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《你一生的故事》與《異星入境》中的時間影像與語言：德勒茲觀點

The Time-Image and Language in "Story of Your Life" and *Arrival*: A Deleuzian Perspective

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Table of Contents

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Abstract

In the story of Ted Chiang's "Story of Your Life" and its filmic adaptation *Arrival*, Louise Banks encounters the heptapods and learns Heptapod B, causing a rewiring of her perception of the world, specifically her concept of time. In this thesis, this phenomenon is explained from Deleuze's philosophical viewpoints instead of the Sapir-Whorf Hypothesis, which is much-quoted in the discussion of the movie. Deleuze's interpretations of Bergson's duration suggest a nonlinear conception of time that resembles the time concept of the heptapods, which basically states a situation where the present, the past and the future are all intertwined and entangled in a virtual realm called the past in general. Generally speaking, this thesis provides a comprehensive textual analysis of the two texts and probes into the problem of language and time concept from a Deleuzian perspective. Deleuze's philosophical thoughts used in this thesis are not limited to the discussion of duration but will also encompass the discussion of language and some filmic techniques.

Keywords: duration, time-image, Deleuze, Bergson, memory, language, the Sapir-Whorf Hypothesis

doi:10.6342/NTU202300779

摘要

在 Ted Chiang 的小說《你一生的故事》和其改編電影《異星入境》中， Louise Banks 受託解密外星人 heptapods 的語言，導致她對世界的感知，尤其是對時間的概念進行了重塑。在這篇論文中，我們將從德勒茲的哲學觀點來解釋這一現象，而非多數學者所傾向使用的 the Sapir-Whorf Hypothesis。總結來說，這篇論文從德勒茲的角度提供了兩個文本全面的文本分析，並探討了語言和時間概念的問題。本論文中使用的德勒茲的哲學思想不僅局限於對 duration(綿延)的討論，還包括對語言和一些電影技巧的討論。

關鍵字：德勒茲；語言；時間影像；你一生的故事；異星入境

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Introduction

Arrival, a 2016 American science fiction movie directed by Denis Villeneuve and written by Eric Heisserer, is a filmic adaptation of Ted Chiang's award-winning short story "Story of Your Life," first published in 1998. The short story won the 2000 Nebula Award for Best Novella,[1] as well as the 1999 Theodore Sturgeon Award.[2] It was also nominated for the 1999 Hugo Award for Best Novella.[3] Its equally successful movie adaptation *Arrival* also received critical acclaim worldwide. It received eight nominations at the 89th Academy Awards, including Best Picture, Best Director, Best Cinematography, Best Adapted Screenplay, and won for Best Sound Editing. The author of "Story of Your Life," Ted Chiang, is an American science fiction writer born on Long Island in 1967, whose short stories, including "Tower of Babylon" (1990), "Story of Your Life" (1998), "The Merchant and the Alchemist's Gate" (2007), won him four Nebula awards, four Hugo awards, the John W. Campbell Award for Best New Writer, and four Locus Awards. Chiang is himself a computer science major and now works in the software industry as a freelance technical writer, and hence he often incorporates his knowledge of science into his writing. What's more, his personal interests in philosophy had also added color to his works.[4] Another important figure that contributes to the success of the movie *Arrival* is Denis Villeneuve. Villeneuve is a French Canadian movie director, producer and screenwriter, who received four times the

[1] The Nebula Award for Best Novella is presented each year by the Science Fiction and Fantasy Writers of America (SFWA) for outstanding science fiction or fantasy novels.
[2] The Theodore Sturgeon Memorial Award is presented annually by the Center for the Study of Science Fiction for outstanding short science fiction.
[3] The Hugo Award for Best Novella is presented by the World Science Fiction Society for the best science fiction or fantasy story published in the prior calendar year.
[4] See the interview with Ted Chiang, titled "Ted Chiang on Free Will, Time Travel, Many Worlds, Genetic Engineering, and Hard Science Fiction" on YouTube (https://www.youtube.com/watch?v=xNB_89vZ0y4).

doi:10.6342/NTU202300779

Canadian Screen Award for Best Direction.[5] His acclaimed works include the science fiction films *Arrival* (2016), *Blade Runner 2049* (2017), the thrillers *Prisoners* (2013) and *Sicario* (2015).

The story of "Story of Your Life" unfolds with the arrival of one hundred and twelve devices resembling large semi-circular mirrors. The adaptation *Arrival*, however, illustrates a simpler situation where twelve alien spacecrafts land on different places on earth. Louise Banks, a linguist, is recruited to decipher the language the two cephalopod-like, seven-limbed aliens use. During her efforts of decoding the alien language, Banks starts to experience the alien's way of perceiving the world. One of the most significant differences between the alien's conception of the world and the human's is time.[6] More specifically, the short story, as well as its filmic adaptation, illustrates an alien, circular time-image different from the linear time concept that human beings now adopt. The term time-image is borrowed from Gilles Deleuze's *Cinema 2: The Time-Image* (1986). For Deleuze, the time-image represents the power of birth, in which the present forks toward two directions – one, the actual line of the present, advances toward the future; the other, the virtual line, preserves into recollections. This is why I use the term time-image in this thesis, for the present no longer passively becomes memories, but carries with it a power of creation toward the future. More specifically, the time-image Villeneuve deals with is a duration in which images of past and

[5] The Canadian Screen Award is presented by Academy of Canadian Cinema & Television for outstanding television, film, and digital media productions in Canada.

[6] While it is true that the time concepts of the aliens and humans differ fundamentally, it is incorrect to assume that all human beings adhere to the same time concept. Although the universally accepted linear concept is widely adopted by most people worldwide, it is primarily due to globalization. However, it cannot be ignored that certain groups of individuals embrace alternative time concepts instead of the linear one.

doi:10.6342/NTU202300779

future events juxtapose within the present and hence it becomes possible to experience past and future moments simultaneously in the present, not physically but visually.[7] It is even more interesting that time travel through consciousness is made possible results from the acquisition of the alien language. Although the short story and the movie adaptation differ in several aspects, both of them put much emphasis on the notion of (alien) language acquisition and subsequently time travel through consciousness. In this thesis, thus, I will endeavor to probe into the issue of time in both texts and try to answer the following questions. What is the aliens' time and language? How are they different from ours? What is the relationship between language and temporality? I will try to answer these questions by using Deleuze's philosophy of time and see if I can provide an interesting yet comprehensive interpretation of the two texts with the help of Deleuze's philosophy.

Overall, I argue in this thesis that the alien's nonlinear time results from the fact that the aliens are living in an entirely different time domain. Though the aliens' time and the human's time are essentially different in kind, the aliens' and Banks's time are only differences in degree.[8] Hence, the reason why Banks is able to perceive time as the heptapods do is because the alien's temporality has already been implicated in Banks's virtual plane of memory.[9] The philosophical grounding of such argument comes from Bergson's model of an inverted cone. The heptapod's temporality exists as one level of the virtual cone in humans. Through

[7] The female protagonist Dr. Banks in *Arrival* experiences visual time travel – images of future events and past memories flood into her mind, while physically she is not transported to those places.
[8] The notions of *difference in kind* and *difference in degree* will be explained in Chapter 2.
[9] It would be incorrect to assume that amongst all humans, only Banks can comprehend the alien's way of thinking and perceive things in a non-linear fashion. Although the novella and the movie do not explicitly mention it, we can presume that once an individual acquires the Heptapod B language, eventually, he or she will be capable of perceiving things like the heptapods do.

doi:10.6342/NTU202300779

language, Banks successfully leaps onto the level of the alien's temporality and therefore surpasses human's linear conception of time. To further explain the relationship between language and temporality, I will use Bergson's philosophy and Deleuze's interpretations of it to provide a reasonable interpretation instead of from the viewpoints of the Sapir-Whorf Hypothesis, which is applied by Ian, the male protagonist in the movie. Through Bergson's and Deleuze's philosophy, I conclude that the acquisition of the heptapod language does not reform Banks's perception of the world; instead, the alien way of viewing the world has already existed and implicated in Banks's "plane of consistency"[10] (*A Thousand Plateaus* 251). Through the acquisition of the alien language, the access to the alien way of perceiving the world is opened up, and Banks is therefore able to leap onto the layer that belongs to the alien perception.

I. Literature Review

This thesis works on two primary texts – Ted Chiang's "Story of Your Life" and its filmic adaptation *Arrival*, directed by Denis Villeneuve and written by Eric Heisserer. Although the movie makes some changes to the original short story, Chiang in his interview with Robert Wright says,[11] "The film does capture the heart of the story." For example, according to Chiang in his interview with Lou Anders,[12] Villeneuve does follow Chiang's

[10] In this thesis, "the plane of consistency," "the pure past," and "the past in general" are used interchangeably. In this thesis, they refer to the virtual realm where the past, the present and the future are all stored within. In other words, the plane of consistency is not a fixed entity, but instead a virtual realm of possibilities where the past, the present and the future coexist.

[11] See the interview titled "Free Will, and the Nature of Time | Robert Wright & Ted Chiang [The Wright Show]" on YouTube (https://www.youtube.com/watch?v=sOWVzR7ZwAI).

[12] See the interview transcript at https://www.sfsite.com/09b/tc136.htm.

doi:10.6342/NTU202300779

ideal, making the writing system of the heptapods truly alien; that is, the heptapod's writing has to be entirely different from that of the human's. Nevertheless, when it comes to the design of the heptapod's appearance, Chiang and Villeneuve are not quite on the same page. However, Chiang is still happy with how the movie portrays the heptapods. In the short story, when Banks first sees the heptapods, she describes them as "radically symmetric"; what's more, their limbs have "no distinct joints," and they move in a fluid manner (84). According to Chiang in his interview with Tara Bennett,[13] "The aliens they came up with are radially symmetric and they don't have a face so their aliens do what I wanted from my aliens." However, compared with the descriptions from the short story that one of them "was walking around on four legs, three non-adjacent arms curled up at its sides," Villeneuve's heptapods have around six legs and no upper arms can be seen connected to their torsos. In this interview, Chiang also mentions that he imagines his aliens as a kind of creature "who didn't remotely look like people." In this respect, I think Villeneuve remains quite faithful to the original story.

Both "Story of Your Life" and its filmic adaptation put much emphasis on the notion of time travel. Ted Chiang is himself quite fascinated by the idea of knowing the future. The philosophy he holds about time is free will. As he says in his interview with Avi Solomon,[14] "when I say time travel, I'm including receiving information from the future [….] The idea that you can create a paradox assumes that you have free will; even the idea of multiple timelines assumes it, because it assumes that you can make choices." In other words, Chiang

[13] See the interview transcript at https://www.syfy.com/syfywire/author-ted-chiang-reveals-how-arrival-went-from-page-to-screen.
[14] See the interview transcript at https://boingboing.net/2010/07/22/ted-chiang-interview.html.

doi:10.6342/NTU202300779

is not holding a deterministic view of time travel where the time traveler is subjected to a determined future. The notion of free will is explicitly expressed in the part when Banks welcomes Ian's proposal "Do you want to make a baby?" under the circumstances that she knows the tragic ending her daughter will face in the future.[15] She embraces whatever will happen in the future. The idea of *free will* will be further discussed later in the thesis where Deleuze's third synthesis of time can help the understanding of such a notion.

What do scholars in literature field talk about when they talk about *Arrival* and "Story of Your Life"? One most prevailing argument concerning the movie is the Sapir-Whorf Hypothesis, which basically states that the structure of a language can change the way speakers of that language view the world, or at a weaker level of the theory, influence their worldview. For instance, Israel A. C. Noletto and Sebastião Alves Teixeira Lopes's speculative and comparative analysis of "Story of Your Life" and *Arrival* provides an interesting view concerning the language in their "Heptapod B and Whorfianism: Language Extrapolation in Science Fiction." To briefly summarize, they stress particularly the discussion of glossopoeia (artificially constructed languages) and subsequently the naming, the sounds produced, the writing, the design of the language and the time concept of the aliens. They come to the conclusion that the alien language in both Chiang's and Villeneuve's texts shapes the readers' entire way of thinking, consequently their perception of their own societies. Noletto and Lopes's analysis of language in the two texts provides an interesting viewpoint concerning the Sapir-Whorf Hypothesis, which is helpful in the discussion of

[15] Eric Heisserer intentionally changes the name of the male protagonist Gary into Ian in *Arrival*.

doi:10.6342/NTU202300779

language in the third chapter of this thesis. Both Noletto and Lopes's work and my thesis put much emphasis on the Sapir-Whorf Hypothesis. However, Noletto and Lopes adopt the Sapir-Whorf Hypothesis mainly to probe into how Chiang questions morals and science through glossopoeia. In my thesis, I will, on the other hand, talk about how the Sapir-Whorf Hypothesis is made invalid under the topic of the relationship between temporality and language in both texts.

Another popular topic among scholars in the literature field about the two texts is feminism. Destoprani Brajannoto, Yumna Rasyid and Ninuk Lustyantie's "An Intuitive Logical Woman: Personality of Main Female Character in *Arrival* Movie by Eric Heisserer" adopts Freudian and Lacanian theories to probe into the desire and personality of the female character Banks, saying that she actually has a unique personality and strong Id that make her outwit other females in general. Assyfa Octaviyani Istiqomah and Tatan Tawami, on the other hand, adopt a qualitative-descriptive approach, looking into the ontological metaphors in the script of *Arrival* in their "Ontological Metaphor in *Arrival* Movie Script." In brief, Istiqomah and Tawami identify three different ontological metaphors in the script – physical object, container, and personification. Both articles provide interesting and innovative interpretations of the texts under discussion. This thesis, on the other hand, will not focus on feminism, which is already widely debated when it comes to "Story of Your Life" and *Arrival*. Rather, I will look into the aspects of language and time in both texts and see if I can provide an equally interesting and novel interpretation.

