

-Research Article-

## The Emotional Appeal of Science Fiction Cinema: In Awe of *Interstellar*

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### Abstract

*Science fiction has almost become a modern-day mythology, and it is a genre that reaches the masses in the field of cinema, in a way that its literature counterpart cannot. The 'sublime,' identified as one of the attractive aspects of science fiction literature, is a philosophical and aesthetic concept with a wide semantic application associated with greatness, power, and limitlessness. The expression of the sublime in cinema creates an emotion of 'awe.' Awe as a complex emotion has been increasingly explored in theoretical and empirical studies in recent years. In this study, the emotion of awe is examined with the example of *Interstellar* (Christopher Nolan, 2014). The film has distinctive depictions of the sublime and it suggests two distinguishing features of awe (i.e., vastness and a need for accommodation) through various aspects of science fiction themes and certain affective qualities. It has been concluded that awe as a cinematic emotion is the emotional core of *Interstellar*. The film embodies the operational structure of awe.*

**Key Words:** *Science fiction, cinematic emotion, awe, sublime, sublime aesthetics*

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DOI: 10.31122/Sinefilozofi.833598

Sari, M. (2021). Emotional Appeal Of Science Fiction Cinema: In Awe Of *Interstella*. *Sinefilozofi Dergisi*, Cilt: 6, Sayı: 12. 1059-1074. <https://doi.org//10.31122/Sinefilozofi.833598>

Recieved:30.11.2020

Accepted: 02.09.2021

-Araştırma Makalesi-

**Bilim Kurgu Sinemasının Duygusal Cazibesi:  
Yıldızlararası'na Duyulan Hayranlık**

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**Özet**

*Bilim kurgu neredeyse modern dünyanın mitolojisi haline gelmiş olup edebiyata kıyasla sinema alanında insanları kitleler halinde etkilemeyi beceren bir türdür. Bilim kurgu edebiyatının cezbedici yönlerinden biri olarak gösterilen 'yüce,' büyüklük, güç ve sınırsızlık ile ilişkilendirilen, geniş bir anlamsal varyasyona sahip felsefi ve estetik bir kavramdır. Sinemada yücenin dışavurumu bir 'hayranlık' duygusu oluşturur. Hayranlık girift bir duygu olarak teorik ve ampirik çalışmalarda son yıllarda artan bir hızla incelenmektedir. Bu çalışmada, Christopher Nolan'ın Yıldızlararası (Interstellar, 2014) filmi özelinde, bilim kurgu sinemasının insanları cezbetmesinin ardında yatan hayranlık duygusu incelenmiştir. Film, yücenin ayırt edici tasvirlerine sahiptir ve bilim kurgu temalarının çeşitli yönlerini ve belirli duygusal nitelikleri işleyerek hayranlığın iki ayırt edici özelliğini (enginlik ve uyum sağlama ihtiyacı) ortaya koymaktadır. Bir sinemasal duygu olarak hayranlığın Yıldızlararası filminin duygusal özü olduğu sonucuna ulaşılmıştır. Film, hayranlık duygusunun işlemsel yapısını somutlaştırır.*

**Anahtar Kelimeler:** Bilim kurgu, sinemasal duygu, hayranlık, yüce, yüce estetiği

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DOI: 10.31122/Sinefilozofi.833598

Sarı, M. (2021). Emotional Appeal Of Science Fiction Cinema: In Awe Of Interstella. Sinefilozofi Dergisi, Cilt: 6, Sayı: 12. 1059-1074. <https://doi.org/10.31122/Sinefilozofi.833598>

Geliş Tarihi: 30.11.2020

Kabul Tarihi: 02.09.2021

## Introduction

With each passing day, science has an increasing place in the news agenda. Whether it is extending the human lifespan, quantum mechanics, searching for extraterrestrial life forms or planets to inhabit, science is among the news that people are most interested in. It is also easy to find popular science books on bestseller lists and this universal attraction to science stems from several reasons. An important reason is the blurring of the lines between science and science fiction. This is because almost every day “seems to bring news of a mind-boggling discovery, advancement, or invention that wasn’t supposed to happen for years” (Forte, 2017, p. 84). While human imagination feeds scientific advancement, scientific advancement expands speculative fiction in return. Science fiction has almost become our modern-day mythology. Whilst science fiction as a genre has a limited readership in literature, it may attract a widespread audience in cinema. Nevertheless, it can be claimed that science fiction has lost its former glory and has been defeated by the fantasy genre in recent years. Sobchack (2014) claims that the main reason for this is that special effects do not affect people the way they used to and the spectacle of science fiction films have lost their aura. She singles out two films, *Avatar* (James Cameron, 2009) and *Gravity* (Alfonso Cuarón, 2013), “both of which were sufficiently innovative to put the ‘special’ back in their effects, ‘wow’ audiences, and achieve ‘blockbuster’ status” (Sobchack, 2014, p. 284). *Interstellar* (Christopher Nolan, 2014), which was released in the year Sobchack wrote the article, constitutes another example in this vein. It can be argued that the basis for the success of blockbuster science fiction films is that they are immersive and they captivate the audience with their visuality. However, it is necessary to look for the other reasons underlying this success.

