

The Construction of Multimodal Metaphors in Interstellar

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Abstract: *Interstellar* is a science fiction film by British director Christopher Nolan. In 2014 Nolan directed the science fiction movie. The movie gives full play to the role of metaphor in movie creation, using verbal symbols such as lines, words and non-verbal symbols such as images and sounds as carriers, and jointly participating in multimodal metaphor construction. Through multimodal metaphors, the film deepens the theme, sublimates the aesthetic experience, highlights the artistic value of the film, and arouses the audience's thinking and emotional resonance. The use of multimodal metaphors also brings a strong sense of humanity to this science fiction movie. Taking the multimodal metaphor in the film as a starting point, the article analyzes the multimodal metaphor of *Interstellar* from the perspective the literature review of multimodal metaphor, and the use of multimodal metaphor in *Interstellar* to reveal its functions.

Keywords: *Interstellar*, multimodality, metaphor, cognitive linguistics

1. Introduction

Metaphor is the term used by humans to talk about more abstract things with the help of more concrete things, using the known to understand the unknown [1]. The founder of cognitive linguistics, George Lakoff. According to Lakoff, conceptual metaphors construct human language, thought and behavior, and are an important way to decode human cognitive processes. Metaphor, as the basic way of human cognitive world and means of thinking, is not only embodied in linguistic symbol system, but also in non-linguistic symbol system such as sound, color, line, space, etc [2]. As in the case of cognitive linguistics, the conceptual metaphor is the most important way to decode human cognitive process [2]. As an Italian film theorist Pasolini said, "Cinema survives on metaphor." [3].

Film is a multimodal narrative text that contains rich modal resources and symbolic language systems, so film metaphors tend to exhibit the characteristics of multimodal metaphors. *Interstellar* is a science fiction film directed by Christopher Nolan in 2014, which was nominated for five Academy Awards and won the Best Visual Effects Award at the 87th Academy Awards in 2015. Director Nolan once said "I hope to be like my predecessor Hitchcock, not only a director, but also a person with the ability of whimsy" [4], and it has been proved that he has been practicing this concept. He excels in the use of lens language, visual metaphor, non-linear narrative and spatial and temporal views to demonstrate his own values, adding philosophical reflections on social and human nature into the narrative skillfully. It can be said that Nolan's films are often a complex symbolic representation of space. In this paper, the author takes *Interstellar* as an example, analyzes the

construction process of multimodal metaphors, and deciphers the profound themes and humanistic feelings behind.

2. Literature Review of Multimodal Metaphors

The rise of multimodal discourse and the popularization of multimodal media are the direct reasons for the development of multimodal metaphor research. Visual metaphor as a unimodal rhetorical mode has been closely watched by the international academic community since the beginning of the 1970s, and then Forceville elevated it to the dimension of conceptual metaphor, and multimodal metaphor has appeared as a specialized term in the international literature ever since.

Multimodal metaphors have the following advantages over linguistic metaphors: the origin and target domains of multimodal metaphors are naturally multimodal, and images, sounds, and gestures have a perceptual immediacy that is lacking in language; multimodal metaphors have more ways to determine the similarity between origin and target domains; multimodal metaphors are more broadly accepted and disseminated cross-culturally; and multimodal origins are more emotionally appealing [5].

To summarize, multimodal metaphor research emerged at the end of the 20th century, and has been generalized in typical multimodal textual objects that are popular nowadays. The international literature started in 1998, and the progress of international multimodal metaphor research was slow from 1998 to 2004. After 2005, the number of articles started to rise rapidly with an annual average of 15, and reached a maximum of 35 in 2015. In 2017, Sun Ya et al. used bibliometric visualization techniques to examine the research on metaphor in mainstream SSCI linguistics journals in foreign countries over an 11-year period, and the article suggested that the theoretical root of foreign metaphor research is conceptual metaphor theory. The article proposes that the theoretical roots of foreign metaphor research are conceptual metaphor theory, corpus and experimental method are hot modes, and multimodal metaphor, emotional metaphor, identity metaphor and gesture metaphor form cutting-edge topics. Domestic literature started in 2010, and since then, the number of domestic literature has shown a curvilinear and gradual growth trend. It is a period of sharp increase in the number of articles from 2010 to 2013, from two articles in 2010 to 57 articles in 2015, reflecting that domestic scholars have reached a certain depth and breadth in the study of multimodal metaphors. Sun Yi analyzes the contemporary papers in the field of metaphors in domestic foreign language CSCI journals over a period of 20 years and finds that domestic scholars emphasize the output side of metaphorical understanding and neglect the input side of research premise, and emphasize two-dimensional planar metaphors and disregard multimodal metaphors [6].