Last but not least, one of the most popular topics regarding the two texts is time. Lauren

doi:10.6342/NTU202300779

Molyneux-Dixon, for example, adopts an analytic approach, investigating the issues of the nonlinear narration, narrative focalization and the presentation of coinciding narrative frames that are present in the source text and its film adaptation. Instead of employing time theories proposed by philosophers or physicists, Molyneux-Dixon conducts a thorough textual analysis, pointing out scenes that are related to time. She then comes to the conclusion that it is Dr. Banks's perception, instead of her physical body, that surpasses the chronological time frame and achieves a certain time travel (318). Molyneux-Dixon's interpretation serves as a good source for this thesis, for she extends the analysis of the nonlinear narration to the issue of time in the two texts under discussion, which corresponds to the main theme of my thesis – time and language. Jacob W. Glazier and Timothy J. Beck's "Apocalypse, Language, Temporality: An Alien Encounter in Ted Chiang's 'Story of Your Life'," on the other hand, elucidates how subjectivity is constructed in a nonlinear way by looking through the three significant aspects of the text: apocalypse, language and temporality. Specifically, in their analysis of temporality and language, they point out that Dr. Banks actually foresees future memories "in an almost digital fashion," i.e., each discrete future moment that she experiences comes to fill in the gaps of her life and these digital-like moments thus enable her to experience the wholeness of life even before anyone does (280). Glazier and Beck borrow Alexander R. Galloway's idea of digitality to explain that the idea of the digital serves as the basics of distinction (276). Pieces of the memories that Banks sees resemble the digital that Galloway describes, and these digital-like, distinguishable memories make Banks's life complete, regardless of the sequence of the memories. Glazier and Beck's argument, though a

doi:10.6342/NTU202300779

good one, serves as the counter argument to this thesis, for what lies behind their argument is a presupposition that mixes up space and time. When space and time are confused, time becomes numerical and hence dividable. However, in Deleuze's philosophy, duration is continuous. Every present contains a hint of previous moments; that is, every present carries with it a whole virtual multiplicity. As a result, time is indivisible.

II. Methodology

This thesis will mainly focus on the two important aspects of time in both the short story and the movie: time-image and language. Though several scholars have made great contributions to the discussion of time in this movie, viewpoints concerning the relationship between language and temporality in this movie are still very few. For example, though Molyneux-Dixon's work serves as a good start when doing research on the topic of language and temporality, she doesn't, and she does not need to, explain why narratives have something to do with temporality, which will otherwise make her work more complete and appealing. Noletto and Lopes provide interesting analysis concerning language, yet they seem not interested in how language affects one's perception of time in this movie. Up to now, few scholars have made thorough comprehensive studies combining the two concepts together. Hence, I argue in this thesis that language, itself as a form of crystalized time,[16] does have the power to shape our conception of time. It is also through language that human beings are

[16] The concept of *crystal* is borrowed from Gilles Deleuze's *Cinema 2: The Time-Image*. According to Deleuze, we see a non-chronological time in the crystal (81). In the crystal, actual and virtual constantly interchange, i.e., the present constantly undergoes the process of forking – one line toward the future and the other toward the past. The two lines interchange, and hence the differences between actual and virtual become indiscernible.

doi:10.6342/NTU202300779

able to open up new possibilities regarding temporality. This thesis will try to answer the research questions I propose here by looking into the differences between the two texts and employing Deleuze's philosophy concerning time-image and language. In other words, I wish to provide a complete study of temporality and language in these two texts.

Following what I mention in the previous paragraph, the short story and the movie do differ in several aspects. Firstly, contrary to the short story, the movie introduces the element of political struggle among nations, all of which compete to be the first one to know the purpose of the aliens' arrival. Second, the movie brings in the discussion of the Sapir-Whorf Hypothesis,[17] while the novel doesn't. Moreover, in the movie, the daughter dies of a terminal illness, while in the novella, she loses her life to her fall from rock climbing. The cause-and-effect relationship between Dr. Banks's prior knowledge of her daughter's destiny and her daughter's death is eliminated in the movie. Differences between the short story and the movie matter, in that they more or less highlight the differences between the heptapods and humans. The most significant one of them is the heptapods' ability to see life in a circular manner – in other words, events in life do not happen in a chronological order.

But how do scholars of philosophy, physics or mathematics talk about time[18]? One classic interpretation of time comes from Aristotle. For Aristotle, how time works is similar to

[17] While deciphering the aliens' language, Dr. Banks starts to experience what the aliens are capable of doing – time travel. This is the time when Dr. Banks uses the Sapir-Whorf Hypothesis to explain her experience.

[18] Most scholars interested in the philosophy of time have studied works of Aristotle, Leibniz, Kant, etc. In *An Introduction to the Philosophy of Time and Space*, Bas C. van Fraassen lists several esteemed scholars of time, including Aristotle, Newton, Leibniz, Kant, and Nietzsche. In *Understanding Space-Time*, Robert Disalle introduces theories proposed by Newton, Kant, and Einstein. *A Companion to the Philosophy of Time* also covers the discussion of theories proposed by Aristotle, Kant and so on. Hence, here in this thesis, I briefly introduce the time concepts proposed by the philosophers mentioned above to, on one hand, prepare readers of this thesis knowledge concerning time, and on the other hand, distinguish between the above philosophers and Deleuze.

doi:10.6342/NTU202300779

how ordinary numbers are used to count things. In his words in *Physics*, "time is the number of change with respect to before and after." In other words, time simply functions as a tool to measure things, and everything is measured relatively (e.g., you run faster than I). This view about time belongs to what is called *relationism*. Leibniz, following Aristotle, adds the element of *order* into the discussion of temporality. As Leibniz believes, the reason why things can be separated is that each forms "a domain of distinct entities, and this domain may be ordered" (Bas C. van Fraassen 46). And it is through time that such ordering is achieved. In other words, time orders things that exist in different contemporaneous settings. Kant, on the other hand, believes that time exists as a kind of general forms, and this sort of forms dominates our understanding and consciousness. Hence, briefly speaking, for Kant, when it comes to the discussion of time as a pure form, under no circumstances should we exclude intuitions. Intuition served as the method helps us construct the idea of time. According to Fraassen's summary of Kant's philosophy of time and space,

> time is a logical space and that a logical space is, in general, a mathematical construct used to represent conceptual interconnections among a family of properties and relations—and furthermore, that this logical space (time) is the real line being used to represent all possible temporal relations among events and the conceptual interconnections among these relations. (115-6)

In other words, time is a concept used to determine the relations of beings. The concept of time and space preexists before humans' experience. Human's knowledge of the world comes from not only our experience but also a priori knowledge of the world that we are born with.

doi:10.6342/NTU202300779

The priori knowledge of the world, including our conception of time and space, exists in human's brain almost like an intuition or consciousness. Through intuition, we are thus able to gain access to the knowledge of world. It's a method that helps us construct our understanding of the world.

This thesis, however, will not focus on the theories mentioned above. The concept of time I employ in this thesis has its philosophical roots in the works of Gilles Deleuze. I will adopt his philosophical ideas mostly from his *Difference and Repetition* (1968), *Bergsonism* (1988) and *Cinema 2: The Time-Image* (1989). To begin with, Deleuze's time is *a priori*, a pre-existing concept before humans.[19] Besides, Deleuze's time-image is not a chronological one. The nonlinear time Deleuze talks about resembles the orthography of the heptapods' language, which is circular. Therefore, I consider it more applicable and persuasive to employ Deleuze's philosophy to solve the problem of temporality and memory in this thesis. More specifically on Deleuze's philosophy, according to Deleuze in his *Difference and Repetition*, we have no trouble travelling back to the past and advancing toward the future, not physically though, for both of them have already been implicated in the present. The three syntheses of time proposed in *Difference and Repetition* serve as good theoretical basis to explain why Dr. Banks is able to foresee future to come, remember past that has not yet passed, and welcome differences in all repetitive upcoming futures. To briefly put it, the first synthesis of time is a time of contraction, into which our past and future are all narrowed down. To be more

[19] Deleuze, however, supports Bergson in his *Bergsonism* and writes, "it is only on the line of Man that the élan vital successfully 'gets through'; man in this sense *is* 'the purpose of the entire process of evolution'" (106). This statement seems to contradict what Deleuze constantly condemns – anthropocentrism. Further details will be discussed in the following chapters.

doi:10.6342/NTU202300779

specific, taking Bergson's model of inverted cone as an example,[20] the cone itself represents the general plane of our past, inside which all of our recollections are preserved. Comprised of different levels of past which are more or less contracted, this inverted cone demonstrates how we realize a present from the pure past. In order to realize a present from this virtual plane of past, we have to select one level to be actualized. The actualized present, however, does not solely proceed toward the future as a linear time image would portray. Instead, the present forks; one advances toward the future, and the other is preserved into the past. Therefore, for example, once a person divulges a secret, he or she changes not just the future but the past, where he or she opens up a whole new dimension due to the leak of the secret; in Williams James's words, "the incautious slip does not change the outcomes of the past but the past itself" (10).

In the second synthesis of time, the present and the future become the dimensions of the past. When one simple movement, action or behavior takes place, it immediately passes into the pure past, a plane of immanence, where the present is now made passive, constantly passing into the past. Hence, the past is full of pure differences, each of which is transformed from the passing present in the pure past. Consequently, as James points out, our life is not simply a succession of actual presents, instead, beneath which there is "a same tra-la-la," a plane of consistency, where different futures unfold and develop. The third synthesis of time brings out Deleuze's most significant perspective concerning time –*eternal return,*[21] a concept derived from Friedrich Nietzsche, where it is difference that always returns. This is

[20] More detailed descriptions and an illustration of such model can be seen in *Bergsonism* (1991) on page 60.
[21] Nietzsche first mentioned this concept eternal return, also called eternal recurrence, in his *The Gay Science* (1882).

doi:10.6342/NTU202300779

why Deleuze's duration in his *Difference and Repetition* represents a creative power because the process of eternal return always brings something anew.

This thesis, nevertheless, does not just analyze the time-image in the movie *Arrival* but also language and their relationship. After Dr. Banks comes into contact with the heptapods, she gradually adapts herself to the aliens' time concept as she progressively acquires the alien language, with Heptapod A representing the spoken language and Heptapod B the written form. For example, right after the first meeting with the heptapods, Banks recalls the day when her daughter was sixteen years old (80). What is interesting here is that she hasn't married her future husband, Ian (the male protagonist's name in the movie; Gary in the novella), and so she doesn't even have a daughter yet. Soon later, Banks remembers a conversation she and her daughter had in her junior year of high school (93). Memories that haven't been realized about her daughter follow, not chronologically though. She recalls the day when her daughter was six (95), when her daughter graduated from college (97), and then when she was thirteen (98), etc. The arrangement of such plots indicates two things – that the acquisition of the alien language has started to influence Banks's way of perceiving time and that the alien's time resembles the Heptapod B, a logogram that appears to be circular.

Clearly, the heptapod's conception of the world appears to be very different from that of human species. The heptapods, from the beginning of their lives, foresee everything that would happen in their lives. In other words, they know exactly what will happen for the next minute. Hence, it comes as no surprise that the heptapod's language appears to be circular, too. Unlike the sequential structure of human languages (words are written from left to right,

doi:10.6342/NTU202300779

or vice versa), the heptapod's language looks antennary and nonlinear. As Chiang describes in his short story, "One heptapod spoke, and then inserted a limb into a large socket in the pedestal; a doodle of script, vaguely cursive, popped onto the screen. [….] Based on first impressions, their writing appeared to be logo-graphic" (89). It is therefore reasonable that when Banks acquires the heptapod's written language, Heptapod B, as she names it, she gradually perceives the world in the alien's way. In *Arrival*, according to Ian, "if you immerse yourself into a foreign language, you can actually rewire your brain." The movie introduces the Sapir-Whorf Hypothesis to express that upon acquiring the Heptapod B, Banks's conception of time changes along with it. Some critical questions need to be addressed here. Is the Sapir-Whorf Hypothesis valid in such context? Is the causal relationship between language and our perception of time possible? In this thesis, I will mainly borrow Deleuze's pure past (the second synthesis of time) and Bergson's philosophy to support my argument. I argue that the introduction of the Sapir-Whorf Hypothesis with a view to explaining Banks's change of her conception of time is invalid.

The expected outcome of this thesis is that the nonlinear form of time discussed in both Villeneuve's and Chiang's works can be successfully explained by Deleuze's philosophy of time. In other words, among all the outstanding reviews and interpretations of the two texts in the literary field, I hope that I can provide an innovative angle through the incorporation of some philosophical thinking in combination with the analysis of the alien language. With the philosophical grounding, I expect to see how surpassing a linear conception of time can become possible through the acquisition of the alien language, which is itself free of linear

doi:10.6342/NTU202300779

formation.

III. Chapter Design

In Chapter One "Deleuze's Time-Image in *Arrival* and 'Story of Your Life,'" Deleuze's time theory will be explained and brought into the dialogue, hoping to probe into the short story "Story of Your Life" and its filmic adaptation *Arrival* to see if they can help the understanding of the alien time. This is achieved by adopting Deleuze's concept of time-image from *Cinema 2: The Time-Image* and his interpretations of Bergson's philosophy concerning time. As Deleuze suggests, in time-image, which is defined as a "direct presentation of time," the present contains a present of the future, a present of the present and a present of the past; in other words, time exists as duration instead of succession of the past, the present and the future. I will thus use this idea to explain how the heptapod's language works. In *Cinema 2*, Deleuze also employs several filmic techniques, such as depth of field (107), flashback (48), tracking shots (36), etc., to explain how time works in films. What I will specifically discuss in *Arrival* is the use depth of field, for Deleuze's philosophical ideas concerning depth of field can serve as a good tool to explain the differences of conception of time between human and the aliens. In *Cinema 2*, every layer in a scene filmed with depth of field represents a sheet of past (106). That is, a scene can demonstrate and encompass different time dimensions. I will employ this idea to talk about how Banks can stand out from the other scientists involved in the study of Heptapod B.

To extend the discussion of temporality and memory, Chapter Two "Duration in *Arrival*

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and ‘Story of Your Life’” will see if Bergson’s *duration* can help broaden the knowledge concerning time and memory, two significant elements of the two texts. The differences between the alien’s perception of time and the human’s are only differences in degree. My argument of this chapter is that the reason why Banks can acquire the alien’s ability of foreseeing future is that the alien language has already implicated in her inverted cone (borrowed from Bergson’s model).

