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Language and Thought: Temporal Distortions in "Story of Your Life"

"To those who do not know mathematics, it is difficult to get across a real feeling as to the beauty [of nature]…t is necessary to understand the language she speaks in."

- *Richard Feynman*[1]*,* *The Character of Physical Laws* (Feynman)

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[1] Ted Chiang's "Story of Your Life" begins in a strange and unexpected way – Louise Banks is recounting the story of her daughter's life to her daughter, beginning:

> Your father is about to ask me the question. This is the most important moment in our lives, and I want to pay attention, note every detail… I'd love to tell you the story of this evening, the night you're conceived, but the right time to do that would be when you're ready to have children of our own, and we'll never get that chance. (94)

"Story of Your Life" contains many such self-referential allusions, which lead to unexpected discontinuities in the presentation of the plot and in the chronological ordering of events. Moreover, while such time travel is not unusual in works of science fiction, the thoughtful and inherently introspective time distortions[2] utilized by Chiang raise the story above a typical science fiction time travel piece and bring forward intellectual questions pertaining to free will through inaction, language's effect on thought, and the malleability of reality. Beginning by revealing the ultimate fate of the unnamed daughter, a central thematic character in the story, and restricting the discontinuities in time solely to the thoughts of Louise, "Story of Your Life" presents a revolutionary perspective on story-telling which focuses not on what is learned, but rather on that which will be experienced –

[1] Richard Feynman is a famous theoretical physicist whom pioneered Feynman diagrams. These diagrams describe quantum mechanical interactions in a non-casual systematic process. His work is closely tied to the idea of physical "action" principles as opposed to causal physical laws, and though not explicitly discussed in "Story of Your Life," Fermat's Theorem of Least Time is often applied in the Quantum Mechanical formulation of universal laws.
[2] Chiang utilizes time travel in a subtle yet remarkably effective way – while most sf focuses on the *physical* action of time travel, "Story of Your Life" places emphasis on the distortion of time perception and the necessary effects produced on the observer.

highlighting a distinction between knowledge and action. The two co-localized[3], interdependent, yet asynchronous plots are shaped in a way which is conducive not only to the actualization of Louise's struggles with Heptapod B and the resulting behavioral changes, but which also complicates the idea of independent reality by mirroring two divergent perceptions of time. While typical time travel sf looks to the future or the past in order to illuminate contemporary society, "Story of Your Life" presents all three on equal footing; in doing so, Chiang questions not the choices of the present but the very foundations of free will and experience and propels this sf work into intrinsically philosophical territory.

[2] Louise Banks plays two distinct roles in each plotline - with the Heptapods, Louise is a normal character, a student of their language experiencing life and seeking knowledge, but with her daughter, her role is that of *implied* author, of a seemingly omniscient narrator telling a story filled with unusual verb tenses. In the first plot "Story of Your Life" places emphasis on Education, - physics and linguistics are explored in depth, and Louise behaves as a scientist; on the second, the emphasis rests on Otherness and Wonder, with the exploration of the known future and the experience of it, with Louise behaving as a parent. However, while both stories superficially appear connected only through Louise, they are in fact deeply interwoven; so much so that the frequent alternations reveal a crucial aspect of the interplay between past and future – that of two-way communication.

> The request for that meeting was perhaps the second most momentous phone call in my life. The first, of course, will be the one from Mountain Rescue… your face will look wrong somehow, but I'll know it's you. "Yes, that's her," I'll say. "She's mine." You'll be twenty-five then. (95)

[3] This term is often used in the natural sciences, specifically fluorescence microscopy, but in here, it refers to the *spatial* overlap of the distinct events. In this case, both plots occur with Louise as the geographical origin (both are told from her perspective), and therefore, while not overlapping in time (the story of the daughter follows the alien visitation), they do overlap in geographical location.

