherently neutral. Although scenes with the theme of family were darker and more desaturated when compared to the rest of the film (see Table 5), this can be attributed to the very nature of the theme of family in *Goodfellas*. The theme of family encompasses both the generally positive homelife that Henry and his family experience, but it also encompasses the criminal organization that Henry belongs to. Accordingly, Scorsese used a darker, more desaturated palette in scenes with the theme of family to convey this duality within the theme itself.

For instance, the blood in scene 60, where Tommy and Frankie Carbone go to Stack's apartment to shoot him in the back of the head, is more desaturated and dark when compared to blood in other scenes in the rest of the film – for example: scene 24.



## Brutality

Although, throughout *Goodfellas*, brutality often manifests itself in the form of violence, as a theme, brutality is much more complicated and nuanced than mere simple violent action. Defined as being an action of “great cruelty,” brutality is harsh and aggressive; it’s rooted in our most primal, animalistic instincts (Oxford Languages, 2024). While violence is simply an act, brutality is a descriptor of an action’s harshness and cruelty. An individual must choose to make an act brutal; a violent action is simply violent by nature. For example, while Tommy shooting Spider to death in scene 41 is a violent action, it is the extremely cruel intention behind Tommy’s action that makes it brutal.

Throughout history, brutality has been used to subjugate others (Flockhart & Korosteleva, 2022). This is no different in *Goodfellas*. Members of Paulie’s crew commonly use brutality to enforce their will and dominance on others. Jimmy uses the brutal killing of members of the Lufthansa heist in scene 64 to send a message to the rest of the group. Henry recognizes this, stating, “From then on I kept my mouth shut. I knew Jimmy. He had the cash. It was his.” (Scorsese, 1990).

Brutality doesn’t always occur at the same time as violence, however. The primal, animalistic way Henry throws Janice, his girlfriend, onto the bed in front of her friends in scene 40 is brutal in its own right; by doing so, Henry shows that he is dominant in their relationship.

Scorsese used a high volume of reds, oranges, and greens throughout scenes with the theme of brutality; these colors are used more in scenes with the theme of brutality when compared to the rest of the film (see Table 6). Much like with the theme of family, red, orange, and green are primal colors deeply rooted in the world around us. It is also worth mentioning, however, that there was also a higher prevalence of purple in scenes with the theme of brutality when compared to the rest of the film. This is where the key distinction between how Scorsese conveys the primal themes of family and brutality lies. In scenes with the theme of brutality, there was a higher prevalence of reds, and oranges and purples – colors partly made by red, when compared to the rest of the film. While family and brutality are both primal, ancient themes, brutality was conveyed in a much more aggressive way. Red is considered an aggressive color (Ambrogio, 2018); it is commonly used to convey themes of cruelty, power, and extreme aggression (Ammer, 2020). Accordingly, Scorsese used a higher prevalence of red, orange, and purple when compared to the rest of the film to convey the aggressive component to brutality; he used a high prevalence of earth-based, ancient colors – red, orange, and green, to convey the primal, animalistic component of brutality.

A notable instance of these choices can be found in scene 62, during which Henry is attempting to convince Jimmy not to murder his friend Morris with an ice pick for pestering him. Scorsese chose to use a large prevalence of red, orange, and green throughout the *mise-en-scène* of the scene: the wood is tinted a red-based hue, the wall has green wallpaper, Jimmy, who will later order the killing of Morris with an icepick, is wearing an orange-based tie, Morris himself is wearing a purple-based tie; the pictures, which depict extremely violent and bloody boxing matches, are tinted orange.

The overall film was generally found to have a dark, desaturated look, but scenes with the theme of brutality were found to be even darker and more desaturated (see Table 7). Brutality is a dark theme; scenes with the theme of brutality are filled with tension and uncertainty. Dark, desaturated looks are traditionally used in horror films to convey this tension and uncertainty (Vebrianto & Pratama, 2023). Scorsese borrowed this strategy to convey that dangerous, brutal action was imminent within scenes with the theme of brutality.