In 2006, Forceville formally advocated for the study of multimodal metaphors in his article *Nonverbal and Multimodal Metaphors in a Cognitivist Framework: Research Issues*, identifying specific topics of study and establishing a framework for the systematic study of multimodal metaphors. In 2009, Forceville and Urios-Aparisi collaborated in editing and publishing a collection of essays, *Multimodal Metaphors*. It examines advertising, political cartoons, comic strips, manga and anime, spoken and gestural language, music and sound, and cinematic metaphors, which share a common concern with the interpretation and functioning of metaphors. The publication of *Multimodal Metaphors* “combines major research paradigms from cognitive science and multimodal studies” and “marks the formalization of a theory of multimodal metaphors” [7].

China’s multimodal metaphor research focuses more on the introduction and review of foreign multimodal metaphors, and the objects of research are mostly oriented to advertising text, political cartoons and other image texts, and there are not many research results specifically for film multimodal metaphor, but since 2020, the literature related to film multimodal metaphor on the platform of China Knowledge Network has been increasing year by year. Sun Yi from Guangdong Foreign Language and Foreign Trade Applied Language Center proposed that the movie metaphor

recognition program FILMIP can be used to identify the metaphors in movies in a more accurate and exhaustive way [8]; Miao Rui from Central China Normal University interpreted the multimodal metaphors of movies from a multimodal perspective; Duan Rongjuan et al. combined with the hit sci-fi movie “Wandering Earth” and interpreted it from four major dimensions, namely, metaphorical narrative, multiple worlds, world of imagery, and contextual transcendence, which is the philosophical thinking of the multimodal metaphorical science fiction movie [8]. In general, China’s film multimodal research has not yet put forward a complete theory, most of the analysis around a single or a small number of texts, is still in the initial stage [9].

3. The Use of Multimodal Metaphors in *Interstellar*

Interstellar is an original science fiction adventure film directed by Christopher Nolan, based on a rational evolution of the black hole theory by renowned theoretical physicist Kip Thorne, with the addition of characters and a related plot. The movie tells the story that in the near future, with the deterioration of the Earth’s natural environment, mankind is facing the threat of not being able to survive. Former NASA astronaut Cooper accepts an invitation from Dr. Brand Sr. to travel with three other scientists on the Endurance spacecraft to travel through a wormhole to the cosmic continuation of the extrasolar universe in search of a chance for life in order to save humanity on Earth. The film not only shows the first visualization of “black hole”, “wormhole”, “five-dimensional space” and other cutting-edge scientific concepts of the physical image, but also deeply explores the grand propositions of “love and redemption, life and death”, showing both the smallness of human beings in the vast universe and the supreme courage of human beings in times of danger. The director’s use of visual and auditory modal metaphors with non-verbal symbols and verbal modal metaphors with verbal symbols not only satisfies the audience’s viewing experience, but also triggers the audience’s thinking and emotional resonance.

3.1. Visual Modal Metaphors Highlight Themes

3.1.1. Love and Redemption

At the beginning of the film, Cooper slowly stood up, staring at the endless corn field outside the window, the yellow sand grit, bleak and solemn, as the camera slowly unfolded, the background organ low and solemn roar sounded, a kind of dark power began to spread. With the solemn yellow hues, dark and deep cosmic images, howling winds and endless cornfields, the camera switching from the earth to the universe, and the murmuring pipe organ, the film is drenched in the mysterious theme of religious mission and redemption from the very beginning. Director Nolan specializes in the use of fantastic light and imagery to emphasize the theme, and the director’s choice of visual elements is extremely ingenious.