*Interstellar*, being a widely acclaimed science fiction film, is quite amenable to philosophical examination. The reasons why it attracts such great attention in the field of cinema deserves to be investigated. One way of analyzing films aesthetically is to examine the emotional patterns of the work. Emotions are vital in the ability of films to captivate our attention and imaginations. This study focuses on one variation of a question that can be asked about the relationship between fiction and emotions, which is ‘how do narratives create emotions’? In this study, I wanted to delve into how a blockbuster science fiction film can attract wide audiences from all over the world and understand which emotion(s) science fiction filmmakers want to elicit from the audience. Emotional appeal is as important in science fiction narratives as pompous special effects or novel scientific ideas are. What makes *Interstellar* an exceptional film is not just the depictions of black holes or spaceships floating in space; it is the great importance placed on how these depictions were intended to be conveyed through particular emotions.

Film scholar Tarja Laine states that cinematic emotions are like real-life emotions and “composed of affective appraisals and emotional evaluations” (Laine, 2011, p. 1). An affective appraisal originates from our physical body and senses and underlies all emotions. Emotional evaluation collects this appraisal and gives significance to it. She claims that, “writing about the affective functioning of cinema without paying attention to the way in which emotions orient the narrative would be methodologically unwise” (Laine, 2015, p. 7). In film theory, Deleuzian tradition places emphasis on affects, while on the other hand the cognitivist approach put emotions forward. By contrast, Laine uses the umbrella term ‘cinematic emotion’ which covers both of them. The components of this term “are not mutually exclusive, but rather two sides of one phenomenological experience” (Laine, 2011, p. 2). To approach cinematic emotions as unified states, Laine offers a special methodology. She proposes to approach films as “intentional agents with emotional states that are analogous, but not identical, to human emotional states, because all films have an operational, intentional structure of their own” that she calls the “emotional core” of the film (Laine, 2011, p. 3).<sup>1</sup> Films not only express emotions,

<sup>1</sup> Laine propounds some emotional cores of particular movies, such as “boredom in Andy Warhol’s *Empire* (1964), guilt both in Michael Haneke’s *Hidden* (*Caché*, 2005) and in Gus Van Sant’s *Paranoid Park* (2007), joy in Jean-Luc Godard’s *A Woman Is a Woman* (*Une femme est une femme*, 1961), and nostalgia in Andrej Tarkovsky’s *Nostalghia* (1983)” (Laine, 2011, p. 3).

they also embody emotions. Thus, an emotional core is an “affective quality,” and she claims that it is “immanent to the film and inseparable from the spectator’s aesthetic experience” (Laine, 2011, p. 3). However, as Christiansen indicates in his review, Laine focuses on only human emotions for human beings. Anger, horror, love, and similar emotions are easy to detect in us. Christiansen emphasizes that the strength of cinema is in its ability of “confront(ing) us with feelings beyond the human.” For example, the origin of the horror in *The Shining* (Stanley Kubrick, 1980) is the nonhuman scales that the movie embodies, including the Overlook Hotel, which gives the audience a feeling of being ‘trapped.’ Christiansen lays emphasis on the “nonhuman dimension of cinema,” which might engender fruitful discussions (Christiansen, 2014, p. 228).

In what follows, the emotional effect of a contemporary science fiction film through the operational structure of ‘awe’ is investigated. The emotion of awe comes to the surface when people experience something greater than themselves. In this study, philosophical arguments and psychological research on awe were used in order to investigate the emotional construction of *Interstellar* and analyze the film’s emotional appeal. According to Konečni, awe has been assumed as deserving a “serious inquiry, if not a central place” in the context of aesthetics (Konečni, 2005, p. 27). One of the aims of the study was to emphasize the relevance of awe in science fiction cinema. Popular film genres engage a variety of emotions, but some emotions are specifically related to certain film genres. Genres such as melodrama, horror, or suspense aim at evoking specific emotions in viewers (Carroll, 1999). The emotional patterns of other film genres are worth exploring. As Plantinga indicates, “with the exception of horror and melodrama, neither have film scholars explored the particular affective appeals that various genres make to audiences” (Plantinga, 2009, p. 220). According to the chosen assumption, the structure of the film is dependent on the emotional systems of human beings. However, Laine’s annotation should be kept in mind: “the emotion that the film embodies is not necessarily the same emotion that the spectator feels in this dialogical process” (Laine, 2011, p. 4). The study firstly discusses the philosophical foundations of awe. A reciprocal relationship exists between the views of philosophers on the ‘sublime’ and the emotion of awe. The relationship between cinema, science fiction, and awe is examined by researching previous studies. The emotional construction of *Interstellar* is elaborated on in regard to awe. In order to find the emotional core of the film, both the elements that give rise to awe and the effects of the emotion were taken into consideration. For this purpose, cognitive and neuropsychological research on awe were also used.

### **The Concepts of Awe and the Sublime: An Overview**

Awe, as an experiential phenomenon, has been largely ignored by psychologists until the early 2000s while also being overlooked in the studies of film spectatorship. Awe is a complex and intense emotion. To define awe, it is “a direct and initial experience or feeling when faced with something amazing, incomprehensible, or sublime” (Gallagher et al., 2015, p. 6). To be more precise, awe is “a complex emotion arising from a perception of vastness and a need to accommodate the perception into existing mental schemas” (Chirico & Yaden, 2018, p. 221). It will be beneficial to consider both philosophical and psychological approaches together in order to better understand awe. According to Clewis, “a philosophical theory is at least compatible with the latest scientific findings relevant to the topic in question” (Clewis, 2018, p. 341). This puts an emphasis on the consistency between them. This does not mean that a philosophical theory should be based on science only, but rather that empirical research and philosophical discussions become stronger when they feed into each other. Therefore, scientific findings on awe were used in this study.