Finally, Chapter Three “Language and Temporality” will probe into the language of the heptapods, Heptapod B, mainly from the viewpoint of the Sapir-Whorf Hypothesis and Deleuze’s interpretation of Bergson’s memory. In Bergson’s philosophy, language and memory share some commonalities. Therefore, language and memory can be analyzed almost in the same fashion. Hence, in this thesis, I will try to analyze language by applying Bergson’s model of an inverted cone, and elaborate the complex relationship between language and time-image within the movie and the short story. My argument for this chapter is that if we follow the movie’s logic, which supports the Sapir-Whorf Hypothesis, Banks’s conception of time is changed due to her gradual acquisition of the alien language. In other words, based on the Sapir-Whorf Hypothesis, the acquisition of Heptapod B can influence the way Banks views the world. However, the acquisition of the new language changes her in a way that is entirely different from what the Sapir-Whorf Hypothesis holds. Based on Deleuze’s philosophy in *Bergsonism*, the acquisition of Heptapod B opens her access to the plane of consistency in which a great number of possibilities are stored nonlinearly. When she

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has enough input of the language, she immediately leaps onto the plane of the alien's sense[22], and hence is able to perceive time as the aliens do. Overall, by looking into the differences between the novella and the movie and the relationship between memory and language, this thesis endeavors to give a new interpretation of time and language in the story. Moreover, this thesis will seek to apply Deleuze's and Bergson's philosophical ideas to explain how the alien time and Heptapod B in "Story of Your Life" and *Arrival* work.

[22] Deleuze in his *The Logic of Sense* distinguishes between mixtures of bodies and incorporeal entities. The most explicit difference between the two is sense. According to Tamsin Lorraine's definition of the incorporeal, "the incorporeal events of sense are infinitives (to shine, to be the sun) that constitute pure becomings with the temporality of *aion* - a form of time independent of matter that always eludes the present" (*The Deleuze Dictionary* 128). In other words, one can define one thing in a variety of ways; however, the sense of it can never be exhausted. It exists before human definition; it is always in the process of becoming.

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Chapter 1: Deleuze's Time-Image in *Arrival* and "Story of Your Life"

I. Memory as Pure Past in *Difference and Repetition*

Deleuze in his acclaimed work *Difference and Repetition* gives clear definitions to difference and sameness, two important notions that contribute to the understanding of what a being is. For Deleuze, a change, i.e., difference, is not produced from the repetition of the same things. It is instead generated in the mind which, borrowing Deleuze's word, "contemplates" something different within all the repeated sameness (70). In other words, not until someone, in Williams James's words, draws connection between two things can we say that they are repeated. To briefly put it, things do not repeat themselves. Hence, when Deleuze talks about repetition, he is implying that the repetition actually results from a difference between the repeated things. More importantly, repetition is made valid and sufficient only when duration is taken into consideration. According to Deleuze in *Difference and Repetition*,

> The constitution of repetition already implies three instances: the in-itself which causes it to disappear as it appears, leaving it unthinkable; the for-itself of the passive synthesis; and, grounded upon the latter, the reflected representation of a "for-us" in the active syntheses. (71)

That is to say, before someone contemplates something, it remains a being that exists in its own right, a being that lives in the world-without-us. However, to guarantee the sustainable existence of the being, a difference must be drawn from the repeated sameness. Otherwise, repetition without differences will only lead to death. Deleuze also believes that it is through

doi:10.6342/NTU202300779

imagination which he defines as “a contractile power” rather than memories that we are thereby able to perceive things in a contracted manner (70). That is, different independent instants are contracted down and therefore form the living present, in other words, time, that we now sense. This is the synthesis of time Deleuze talks about. In other words, the syntheses of time are now seen as “a process connecting repeated things” and generating differences (James 24).

Deleuze’s synthesis of time involves several processes. These processes comprise the notion of time. To be more specific, Deleuze talks about three syntheses of time, none of which is superior or inferior to one another and all of which are equally significant. To begin with, the first synthesis of time is the time of contraction and it stresses the present, for the past instants are “retained” during the process of contraction and the future moments are “anticipated” in this same contraction (71). In James’s words, in the first synthesis of time, “the past and the future are dimensions of the present” (10). This also suggests that Deleuze is not thinking time in a traditional, linear manner. Instead, through the first synthesis of time, Deleuze is depicting a nonlinear process of time where the living present goes from the past to the future, from retention to anticipation and from particulars to general possibilities. The first synthesis of time is essential in that in the first synthesis of time, the living present serves as a connector, establishing relations between repeated things via a process called selection. Without the first synthesis of time, repeated things remain the same; in other words, there would be no differences discovered in the repetition of the same, and hence no creation would ever happen.

doi:10.6342/NTU202300779

The second synthesis of time is where the first synthesis of time takes place. To distinguish the first from the second synthesis of time, Deleuze refers to the first as the foundation of time and the second as the ground of time (79). The reason why the first synthesis of time is the foundation is that this synthesis of time is essentially constituted by habits and habits of living serve as the basis of future movements. The first synthesis of time is a synthesis of habits because in our contemplating mind, habits contract the repetition of the repeated things. Yet, the habits must ground on something else whose role is to, borrowing Deleuze's words, "measure" and evaluate (79). This second synthesis of time is thus the ground of time — the memory. The second synthesis of time, in James's words, "assigns proper well-determined relations between passing presents" (56). In other words, if the first synthesis of time serves as the foundation of time that determines the space where repetitions and differences occur, the second synthesis of time, the ground of time, then serves as a mechanism that determines the appropriateness of the foundation. The second synthesis does not devour every passing present and restore every one of them into the realm of pure past. It "measures" them and provides a proper environment for ordering them. And memory is the name of this process. Memory allows us to talk about time in "unconscious psychical states" (Keith Ansell-Pearson 74), which in a way expresses that the present, the past and even the future have their own meaning and purpose of existence regardless of human existence. Memory does not dwell in our brains; rather, if we borrow Bergson's ideas, it inhabits in duration, a plane of immanence. Memory will not be changed or influenced by human decisions. It exists as an ever-changing mechanism in its own right, restoring passing

doi:10.6342/NTU202300779

presents, pure past and anticipation of the future in itself (It is ever-changing because the relationship between the present and the past is not stable). The brain then serves as the selecting mechanism. Humans select what is useful in the memory to realize. To explain memory in a more modern way, memory is like the cloud in computing. It exists outside the human body (the brain), and humans retrieve what is useful to them from this plane of immanence. However, to this point, Deleuze had not provided explanation of creation in duration. If we follow the logic of the first two syntheses of time in Deleuze's philosophy, duration still lacks novelty — passing presents go from the past to the future, and the pure past evaluates and retains the passing presents, making them memories of the pure past. No differences are found or introduced in the process. As Deleuze suggests in *Difference and Repetition*, the two syntheses of time only result in "metempsychosis" (83). Every present carries with it a whole past, and the present is the most contracted form of the past. Presents become either more contracted or relaxed forms of the past. Under such circumstances, there will be only repetitions in time and differences are lacking. This is the reason why Deleuze introduces the third synthesis of time, where creation is found.

The third synthesis of time talks about another repetition of time — "the repetition of the future as eternal return" (*Difference and Repetition*, 90). In a word, Deleuze's third synthesis of time comprises a "caesura" and an aggregation of events (89). Caesura must occur since it creates differences to the events; it introduces the before and the after to the events, leaving it determinable. Yet, if we have only caesura in the third synthesis of time, creation will not be

doi:10.6342/NTU202300779

found because caesura only determines extrinsic difference[23] of the event — the order. We must introduce another movement that sets the events into series, where intrinsic differences become evident — to assemble. By aggregating the events into series, an event's position in relation to others in duration becomes evident. This in turn shows the intrinsic differences in one event. And to achieve these two steps — to cut and to assemble (division of time and ordering of time), duration itself must be "pure and empty" so that novelty can possibly occur (James 87). Although Deleuze talks about caesura in the chapters concerning time, such as "Repetition for Itself" in *Difference and Repetition*, his idea of caesura or *cut* happens to resemble the idea of deterritorialization expressed in his *A Thousand Plateaus*. To be more specific, the idea of deterritorialization appears in Deleuze and Guattari's several works, such as *A Thousand Plateaus* (1980), *Kafka, Toward a Minor Literature* (1986), and *What Is Philosophy?* (1996). The concept of deterritorialization, according to Deleuze and Guattari, varies in different contexts. Particularly in their *A Thousand Plateaus*, they describe it as a creative power that frees and provides chances of reterritorialization. As Deleuze and Guattari point out, "Beneath relative movements the plane of consistency (or the abstract machine) performs conjunctions of flows of deterritorialization that transform the respective indexes into absolute values" (70). In other words, the line of flight that carries the power of

[23] According to Deleuze in his *Difference and Repetition*, "When we define repetition as difference without concept, we are drawn to conclude that only extrinsic difference is involved in repetition; we consider, therefore, that any internal 'novelty' is sufficient to remove us from repetition proper and can be reconciled only with an approximative repetition, so-called by analogy" (27). Since repetition as difference without concept can only lead to repetition that cannot generate novelty, we should manage to solve the problem of the concept of difference; however, if we fall into the misconception of "the concept [of difference] in general," we only find differences that are representative of the Difference (27). In other words, to find the "internal novelty" Deleuze talks about, we should endeavor to find intrinsic differences rather than extrinsic differences that unavoidably bring about repetition.

doi:10.6342/NTU202300779

deterritorialization deconstructs and transforms a fixed organization (or organism) and opens up possibilities for it. The idea of deterritorialization serves as a good metaphor to explain the idea of caesura in *Difference and Repetition*. The caesura in every event is like the deterritorialization, dividing up time into before and after, and hence introducing extrinsic differences between the events involved. However, only by reterritorializing the events, assembling and ordering these events in duration, can intrinsic differences ever express themselves. Therefore, to welcome novelty, eternal return indicates not the return of the sameness, but only (intrinsic) differences will return. This is why Deleuze's third synthesis of time is a time of creation and practice.

To briefly summarize, Deleuze's three syntheses of time are equally important. The first synthesis of time focuses on the living present, with the past and the future being its dimensions. This synthesis of time contracts past events and future possibilities, making them interrelated. However, if we only have the first synthesis of time, the relationship between the passing presents, which go towards two directions (one goes towards the future and the other is retained as particulars), will still be vague. Hence, Deleuze introduces the second synthesis of time which encompasses all time in the virtual pure past. It determines the relationship between the passing presents. Pure past serves as the condition for every passing present. The third synthesis of time then brings in the possibility of creation. Deleuze's three syntheses of time serve as good theoretical basis to explain how time works in the short story "Story of Your Life" and its filmic adaptation *Arrival*. To begin with, the movie itself is a repetition. The beginning of the movie happens to resemble the end. At the beginning of *Arrival*, the

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movie reviews the daughter's life by a montage of images — fragmented pieces of memory such as her birth, her happy playtime with her mother, and her unwanted end of life when the doctor announces her upcoming death due to a rare disease. At the end of the movie, images of the mother and the daughter are displayed again, forming a seemingly circle-like loop of the story. As the mother Banks says in the movie, "But now I'm not so sure I believe in beginnings and endings." The boundary between the beginning and the end is blurred, same as what Deleuze implies in his three syntheses of time — the present, the past and the future are indistinguishable and coexisting.

Within the circle-like story, Banks has undergone a series of repetition, such as the scene of her daughter lying on the bed in the hospital, which appears at the beginning of the movie and after a few contacts with the heptapods. However, if we follow Deleuze's philosophy, creation is found not in the repeated events but in the differences. Within the story, it is the differences between the heptapods and the human that matter the most. They include not only the fundamental biological differences between two species, but also the chronological and spatial differences. Indeed, there are many differences between the two species, but the differences in the time concept are the significant ones as they decide what the two species really are and how they live. One important difference between the two species both "Story of Your Life" and *Arrival* deal with is memory. Normally, human beings can only have the memories of things that have passed. Yet, the female protagonist Banks constantly sees memories that have not yet been, but soon will be, realized. The memories are inclusive of some casual talks between her daughter and herself, and images of her daughter struggling

doi:10.6342/NTU202300779

against a rare disease in the movie/ losing her life in a rock-climbing accident in the novella. What makes memory a prevalent issue in the two works is that events in the memories that Banks sees do not necessarily take place in the past. My use of "in the past" in the last sentence indicates that we are thinking chronologically. In other words, we are thinking in a way that human beings normally do. However, if we follow Deleuze's interpretations of Bergson's philosophy concerning memory and time, such way of thinking time will not create novelty. As Deleuze's third chapter of his *Bergsonism* "Memory as Virtual Coexistence" indicates, memory exists in a so-called "the past in general," where memories are not just preserved as recollections of an event (56). Instead, memories exist in the ontological past in general (the pure past), from which we are able to jump to any memory, which, "like the condensing cloud," changes from the virtual to the actual (56). In other words, memory is found not in our minds but in an ontological plane called "the past in general." The past in general can be said to be the same as what Deleuze calls "pure past" in his three syntheses of time. The issue of duration will mainly be addressed in Chapter Two, where Deleuze's interpretations of Bergson's philosophy of time will be introduced and analyzed further, and the movie and the novella will be brought into discussion as well.

II. The Crystal-Image in *Arrival*

In the previous part of this chapter, Deleuze's three syntheses of time have, to some extent, helped construct our understanding of time in the story. This part will bring in Deleuze's philosophical thinking in his *Cinema 2,* which will not only boost our

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understanding of time in the story but will also bring in the conversation of cinematics. Through the introduction of the crystal of time and a filmic technique called “depth of field,” I expect to provide a more thorough analysis of time in the story, and also an interesting interpretation concerning the problem of filming and its relationship with time.