Operation Lazarus. The most direct metaphorical imagery in the movie is Lazarus. After noticing unusual gravitational anomalies in their lives, Cooper and his daughter Murphy stumble upon a former NASA base in the United States. The head of the base, Prof. Brand Sr., tells Cooper that the human government is secretly planning a plan to save the Earth, Project Lazarus. Lazarus is a character in the Gospel of John. Lazarus is a character recorded in the Gospel of John who died before Jesus could save him when he was critically ill, but Jesus flatly asserted that he would rise again, and four days later Lazarus did come out of the cave, proving Jesus’ miracle. In the film, the word “Lazarus” hangs on the wall of the astronauts’ conference room along with a picture of the 12 astronauts whose futures are uncertain, suggesting that the old Professor Brand knew about the fate of the Earth and the imminent demise of mankind. Cooper arrives at the planet Manm and realizes the fate of mankind when he sees his daughter’s video. He mumbles the word “Lazarus” once again, and then undergoes a life-and-death journey through a black hole, successfully transmits the data

from the black hole back to Earth, saves mankind, and accidentally arrives at a high-dimensional space station created by the miracles of future mankind. Finally, the Lazarus symbol reappeared in the newly built Saturn space station, representing the resurrection of mankind from the dead and the beginning of a new journey. The past saves the future, and all mankind is brought back from the dead, which coincides with the story in the Bible. Lazarus is resurrected because of God's love, and the three main characters in the movie are also reborn because of love. Cooper, with his love and commitment to his daughter, returns to Earth through life and death to reunite with his daughter; his daughter, Murphy, because of her love for her father and her perseverance, discovers the clues in the watch left to her by her father and cracks the Morse code, which saves mankind; Amelia, because of her lover Edmund's call and bond, comes to Edmund's planet, which is the last suitable planet for humans to live on, and fulfills the mission of her and her deceased lover, which makes mankind able to continue. Brand once mentioned in the movie: "Love is not invented by human beings, it is clearly visible and exceptionally powerful. It is the only thing we can perceive that transcends the dimensions of time and space." It is because of the power of love that the human world can be saved, and it is because of love that human beings can create miracles in the cycle of life and death.

Books and Bookshelves. The books and bookshelves in Murphy's room are recurring imagery that play a key role in the entire movie. At the very beginning of the film, the director focuses on one side of the bookshelf full of books. As the camera sweeps over, we can see the spines of astrophysics books on the bookshelf, and dusty model airplanes. As a book "snaps" down, the young girl, Murphy, begins to take careful notes on the pattern of randomly falling books, which she believes is her "ghost" trying to talk to her and pass on a message. Murphy began to take careful note of the pattern of the randomly falling books, believing that it was her "ghost" trying to talk to her and pass on information. Her suspicion proves to be correct, as the future Cooper, who has fallen into the fifth dimension of the black hole, pushes down the books on the shelves and sends data to Murphy, helping her to unravel the key to saving the destiny of mankind - the gravitational equation of gravity. Books contain the knowledge and experience left behind by previous generations, the crystallization of human civilization over thousands of years. It is a metaphor for history, wisdom, and time, and also implies that only the knowledge created by human beings and their own efforts can save us from ourselves. If we live in a four-dimensional space where time is the parallel axis, then knowledge is the key to unlocking a five-dimensional space and even a higher civilization.

Wristwatch. The watches in the movie are an important tool in Cooper and Murphy's hyperspace connection and a symbol of the father-daughter bond. When Cooper is leaving, he gives one watch to his daughter and one to himself, saying, when I travel near a black hole, or when I go into cryogenic hibernation, my time will stand still, so let's compare then, will our times still be the same? Deep inside the black hole, at the end of time, Cooper again passes data to Murphy by manipulating the hands of his watch. When the robot Tars asks how are you sure she'll receive it? Cooper replies that she will, because it's what I left her. By the end of the movie, Murphy understands her father's intentions and wears the watch until she passes away. The watch represents time, a metaphor for inspiration, transcendence and penetration in the movie. It is the embodiment of love and faith, both of which, in turn, are the source of man's power to save himself.

3.1.2. Life and Death Universe and Exploration

Life and death is an eternal philosophical proposition, since its birth, mankind has never stopped thinking about life and death. Under the sci-fi veneer of *Interstellar*, the ultimate kernel of human nature, life and death is wrapped up. Nolan interprets this proposition with the lens language of his mechanism.