When we have a look at the history of philosophy, studies on the experience of the ‘sublime’ show it is the closest emotion to awe. According to Arcangeli and her colleagues, “the elicitors of awe correspond closely to what philosophical aesthetics, and especially Burke

and Kant, have called ‘the sublime’” (Arcangeli et al., 2020, p. 1). The concept of the sublime puts front and center the relationship between human nature and greatness and therefore takes an important place in the fields of philosophy and art. Sublime is almost an ineffable concept. According to Clewis, sublime “can refer to a person’s feelings and experiences, and the term can be applied to the object that elicits those responses” (Clewis, 2018, p. 342).

Longinus is considered to be the first philosopher who refers to the experience of the ‘sublime.’ According to him, sublime expresses the effects of grandeur in speech and poetry, the inability of human perception to comprehend the splendor and transcendence of nature. Interest in the sublime gained popularity in modern philosophy with the works of Edmund Burke and Immanuel Kant, since then spawning many different iterations in modern philosophy and contemporary philosophy. Many kinds of sublimity are available in various areas. Over the course of human history, people who wrote about awe often correlated this emotion with religious experiences. It was once considered a spiritual emotion but since the growth and expansion of science, the secularization (or democratization) of awe has begun to occur. Burke claimed that awe is a part of everyday experience, changing the focus of analysis from the sublime object to the “*experience of the beholder*” (Morley, 2010, p. 15). Rather than a mystical or religious experience, sublime “is a complex *existential and aesthetic experience* that at once emphasizes our connection to the universe while it humbles us, reminding us of our temporal place in the cosmos” (Vacker, 2018, p. 15).

In his empiricist approach, Burke puts forward some of the intrinsic features of sublime, such as obscurity, power, magnitude, privation, infinity, and difficulty, but highlights and identifies ‘terror’ (in other words, ‘fear’) as the “ruling principle of the sublime” (Burke, 1990, p. 54). The likelihood of pleasure feelings is fairly high if there is a reasonable distance between the object of fear and the spectators. Although awe was associated with a feeling of fear in early research in the field of psychology, it has now started to contain a more positive meaning today. After all, the positive feelings tend to outweigh the negative effects because people usually want the experience to continue. Psychologists Bonner and Friedman tried to conceptually clarify the meaning of awe in their study and stress other psychological aspects (i.e., profoundness, connectedness, and numinous) rather than fear (Bonner & Friedman, 2011).

On the other hand, sublime is often contrasted with beauty. While beauty is associated with positive and favorable feelings, sublime resides in a gray area and is often considered as an ambivalent experience. Kant suggests a contrast regarding aesthetic judgment and distinguishes the beautiful from the sublime. The pleasure created by the beautiful consists of the cohesion of our imagination and our power of thinking. However, the sublime emerges from the incompatibility of these two ideas. Whereas the beautiful requires a ‘limited’ object, the sublime emerges from immensity and boundlessness. The judgment of beautiful is pure and it is possible to define and express it. Sublime engenders a complex emotion which is not very easy to describe.

Kant suggests that one cannot find the sublime in any object, much less any artwork, and he restricts the experience of the sublime to nature. Art seems to lack the capacity to convey sublimity in its fullest sense. However, one can argue that art may easily evoke a sublime experience. Individual taste matters and people who are sensitive to artistic representations might be tremendously affected by them. In addition to this, as Crowther indicates, restricting the sublime to natural entities “is counterproductive with respect to the Kantian sublime itself” (Crowther, 2016, p. 58). This notion possesses much broader application and he concludes that “the sublime is not some exclusively natural experience but a family of experiences that cluster around the basic structure.”

In this study, the words awe and sublime were used interchangeably. The interconnectedness of the notions of sublime and awe can be clearly seen in this quote of Clewis’ interpretation of Emily Brady’s thoughts on sublime:

“The core meaning of the sublime can be explained through natural objects or phenomena having qualities of great height, vastness, or power, which cause an intense emotional response characterized by feelings of being overwhelmed and feeling somewhat anxious; yet ultimately the experience is exciting and pleasurable. This constitutes what she calls the *original* sense of the sublime” (Clewis, 2016, p. 106).

Psychologists Keltner and Haidt introduced the concept of awe to mainstream emotion research with their foundational article (Keltner & Haidt, 2003). They tried to explain the structure of emotion and proposed two essential aspects. The first of these appraisal dimensions in their cognitive model of awe is aspects of (perceived) vastness. Vastness refers to “anything that is experienced as being much larger than the self, or the self’s ordinary level of experience” (Keltner & Haidt, 2003, p. 303). This implies that when we witness an awe-inducing stimulus -whether it is the stars on an exceptionally clear night, standing next to the pyramids, an intense religious experience, or being presented with a complex idea, like quantum theory- it gives us a sense of vastness seeming much larger than ourselves. Perceptually and/or conceptually, vastness may challenge our knowledge structure. The appraisals of stimuli that are vast engender awe. A mathematical equation or an individual who has had a great impact on other’s lives may be vast. The crucial point is “the stimulus dramatically expands the observer’s usual frame of reference in some dimension or domain” (Shiota et al., 2007, p. 945).

The other phenomenon is the ‘need for accommodation.’ Things that people don’t have the knowledge to immediately understand require revising people’s beliefs and knowledge about the world. According to Mikulak, “awe-inducing stimuli force us to adjust our cognitive schema to accommodate them” (Mikulak, 2015). They incite us to revise our understanding of the world. This ‘cognitive realignment’ is an essential part of the awe experience. As Allen articulates: “When a stimulus exceeds our expectations in some way, it can provoke an attempt to change the mental structures that we use to understand the world” (Allen, 2018, p. 3).