In Deleuze’s (and Bergson’s) philosophy, succession of time (the past happens before the present, and the future happens after the present) only leads to death (*Cinema 2*, 35). In linear time, when every passing present passes into the past, it stays there and becomes memory; consequently, no difference will ever return and the future stays the same. However, if we think in Deleuze’s crystal time-image, the present is split into two directions — one is actual which goes on to the future and the other is virtual which is preserved into the past and becomes recollection (*Cinema 2* 81). The present has been split into two, and when Banks is leaving the past in general and ready to leap onto a present that is ready for actualization, she is heading towards a virtual collection of presents that have been stored in the plane of consistency and awaits to be actualized. To be more specific, Deleuze in his *Cinema 2* talks about the crystal of time[24]. The discussion of the crystal of time can help us understand how Banks is able to open up a nonlinear time and see images that are preserved in the virtual. In the crystal of time, every present is creative since the present does not directly and solely go into the past and become memory. Instead, the present forks — one is actual heading toward the future and the other virtual which is preserved into the past (*Cinema 2* 81). However, according to Deleuze,

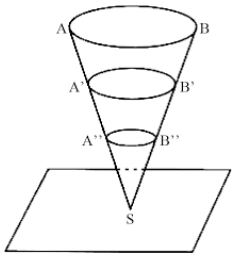
[24] *Cinema 1* mainly talks about movement, the indirect presentation of time.

doi:10.6342/NTU202300779

> In fact the crystal constantly exchanges the two distinct images which constitute it, the actual image of the present which passes and the virtual image of the past which is preserved: distinct and yet indiscernible, and all the more indiscernible because distinct, because we do not know which is one and which is the other. [....] What we see in the crystal is therefore a dividing in two that the crystal itself constantly causes to turn on itself, that it prevents from reaching completion [....] (81)

In other words, we cannot distinguish what is virtual and what is actual (what is limpid and what is opaque) since every present contains the memories of other presents. We can then conclude that the crystal of time is named this way because on the seemingly limpid surface of a crystal, there's something opaque within the crystal, which is constantly undergoing a process of becoming. As Deleuze concludes, "The crystal-image is, then, the point of indiscernibility of the two distinct images" (82). The present forks and goes towards two directions – one is actualized and becomes the actual present and the other is preserved as the virtual image. The constant exchanges of the two make it difficult to discriminate what is actual and what is virtual, what is limpid and what is opaque. Hence, behind every present that forks is the plane of consistency which is composed of infinitely contracted points (*Cinema 2* 294). The infinitely contracted point is the coexistence of actual and virtual, all of which are undergoing a never-ending process called becoming and hence become indiscernible. Take Bergson's model of an inverted cone, for example (fig. 1).

doi:10.6342/NTU202300779



(Fig. 1. Gilles Deleuze, *Bergsonism*, 1991.)

The point S (the infinitely contracted point) is the actual perception and it contains countless sheets of the past (past of every circuit contracted toward it). This point S is like the pure past Deleuze talks about in his *Difference and Repetition*. In *Arrival*, Banks's time is no longer an indirect presentation of time after she is changed by the heptapod language. Every present she experiences forks (one towards the future and the other towards the past) and hence every moment she experiences actually contains sheets of the past and countless possibilities of the future. Banks does have her free will since she is presented multiple possible virtual presents and she is able to select any of them to be actualized. In *Arrival*, when Ian occasionally mentions the noun phrase "a non-zero-sum game," Banks immediately jumps to the scene when her daughter asks her the synonym of a win-win situation, and she then, despite originally not knowing the answer, is able to answer her daughter due to the memory that flashbacks (126). This scene tells us two things — that Banks enjoys such a thing as free will, for she is able to bring back memories that are useful to her at that moment and that Banks's time is not a linear one in which the future is followed by the present and the present is followed by the past; rather, in Banks's time, beneath the present lies a plane of consistency, a pure past, in which past memories and future possibilities are intertwined together, awaiting to be actualized. In a way, it may be terribly wrong to say that the heptapods do not enjoy

doi:10.6342/NTU202300779

such a thing as free will only judging from its docile obedience to the future they have seen in advance. They might have free will as Banks does, for the reason why they come to the earth for solution might just be the result of free will. The case of Banks is similar in nature. Both the novella and the film portray the same ending where Banks recreates what she witnessed in her memories and marries Ian (or Gary in the novella), which seems to lack the creativity that Deleuze emphasizes in his philosophy. However, evaluating the story solely based on the ending would be an unfair assessment. Although the ending of the story may appear repetitive, the process through which Banks strives to alter her daughter's destiny demonstrates her creative abilities.

The crystal of time can be utilized to explain the heptapod's language as well. Or, to be more specific, the crystal of time expresses its quality in the heptapods' language as well. Heptapod B, as Banks in the novella describes, is not "arranged in rows, or a spiral, or any linear fashion" (107). Instead, ink-like tentacles, as the movie presents, stretches and forms circles, and numerous of them, which are called the logograms, constitute a sentence. Hence, a sentence is formed not by writing words from left to right or the opposite. Rather, a sentence is formed as a whole from nowhere. There is no beginning of the sentence, nor the end. It is as if beneath the heptapod language there's a plane of consistency (pure past), where every possibility of the content of a conversation is stored within and the speaker only needs to pick one of them to realize. When one of them is realized, it is formed as a set, but not chunks of sentences combined together in a linear way. As a result, gradually the human speaker's brain starts to think graphically instead of linearly. This can be referred back to the

doi:10.6342/NTU202300779

Sapir-Whorf Hypothesis, which is also mentioned by Ian in the movie. The relationship between language and temporality will be discussed in the third chapter where the Sapir-Whorf Hypothesis will be further explained.

The crystal of time is almost everywhere in the novella and the movie. In *Arrival*, the filmic technique — depth of field — is another evidence that proves the heptapods and the human beings are adopting difference time concepts and hence are thinking in an entirely different way. Depth of field, according to *Cambridge in Colour*, refers to "the range of distance that appears acceptably sharp." Photographers or videographers make use of this technique to stress a certain object, character or scene. By focusing on a particular subject, making it comparatively sharp and clear, the audience will understand what is important and needs attention in a specific scene. The first contact between Banks and the heptapods displays no physical interaction at all but stresses only the main characters' nervousness by drawing attention to the constant heavy breaths from the characters. This first contact is particularly unsettling especially with a bird chirping and uneasy music playing in the background. This scene ends immediately after Colonel Weber says, "Doctor Banks, you can start." In other words, the first contact between the human and the non-human provides little information about the heptapods except for their appearance as seven-limb octopus-like creatures. The second contact first shows the heptapods' display of their written language (Heptapod B). When the meaning-guessing mission starts to go arduous, this scene reaches its climax — Banks takes off her protective clothing and approaches the heptapods in order to let the heptapods see her. When Banks stands in front of the glass wall, the fellow crew

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members and Ian become blurred. Villeneuve uses depth of field to indicate the different dimensions now Banks and the other crew members position respectively. Borrowing James Pearson's words in "Could a Heptapod Act? Language and Agency in *Arrival*," in this scene, by situating Banks and the heptapods at the same place, "we have witnessed a meeting of minds, the sharing of a single memory, the inscribing of a single thought" (53). From this moment on, Banks starts to truly connect with the heptapods, think in a heptapod's way and share their knowledge of the universe.

Deleuze in his *Cinema 2* mentions, "The function of depth is rather to constitute the image in crystal, and to absorb the real which thus passes as much into the virtual as into the actual" (85). Depth of field (or depth cues) does not only help the audience determine what is important in a certain scene by focusing the camera on a particular object or character. It also implies a change of space and time (or memory) and a stronger contrast between what is sharp and what is blurred. According to David Bordwell, etc. in their *Film Art: An Introduction*, "Depth cues suggest that a space has both volume and several distinct planes[25]" (146). Before Banks walks toward the heptapods, we see two planes – one where the heptapods situate and the other the crew members, including Banks and Ian, position. The two planes signify two dimensions in which time and space concepts are completely different — the human's is linear and the heptapods' is characterized as nonlinear. However, when Banks takes off her suit and moves toward the heptapods, the director uses the aerial perspective[26] to make Banks stand out and the crew members blur and become smaller (size

[25] According to *Film Art*, "Planes are the layers of space occupied by persons or objects" (146).
[26] Aerial perspective, according to *Film Art*, refers to "the hazing of more distant planes" (147).

doi:10.6342/NTU202300779

diminution). In other words, by the use of depth of field, Banks has become part of the alien dimension and the rest remain in the human domain. By this depth cue, the audience realize that they are transported from the actual to the virtual, from human time concept to the crystal of time.

The crystal of time, or the crystal-image, in Deleuze's words, "has two definite sides which are not to be confused. [….] But indiscernibility constitutes an objective illusion; it does not suppress the distinction between the two sides, but makes it unattributable, each side taking the other's role in a relation which we must describe as reciprocal presupposition, or reversibility" (69). The actual and the virtual form a loop, with the latter mimicking the former and the former reflecting what is expressed in the virtual realm, and thus generating an illusion that these two are indistinguishable and each becomes each other's presupposition. As the two sides of a mirror, the actual exists outside the mirror, casting its reality onto the mirror; while the inside of the mirror, the virtual realm, receives what is shown as reality and reflects it back to the outside. Therefore, now the actual sees what is offered by the virtual — details that can rarely be seen simply by the observation of the actual itself. The actual is completed by the virtual and the virtual is enriched by the completion of the actual. As Deleuze explains, "When the virtual image becomes actual, it is then visible and limpid, as in the mirror or the solidity of finished crystal. But the actual image becomes virtual in its turn, referred elsewhere, invisible, opaque and shadowy, like a crystal barely dislodged from the earth" (70). Hence, the actual and the virtual seem reciprocal and interchangeable. But the truth is such illusion does not cancel out the difference(s) between the actual and the virtual.

doi:10.6342/NTU202300779

The virtual contains not only the qualities of the actual but also the virtual multiplicity (also known as the pure past, the plane of immanence, the plane of consistency, the memories of the past, the present and the future) that lies beneath the actual. Aside from the memory of the actual, the virtual comprises the memories that have not been realized. Hence, the virtual is opaque; the virtual is like “the environment” which contains a myriad of “seeds” (71). When Banks stands right in front of the heptapods, the virtual reigns. Therefore, she is able to see what seems to her like a memory of the old days and is yet to be realized. Before the contact with the aliens, she has changed her perception of the world, and is not only able to see seeds, but the environment within which countless possibilities lie.

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Chapter 2: Duration in *Arrival* and "Story of Your Life"

I. One or Many Durations?

This chapter will mainly use Bergson's duration to solve the problem of time and memory further. Before that, differences between human's perception of the world and the aliens' will be addressed first. Following Bergson's logic, every being (answer) is a perfect being (answer). As the first rule Deleuze sets up in his *Bergsonism* says, "False problems are of two sorts, 'nonexistent problems,' defined as problems whose very terms contain a confusion of the 'more' and the 'less'; and 'badly stated' questions, so defined because their terms present badly analyzed composites" (17). In other words, every answer to an existent problem should be the perfect answer in its own right because nonexistent problems can only result in answers that are different in degree. However, a good question will result in answers that are different in kind. For example, different lengths of time of exposure to light will bring about formation of different eyes in different environments. Some of the abyssal fishes that live in the deep sea have evolved highly sensitive eyes that can detect more color hues than fish living in the neritic zone. The sensitive eyes the abyssal fishes develop are no better than the eyes of the shallow sea fishes. Both are the perfect results of evolution according to the different environments they dwell. On the other hand, the problem that lies behind the badly stated questions is that these questions will only contribute to badly analyzed composites and for such composites, we will have difficulty distinguishing their intensities because these composites have grouped things that are already different in kind. According to Deleuze, "the notion of intensity involves an impure mixture between determinations that

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differ in kind" (*Bergsonism* 19). Hence, when asked a badly stated question, we know that the subjects being discussed have different groundings and therefore we will have problems answering such question at all. However, the virtue of beings lies not in the degree of their intensities, but in the fact that every being enjoys such things as intensities. We do not judge the degrees of their intensities but appreciate their differences in kind. The notions of difference in kind and difference in degree will constantly appear in this thesis. Here's a brief explanation of the two notions[27] from Deleuze's fifth chapter of *Difference and Repetition*. According to Deleuze,

> Difference is a matter of degree only within the extensity in which it is explicated; it is a matter of kind only with regard to the quality which covers it within that extensity. Between the two are all the degrees of difference – beneath the two lies the entire nature of difference – in other words, the intensive. Differences of degree are only the lowest degree of difference, and differences in kind are the highest form of difference. (239)

That is, difference has two extreme forms – one end of difference is differences in degree and the other end is differences in kind. If we describe two things as different in degree, we are saying that the two things are basically the same in quality but different on the outside (extensity), which can be the appearance or the form of the thing. Nevertheless, if we refer to

[27] Before the two notions are introduced here in this chapter, the idea of difference in Deleuze's sense should be explicated first. In Deleuze's *Difference and Repetition*, difference is essentially described as intensity (222). Intensity, according to Deleuze, has three characteristics. First, intensity is itself unequal; it represents the unequalizable in quantity (232). Second, since intensity encompasses the quality of inequality, it "affirms difference" (234). Finally, intensity is implicated in itself; when it is explicated or expressed outside itself, differences are cancelled (237).

doi:10.6342/NTU202300779

two things as different in kind, we are saying that the two things are essentially different things in terms of their qualities. The discussion of difference in kind and difference in degree is therefore important when it comes to *Arrival* or "Story of Your Life" because to talk about their differences, we should first be able to distinguish their degree of difference. Let's imagine difference, or intensity, as a continuum, which is supposedly indivisible because it immediately changes its nature when it is divided. At the ends of the continuum are differences in degree and differences in kind. Between the two are degrees of difference that are more or less intense than each other. As mentioned above, the highest form of difference is difference in kind and the lowest is difference in degree. If human beings and the heptapods are essentially different in kind, then we have no trouble explaining why they are different since we only need to point out in what aspects they are different, e.g., their appearances. However, if they are different in degree, which is my argument, then we should first prove that they are essentially the same kind but do have quantitative differences within the extensity. That being said, the discussion of the quantitative differences then will not be so important at all, since it is easy to prove how they are different but much more difficult to prove why they are essentially the same.