Stars and Loneliness. The inscription of the philosopher Kant reads, "There are two things about which the deeper and more persistent my contemplation, the more the wonder and awe they evoke in

my mind grows day by day, the starry sky above my head and the moral law in my heart.” Across the Pacific Ocean, the East on the other side of the globe never ceases to think and feel about the stars. We are impressed by the uncanny workmanship of nature “looking up at the size of the universe, looking down at the richness of categories”; We read the years of leisurely “day highlands, feel the infinite universe; Xing as much sorrow as possible, knowledge is full of empty number”; We lament that the universe is infinite and time is infinite, but we can only “rely on the sad wind.” In the eyes of human beings, the universe symbolizes the Tao, the nature, the magic and mystery, thinking of endless reverie, poetry and the distance, far away and inspiring awe. The promotional poster for *Interstellar* is set against the backdrop of Saturn’s fantastic aperture, and the tiny “Eternity” spacecraft floats like a duckweed in the vastness of space. The picture of “one man, one planet, and one ship carrying the universe” constantly appears in the film. The only connection between loneliness and loneliness is the Endurance ship, and this lonely crossing is what the title refers to as “*Interstellar*.” In the vastness of our solar system, human beings are surviving alone on this lonely planet Earth, facing countless problems: hunger, poverty, sin, insatiable desires, endless disputes. When we look up at the stars, we feel a sense of loneliness and helplessness. In the movie, the explorers on the “Eternity” have to endure loneliness in the endless darkness of space, just for the desire and pursuit of life.

Universe and Exploration. On the bookshelf is a dusty model of a toy airplane. This close-up shot not only indicates the theme of the movie, but also implicitly metaphorizes the background of the story. Due to the proliferation of the blight and the rampant sandstorms, mankind has to succumb to reality and give up the development of science and technology for the sake of survival, and give up the ideal of exploring space. The protagonist, Cooper, is forced to give up his passion for aerospace to become a farmer, while NASA’s research program is forced to be shelved and transferred to a secret base due to the lack of public support. To a certain extent, the movie’s plot is also a metaphor for the reality of the American public’s resistance to space exploration at the time. With the frequent occurrence of U.S. space accidents in recent years (Columbia, Challenger crashed one after another), the government’s budget constraints, the public’s skepticism of space exploration, NASA programs stalled, many people began to question the significance of space exploration. The authenticity, feasibility and possibility of cosmic exploration shown in *Interstellar* has undoubtedly aroused people’s enthusiasm and confidence in yearning for the vastness of the unknown universe. As director Nolan said in an interview, “I wanted to inject a little bit of Apollo spirit into this movie” [10]. The theme of exploring the unknown is also metaphorized in a detail of Cooper chasing a drone through a cornfield in his car. On his way home from a parent-teacher conference with his two children, Cooper gets a flat tire, and in between getting out of the car to fix the tire, Cooper notices a drone barreling overhead, so he immediately leaves his tools behind and chases the drone with his children through a vast cornfield. Ten years ago, the Indian Aviation Authority closed down, and the Indian-made drone was abandoned, just as Cooper, a brilliant former NASA pilot, was abandoned by the changing times.

The entire movie seems to be about chasing, chasing hope, chasing time, chasing truth, chasing survival, and here the chase sets the tone for the movie. Cooper’s chase of the drone is more like a chase of his own unfulfilled ambitions, a chase of the past. The author’s arrangement of this metaphor not only present character personality, but also provoked the audience to think deeply: in this era of hurry, human beings have to hold on to what? In this world, the lights are rampant, the streets are crowded with cars, the road is bustling with pedestrians, people are running around in the city, the streets, but in the crowd, there are still people looking up at the starry night sky, not forgetting the most primitive and pure human dream and the faraway place.

3.2. Auditory Modal Metaphors Enhance the Experience

Auditory modality includes sound and music, which can create a certain atmosphere in a short time, trigger the audience's memory, cultivate the audience's emotions, and can improve the movie's viewability more efficiently [11]. Here we mainly analyze how the film constructs metaphors through sound and music.