An example of this can be clearly seen in scene 6, where Tony Stacks and an accomplice commit the brutal act of shoving a postman’s head into a bread oven. Not only are the dirty walls of the bakery desaturated, but the postman’s uniform itself is a much darker shade when compared to the pastel blues found elsewhere in the film. From its foreshadowing to its occurrence, the brutality of the action in the scene is conveyed through Scorsese’s use of a dark, desaturated *mise-en-scène*.

## Violence

There is great similarity between the themes of violence and brutality in *Goodfellas*; however, there is an important distinction between the two: violence is an action and a topic, while brutality is the aggression and cruelty of an action. Scene 15, where Sonny Bunz begs Paulie to protect him from Tony, is a clear example of this. Although violence as a topic is discussed, none of the action within the scene can be reasonably described as aggressive or brutal. Furthermore, a brutal action is not necessarily a violent one. Scene 40, where Henry throws his girlfriend Janice onto the bed while her friends watch, is a show of sexual dominance. Nevertheless, no violence takes place. Thus, though the action in the scene is brutal, it is not violent.

Violence, both as a topic and an action, takes many forms throughout the film. In scene 45, the threat of death looms over the action in the scene as Karen and Henry grapple with each other over a gun. Even though only a small amount of violence occurs, the threat of extreme violence is constantly present. Regardless of the amount of violence present, there are many similarities in the color choices Scorsese used throughout scenes with the theme of violence. Much like scenes with the theme of brutality, Scorsese chose to use many reds, oranges, and greens throughout the mise-en-scène of each scene; purple was also used more throughout scenes with the theme of violence when compared to the entire film (see Table 8). This reaffirms how he uses these primal, ancient colors to convey a theme deeply rooted in the human experience; this also corroborates how a higher prevalence of red and colors partly made by red – orange and purple –used used to convey violence's power and aggressiveness, much like in scenes with the theme of brutality.

The mise-en-scène of 33, one of the most violent scenes in the film, is filled with red, orange, and green. After being recently released from prison, Billy Batts goes to a bar owned by Paulie to celebrate his newfound freedom. While at the bar, he insults Tommy, who proceeds to beat Billy Batts to death. Filling the background of this scene are party lights and balloons, the majority of which are red, orange, or green. The walls are also shades of orange, purple, and red; instead of glowing the traditional yellow, the lights in the bar glow orangish-red. These colors ground the scene in a primal, ancient feeling; the purple and orange accents around the room convey a warning of the aggressive, violent action that is about to take place.

The largest difference between how Scorsese conveyed the theme of violence through color when compared to the way he conveys the theme of brutality through color is in the saturation of his scenes. While scenes with the theme of brutality remained desaturated, scenes with the theme of violence were more saturated when compared to scenes with the theme of brutality and the entire film (see Table 9). Although violence is a dark theme, and thus would traditionally contain a desaturated look, Scorsese's use of a more saturated palette could be for practical purposes. In order for the audience to better experience the effects of the violent action shown on screen, raising the saturation of scenes with the theme of violence better allowed the audience to see the blood, guts, and gore in, for example, scene 47, where Henry and Jimmy beat up a man and dangle him over a lion enclosure. This is most evident in the fact that, while scenes with the theme of violence were essentially the same level of brightness as the entire film (see Table 9) – conveying the darkness and evil contained with the theme, scenes with the theme of violence were much more saturated when compared to the entire film. Saturation plays a much larger role in highlighting violence on screen than brightness; Scorsese chose to use a more saturated color palette to do this while maintaining a dark, gritty atmosphere through a low level of brightness.

## Money

The theme of money plays a central role in *Goodfellas*, reflecting characters' motivations, values, and goals. It also highlights the corrupting influence of wealth within the criminal underworld that the principal characters belong to. As evidenced in scene eight, a young Henry, who came from a poor background, sees the older mafiosos, who wear diamond rings and drive expensive cars, as examples of a way to gain power. The money

they have is simply a means to an end; Henry chases money for the power it comes with, as do many of the other principal characters in *Goodfellas*. This greed for money and hunger for power is present throughout the film, where, even though they already made millions from the Lufthansa heist, Henry continues to deal drugs.