If we follow Deleuze's logic, the heptapods and the human beings are essentially different in degree because both of them share one plane of consistency. This is made explicit through Banks's experience of seeing the future after connecting with the heptapods. Normally, connection or contact between human beings and non-human beings would not result in phenomenon that Banks experiences in the story. The reason why Banks is able to

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change her quality as a human being and perceive the world like the heptapods do is because essentially human beings and the heptapods are different in degree and share one plane of consistency. By either language acquisition or physically touching the glass wall, Banks gradually gets closer to the degree of the heptapods. The plane of consistency encompasses Memory of the universe.[28] There are external differences between the two species, though. For example, the way human beings and the heptapods retrieve memories from the plane of consistency might be different. Moreover, what memories being retrieved by the two species respectively might also be different. Given that the heptapods and human beings are different degrees of difference, after acquiring Heptapod B, Banks gradually approaches the degree that belongs to the heptapods. Before Banks connects with the heptapods, she and the heptapods stay quite different despite the fact that both species own the same plane of consistency. This is because Banks is not able to get access to the plane of consistency in the heptapods' way. However, the diverging lines of the two species converge when Banks puts her hands on the glass wall[29] and connects with the heptapods. Here, we see the realization of the process from dualism to monism, from difference in kind to difference in degree. Nevertheless, such process will only lead to the "badly analyzed psychological composite" that Deleuze talks about (*Bergsonsim* 73). Hence, "a genuine point of unity" must be accomplished so that we can find a sufficient reason of the composite (73). Such point of

[28] The use of "Memory of the universe" is borrowed from Deleuze's *Bergsonism*. In *Bergsonism*, Deleuze writes, "The idea of a virtual coexistence of all the levels of the past, of all the levels of tension, is thus extended to the whole of the universe [….] Everything happens as if the universe were a tremendous Memory" (77).

[29] I would like to emphasize that Banks's ability to perceive things from the alien's perspective is not solely due to her physical contact with the glass wall. Rather, I believe that the glass wall merely serves as an indicator of Banks's open-mindedness. The acquisition of language remains the crucial factor responsible for the transformation of her time concept.

doi:10.6342/NTU202300779

unity is found not on the side of experience but beyond the "turn"[30] that is located on the other side of experience (73). Only when we go beyond the decisive turn can we finally sufficiently realize the process from divergence to convergence and hence prove that the process from pluralism to monism does not cancel out such things as differences in kind. In other words, what Bergson calls "precision in philosophy" means an inevitable process of broadening out (differentiation) and narrowing down (integration) (*Bergsonism* 29). What is worth noticing at this point is that the point of convergence lies not on the same side where the lines[31] diverge, but on the other side – the virtual. Differences in kind therefore exist in duration and duration lies in the virtual realm. It is not that only the heptapods are able to carry the virtual whole with them and hence are able to see time in a nonlinear way. Every being encompasses a plane of consistency, "a tremendous Memory of the universe" (77). Through the sharing of minds with the heptapods and the acquisition of the heptapod language, which are the acts that mark the crossing beyond the *turn*, Banks's potential to see the virtual is opened up and therefore is able to acquire the Memory of the universe – to see time in a nonlinear way. In other words, human beings and the heptapods are different in degree because both share the same plane of consistency – that is, duration. What makes them differ in degree is that they approach and access the plane of consistency differently. The heptapods are able to see moments in the plane of consistency that are yet to be realized

[30] Though Deleuze himself does not explain what a turn is, the turn is, based on my reading, what distinguishes between the virtual and the actual. The turn we are now talking about is not the one in experience. The turn we are now addressing is situated on "the other side of the turn in experience" (*Bergsonism* 73). By going beyond this turn, we can therefore give sufficient reasons of the composite and fully explain what this composite is.

[31] The reason why Deleuze uses terms such as the "lines" of divergence or the "lines" of convergence can be referred back to Guattari and Deleuze's discussion of lines of flight in their *A Thousand Plateaus*.

doi:10.6342/NTU202300779

because they think time in a nonlinear way; nevertheless, human beings only see memories because they are constrained by their linear way of thought. When Banks acquires the heptapods' way of thought, she learns how to approach the plane of consistency as the aliens do. However, this is not to say that anyone who acquires the heptapod language gets to become capable of seeing the future. Banks undergoes a process that makes her go beyond the limit that marks the difference between human beings and the heptapods. By going beyond the "turn," she arrives at the virtual realm where the heptapods retrieve memories, realized or to be realized, freely. That is, at first glance, we might say that human beings and the heptapods own different durations because they do not see time in the same way. However, when we see carefully enough, we can also say that both species actually share one duration, with the heptapods retrieving memories in the virtual realm and human beings on the actual side.

According to David Adger in his "Became, Become, Becoming," "The new language provides Banks with a cognitive technology to access a part of her mind that had always been there, but had never been used" (4). Once Banks starts to acquire the "cognitive technology," that is, the Heptapod B, she leaps onto the plane of the virtual memory and starts to see the Memory of the universe. In other words, following what Adger holds, we can say that by using the heptapod language, Banks is given an ability to access a portion of duration that human beings have never been able to access. Every duration is composed of the memories of other durations. Duration is one but also many; duration contains fluxes that differ in degree. However, we do not randomly enter a duration and receive whatever is presented to us in the

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duration. The process will be made clear by looking into Bergson's summary of his theory in *Matter and Memory*:

> We become conscious of an act *sui generis* by which we detach ourselves from the present in order to replace ourselves, first in the past in general, then in a certain region of the past – a work of adjustment, something like the focusing of a camera. But our recollection still remains virtual; we simply prepare ourselves to receive it by adopting the appropriate attitude. Little by little it comes into view like a condensing cloud; from the virtual state it passes into the actual…. (133-4)

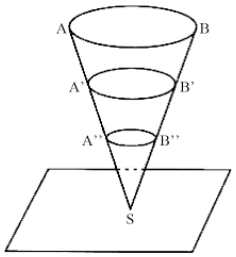
The pure past is itself something ontological. It is not something that exists at a fixed point in our memory, like a library. It is on the other hand defined by its interrelationship with other entities, such as passing moments. It pertains to the fundamental nature of reality and existence. Once one is fully prepared, such as acquiring the heptapod language, they have no trouble accessing the portion of duration where time works nonlinearly. By taking a leap,[32] they immediately leave the actual and position themselves at the realm of the ontology.[33] Here they first enter the place called the past in general where countless recollections are stored. The past in general is, as Deleuze puts it, "the condition of the 'passage' of every particular present" (56). With intuition served as the method, they are transferred onto one layer in the past in general. Slowly, the recollections stored in this virtual realm are actualized and become the present now they are experiencing. What's interesting is that every present

[32] The reason why I use the term "leap" here is because when Deleuze talks about Bergson's inverted cone in his *Cinema 2*, he writes, "Psychological circuits of recollection-images or dream-images are produced only when we 'leap' from S to one of these sections, to actualize some virtuality of it which must then move down into a new present S'" (294).

[33] The realm of ontology is referred to as the virtual, the pure past and the past in general.

doi:10.6342/NTU202300779

carries with itself a whole past in general (pure past). That is, every level in the inverted cone (fig. 1) carries the memory from all the other levels of the plane – "the totality of the past" (60).



(Fig. 1. Gilles Deleuze, *Bergsonism*, 1991.)

What makes one level different from another is only a matter of degree. In other words, one level is more or less contracted than another. As Deleuze explains, "The past AB coexists with the present S, but by including in itself all the sections A'B', A''B'', etc., that measure the degrees of a purely ideal proximity or distance in relation to S" (60-1). That is, the present always carries with itself not only the past AB, but also A'B', A''B'', etc., in which recollections, realized or not, are stored. The actualized present encompasses the particular past that contributes to such present and also the countless pasts which exist in the virtual. What differentiates AB and A'B' is only their degree of proximity to the present.

The heptapods' duration is no different from that of the human in that both encompass a whole past in general, where sheets of past[34] lie within. Bran Nicol's "Humanities Fiction: Translation and 'Transplanetarity' in Ted Chiang's 'The Story of Your Life' and Denis Villeneuve's *Arrival*" says the opposite, however. According to Nicol, "Banks realises that it is precisely because we cannot predict the future that we are able to exercise freedom of

[34] Deleuze in the chapter "Peaks of Present and Sheets of Past: Fourth Commentary on Bergson" in his *Cinema 2* analyzes Bergson's inverted cone further. In a word, sheets of past are layers of duration.

doi:10.6342/NTU202300779

choice. This is a virtue the heptapods don't possess, for all their advances in knowledge" (115). Nicol argues that the heptapods do not have freedom of choice owing to their ability to see the future, and this means that they do not have such a thing as free will. In other words, if we follow Nicol's logic, there will be no novelty happened in the heptapods' world because they are like lifeless automatons who only execute orders. Nicol's analysis now seems to imply that the heptapods and human beings are different in kind. In Nicol's sense, the heptapods' past in general does not have multiple layers; their future is predetermined and they are just acting the future out. However, it would be perfunctory to assert that the heptapods see only one future and act accordingly. Whether they are able to see more than one future is actually not mentioned in the story. Nevertheless, as Chiang writes in the novella, freedom is important to human beings because we are thinking in a sequential mode of consciousness; however, the discussion of the existence of free will to heptapods, who according to Chiang are thinking in a mode of simultaneous consciousness, is not meaningful. This is because, as Banks reflects in "Story of Your Life,"

> Freedom isn't an illusion; it is perfectly real in the context of sequential consciousness. Within the context of simultaneous consciousness, freedom is not meaningful, but neither is coercion; it's simply a different context, no more or less valid than the other. (137)

We are so bound by human concepts that freedom of choice seems to us almost like a necessity in our time concept. This is because every decision we make will affect the sequence of events that take place in our life. By contrast, since the heptapods see things that

doi:10.6342/NTU202300779

have happened before, are happening right now, and will happen all at once, it would be meaningless to talk about freedom of choice under such context. Freedom of choice affects the sequence (or even existence) of events. As Banks reflects in the novella, the heptapods "act to create the future, to enact chronology" (137). For the heptapods, order of events is not important; it's rather important to make the events happen. What's more, if we think carefully enough, the term "chronology" is problematic. Chronology, according to the definition by the dictionary Merriam-Webster, is "the science that deals with measuring time by regular divisions and that assigns to events their proper dates." In other words, to talk about chronology means to talk about events linearly. Hence, from this point, we can see that Banks is still thinking from a human's perspective, that is, in a mode of sequential consciousness. On top of that, it's more problematic to judge whether the heptapods enjoy the "virtue" of freedom. David H. Fleming and William Brown in their "Through a (First) Contact Lens Darkly: *Arrival*, Unreal Time and Chthulucinema" also see the problem of free will. As they point out,

> if the future is fate, […], then in the final analysis we are left with a decidedly un-Deleuzian and un-Nietzschean conception of the world. That is, if Heptapod B reveals a seemingly fatalistic view of Banks' future […], the present (marked by time and free will) effectively becomes an illusion, meaning that Deleuze's models break down, since they are primarily defined by openness and change [….] (347-8)

In other words, just because Banks maintains that the heptapods act to enact the future doesn't imply they don't have free will. If the heptapods do not have free will, there won't be

doi:10.6342/NTU202300779

new possibilities, and their world will end up like a dead end. In my interpretation of the heptapods' duration, despite the fact that freedom to the heptapods may not be so important as to humans, I mainly use Bergson's philosophy and hold that the heptapods do see *memories* that have not yet been actualized. The reason why the heptapods are able to break through the linear way of thinking time is that they've succeeded in reaching beyond the *turn* on the other side of experience. Climbing over the turn, the heptapods gain access to the various sheets of past that exist in the plane of immanence. Human beings, on the contrary, stay on the side of experience. For human, the present coexists with the past AB and yet the A'B', A''B'', etc. are still not seen. In other words, difference between the heptapod's duration and the human's is that of the pluralism and monism. Banks, who nevertheless successfully deciphers the heptapod language and in turn acquires their way of thinking, accomplishes her process of convergence not on the side of the actual, but this time on the side that situates beyond the turn – the virtual. She is, as a result, able to gain access to the different layers of Memory in the past in general.

II. Memory and Duration in *Arrival* and "Story of Your Life"

This part in this chapter will first explain how Banks breaks the limitations that keep human beings from going beyond the turn and seeing time nonlinearly by borrowing Guattari and Deleuze's philosophical thinking in *A Thousand Plateaus*. By adopting Deleuze and Guattari's example of a rhizome as an analogy, the idea of duration can be clearer and more comprehensive. After that, Bergson's philosophy of duration will be further explained and be

doi:10.6342/NTU202300779

put into the dialogue of the discussion of the movie and the novella. By a combination of a more detailed textual analysis of the two texts and the philosophical grounding from Bergson and Deleuze, I hope to provide a more interesting and innovative interpretation of the story.

Guattari and Deleuze in their acclaimed work *A Thousand Plateaus: Capitalism and Schizophrenia* explains how a life is formed by introducing the idea of a rhizome. Deleuze ameliorates this idea of using botanical knowledge to elaborate organic revolution by first putting forward two types of book: the root-book and the fascicular root book. The former is composed of only a pivotal taproot from which thousands of secondary roots grow. According to Deleuze, this type of book is the "classical book," which already embodies the whole image of the world (5). In other words, no further (radical) changes can be made since everything grows from the same taproot. As Deleuze elaborates, the root-book represents "noble, signifying, and subjective organic interiority (the strata of the book)" (5). Everything is homogeneous and every potential and possibility is predictable. By contrast, the latter, the radicle-system, or fascicular root, is constituted of only "multiplicity of secondary roots" (5). The principal taproot is cut off and therefore nullified. Every secondary root grows on their own, and no law is enacted and enforced to confine the development of the secondary roots. This is to say that since the world has aborted its supporting taproot, every second root ceaselessly "accedes to a higher unity, of ambivalence or overdetermination, in an always supplementary dimension to that of its subject" (6). Things are insanely adding up in a state of confusion, resulting in a world of chaos. However, this is not to suggest that multiplicity should be eliminated. On the contrary, according to Deleuze, "The multiple must be made,

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not by always adding a higher dimension, but rather in the simplest ways, by dint of sobriety, with the number of dimensions one already has available – always n-1 (the only way the one belongs to the multiple: always subtracted)" (6). This is the rhizome system Deleuze is talking about. For lives to expand their species diversity and multiplicity, the frame that limits the possibilities of any species in their succession of life must be destroyed with a view to opening up infinite possibilities and potentials. In the story, just because Banks undergoes a process of subtraction (taking off her protective clothing and embracing her capacity to be affected by the aliens), she overcomes the limitation that signifies the essential difference between the two species, opening up the possibility of being affected by the heptapod language. As Keith Ansell-Pearson puts it, qualitative changes, such as a change in the rhyme of a tune, can disclose a pure heterogeneity (*Thinking Beyond the Human Condition* 61). On aborting the frame that prohibits her from getting enough exposure to other species or different mechanisms, a qualitative change is made and multiplicity is achieved since the estrangement brought by the heptapods has changed her cognition and the way she thinks, and therefore produces infinite possibilities to generate new thoughts or new ways of thinking. The rhizome is a perfect demonstration of One as Multiplicity. It is one single duration that Banks and the heptapods share but at the same time encompasses multiple layers of duration where one experiences time in various ways.