Along with the vastness and the need for accommodation, which are specified as the core elements of awe, some cognitive effects and emotional outcomes are associated with this complex emotion. Awe is often assumed to contain positive affective states (Shiota et al., 2007). The most well-known of these psychological effects is the feeling of being small. “Awe conjures up the feeling of being a small, separate entity, and yet significant somehow and connected to the universe” as an interviewee said who experienced awe (Schneider, 2009, pp. 81-82). Clewis and a team of psychologists analyzed the awe experience from a broad perspective and identified three main sources of the pleasure related to it: “the expansion of the imagination; the belonging to a whole larger than us; and the rising above everyday affairs. Leaving the everyday concerns behind provides a release, which feels good” (Clewis, 2019, p. 20). Most research on awe investigates what kinds of stimuli elicit awe and what effects awe has on human psychology.

### **In Awe of Cinema and Science Fiction**

The notion of the ‘sublime’ belongs to the exploration of the strong emotional effects in art. The relationship between art and the sublime is primarily found in the field of painting. Landscape paintings by J. M. W. Turner or Caspar David Friedrich are often considered sublime statements. In this manner, some studies examining the relationship between the sublime and cinema focus on cinematic representations of nature and landscapes and how they may evoke the aesthetic of the sublime. They have a wide theoretical application, from psychoanalysis to cognitive sciences. Jennings (2017) carried out a critical analysis of Werner Herzog’s and Andrei Tarkovsky’s ‘cinematic sublime’ in order to identify an “organic transcendental film style.” According to the author, this film style “predominately uses representations of nature as mise-en-scene in conjunction with organic cinematographic, editing and sound techniques to express an organic transcendence” (Jennings, 2017, p. 131). Kirchner (2018) seeks out cinematic sublimity in urban spatiality. She analyzes the cinematic explorations of the city of Los Angeles in films made by European filmmakers.

Although the positive effects are highlighted in the research on awe, many studies that examine the relationship between the sublime and cinema focus on the negative aspects. In a collected work which aims to apply various 'sublimes' to specific films, negative connotations come are the most prominent (Carroll, 2020). In an another collected work, the effects of 9/11 on cinema were examined and the idea of the sublime presented as a "ready tool for analyses of trauma, horror, catastrophe and apocalypse, the military-industrial complex, the end of humanism and the limits of freedom" (Comer & Vayo, 2013).

In her cognitivist approach to the sublime, Freeland identifies three movies which "warrant this special aesthetic characterization" and describes them as sublime (Freeland, 1999, p. 66).<sup>2</sup> She tries to capture the key features of the sublime:

"At its heart is the emotional conflict between terror or dread and elevation. Second, the sublime involves something great or vast ... Third, the greatness of the sublime is linked to an overwhelming, painful, ineffable effect the object has on the perceiver ... Unique and sublime films prompt our appreciative, awed reflection on how they use the film medium to disturb us in artful ways. The fourth feature of the sublime is that such reflection is elevating because it includes a powerful moral perspective" (Freeland, 1999, pp. 82-83).

This study follows Freeland's views on the sublime and argues that the aesthetic awe does not solely depend on special effects. The intellectual content and the cognitive aspect are equally as important with the visuality of the film. That is why one can consider how awe is evoked in films in two main ways. Firstly, it can be evoked through various special effects, sounds, set design, or costumes; secondly, it can be expressed through the narrative and theme. By the virtue of special effects and CGI, the cinematic form of science fiction creates an appeal, and as Telotte suggests, "it lends itself to the greatest imaginative capacities of the film medium" (Telotte, 2004, p. 3). This power of science fiction can arise not only from special effects but also from nature itself. Researchers who empirically examine the emotion of awe frequently use images of the cosmos (videos that depict the enormity of the universe) to create this emotion in participants (Stellar et al., 2018).

Science fiction can be seen as a "particular, recognizable mode of thought and art" (Csicsery-Ronay, 2008, p. 5). The genre and the philosophy of the sublime are intertwined with each other. Based on the views of philosophers such as Burke and Kant, Robu (1988) defends the view that science fiction is an art form of the sublime. Holmqvist and Płuciennik claim that, along with the horror and catastrophe film genres, the science fiction film genre depends on the aesthetics of the sublime (Holmqvist & Płuciennik, 2002, p. 726).

In his substantial study, *The Seven Beauties of Science Fiction*, Csicsery-Ronay recognizes seven categories in regards to science fiction: "fictive neology," "fictive novums," "future history," "imaginary science," "the science fictional sublime," "the science-fictional grotesque," and "the Technologiade." He argues that science fiction is the most prominent genre in regards to evoking a sublime experience:

"The sublime is a response to a shock of imaginative expansion, a complex recoil and recuperation of self-consciousness coping with the phenomena suddenly perceived to be too great to be comprehended. ... With the sublime, consciousness tries to expand inward to encompass in the imagination the limits to its outward expansion of apprehension" (Csicsery-Ronay, 2008, p. 146).

*Interstellar* constitutes an important example of the interdependency between science fiction and the ideas on the sublime. This study attempts to analyze an emotional reflection of the sublime experience in order to show how awe is understood and functions in the context of the film.

<sup>2</sup> These films are *The Passion of Joan of Arc* (Carl Dreyer, 1928), *Aguirre: The Wrath of God* (Werner Herzog, 1972), and *Children of Paradise* (Marcel Carné, 1944).