Louise's first phone call serves as the launching point for her involvement with the Heptapods, while the final phone call, only referenced in the future tense, provides closure to both her and her daughter's story. While immersed in the present, in the *experience* of receiving the first call, the second remains in the distant future for Louise, causally connected yet forever separated in time. The call "*will* be…, her daughter's face *will* look," and Louise "*will* say…" The use of simple future tense, as opposed to the more vague use of a modal auxilary verb[4], hint at definitiveness of the future – at the fact that it is written in the *Book of Fate* and cannot be modified. Chiang often utilizes similar constructions that lead to unlikely verb tenses ("I remember that after you have done this, you will be"). Past and future stand as two distinct entities and the concept of free will is subtly subverted by the very construction of the second plotline; the rigidity in the expression of the future forces a specific plot. The vast majority of statements contain no possibility of variability, leaving the ability to choose closed and unreachable. If the future is set and predetermined, the existence of free will can be nothing more than an illusion reflecting ignorance

[3] To contrast with this interpretation though, both of these demarcating events are introduced in the overall plot simultaneously, and in a sense, as a response to one another. Louise begins with a reference to one plot ("the request for *that* meeting") during the story's shift to the second. Superficially, this is a required narrative device[5]. When shifting from the past to the future, from cause to effect, from beginning to end, a link is not entirely unexpected. Yet, this initial dialogue between the plots is a hint at a fuller connection.

> When you're three and we're climbing a steep, spiral flight of stairs, I'll hold your hand extra tightly. You'll pull your hand away from me. "I can do it by myself," you'll insist, and then

[4] In this case, the modal auxilary verb would be *would*. The important aspect to notice is that the future is being described directly, as opposed to the subtler and less forceful treatment that would arise if auxilary verbs such as *would* were used. This implies a rigidity associated with the future that is often non-existent. We tend to think of the future as malleable. For more, on the linguistics of *will vs. would,* see Works Cited (Lawler).

[5] Louise is narrating both stories. Any jump between plotlines, for consistency, would require some type of connection (it would be interesting to consider what type of story would arise from two disconnected plotlines?). Therefore, the connection is required.

> move away from me to prove it… I can almost believe that, given your contrary nature, my attempts to protect you will be what create your love for climbing… (135)

Louise knows that she will dream of her daughter's death, constantly, waking next to the comfort of Gary but unable to be comforted. She knows that the death is inevitable. Yet, the very knowledge of the death, the prophetic vision of the future, is what *forces* her towards exercising her free will and what *allows* for the complication of the causal relation between past and future; the prophesy of the future is a form of communication with the past/present. Louise, while raising her daughter and actually experiencing their lives, "hold[s] [her] hand extra tightly" in what could be a misguided effort to prevent her ultimate death. With this slight action, Louise is bringing into question the nature of cause and effect. Her subtle touch on reality shatters causality by creating a paradox[6] in which the effect is the cause and the cause the effect – the arrow of time is suddenly reversed, and the only aspect keeping the two distinct is the separation of the plots.

[4] Chiang, by taking the time symmetry inherent in physical laws and emphasizing it through the very structure of the story, once again places the past, present, and future on the same level. It is this constant paradoxical conflict between the past and future, mediated by the conversation held between the two interweaved plots, which rekindles the idea of free will. While the future seems to be set in stone, knowledge of the future can subtly reshape past actions.

> Weber scowled. … "Maybe we can arrange some kind of gift-giving ceremony."
> "I think that's a good idea, Colonel," I said.
> It was an ambiguity invisible to most. A private joke... (140)

Louise' overprotective nature, her acceptance of the gift exchange, and the lack of surprise at the heptapod's departure are just a few examples. One readily evident is the "private joke" made of the Colonel, as Louise knows how the gift-exchange will end and accepts, in part, only to experience it.

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[6] The technical name for this Paradox is Loschmidt's paradox, which exposes the apparent (and as of yet unanswered) problem of physical laws (such as conservation of energy, matter, etc.) being time-reversible despite the fact that the observable universe has a forward pointing arrow of time. Here Chiang presents the paradox in a more approachable fashion.

More subtly, the knowledge of her daughter's inevitable death entices Louise to hold her closer, to enjoy the experience of raising her more fully, and in this way exercise her free will. Free will, then, consists not of the knowledge of choice but of the *experience* of choosing, a quality which provides and unquestionable disguising characteristic of knowledge and experience.

[5] Despite this possible interpretation of free will, Chiang himself provides no direct answer to its definition or existence, but instead, through Louise's understanding of Heptapod B, makes it clear that "freedom isn't an illusion; it's perfectly real in the context of sequential consciousness" (137). At first glance this appears to support the claim that free-will exists, but almost in the same breath Louise states the opposite, "similarly, knowledge of the future was incompatible with free will" (137). These contradictory statements are compatible when two important facts are noted: free will consists not of possessing choice, but of the *act* of choosing, and reality can be perceived differently depending on the mode of thought employed - it is the context through which reality is interpreted which affects reality itself.