Having been rid of the frame, Banks successfully reaches beyond the *turn* and gains access to the plane of consistency. From that moment on, she sees not only memories that have passed but also memories that have not yet been realized. She is presented with options

doi:10.6342/NTU202300779

at every moment in her life. She then undergoes a process in which she first puts herself in the realm of the past in general, where every passing present is stored, then arrives at a certain level of the virtual coexistence, and finally the virtual memory belonging to that level is able to be actualized. Like the focusing of a camera, she adjusts her footsteps every time she arrives at a certain level of the plane until she finds the most appropriate level. When a present is successfully realized, the present carries with itself the pasts that have passed, the presents that are not realized, and the future – the countless possibilities – that have not yet happened. Memory to Banks then is the pure past that stores every potential passing present. Before Banks comes into contact with the heptapods, she follows the linear conception of time that human beings adopt; that is, her passing presents go directly toward the past. Nevertheless, after she puts her hands on the glass wall and starts to understand the logic of the logograms, she's suddenly acquired the ability to access the past in general. In the past in general, time does not go linearly from the past to the future. By contrast, since every possible images have been stored within the past in general, the past and the future, if thinking chronologically, have been implicated in the present. Therefore, Banks's memory houses images that have happened and have not yet happened. This is why after the second contact with the heptapods, Banks starts to see images of her daughter, who is not born yet.

To briefly sum up, the reason why Banks is able to transcend the way human beings perceive time is that the heptapods opens duration for Banks. Duration is, contrary to space, "an internal multiplicity of succession, of fusion, of organization, of heterogeneity, of qualitative discrimination, or of *difference in kind*; it is a *virtual and continuous* multiplicity

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that cannot be reduced to numbers" (*Bergsonism* 38). In other words, it is not that duration is undividable. It is just that duration cannot be divided into numbers; in other words, duration cannot be quantified. Duration is a qualitative multiplicity in that it immediately changes its quality when it is cut or divided up. It is also a virtual multiplicity because it exists as an ontological plane where memories of the others and mine coexist. Therefore, as the sugar cube[35] example indicates in *Bergsonism*, the time that a sugar cube takes to dissolve must be counted along with my "impatience of waiting;" that is, my duration (32). In the movie, before Banks encounters the heptapods, her duration, as mentioned above, exists as an ontological plane in which time proceeds linearly. After she acquires the alien language, the acquisition of Heptapod B opens up her capability to experience the duration of the heptapods. Now in Banks's (and the heptapods') duration, time is not chronological, i.e., the present does not necessarily happen after the past. The present is pure becoming, ever-changing and always outside itself. Every actualized event carries with it a plane of consistency (pure past), within which countless passing presents are stored, waiting to be realized. Before making any decisions, Banks first enters the past in general. Since, according to Deleuze, "each recollection has its own proper level; it is too dismembered or dispersed in broader regions, too confined and muddled in narrower regions," one has to "translate"[36] each recollection

[35] In *Bergsonism*, Deleuze writes, the dissolving of a sugar cube "signifies that my own duration, such as I live it in the impatience of waiting, for example, serves to reveal other durations that beat to other rhythms [of duration], that differ in kind from mine. […] There are no differences in kind except in duration" (32). The example of a sugar cube indicates that only duration can discriminate things that differ in kind. The duration in which a sugar cube dissolves is different from the duration where I impatiently wait. Space, quite the contrary, can only distinguish things that differ in degree.

[36] According to Deleuze in his *Bergsonism*, "If we had to pass from one level to another in order to actualize each recollection, each recollection would thus lose its individuality. This is why the movement of translation is a movement by which the recollection is actualized at the same time as its level […]" (65). Translation helps each recollection maintain its individuality and carries it through the process of actualization.

doi:10.6342/NTU202300779

before it can be actualized (65). By a movement of translation, Banks is able to receive the most appropriate recollection from a certain level of the past in general. At the end of *Arrival*, having foreseen her daughter's untimely death, which is, nevertheless, still stored in the pure past and has not yet been realized, Banks chooses to embrace this future and gives a positive response to her future husband's question:

> From the beginning I knew my destination, and I chose my route accordingly. But am I working toward an extreme of joy, or of pain? Will I achieve a minimum, or a maximum? These questions are in my mind when your father asks me, "Do you want to make a baby?" And I smile and answer, "Yes," and I unwrap his arms from around me, and we hold hands as we walk inside to make love, to make you. (145)

Banks's choice of accepting Gary's proposal indicates that, among all the possible futures, she leaps onto the plane that she thinks is the most appropriate for herself at the moment. Her autonomy also makes the differences between the heptapods and the human species more explicit. Human's time concept is chronological and therefore lacks flexibility and creativity. What's presented to us is never to be avoided; we have no choice. On the contrary, the heptapods' time concept resembles their written language (Heptapod B) — circular and tentacular[37]. Every possible future unfolds like the extended tentacles of the logogram. The present has already been implicated in the virtual past, and just like "the focusing of a camera," borrowing Bergson's words (*Bergsonism* 56), each time we adjust the lens, the aperture or even the shutter speed, we are getting closer to the right angle or "attitude."

[37] The relationship between the heptapod language and the heptapod's time concept will be further explored and explained in Chapter Three. [38] According to the glossary in *Film Art*, flashback means "an alteration of story order in which the plot moves back to show events that have taken place earlier than ones already shown" (G-3).

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Intuition is then like the instinct that photographers are born with, deciding the most appropriate focal length for a picture. Eventually, with the help of intuition, we are able to select the most appropriate virtual present to be actualized. If the camera metaphor is being used here, then the heptapod's language is served as the lens, through which Banks is able to see the world in an entirely different perspective. What's interesting is that the tentacles of Heptapod B seem to imply a plane of consistency. In *Arrival*, a single tentacle can have several different interpretations, and each interpretation could lead to entirely different results. In a word, the heptapod's language consists of countless potentials. The issue of language and temporality, however, will be addressed in Chapter Three.

Back to the film, the non-zero-sum game scene in *Arrival* explicitly demonstrates such process. By the juxtaposition of two scenes – one a military meeting and the other a conversation between Banks and her daughter, we see how memories intertwined and influenced one another. Ian's unintentional mention of the noun phrase "a non-zero-sum game" enables Banks to answer her daughter's question when the conversation takes place a few years later. This indicates that within Banks's Memory, there exist not only the memories of the past but also various sheets of past that await to be selected and realized. In other words, Banks's plane of immanence stores memories of the future, and by taking a leap, she lands on the one she needs and in turn the result of such decision influences the present she is experiencing at the moment.

At the beginning of the movie, Banks says in monologue, "I used to think this was the beginning of your story. Memory is a strange thing. It doesn't work like I thought it did. We

doi:10.6342/NTU202300779

are so bound by time, by its order." Then, with the camera slowly moves downwards, we see Banks is holding the hands of her new-born daughter, Hannah. Slowly with the progression of the camera, Hannah's ephemeral life is reviewed – from her tranquil birth to her destined death. Soon after the scene of Hannah's death, she reflects, "But now I'm not so sure I believe in beginnings and endings. There are days that define your story beyond your life, like the day they arrived." From this monologue, the audience might think the director is using flashbacks[38] to indicate that Banks is recalling memories of the old days. However, as the story unfolds, the audience sees that Banks hasn't been married and comes to realize that the director is actually using the filmic technique *flashforward*[39] to create a sense of suspense. Now that the audience knows that marrying someone, having a child and witnessing the death of the child happens after Banks is invited to the project that aims to decipher Heptapod B and meets Ian, her future husband. What is interesting in the narrative form of the film is that the audience is actually experiencing a nonlinear way of storytelling. To be more specific, the audience knows Banks's future as if they have also gone beyond the *turn* and encompass the ability to see the future.

In the novella, Chiang gives detailed descriptions of how Banks reacts to the memories that display events which have not yet happened. Though both the novella and the movie have endeavored to present the idea that Banks has gained the heptapods' capacity to glimpse the future, the movie emphasizes Banks' ability to open up new possibilities by combining a

[38] According to the glossary in *Film Art*, flashback means "an alteration of story order in which the plot moves back to show events that have taken place earlier than ones already shown" (G-3).
[39] According to the glossary in *Film Art*, flashforward means "an alteration of story order in which the plot presentation moves forward to future events and then returns to the present" (G-3).

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few new plots. For example, in the novella, Banks knows beforehand several memories of her daughter, and when those events come, she acts accordingly. For instance, when Banks and Gary are shopping for kitchen utensils, she purchases a salad bowl under the circumstances that she knows in the future the bowl will leave a cut on her daughter's forehead. All the above mentioned plots seem to imply two things – that Banks either fails to create different endings of the story and accepts what has shown to her as the future, or she may have been given several choices, but she decides to embrace what she has seen as the future. Either fails to convey the idea that Banks actually has the ability to create new possibilities after she acquires the alien's ability to see the future.

There are also times when Banks strives to avoid what she sees in her memories. For example, knowing her daughter will eventually die in a climbing accident in a national park, she naturally attempts to prevent her daughter from climbing high in daily life. Though her benign intention is believed to create her daughter's interests in climbing "given [her daughter's] contrary nature" (135), her deeds have proven a few things. First, Banks's duration differs from normal human beings in that time works nonlinearly in her duration. Second, the present forks – one becomes the actual and the other becomes the virtual, preserved into the past in general. The virtual sheets of past are all stored in the past in general, where Banks is able to retrieve and make one sheet of past actualized. That is, when Banks sees her daughter ready to climb a "steep, spiral flight of stairs" (135), she reminds herself of the memory that shows her daughter's climbing accident so that she can immediately hold her daughter's hands more tightly in case she falls. Also, in the story, Banks

doi:10.6342/NTU202300779

says,

> Usually, Heptapod B affects just my memory: my consciousness crawls along as it did before [….] But occasionally I have glimpses when Heptapod B truly reigns, and I experience past and future all at once; my consciousness becomes a half century-long ember burning outside time. I perceive – during those glimpses – that entire epoch as a simultaneity. (140-1)

From this monologue, we know that Heptapod B does not always influence Banks. Or, to be more specific, the intensity of the influence of Heptapod B can be varied. In other words, in Banks's duration, there are two kinds of duration working – one being the heptapods' and the other her original duration (human's). When the heptapod's duration "reigns" (140), she is able to see time in a nonlinear way. She immediately leaves the linear time, climbs across the *turn*, and reaches the past in general. From this point of view, I believe that the film has done better when presenting the idea that Banks is capable of doing things that normal human beings would have difficulty doing. For example, in the movie, the process of deciphering Heptapod B is jeopardized because China issues its final ultimatum to urge the heptapods to leave China's territory and countries such as Russia, Pakistan and Sudan all follow suit. Banks turns the tables by giving General Shang, chairman of the People's Liberation Army, a call. What's intriguing is that Banks is able to remember General Shang's phone number since, in her flashback, she learns it during a chat with him despite the fact that they even haven't met each other at that time. The director is using this scene to emphasize Banks's superpower of knowing the future and doing something different to help humankind.

doi:10.6342/NTU202300779

To sum up, human beings and the heptapods are different in degree because both share the same duration. The reason why human beings cannot see time nonlinearly but the heptapods have no trouble doing so is that humankind and the heptapods approach the plane of consistency in entirely different ways. The heptapods have reached the virtual realm of the duration, where the past, the present and the future are all intertwined; however, human beings stay on the other side of the duration (the actual), where time proceeds linearly. Banks, whose brain has been rewired after the acquisition of Heptapod B, is able to reach beyond the boundary and starts to think in the way heptapods do. Following Bergson's model of the inverted cone, we can therefore assume that as Banks becomes more fluent in the language of the heptapods, her degree of difference is getting closer to that of the heptapods. There are still a lot to say about the issue of duration in the movie and the novella. Hence, in the next chapter, I will talk about the relationship between duration and Heptapod B in an attempt to provide another interesting interpretation of duration by connecting it with the language in the story.

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Chapter 3: Language and Temporality

I. Analysis of language in *Arrival* and "Story of Your Life"

This part of the chapter will mainly analyze the alien language, Heptapod B, and see how the Sapir-Whorf Hypothesis is made valid (or invalid) under the circumstances that Banks can start to view the world as the heptapods do. What is interesting concerning language in *Arrival* and "Story of Your Life" is that the Sapir-Whorf Hypothesis is mentioned explicitly only in the movie but not the novella. Hence, the discussion of the Sapir-Whorf Hypothesis will be limited to the movie only. Other aspects of Heptapod B, such as the function and the form of the language, will be discussed in the context of both the novella and the movie. By looking into the language of the aliens, I hope to lay a solid linguistic foundation for this thesis. With sufficient linguistic background, I intend to combine what I claim about time in the previous chapters and language with a view to providing readers of this thesis with interesting interpretations of the relationship between Heptapod B and the protagonist, Banks.