### ***Interstellar*: A Space Rollercoaster**

*Interstellar* takes place in the not-too-distant future. A combination of blight, food shortages, and lack of oxygen severely diminishes the human population and renders the Earth uninhabitable. A group of scientists from NASA try to find a new habitable planet by initiating a long-term space exploration project. Due to insufficient data, they send astronauts to a number of planets with a space shuttle called Endurance. A small team, led by the protagonist Joseph Cooper, is sent through the wormhole to ascertain planets that are likely to support life. They find themselves in a region of space about 10 billion light years from Earth. They first decide to descend on the planet covered with water. As each one hour they spend on the planet corresponds to seven Earth years, they need to complete their work immediately but are stuck on the planet's surface for three hours due to disruptions that occur. It has been 24 years since they returned to Endurance and Cooper's daughter, Murphy, as reached the current age of Cooper. When they arrive on the planet of Dr. Mann, who was previously sent by NASA for planetary exploration, they realize that the planet is uninhabitable for various reasons. Dr. Mann betrays the team and dies disastrously on his escape to Endurance. Endurance is damaged by the explosion and starts to spin uncontrollably, however Cooper succeeds in attaching a spacecraft to the spinning Endurance and stabilizing it. They realize that the black hole ('Gargantua') is their last chance. Before entering it, Cooper sends Brand to Edmund's planet, the planet that has the closest resemblance to Earth. Upon entering the black hole, Cooper finds himself in a library-like place. Cooper uses morse code to transmit the gravitational information obtained from the black hole to his daughter. As a result, his daughter Murphy solves a seemingly impossible equation and enables the construction of a space shuttle that will allow mankind to escape Earth.

The director Christopher Nolan, along with his screenwriter brother Jonathan Nolan, combine scientific methods, theoretical physics, and narrative film to devise an epic story of space travel through concepts such as parallel universes, quantum physics, time shifts, fifth dimensions, wormholes, and gravity. Strengthening the science part of fiction is considered to be a prominent feature of the film.<sup>3</sup> *Interstellar* depicts a world where humanity is writhing in the grip of the ecological disaster and drought. Earth gradually becomes a dead planet and it is no longer a reliable sustainer of life. The human race tries to survive and has become an agricultural society to overcome the famine. Technological developments and seeking life on other planets are now a luxury. Robu (1988) considers ecological disasters in science fiction (along with technological disasters, nuclear explosions, etc.) as expressions of the sublime.

Many studies discussing disaster films and their relationship to the sublime consider the concept of the sublime as an aesthetically negative category. Yet, awe often involves both positive and negative aspects. Unlike most other emotions, "feelings of awe can be positive or negative" (Allen, 2018, p. 2). Due to the vastness we confront, encountering a sublimity elicitor disturbs us. This situation happens often in science fiction cinema. A potential or present danger concerning all humans is always there. Therefore, the overwhelming aspect comes into prominence. The sense of smallness arises due to being faced with sublime entities or environments. We may feel the insignificance of human life. There is a potential danger in sublimity experiences. However, the science fiction sublime is not solely about terror. The grasping of the overwhelming stimuli with our imaginations and our intellect also engenders a positive feeling, alongside the negative feeling of terror (Wong, 2007, pp. 83-84).

Due to its inherent vastness, nature is a prominent elicitor of awe. Landscapes could be argued as having sublime qualities emphasizing the smallness of humans. Nolan places the characters among the vast and monolithic nature. These 'sweeping' views of natural sceneries are considered to be "the stereotypical and most prevalent elicitor of awe in contemporary

<sup>3</sup> Theoretical physicist Kip Thorne, as well as being one of the executive producers, acted as a scientific consultant for the film and wrote a tie-in non-fiction book called *The Science of Interstellar* (2014).



settings" (Chirico & Yaden, 2018, p. 226). Earlier in the film, we witness a dust storm engulfing an entire town. The storm is a precursor to the void of space and the first glimpse of the mankind's smallness and helplessness that will be later depicted in the film. When Cooper, Doyle, and Brand land on an ocean planet, they discover that the vast ocean has immense tidal waves. In this scene, Nolan establishes a scale through which we comprehend the massiveness of the waves. Through that scale, we get a very clear sense of the danger the characters are in. The other planet the crew lands on is an icy and barren wasteland. The broad, rocky mountains, with their cold and stark landscapes, constitute an awe inducing stimuli.

Empirical studies show that experiencing the view of Earth from space is considered to be the ultimate awe elicitor. This exceptional experience is known as the "overview effect" (Allen, 2018, p. 18) and it has been reported by astronauts who observe our planet from outer space. Clewis refers to a study which claims that "viewing the Earth from space has often prompted astronauts to report overwhelming emotion (aesthetic awe) and feelings of identification with humankind and the planet as a whole" (Clewis, 2018, p. 350). It causes a cognitive change that affects astronauts for the rest of their lives. The vastness of space in science fiction, made through the use of special effects, creates the sense of wonder necessary for the sublime experience. Needless to say, it is not the same experience as being literally in space and looking at Earth. Nevertheless, astronomical images alone can create a sense of awe and wonder among ordinary people (Smith et al., 2011). In *Interstellar*, when we see the tiny spaceship Endurance passing by planets, the movie overwhelms the viewer and makes them feel insignificant relative to the cosmos. The film points to the juxtaposition of the tiny and the immense. These scenes indicate the cosmic insignificance of humanity's most advanced technology. A reviewer explains her emotions: "The image of the tiny, tiny ship Coop and his small crew leave Earth in, passing in front of the immensity of Saturn, brought tears to my eyes with its juxtaposition of the might of nature and audacity of humanity in the face of it" (Johanson, 2014).