Scorsese used a much higher prevalence of reds, yellows, and oranges throughout scenes with the theme of money when compared to the entire film (see Table 10). The higher prevalence of the reds, yellows, and oranges can be attributed to how, as established with the theme of family, these colors convey a sense of comfort and warmth (Clarke & Costall, 2008). In the context of money, the high prevalence of reds, yellows, and oranges convey the feeling of comfort the characters feel when interacting with money. Furthermore, the primal nature of red, yellow, and orange convey the primal urge to attain this feeling of comfort and warmth – in this instance: through money.

The set design of the Copacabana restaurant in scene 14, where Henry, Tommy, and a group of wise-guys eat and drink to excess, used a plethora of red, yellow, and orange. The lampshades are red, as are the tables. Henry's suit is yellow-based. The walls are primarily orange-based; splashes of orange light can be seen across the background. In the Copacabana, Paulie's crew are treated like kings. They eat as much as they want, they drink as much as they want, and they can even cause a scene and not be responsible for their potentially violent actions, much like Tommy does in scene 15. This sense of power, and the money behind it, is conveyed through the reds, yellows, and oranges in the Copacabana; the sense of comfort Henry, Tommy, and the rest of the crew feel at the Copacabana is highlighted by Scorsese's use of these warm colors.

Scenes with the theme of money were darker when compared to the entire film (see Table 11). As touched on earlier, the money in *Goodfellas* oftentimes has a corrupting influence to it. While the pursuit of money corrupts the principal characters, this greed extends far beyond the criminal underworld. In scene 11, Jimmy uses his wealth to corrupt and gain power over the police. Even though the scene takes place in broad daylight, Scorsese used a darker color palette within the mise-en-scène of the scene to convey this dark, corrupting influence over the police officers. And, although he and his wife are dressed in dark colors, the police officers are dressed in even darker clothing, conveying to the audience the power dynamics created by the presence of money and its corrupting influence in the scene.

While scenes with the theme of money were found to be dark and desaturated, when compared to the entire film, scenes with the theme of money were generally found to be more saturated (see Table 11). Much like how this increase in saturation is used by Scorsese to highlight violent action in scenes with the theme of violence, this greater level of saturation is used to highlight the glitz, glamor, and power that comes from money in the film.

This darker yet more saturated look can be clearly seen in scene two, where Henry watches a group of mafiosos hang out at a restaurant across the street. Although the scene contains many pockets of darkness and the mise-en-scène is somewhat desaturated, the objects of wealth, namely the gangsters' rings, suits, and cars, are deeply saturated, highlighting their significance to the audience. When analyzed in the context of the scene – Henry observing the power that can come from an abundance of money, it becomes clear that Scorsese used a higher level of saturation to highlight the wealth of the mafiosos to the audience and allow them to better understand what motivated Henry to join a life of crime in the first place.

## Findings

It was found that Scorsese used a high prevalence of earth-based colors to convey primal themes like family and brutality; he used a high prevalence of red and colors partly made from red – orange and purple – to convey aggression and raise audience tension. It was also found that Scorsese employed a generally dark and desaturated look to communicate dark, evil themes like brutality, though he did raise the saturation to highlight specific visual elements as seen in scenes with the theme of violence and money. He also used a dark, desaturated

look to add nuance to the non-evil themes he was trying to convey, as is the case when he used it to highlight the darker sides of the themes of family and money.

## Conclusion

Through content analysis, the researcher investigated how Martin Scorsese uses color to convey theme in his narrative feature film *Goodfellas*. The researcher first used thematic coding to determine the four most prominent themes through the film: family, brutality, violence, and money. He then collected and analyzed data on color for each scene, with a focus on scenes that contained one of the aforementioned themes.