The film's composer, Hans Timmer, used an instrument like the pipe organ, which has nothing to do with science fiction or the future, in the soundtrack in order to emphasize the sci-fi theme of the movie. The pipe organ is a large keyboard instrument with a long history that has been passed down in Europe. A pipe organ consists of thousands of brass pipes and thousands of musical pegs, and is the largest musical instrument ever invented by mankind, with a pipe organ comparable to a church. It has a loud and majestic sound, a beautiful and solemn tone, and is capable of playing rich harmonies, and is known as the "King of Instruments". The organ was designed to realize the sanctity of the church, and since its inception, it has had a "divine" glow, a representation of the divine.

As the most complex musical instrument in human civilization, its sounding method is also very unique. A steel tube corresponds to a pitch, and the resonance of the tube is driven by the advancement of air currents. If you were to play a piece with a variety of timbres in its entirety, the influx of air would be enough to topple a church. In an interview with Hans Timmer in the documentary, Hans Timmer said, "The windows of the church were vibrating with the endless streams of air coming in from all directions, so you could feel that the sound of the organ had a very primitive and dangerous quality to it. It has a very human way of articulating, because it has to inhale air in order to sound, and in every note you can feel this breathing [12]." The organ, the instrument closest to a human life form, this breathing giant, besides being rich in its innate divine mission, has a more human light. In the movie, it puts on the double cloak of divinity and humanity to play this hymn of praise to the vast universe and the courage of mankind, and it is very appropriate to use the greatest musical instrument to sing the praises of mankind's great achievements in exploring the deep space of the universe. And as director Nolan says, "You can feel the human presence in every note, and I think that's very important for the movie. Because it's not just about the universe, it's about the people in the universe [12]."

The use of the pipe organ as the background music of *Interstellar*, on the one hand, is intended to correspond the most complex musical instrument in the history of mankind with space technology, making it a vehicle in the vastness of the universe [13]; on the other hand, the low and majestic resonance of the pipe organ can better show the vastness and solitude of the universe, and fully demonstrates the grandeur of cosmic space.

At the same time the long notes of the pipe organ serve to show the time element of the movie. When Cooper returns to the ship from the planet Miller, due to the effects of relativity, decades have passed on Earth in just a few hours on the planet. Cooper watches a video sent to him by his son over the decades, and in just a few minutes he sees his son grow up, get married and have a child, etc. The organ's chiming underscore and cyclical melody present the passage of time perfectly, making the audience weep.

Movie soundtracks not only set the tone for the whole movie, but likewise play a role in rendering the atmosphere, setting the mood, and shaping the characters [11]. The pipe organ in the background music of *Interstellar* is a divine stroke, outlining an endless metaphorical space for the moviegoers. The law of the world is hidden in the music, the spirit of all things in the world is hidden in the breath of the organ, the film uses this as a tribute to nature, reverence for the unknown, but also to praise the supreme courage of mankind, and this perseverance and courage will be engraved on the stars forever.

3.3. Linguistic Modal Metaphors Clarify Clues

Lines in a movie are the main means of portraying characters, expressing their emotions, strengthening the tension of the plot, and suggesting the main idea of the movie [11]. Embedding metaphors in the lines of the main missions is an important factor in the group portrayal and thematic clarity of *Interstellar*.

3.3.1. Love Travels Through Time and Space

The ability of love to transcend the dimensions of time and space is one of the themes of the movie, and it appears metaphorically in the lines many times. The imagery of “ghosts” is repeated throughout the movie in the conversations between Cooper and his daughter Murphy. At the beginning of the movie, Murphy asks her father with a broken model of a spaceship, “My spaceship is broken, it’s a ghost, Dad, have you ever seen a ghost?” As the plot progresses, the audience gradually understands that the “ghost” is actually Cooper, who is trapped in a black hole. He is in the fifth dimension and sends signals to his daughter in the past to save mankind, and is therefore treated as a “ghost” by her ignorant daughter.

Twenty-three years on, Murphy grows up and reminisces about the past mentioning the ghost again, saying, “They all think I’m afraid of the ghost, but I’m not. I call it a ghost because I think it looks like a person.” At this point, the metaphorical hints are already very obvious, and the identity of the ghost calls out. At the end of the movie, the gray-haired Murphy is reunited with her still-young father, and she holds his hand and says, “I know, you’re my Ghost, the only Ghost.” The identity of the ghost is finally unraveled, and the movie ends on a high note.