The film's widescreen panoramas feature interplanetary landscapes accompanied by complete silence. As the space shuttle detaches its last piece and enters the infinite emptiness of space, an uncanny silence prevails over the scene. Later in the film, the movements of spacecrafts take place in silence. The silence articulates the lack of sound in space, emphasizing the idea of the void. The creators of the film try to give us a real sense for what interstellar space travel would feel like. In his words, Nolan's focus was "to try and put the audience into space; to put them into the shoes of the astronauts who are exploring these new worlds and new galaxies; [so] that the audience will get a sense of the spectacle of a great interstellar journey" (as cited in Van Wyk, 2018, p. 161). Along with silence, the soundtrack of the film plays a significant role in the creation of an epic space odyssey. Critically-acclaimed composer Hans Zimmer's chief innovation was integrating electronic music with orchestral compositions. His orchestration for the film has often been compared to the supreme works of Gustav Mahler and Richard Strauss, but he tried to enlarge the scope of his musical canvas. He vigorously uses an old pipe organ for some scenes in order to overwhelm the audience. Consequently, Zimmer's melodies contribute greatly to the sublime state of the film.<sup>4</sup>

One of the reasons why *Interstellar* made such a big impact in the science fiction genre is its representation of the complicated concepts of modern physics; primarily the wormhole and the black hole. The closest star we know of is 4.4 light-years away and even with the best technology available, it would take us around 100,000 years to get there. The film solves this problem with a wormhole that currently seems like our only hope for hyper-fast travel through the Universe. A wormhole is thought to be a channel directly connecting one point of the spacetime plane to another point in a completely separate region. However, their presence

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<sup>4</sup> The author would like to thank the anonymous reviewer for drawing attention to the relationship between the musical score of the film and the emotion of awe.

has not been directly observed so far; an idea that awaits practical validation in the form of only theoretical knowledge. Vacker claims that the black hole (called Gargantua) in the movie is “easily the coolest and most beautiful cosmic phenomena in sci-fi film history” (Vacker, 2017, p. 80). With both complex scientific ideas and visual depictions which are difficult to grasp by intellect, *Interstellar* uses perceptual cues to evoke awe.

While studies on awe highlight its positive aspects and see it as an exclusively positive emotion in general, a negative and darker side to this emotion exists. The “threat-based variant of awe” rises to the surface “in response to vast, complex stimuli that are threatening (e.g., tornadoes, terrorist attack, wrathful god)” (Gordon et al., 2016, p. 1). As Keltner and Haidt emphasize, awe is considered to exist in the “upper reaches of pleasure and on the boundary of fear” (Keltner & Haidt, 2003, p. 297). Before going into the wormhole, Romilly expresses his fear in the face of vastness: “This gets to me, Cooper. This, millimeters of aluminum, that’s it. And then nothing out there for millions of miles that won’t kill us in seconds.” This expression of fear corresponds to the negative affective component of awe, which is the sense of being small and insignificant. Cooper tries to accommodate and calm him as they approach the void. This is because awe “entails an inability to assimilate information into existing mental structures and a resulting need for accommodation” (Valdesolo et al., 2017, p. 3). He compares themselves to solo yachtsmen who cannot swim. He then shares his music player and plays rain and thunder sounds. Experiencing the vastness of space necessitates the need for accommodation, which in this instance comes in the form of worldly sounds. In a similar manner, the fact that wormhole appears as a sphere, not as a two-dimensional hole, is difficult to grasp. Therefore, the working principle of the wormhole is shown by Romilly on a piece of paper.

The core appraisals of vastness and accommodation correlate with the structure of the science fiction genre. When ‘science’ and ‘fiction’ merge, people witness something beyond their ordinary perspective; regarding this, their belief systems are exposed to readjustment. Suvin defines this main strategy of science fiction as “cognitive estrangement” (Suvin, 1979, p. 15). It is “a sense that something in the fictive world is dissonant with the reader’s experienced world” (Mendlesohn, 2003, p. 5). Science fiction is an effort to take a fictional hypothesis and combine it with a scientific thought. Another theoretical contribution from Suvin is the concept of the ‘novum.’ The novum is the “historical innovation or novelty in an sf text from which the most important distinctions between the world of the tale from the world of the reader stem” (Mendlesohn, 2003, pp. 118-119). Novum as a fictional element could refer to an object (e.g., a time machine or a faster-than-light spaceship) or an event (e.g., an alien invasion). These innovations should be scientifically plausible, not like in the fantasy genre where novel ideas exist by unexplained magic. Suvin’s ideas correspond to obscurity and novelty, which are associated with awe. The human mind is always fascinated by obscure things or events that it cannot readily comprehend. As Burke asserts, “it is our ignorance of things that causes all our admiration, and chiefly excites our passions” (Burke, 1990, p. 57). Having said that, it is the perceived vastness of the thing, image, or idea that shocks and awes us. When we find out the exact source of the fear or danger, there will be nothing to worry about. Again, in Burke’s words: “A clear idea is therefore another name for a little idea” (Burke, 1990, p. 58).