The first problem I will deal with is the Sapir-Whorf Hypothesis. The Sapir-Whorf Hypothesis actually encompasses two views – one stronger and the other weaker, both of which concern the relationship between language and culture. According to Ronald Wardhaugh in his *An Introduction to Sociolinguistics*, the Sapir-Whorf Hypothesis can be briefly summarized as follows, "the structure of a language determines the way in which speakers of that language view the world" (230). Both the linguists Edward Sapir and his student Benjamin Lee Whorf agree to the claim that language can more or less influence how

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speakers of that language view the world. According to Whorf in his *Language, Thought, and Reality*,

> The categories and types that we isolate from the world of phenomena we do not find there because they stare every observer in the face; on the contrary, the world is presented in a kaleidoscopic flux of impressions which has to be organized by our minds – and this means largely by the linguistic system in our minds. (213)

In other words, our concepts of the world are mostly constructed and influenced by the language we use. That is, the linguistic features of the language we use more or less affect our understanding of the world. From this quotation, we may also notice that, judging from the word choice, Whorf is not holding a deterministic view towards the relationship between language and thoughts. As indicated above, the Sapir-Whorf Hypothesis has two branches. The weaker version of the hypothesis, also called Linguistic Relativity, holds that the structure of a language does influence the way speakers of that language view the world; however, the language does not *determine* the way they view the world. As Ronald Wardhaugh summarizes in his *An Introduction to Sociolinguistics*, "A somewhat weaker version is that the structure [of a language] does not determine the world-view but is still extremely influential in predisposing speakers of a language toward adopting a particular world-view" (230). In contrast, the stronger version of the hypothesis, which is also referred to as a deterministic version, claims that "the background linguistic system (in other words, the grammar) of each language is not merely a reproducing instrument for voicing ideas but rather is itself the shaper of ideas" (*Language, Thought, and Reality* 212). In other words, the

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structure of a language, if we follow the logic of the stronger version of the hypothesis, will determine one's worldview. The validity of the Sapir-Whorf Hypothesis, however, is still under debate. The stronger version of the hypothesis is later proved to be inaccurate in many contexts. For example, as Holmes points out, people of the Dani tribe are capable of distinguishing between different color hues in spite of the fact that they have only two color terms (365). Some other linguists have also tested the hypothesis and found that the structure of a language and the speaker's worldview is not necessarily related. In Wardhaugh's *An Introduction to Sociolinguistics*, counterarguments of the hypothesis are provided and analyzed, e.g., Lucy's and Pinker's claims (235-6). Also, in Janet Holmes's *An Introduction to Sociolinguistics*, the example of the Hopi (367), and more all more or less prove that the relationship between language and culture is still unclear and not deterministic. Also, as Adger clearly points out, "Where studies have found a Sapir-Whorf type effect, it appears to be very weak and a side effect of the processing of language. There is no evidence of a deep and permanent impact on cognition" (4). That is, whether there's cultural influence of the structure of a language on the speakers of that language is still under debate and lacks strong evidence. The reason why the Sapir-Whorf Hypothesis is analyzed here is that, firstly, the movie directly uses this term to describe the situation that Banks has been influenced by the alien language. Therefore, secondly, I want to provide a more solid linguistic background of the hypothesis before I go to the next paragraph where I will introduce how the movie uses this hypothesis and whether it is persuasive or not.

doi:10.6342/NTU202300779

In the movie, after the short *flashback* of her memory with her daughter[40], Banks has a short conversation with Ian. In the conversation, Ian says, "I was doing some reading about this idea that if you immerse yourself into a foreign language, you can actually rewire your brain." Immediately after that, Banks responds to him, "Yeah, the Sapir-Whorf Hypothesis." After Banks gives a few definitions of the hypothesis, Ian, who has noticed that Banks has been absent-minded lately, curiously questions her, "Are you dreaming in their language?" Banks, trying to defend herself, immediately guarantees that she is capable of the job despite the fact that she does have a few *dreams*. In the novella, Banks also reflects, "Usually, Heptapod B affects just my memory: my consciousness crawls along as it did before, a glowing sliver crawling forward in time, the difference being that the ash of memory lies ahead as well as behind: there is no real combustion" (140). Indeed, after coming into contact with the heptapods and acquiring Heptapod B, Banks has started to see memories of her daughter. It may seem that Heptapod B changes her in her way of perceiving time, and thus Banks can start to see time as the aliens do. Some critics endorse the use of the Sapir-Whorf Hypothesis under the context. For instance, David Lucking, though trying to prove that Banks's efforts to parse the alien language means there's not necessarily connection between language and thoughts, also sees the validity of the Sapir-Whorf Hypothesis. As Lucking says in his "Enacting Chronology," "although the fact that she herself begins to see the world differently once she learns Heptapod B implies a linguistic 'determinism' in some ways analogous to that which, whether correctly or not, is often attributed to Whorf himself" (139).

[40] In this scene, the director juxtaposes two memories – one Banks cuddles her daughter to sleep and the other Banks accompanies her daughter by the hospital bed. What is interesting is that the director uses two background lightings – one warm yellow and the other cold blue – to indicate the conditions of her daughter.

doi:10.6342/NTU202300779

Lucking sees the problem of the Sapir-Whorf Hypothesis in the movie; however, to prove that there's a better explanation of Banks's change of her worldview is still difficult. Indeed, as Lucking suggests, that Banks's study and analysis of Heptapod B has changed her worldview in a way proves that the linear time concept she adopts at first is not strictly rooted in her and can never be changed. On the contrary, new concepts can be learned, and the relationship between language and worldview is not, as the stronger version of the Sapir-Whorf Hypothesis suggests, deterministic. But before I offer my explanation of Banks's change, I want to first solve the problem of how exactly the aliens view time. Or, to be more specific, how does their language affect their way of perceiving time? These questions will need be addressed first before we jump to the problem of whether the alien language has changed her as the hypothesis suggests.

In the novella, Chiang describes the heptapod logogram as "a doodle of script, vaguely cursive" (103). Moreover, their sentences are not formed by words arranged in a certain order. Instead, according to Banks's analysis, "Their script isn't word divided; a sentence is written by joining the logograms for the constituent words. They join the logograms by rotating and modifying them" (105-6). In other words, their sentences are constituted of numerous logograms that are constantly changing or being modified. Unlike human's sentence structure where punctuation marks is needed, Heptapod B does not have clear cuts. In this respect, their language seems to resemble their body whose "limbs had no distinct joints," according to the descriptions in the novella (97). As the novella points out, the reason why Heptapod B does not go linearly, i.e., a sentence is written from the left to the right, may be that the aliens'

doi:10.6342/NTU202300779

bodies “have no ‘forward’ direction” (106). To put it more logically, since the heptapods do not have the time concept of going forward, i.e., going toward the future, their language then is not written toward a certain direction because there’s no beginning and ending, only a whole picture of a sentence that appears as a whole at once. In other words, the heptapods do not read a sentence from a certain point of the sentence; instead, the sentence is not formed digit by digit, but as a whole. The formation of their language now might seem very familiar to you since it also resembles the way the heptapods perceive time. The heptapods’ time does not proceed from the past to the future; rather, the past and the future are all intertwined and preserved in their memories. Same as the time concept, their language structure does not have a beginning and an end, and every complete sentence is stored in their virtual database. In other words, they do not need to first write a subject and then consider what verb should be used after the subject. The completion of a sentence has been achieved in their virtual memory before the first stroke of a sentence is being written out. The heptapods’ sentences are constituted of several logograms, and a sentence is written with logograms appear together all at once. In other words, as Adger describes, “The Heptapods understand the universe only in terms of final causes” (2). Before they write a sentence, they have known the purpose, the structure, the exact words being used in the sentence. They *write* to enact chronology. In other words, their act of writing is only to fulfill a purpose and to activate a future. The logograms they produce serve as a pushing force that helps to achieve a certain goal. One interesting aspect of the novella is that Chiang employs theories of different fields to help his readers understand how the heptapod’s language works. One theory he adopts is

doi:10.6342/NTU202300779

the Fermat's principle in optics. As the novella describes the theory, when a light ray crosses from the air to the water, "the route that the light ray takes is always the fastest possible one" (118). In other words, before entering the water, or to be more specific, before knowing where its destination is in the water, the light knows the fastest path as if it has done a calculation beforehand. This seemingly teleological theory is used in the story to help readers imagine how exactly Heptapod B functions. In the novella, Chiang writes, "the heptapod had to know how the entire sentence would be laid out before it could write the very first stroke" (123). The heptapod's language now appears to be more far-fetched compared with the languages human beings use since most of our physical laws are causal. The heptapods know what would happen in the future and thus they write what is already implicated in their memory in order to enact that future. Hence, we can say that Heptapod B and the languages human beings use are different in degree because both species construct sentences in their minds before writing them out; nevertheless, unlike the heptapods, humankind lacks the technology to write down a whole sentence all at once. The heptapods existed in a layer of duration where they are capable of writing out sentences (logograms) that are free of tenses and sequences. At this point, we may find that Heptapod B appears to be very similar to their time concept – both their language and their time concept work nonlinearly.

Continuing with the Fermat's principle of least time, Chiang mentions the speech act theory to further explain the heptapod's language (138). As Chiang himself writes in the story, the heptapods' language is performative (138). As in the novella, Banks narrates, "heptapods already knew what would be said in any conversation; but in order for their knowledge to be

doi:10.6342/NTU202300779

true, the conversation would have to take place" (138). What is a performative utterance? According to the definition given by J. L. Austin in his *How to Do Things with Words*, for a performative utterance, "to utter the sentence (in, of course, the appropriate circumstances) is not to describe my doing of what I should be said in so uttering to be doing or to state that I am doing it: it is to do it" (6). In other words, when a performative sentence is being uttered, the effect of the sentence is at once produced by the utterance. If we leave behind the question as to why the heptapods need such a thing as language,[41] the point I want to make here is that the heptapods' performative nature of language just indicates that they always know *in advance* what is going to be said by themselves. The purpose of Heptapod A, Heptapod B and even their behaviors is all to "enact chronology" (137). The question therefore is why they are able to compose a "giant conglomeration" (107), as the story describes, without following a certain steps but finish the whole picture of the sentence all at once. In the next part of this chapter, I will elaborate the heptapod language further, and try to provide a reasonable explanation of how they construct their language without writing linearly. To answer the question, Deleuze's and Bergson's philosophical thoughts will once again be brought into discussion.

To sum up, the novella uses both the Fermat's principle and the speech act theory to highlight the heptapods' ability to perceive things before they happen. The heptapods'

[41] In the novella, Banks has found out that the heptapods' written language belongs to a category called "semasiographic writing" (108). This category of writing expresses that the formation of a written sentence of the language has no relation to the sounds that comprise a spoken sentence which expresses the same meaning. In other words, in Chiang's words, "There's no correspondence between its components [of its writing] and any particular sounds" (108). Hence, critics, such as James Pearson (58), have questioned the necessity of their written language.

doi:10.6342/NTU202300779

nonlinear time concept is once again emphasized through the discussion of the two theories. According to the Fermat's principle, the path taken by light between two points is the path that takes the shortest amount of time. That is, light has known beforehand which route is the shortest before it sees its destination. This resembles the way the heptapods view time. In the heptapods' duration, the concept of time is experienced in consciousness, as opposed to time measured by physical clocks. Time is continuous and cannot be divided into discrete moments. Therefore, there's no such a thing as the future, but only countless possibilities that await to be actualized. The heptapods see the possibilities and act according to what they've seen in their *memory*. This is where the speech act theory is used as an example to explain the heptapods' behaviors. The heptapods *speak* to actualize their ideas. Overall, the heptapods' time concept is now apparent after considering the two theories addressed in the novella and the film. After the discussion of the aliens' time concept, the movie adopts theories to explain the human linguist's transformation. Banks, who acquires the heptapods' language, has started to perceive things like the heptapods do. The movie employs the theory of the Sapir-Whorf Hypothesis as the theoretical foundation to account for Banks's change. The Sapir-Whorf Hypothesis basically holds that the acquisition of a new language can more or less influence the way one view the world. That is, the movie tries to emphasize that after Banks learns Heptapod B, the language has little by little rewired her brain and therefore enabled her to see the future. However, the application of the Sapir-Whorf Hypothesis in this context is controversial because the hypothesis itself is frequently criticized for being erroneous. Hence, in the next section, I will first talk about how the Sapir-Whorf Hypothesis

doi:10.6342/NTU202300779

is made invalid in the discussion of both the novella and the movie, and after that, I will offer my standpoints.

II. Language as a Form of Time

To begin with, James Pearson writes in his "Could a Heptapod Act? Language and Agency in *Arrival*," "heptapods have a simultaneous, rather than sequential, mode of awareness" (56). The heptapods are thinking in a simultaneous mode of consciousness in that they do not follow a linear time concept. The past, the present and the future to them are instants that happen all at once in their plane of consistency. They experience moments that have happened, not yet happen, or will never happen simultaneously in their virtual memory. This corresponds to what I conclude in the previous part of this chapter – any sentence of Heptapod B is written without a beginning and an ending but as a one-piece logogram simply because their conception of time is not linear. On the contrary, human beings' sequential mode of awareness only results in a sequential form of writing. One reason why the story of both "Story of Your Life" and *Arrival* appears to be very intriguing to many readers is that as a human being, Banks goes beyond human's inherent conception of time and achieves a nonlinear mode of awareness by means of the acquisition of the alien language. The movie itself explicitly expresses that Banks's transformation from human's mode of thinking to the aliens' can be well explained by the Sapir-Whorf Hypothesis. That is, the acquisition of Heptapod B has changed Banks's way of perceiving the world. To downplay the validity of the Sapir-Whorf Hypothesis in the story, I want to provide two approaches – first linguistic

doi:10.6342/NTU202300779

and the other philosophical.