The ghost symbolizes the unknown and mysterious power, but here it is more of a metaphor for the love of father and daughter, and the inseparable bond between the child and the parents, just as Cooper said before he set off on his space adventure: “When the child grows up, the parents become the child’s memories, and from the time of birth, the parents are the ghosts that accompany the child for the rest of his or her life.” Only love and gravity can cross the dimensions of time and space, and this powerful unknown force has always led mankind forward, and it is because of love that human civilization can reproduce and survive.

3.3.2. Exploring and Chasing

Exploring the universe and chasing the unknown is also a major theme of the movie, and Nolan puts his ambition and expectation of exploring the unknown into the lines of the main characters in the movie. *Interstellar* has been hailed by fans as a perfect blend of “scientific rationality and humanistic concern,” thanks in large part to its beautifully written and philosophical lines.

Do not go gentle into that good night, old age should burn and rave at close of day, rage, rage against the dying of the light. rage against the dying of the light.

The poem *Do Not Go Gentle Into That Good Night* is a poem written by the English poet Dylan Thomas in the mid-20th century. Written during his father’s critical illness before his death, the poem expresses the poet’s anger at death for taking his loved ones out of the world (rage against the dying of the light) and his fearlessness in the face of death. In the film, as the *Endurance* moves away from Earth and is about to sail into the unknown universe, Professor Brand bids farewell with the first stanza of this poem. The poem is full of tension and the sound of roaring engines and air currents, as the *Endurance* slowly moves out of the picture, and the blue planet is gradually engulfed by a deadly darkness. At this moment, the space explorer’s courage and fearlessness in the face of death reaches its peak, and the poem’s metaphorical meaning is optimally demonstrated in the thrilling combination of audio and visual.

Should we not look up to the stars when survival is hard to come by? Should we not roar at the end of the day when we are in the twilight of our lives, raging against the dying of the light? There was a time when we looked up to the stars and pondered our place among them; now we can only bow our heads and worry about our world in the sand. Brand's farewell is both a symbol and an inspiration, a call for mankind to regain the lost spirit of adventure, not to be deterred by the darkness of the stars, nor to submit to the laws of nature and physics, but only to go on expeditions where there is hope and the possibility of survival.

As the four explorers ascend into space and approach the black hole in the Expedition ship, quantum physicist Romilly begins to question the expedition:

Romilly: "We're floating in space, and the infinite universe out there can kill us in an instant, and all we have for shelter is this few millimeters of thin aluminum."

Cooper: "You know, the best solo rowers can't swim at all, they fall in and they're done for. Romilly, we're explorers, and this is our boat."

The line is an obvious metaphor: "ship" means "Eternity" and "athlete" means "explorer". "Like the space explorer who has no way out, the good athlete who "can't swim" can only hope to survive if he has the determination to go for broke.

At the beginning of the film, Cooper slowly rises and gazes out of the window at the vast green cornfields, the wind howls and the yellow sand fills the sky; at the end of the film, the spaceship runs to the place where the stars are, the vast universe, the stars shine brightly. Human beings were born on Earth, but should not perish here, the film contrasts before and after, a metaphor for the two levels of civilization: the old hometown and the new utopia, the traditional beginning of the agricultural civilization and the advanced scientific and technological civilization, the past and the future, the ancient and the unknown.

4. Conclusion

With the continuous emergence of diversified media methods and in-depth study of conceptual metaphors, multimodal metaphors have penetrated into every aspect of life, and movies, as the best carrier for the integration of audio-visual technology, are of great research value. In this paper, the author takes the epic sci-fi movie *Interstellar* as an example, combs through the multimodal metaphor models appearing in the movie, and explores the positive significance of multimodal metaphors on movie narratives. Through visual metaphors, auditory metaphors and textual metaphors, *Interstellar* creates a virtual context of the end of the world for human beings in a multi-dimensional way, explains the philosophical thinking of the Western world, and introduces the audience to a mysterious dream, which increases the artistic charm of the movie. In a word, besides interpreting the theme depth and scientific connotation of science fiction movies through the traditional aesthetic meaning, the cognitive approach of multimodal metaphors also provides new research perspectives. Due to the limitation of space, this paper only selects classic movies for case study, and does not deeply study the cognitive law of the "universality" of science fiction movie metaphors. This paper only serves as a guideline, hoping to provide a reference for the subsequent research on the thematic meaning of science fiction movies.

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