Things or events seen or experienced for the first time are more likely to evoke awe in people. Clewis describes novelty as one of the main features of the awe experience: “the object or event is experienced in an extraordinary and striking way, almost as if for the first time” (Clewis, 2018, p. 343). People’s change of perspective in the face of awe occurs with the adaptation of their mental frames according to the new information. Things that are frequently encountered and habitual every day are very unlikely to evoke awe. A tourist seeing the pyramids in Egypt for the first time is much more likely to experience awe rather than the tour guide next to her.

It is both the obscurity and the novelty of the wormhole and the black hole which creates a focal point of the film. Five years before astronomers captured an image of a supermassive

black hole's silhouette for the first time in history, *Interstellar* manages to provide the audience a near-realistic, scientifically based experience with its depiction of the holes. When Cooper and TARS pass through the black hole's event horizon (the boundary at which not even light can escape) they encounter a mysterious 'tesseract.' In theory, none of the known laws of physics apply inside a black hole. TARS explains to Cooper that the tesseract has been constructed by advanced beings (most probably future humans) and he says it is a "three-dimensional space inside of their five-dimensional reality" in which every moment in time exists at once. It has been designed specifically for Cooper to communicate with Murphy. Cooper finds himself behind the wall of Murphy's childhood room. Another representation of the science fiction sublime is time travel. When Cooper explains to his daughter that time runs more slowly in space, and that by the time he returns he and his daughter might be the same age, this is another scientific principle that seems mind-bending. As stated by Van Wyk, "the time travel narrative with the aid of special effects, confound the laws of nature that are too great to comprehend" (Van Wyk, 2018, p. 160).

The extraordinary complexity of the tesseract is both intellectually and visually vast. Time is represented as a physical dimension. The idea of the tesseract is a science fictional novum which coincides with the novelty feature of awe. TARS collects the quantum data needed to figure out how to control gravity, in order to make a habitable space station to save them. Transmitting the data through time and space is made possible by converting the data into Morse Code. Here we see an accommodation of a complex idea taking shape by being associated with a known communication method.

Science fiction stories, especially about aliens or advanced androids, are often associated with the sense of primordial awe. Primordial awe is the sense one feels in the presence of a powerful individual. Keltner and Haidt claim that this kind of awe "centers upon the emotional reaction of a subordinate to a powerful leader" (Keltner & Haidt, 2003, p. 306). This kind of awe was used in maintaining social hierarchies. Burke associated two properties which have the capacity to produce a sublime experience. One of them is power. We encounter particular objects or individuals which seem to have the power to destroy or control us. These entities are more likely to evoke a sublime experience than others. The other stimulus is obscurity. As Keltner and Haidt corroborate, "objects that the mind has difficulty grasping are more likely to produce the sublime experience" (Keltner & Haidt, 2003, p. 301). In science fiction stories, aliens, robots, or other kinds of entities are designed in this manner. They are mostly powerful beings while also having some obscure, uncanny essence. They generally exemplify our fear of the unknown. In *Interstellar*, some entities are known for helping humanity and guiding humans to other habitable worlds. The various anomalies that occur in Murphy's room earlier in the movie are caused by "ghosts," according to Murphy. Although it is obvious that no ghosts will be encountered in a science fiction story, this situation remains a mystery until the end of the film. These 'bulk beings' referred to in the film mysteriously provide assistance, in the same vein as the extraterrestrials in *2001: A Space Odyssey*, which provided the monolith to awaken apes and guide humans into space. In *Interstellar*, they create the wormhole and design the Tesseract. While travelling through the wormhole, Brand reaches out her hand to the edge of the spaceship and she believes that she engages with extraterrestrial life, calling it the "first handshake." However *Interstellar* inverts this 'friendly aliens' idea. By the end of the film, we learn that the 'bulk beings' are probably humans existing many years in the future. They discover a way to exist outside of the four dimensions of space-time. "They didn't bring us here at all," Cooper tells the robot, TARS, "We brought ourselves." Besides, the Brand's handshake was not with the aliens, it was Cooper reaching out to Brand as he travels through the black hole after exiting the Tesseract. Thus, *Interstellar* renders primordial awe in a very hopeful manner. Science fiction audiences are accustomed to seeing powerful beings as different from humans. The assistance comes not from extraterrestrials or androids, but from humans themselves.

Awe is considered as a “self-transcendent emotion” and therefore it induces altruistic behavior in people (Stellar et al., 2017). This self-transcendent quality “decreases self-salience and increases feelings of connectedness to other people” (Chirico & Yaden, 2018, p. 227). People who have experienced awe start to “appreciate their sense of selfhood as less separate and more interrelated to the larger context of existence” (Bonner & Friedman, 2011, pp. 224-225). Awe experiences “shift our attention away from ourselves, makes us feel like we are part of something greater than ourselves” (Allen, 2018, p. 2). Awe diminishes the sense of the self and quiets the voice of self-interest. The functions of awe are still unclear but may be related to its capacity to enhance social connectedness. Awe might help us to focus our attention from self-interest to the interests of the group to which we belong. This affective quality is another function of science fiction. The protagonist is usually ready to sacrifice herself for the sake of humanity. Pro-social action and community integration is immanent in them.

Self-sacrifice is a common trope in science fiction. In science fiction narratives, the future or current state of humanity is mostly in danger. Therefore, personal stories don't only belong to individuals themselves, they belong to a global (or sometimes universal) order. The protagonist's self-interest turns into collective interest. It is hard to think of any fictional genre other than science fiction that deals with the problems of the world. Vastness can also be associated with the main subject of the movie because the catastrophic problem encountered concerns the whole world. The audience is intended to be horrified by the severity of the situation and the desperation of mankind. According to the famous science fiction author Robert A. Heinlein, the science fiction genre is “the only branch of literature which even attempts to cope with the real problems of this fast and dangerous world. All other forms don't even try” (as cited in Van Wyk, 2018, p. 4). This can be witnessed even in ‘light’ science fiction; for example, in *Back to the Future Part II* (Robert Zemeckis, 1989), at one point the protagonist Marty's own issues turn into society's problems.