The heptapod's time concept and language bear striking similarity to the much-quoted, debatable case – the Hopi. In this paragraph, therefore, I hope that I can use the case of the Hopi to prove the invalidity of the Sapir-Whorf Hypothesis. The Hopi language of Arizona is different from the languages of what Whorf called *Standard Average European* (SAE) in his *Language, Thought, and Reality* (138). To briefly summarize, SAE speakers speak in terms of "a fixed orientation toward time and space" (Wardhaugh 233); that is, their sentences follow a time concept that proceeds from the past to the future. For instance, to describe an event that will happen in the future, the SAE speakers use future tense. However, to Hopi speakers, they follow "a 'process' orientation toward the world"; that is, Hopi speakers do not have linguistic expressions that can be used to refer to time, and everything proceeds as "an ongoing set of processes" (Wardhaugh 233). Hopi speakers, therefore, hold a time concept that does not cut time into equal pieces, i.e., a minute include sixty seconds. However, the claim that Hopi language determines Hopi speakers' time concept is later proved to be inaccurate for the following two reasons. First, Hopi does have words that refer to tense though not many,[42] or to be more specific, they use a combination of context, word order, and adverbial expressions to convey the temporal relationships between events. Second, their short of tense terms in Hopi does not prevent them from understanding the linear time concept. For instance, Hopi speakers may use a specific adverbial expression or word order to indicate that the event being narrated occurred in the past. Similar examples are provided by

[42] Ekkehart Malotki has published a study that provides a thorough investigation into the language Hopi. See more details in his *Hopi Time: A Linguistic Analysis of the Temporal Concepts in the Hopi Language*.

doi:10.6342/NTU202300779

Holmes in her *An Introduction to Sociolinguistics*.[43] Hopi speakers' incomplete repertoire of words about time does not result in their failure of understanding time in a sequential mode of consciousness. Thus, in conclusion, the much quoted example – the Hopi – that is often used to support the Sapir-Whorf Hypothesis is flawed because first, they do have expressions that indicate tense and second, language does not *determine* how speakers of that language view the world. The discussion of the validity of the Sapir-Whorf Hypothesis does not end here though. In the next paragraph, I will further probe into the relationship between language and thought from a philosophical perspective.

To begin with, I want to start with a detailed textual analysis. If we look closely into Chiang's description in the novella, the Sapir-Whorf Hypothesis may sound not so plausible as the movie implies. In the novella, as Banks meditates on Heptapod B, she reflects, "Looking at a sentence like this one, I understood why the heptapods had evolved a semasiographic writing system like Heptapod B; it was better suited for a species with a simultaneous mode of consciousness" (135). This short reflection on Heptapod B indicates two things – that the nonlinear conception of time is a result of evolution and that this mode of consciousness is not exclusive for the heptapods but simply is the *better* choice for them. In other words, the simultaneous mode of consciousness may have been implicated in human beings as well; it is just that, for normal people, their potential of seeing time in a nonlinear way is not yet explored. More of Chiang's description in the novella concerning the learning

[43] According to Holmes, "If Whorf is right, it should be difficult to identify colours which your language does not have a name for. But although the Dani, a New Guinea tribe, use only two colour terms (corresponding to black and white, or, more accurately, dark and light), it was found that they could recognise and distinguish between subtle shades of colours that their language had no names for (e.g. pale blue vs turquoise)" (365).

doi:10.6342/NTU202300779

of Heptapod B implies the same thing. During Gary and Banks's efforts of deciphering Heptapod B, Gary finds out that the fact that the aliens can "read a word with equal ease no matter how it's rotated" may be the result of "their bodies' radial symmetry" (106). Gary continues, "their bodies have no 'forward' direction, so maybe their writing doesn't either" (106). Now Gary is implying that they do not have the concept of *forwardness* judging from their bodies and writings, so they may as well see time as something that does not have directions at all. This, in a way, also implicates one thing – human beings may have the potential of seeing time nonlinearly as well since the alien's lack of *forwardness* results from something that is not pre-existing or primordial, but something that is generated through evolution or acquisition, such as body structure or language. To put it in another way, human beings have fingers, so we develop writing systems according to which we are able to write intricate characters. That is, the shape of our languages does have something to do with our body structure. The heptapods' bodies have no forward direction; therefore, their language, and even their time concept, does not follow a linear path.

The conclusion I draw in the previous paragraph can be further explained and supported by Deleuze's philosophical thinking in *Bergsonism*. Banks can see things differently not because, as the Sapir-Whorf Hypothesis holds, the acquisition of the new language rewires her perspectives of the world and hence grants her a new mode of thinking. Instead, the heptapod's mode of thinking has already been implicated in her, and the acquisition of the new language opens up her potential to see things as the heptapods do. As Deleuze concisely summarizes Bergson's claims about language and memory, "[…] Bergson analyzes language

doi:10.6342/NTU202300779

in the same way as memory.[44] The way in which we understand what is said to us is identical to the way in which we find a recollection" (*Bergsonism* 57). But how does Bergson analyze memory then? To briefly summarize Bergson's theory, which has been discussed more comprehensively in Chapter Two, when we memorize, we do not seek recollections in ourselves; instead, we place ourselves in the past in general and then a certain sheet of past. The virtual sheet of past then gradually becomes actual, at the same time carrying the whole past in general with it. How we understand a sentence or word spoken, according to Bergson, resembles how we memorize a recollection. As Deleuze summarizes in *Bergsonism*, when we hear a sentence or word, "Far from recomposing sense on the basis of sounds that are heard and associated images, we *place ourselves at once* in the element of sense, then in a region of this element. A true leap into Being" (57). In other words, when we hear a sentence, or to put it in a broader sense, learn a language, the sentences or words we hear do not directly change our sense. By contrast, we fall back to a sense in general, where we find a region of sense that belongs to the language. A true leap from our original sense to the sense of the new language. This means that an acquisition of a new language does not reform our original sense of the world; rather, it directs us toward the sheet of sense, which belongs to that language, in the sense in general. The sense we find in the sense in general then changes its state from being virtual to being actual. As Deleuze describes, "A true leap into Being" (57).

[44] Bergson points out in his *Matter and Memory*, "how can the knowledge of a language, which is only memory, modify the material content of a present perception, and cause some listeners actually to hear what others, in the same physical conditions, do not hear. It is alleged, indeed, that the auditory recollections of words, accumulated in memory, are called up by the sound-impression and come to strengthen its effect" (134-5). Though the process mentioned above will not be further elaborated in this thesis, the relationship between language and memory is now made explicit.

doi:10.6342/NTU202300779

Deleuze has also talked about language in his *Difference and Repetition* which I find quite useful in understanding the nature of language and sense. According to Deleuze,

> The question of whether psychic experience is structured like a language […] depends upon the nature of the dark precursors. A linguistic precursor or an esoteric word does not have identity by itself, not even a nominal one [….] Its value, therefore, lies not in the extent to which it claims to say something but in the extent to which it claims to state the sense of what it says. (122-3)

The dark precursor refers to a power that connects, relates and communicates between different intensities of different fields. It is the "agent," in Paulo de Assis's words, that determine the relations among differences[45] (*The Dark Precursor* 10). Therefore, Deleuze's understanding of the construction of language through the dark precursor then can be briefly explained as follows: It is paradoxical that there is always an ongoing "displacement of linguistic sense" happening when a sense is being stated for a specific word. The dark precursor functions between sentences or words, connecting senses with the sentences or words. It then implies that there's no ingrained sense in any linguistic units but "incarnated" sense (*Difference and Repetition* 123). Therefore, in the story of *Arrival* and "Story of Your Life," the relationship of the sense of Heptapod B is decided and regulated by a dark precursor. Deleuze believed that these primordial, preconscious elements, which he called "dark precursors," play an important role in shaping our perceptions, thoughts, and experiences. The dark precursor is not just a passive, raw material, but rather an active and

[45] Paulo de Assis has written a comprehensive introduction of Deleuze's dark precursor in the preface of *The Dark Precursor: Deleuze and Artistic Research*. This book has also combined the concept of the dark precursor with different artistic fields, such as music, painting and writing.

doi:10.6342/NTU202300779

dynamic force that can be shaped and molded to develop new forms of experience and cognition. The dark precursor exists within a kind of metalanguage; it is always accessible and retrievable. Banks's understanding of Heptapod B is also regulated by a dark precursor. It is the dark precursor working among the two languages (Heptapod B and English) that Banks is able to grasp the meaning of Heptapod B. Therefore, as Deleuze concludes, "In a sense, everything speaks and has sense, on condition that speech is also that which does not speak – or rather, speech is the sense which does not speak in speech" (123). That is, a speech in a language has sense, but at the same time it is also nonsense. Sense exists before language; it is primordial. Sense exists in the virtual. We can therefore say that the sense of Heptapod B and the sense of English may have existed in the same metalanguage (a sense in general). The dark precursor, served as the connector and at the same time, the differentiator, shapes and determines the relationship between meaning and language.

Back to the story, we can therefore give an entirely different interpretation from what a supporter of the Sapir-Whorf Hypothesis might hold. Banks's acquisition of Heptapod B leads to her ability to see events that have not yet happened. This is caused not because Heptapod B transforms her sense but because the new language opens up her ability to get access to the sense the heptapods have. Or to put it more correctly, Heptapod B allows her to connect with the sense that the dark precursor has given to the language. To be more specific, ever since Banks is able to comprehend Heptapod B, she has been able to leap from the sense in general (metalanguage) to a specific level of the sense that has never been accessed by human beings before. By leaping onto the level of the sense, she is then able to transform the

doi:10.6342/NTU202300779

sense from the virtual state to the actual. Consequently, she is able to see things from an entirely different sense. In other words, in metalanguage, different senses lie within. However, human beings are only able to grasp a few of them due to our limited knowledge of other languages. Through the acquisition of the new language, Banks then is able to connect with the new sense and hence see the world differently. In the novella, Banks once reflects, "occasionally I have glimpses when Heptapod B truly reigns, and I experience past and future all at once; my consciousness becomes a half-century-long ember burning outside time" (140). Banks's reflection indicates two things that are worth noticing. Firstly, when Heptapod B fully takes over her consciousness, i.e., she leaps onto the plane of sense where the heptapods exist, her consciousness at once leaves the linear time concept and hence is able to burn "outside time." The "time" mentioned in her monologue is the linear time, i.e., a sequential mode of consciousness, that human beings now adopt. By leaping onto the heptapods' plane of sense, Banks proceeds from a linear conception of time towards a nonlinear mode of consciousness, through which she is able to see memories that are yet to be actualized. Secondly, Banks's reflection once again proves that the Sapir-Whorf Hypothesis seems not quite persuasive under such context. If we follow the logic of the hypothesis, once Banks acquires the language, her worldview will have been changed. However, according to Banks's reflection, she seems to shift from human's sense of the world to the alien's sense from time to time. In other words, she seems to leap among different levels of the sense in general. Hence, we can say that the heptapods' language does change her, but in a way that is more following Bergson's philosophy rather than the Sapir-Whorf

doi:10.6342/NTU202300779

Hypothesis. The new language does not entirely reforms Banks's perspectives towards the world. Instead, Heptapod B opens up her ability to gain access to the new sense that belongs to the heptapods. That is, Heptapod B as a form of time enables Banks to view the world in an entirely different way.

To briefly summarize, this section of the chapter first look at the example of the Hopi because both the Hopi and the heptapods do not adhere to a strictly linear time concept as most humans do. Scholars like Whorf have used the example of the Hopi to convey an idea that language will affect how we perceive time, which is exactly what the Sapir-Whorf Hypothesis tries to convey. Later in this section of the chapter, I use some famous examples, such as the example of the Dani, to prove that language does not necessarily influence our worldview, especially time concept. That is, the reason why Banks is able to perceive time like the heptapods is not because her brain is *changed* by her acquisition of Heptapod B. Instead, borrowing Deleuze's and Bergson's ideas of duration, I want to stress that the possibility of seeing things like the heptapods do has already been implicated in Banks's duration. It's just that Banks has not been able to open up that possibility before she learns the alien language. That is, the languages that the heptapods and human beings have respectively are differences in degree. The heptapods may witness events that have not yet occurred because in their virtual domain of duration, the past, the present, and the future are all interwoven. Through the connection with the heptapods, Banks is able to cross the boundary and arrives at the virtual realm where the heptapods exist, and hence she is able to view the world in their way. That is, the Sapir-Whorf Hypothesis has been rendered invalid under the

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context because Banks's brain is not completely changed by the alien language. Instead, the heptapods' way of thinking has already stored in her plane of consistency that awaits to be discovered.

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Conclusion

"Story of Your Life" and *Arrival* have without doubt inspired scholars, readers, film makers and so on by their inherent philosophical notions, such as free will and determinism, and some much-debated issues in science, such as time travel and quantum mechanics. This thesis mainly probes into two aspects of the story – time and language. With the help of Bergson's philosophy from a Deleuzian perspective, this thesis provides interesting interpretations concerning the heptapod language and time concept. To briefly summarize, Deleuze's pure past (the second synthesis of time) can help to explain how language influences the perception of time in the story. The heptapods' time is not linear, and hence they are able to see things from a nonlinear angle, in which the past, the present and the future are entangled and overlapped. Passing presents and future possibilities are all stored in the virtual pure past, where the heptapods select a present to be actualized. Language then serves as a medium by which Dr. Banks, the female protagonist in the story, acquires the time concept of the heptapods. Or to be more specific, language is itself a form of time. The philosophical grounding of such argument comes from Deleuze's *Bergsonism*, in which he states that Bergson's way of analyzing language resembles that of analyzing memory (57). In other words, when we hear a sound, we do not adjust our sense which is inherent in ourselves immediately according to the sound. On the contrary, we "place ourselves in the element of sense" right after we hear it (57). We leap into the sense instead of reforming our sense for the sounds. In the story, Banks acquires the heptapod's ability of seeing things in a circular manner not because she adjusts her inner sense of time according to the language she

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acquires. Rather, the circular sense of time is already implicated in herself. Through the acquisition of the alien language, Banks leaps onto the level of nonlinear time, and therefore is able to foresee things to come and remember things that have not yet happened.

Basically, the main idea of the thesis is to engage in the dialogue between language and time-image through Deleuze's philosophy of temporality and to see how language can be a form of time from a Deleuzian perspective in the reading of Villeneuve's and Chiang's works. In this story, besides the two aspects – time-image and language – I look into so far, several other issues are also worth discussing, such as gender and film techniques. For example, the reason why Ian, having acquired Heptapod B as well, though not as fluent as Banks, does not experience the heptapod's way of perceiving the world is worth further discussion and analysis. However, due to the limited pages of my thesis, I will not look into these questions now. Despite this, we have to admit that simply the time concept and its relationship with language in both "Story of Your Life" and *Arrival* are not easy problems to solve. This thesis, though in an attempt to envelop broader issues such as those mentioned above, hopes to have offered enough food for thoughts by the analysis of language and time from a philosophical viewpoint. As for the issues that are not solved here, I hope that this thesis has aroused scholarly interests and curiosity in "Story of Your Life" or *Arrival*, and therefore helped accelerate more research into the two texts.

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