## Implications

The findings of this study do not contradict the current academic discourse surrounding the use of color in film. To the contrary, although *Goodfellas* is considered an innovative movie, Scorsese's use of color in *Goodfellas* is mostly traditional, drawing from the choices many directors have made across film history. Nevertheless, the findings of this study are extremely relevant, as they not only provide yet another example of the effectiveness of Scorsese's color choices, but they also have the potential to inspire further research on other films. Moreover, academics in the field of film studies are not the only group who stand to benefit from this study and further academic research. Much like how a painter studies paintings, filmmakers must study film. When asked why watching movies is so important for a filmmaker, Scorsese responded, "It's a matter of your response to it. You're aware that that is out there; you're aware that that's part of the medium you're using. And so, in a way, even if you reject it, you have to know what you're rejecting" (Scorsese, 2017). It is thus pertinent for filmmakers to understand the color choices of one of the "greatest directors alive" (McQueen et al., 2022). Additionally, a third, typically underrepresented group stands to greatly benefit from the findings of this study. For those who consider *Goodfellas* to be one of their favorite films, as is the case with the researcher, a deeper understanding of one of the core elements of the film – color – provides moviegoers and fans with a deeper, more intimate understanding of the film.

## Limitations

Firstly, despite the researcher's best efforts to maintain consistency when coding each scene, the use of emergent coding was inherently influenced by the researcher's bias. Furthermore, emergent coding allows the possibility of multiple, single-use codes being generated. 50 distinct thematic codes were generated; 19 of these codes were used in only one scene. Although generating a set of codes prior to coding would have eliminated these limitations, given the lack of academic research on the main themes of *Goodfellas*, doing so would have introduced a greater amount of bias when compared to the chosen methodology and influenced the results of the thematic analysis of *Goodfellas*.

Using the random sampling method of selecting a frame from the exact middle of every scene eliminated researcher bias when choosing frames; however, one significant limitation lies with this methodology: the middle frame of each scene might not fully showcase the mise-en-scène of each scene, thus reducing the researcher's ability to draw observations on what color choices Scorsese made. Although choosing the most significant frame of each scene would have introduced researcher bias, doing so would have allowed for a more complete understanding of Scorsese's color choices.

While the data collection instrument used, [adobecolor.com](https://adobecolor.com), consistently chose the same five significant colors, one or more of these significant colors could have been a skin tone. Because the majority of char-

acters in *Goodfellas* are caucasian, and red is the base hue of caucasian skin (Kévin Bideaux, 2021), the extremely large prevalence of red could have been caused by how adobecolor.com occasionally selects skin tones as one or more of the significant colors in a frame. Many of the researcher's conclusions on how Scorsese conveys theme through color were based on this large prevalence of red. Accordingly, this limitation of adobecolor.com could have greatly influenced the researcher's conclusions.

## Recommendation for Future Research

It is the researcher's recommendation that, although further research can be conducted on Scorsese's use of color to convey theme in *Goodfellas*, further research should primarily focus on other films, especially those directed by Scorsese. Doing so will allow a greater understanding of the stylistic choices Scorsese makes regarding color across his films; further research may even allow an understanding of how Scorsese's style regarding color has evolved across his career.

As the use of artificial intelligence begins to rapidly expand and gain greater accuracy, utilizing artificial intelligence to analyze every pixel of every frame of a movie, perhaps even excluding skintones, would allow for an even deeper and more rigorous understanding of the filmmaker's color choices. Depending on the scope of the study and resources allocated to it, the lead researcher could also utilize a diverse research team to thematically code the film, allowing the themes identified to be of a more rigorous standard.

Regardless, it is the researcher's strong recommendation for further research surrounding how Martin Scorsese conveys theme through color in other films directed by him.

## Acknowledgments

The researcher would like to thank his research advisory, for guiding him through the research process, as well as his other two Quest teachers, for their continued support. He would also like to thank his film teacher, and his theater teacher, for their encouragement and mentorship during the research process.

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