In this context, the theme of sacrifice has an important place in the plot of *Interstellar*. The first sacrifice is made by Cooper, leaving his family behind for a chance to save the world. The sacrifice of not being able to see each other for years is an important building block of the father-daughter story that spans throughout the film. Without his sacrifice, the people of earth would have no chance of survival. The other sacrifice made by Cooper happens when he discovers shuttle lacks enough fuel to send both himself and Brand to earth, so he decides to stay back and send Brand home. *Interstellar* incorporates the emotion of awe into its narrative, emphasizing the importance of heroism and sacrifice in order to ensure humanity's survival and future. In *Interstellar*, awe triggers the human achievement of survival against nature. Scientific developments like space travel and the solution of the gravitation problem are represented as the sublimity of human progress. In the film, “there are no monsters or evil empires, only humans struggling to survive in a vast cosmos via science, technology, and the courage to take risks” (Vacker, 2018, p. 78).

One of the most controversial traits of the film for critics and science fiction fans is the explanatory power of love. Brand tries to persuade Cooper to follow his instincts: “Love is the one thing we're capable of perceiving that transcends dimensions of time and space. Maybe we should trust that, even if we can't understand it.” Science brings Cooper into the black hole, but love enables him to reach his daughter. The love between a father and daughter is the key to saving humankind from extinction. In Schneider's words, “awe is a feeling, an emotional state that defies logic and reason... It is the experience of kinship with all life and all things, being a part of the much larger picture” (Schneider, 2009, p. 126). Even though ‘hard science fiction’ fans were disappointed with the theme of love, it formed a central aspect of the emotional core of the movie.

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## Conclusion

Science fiction films are often criticized for their incompatibility with science. However, it is not correct to see science fiction as mere fiction and do away with its scientific nature, or conversely, to see it as mere science and exaggerate the scientific truth in it. Both views are biased. At this point, *Interstellar* stepped forward and both managed to be a cinematic success while gaining the appreciation of the scientific community. Apart from the ingenious portrayal of scientific ideas, the emotional pattern of the film played a big role in its success. In order to analyze the spellbinding effect of science fiction cinema, it is necessary to consider its emotional background. By considering the emotional structure of a science fiction blockbuster, we can better grasp how it captured the attention and affection of millions of people. In this study I suggest that awe can be the emotional core of a science fiction film.

There is an aspect of science fiction that celebrates human potential. Science fiction at its best questions what we are, what makes us human, or where do we fit in society. It deals with the problems and promises offered by science, technology, and rationality in an imaginative context. Being in awe of science fiction broadens one's horizons because science takes inspiration from science fiction stories. One could argue that awe is one of the reasons for this, because "awe can transform people and reorient their lives, goals and values" (Keltner & Haidt, 2003, p. 312). Films like *Interstellar* spellbind viewers both aesthetically and thematically. Science fiction films, particularly ones set in space, emphasize the idea that the universe is a single unified whole. This in turn triggers a powerful sense of connectedness and harmony.

Awe constitutes the aesthetic appeal of the objects, notions, or events which are grandiose and dynamic. *Interstellar* reveals a fact that has become increasingly clear in recent years, that our planet may soon become uninhabitable. With awe as the emotional core, the film makes us feel our relative importance in the natural scheme of things. Another theme related to the experience of awe is "existential awareness" (Bonner & Friedman, 2011, p. 229). Hence, we come to understand ourselves as a part of a larger community. In this state of mind, we feel more empowered to overcome the severe and bitter grief that awaits us, as most powerful works of art make us feel.

It is important to note that if any object, idea, or event begins to be viewed as familiar, this familiarity makes the feeling of awe very unlikely. As Joseph Priestley puts it: "Whenever any object, how great so ever, becomes familiar to the mind... the sublime vanishes" (as cited in Clewis, 2018, p. 343). Mount Everest is not supposed to be awe-eliciting to the villagers who live close to it. In this manner, rewatching a science fiction film almost never gives the first-time viewing pleasure that we had. In a similar vein, even though science fiction films of the 1950s aroused great excitement in audiences back then, their visual effects would seem prosaic by today's standards.

Some remarks should be kept in mind for the study. As Stockwell indicates, science fiction as a genre has a wide range of subjects. He states that "all of the diversity makes it very difficult to delineate a single unifying aesthetic that can be said to identify sci-fi as a cultural phenomenon" (Stockwell, 2014, p. 35). Yet one can easily say that the sublime is one of the main pleasures of science fiction. It is also important to remember that "not all paradigmatically 'sublime' objects will always be experienced as sublime. This is one reason why the sublime is an aesthetic quality or property, rather than either a mathematical or merely physical attribute" (Clewis, 2018, p. 344). Focusing on a single emotion can give the impression that other emotions are excluded. As stated by Laine, "cinema moves us directly within a gamut of emotions, ranging from fear and disgust through adrenaline thrills to laughter and sexual excitement, in ways that are immediately felt by the body" (Laine, 2015, p. 13). However, it is an indisputable fact that certain emotions are at the forefront of certain films and film genres.

### Conflict of Interest Statement

The author of the article declared that there is no conflict of interest.

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