[6] Similarly to how the concepts of past, present and future are all brought together in order to fully define the idea of free will as the *experience* of choosing, Chiang introduces the concept of language affecting thought as a method to define the reality in which the choice of free will resides. The flip from the chronological progression of the heptapod storyline to the quasi-anecdotal and non-chronological story of the daughter's life is naively representative of Louise's gained understanding of Heptapod B – a language that requires knowledge of the ending before the beginning. More subtly, it also emphasizes the differences in the perception of reality that arise from separate modes of thought. At a technical level, Ted Chiang is exploring the Sapir–Whorf

hypothesis, a principle in linguistics which roughly states that the way people speak affects their way of thinking[7].

> More interesting was the fact that Heptapod B was changing the way I thought…with Heptapod B, I was experiencing something just as foreign: my thoughts were becoming graphically coded… As I grew more fluent, semagraphic designs would appear fully formed, articulating even complex ideas all at once. (127)

Louise thoughts grow more time-independent as her mastery of Heptapod B increases, but the defining factor is her changing perception of reality. She perceives sequential conversations as plays being acted out – her thought process, as alien and distinct as possible, no longer takes time into serious consideration. Louise's perception of reality has risen outside the normal plane. Yet, "my thought process weren't moving any faster as a result" and no real advantage is gained (128). Louise exists outside the plane but is powerless to change it. Two equivalent computation models of reality, with each placing emphasis on different aspects of the universe[8], can coexists with neither being above the other; the implications of this fact consists not only of the understanding of free will relying on *language* because of how it can affect thought, but of the fact that despite the subjectivity of perception, there nonetheless exists some *objective* reality – the two models are equivalent.

[7] The objectivity of reality, despite the multiple perspectives, explains the convergence of the two plots. In order for this to occur, Louise must be asked the question ("Do you want to make a baby") and she must respond ("Yes"). The two events *must* occur because they form part of the objective reality underlying the main plot, and the question must follow the answer. They serve as the opening and closing doors to because they tie the two divergent plots into one – in a sense, the

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[7] "The linguistic relativity principle, or the Sapir–Whorf hypothesis, is the idea that differences in the way languages encode cultural and cognitive categories affect the way people think, so that speakers of different languages will tend to think and behave differently depending on the language they use." This is directly from Wikipedia. For a more scholarly source, check Works Cited (Swoyer). The strong version of this principle has been widely discredited.

[8] More specifically, one perspective focuses on the series of events that occur which lead to a particular result. This is the humanistic model of cause and effect when event A leads to B to C …. to G. The other, the heptapod model, focuses not on the events but on the extrema – the important twists such as the beginning and end. No extrema is given more importance than the other, leading to a more holistic approach.

heptapod story is explanation of the conception, and the daughter's story is a reflection of the heptapod's effect on Louise. While we know the answer to the question the instant it is asked, the completion of the action can only occur when the response is uttered. The utterance of the response before the question is meaningless; the death of the daughter without Louise's agreement to conception removes the experience of child rearing. Louise must agree to birth before her daughter's death, and with knowledge of her daughter's death. The possessive attitude she takes when claiming her daughter's body (*"She's mine"*) further emphasizes this connection through the placement of those exact words both at the opening of the plot and at the closing (91,145). Strangely enough, at the beginning she claims her daughter is passing while at the close she claims her daughter's birth. In this way, the words are used both to emphasize the connection between the daughter and Louise and to reciprocate the roles of past and future. Yet, both death and birth occur; the heptapods arrive and leave, and Louise marries and divorces – every end must follow a beginning. Despite the non-sequential nature of the plot, it remains a plot; despite the differing perceptions of reality, the same physical laws apply; despite the distinction between past and future, they both form the present.

> Conversely, to define attributes that humans thought as fundamental, like velocity, the heptapods employed mathematics that were, Gary assured me, "highly weird." The physicists were eventually able to prove the equivalent of heptapod mathematics and human mathematics; even though their approaches were almost the reverse of one another, both were systems of describing the same physical universe. (120)

[8] In a sense, despite the static nature of the plot and novel, the experience of reading it creates the illusion of free will for the fictional characters; time passes for them, and entire life can be lived by them, all in the instant of the present for the reader. The same knowledge with a differing perspective. In addition, perhaps this is the very notion that Ted Chiang is attempting to highlight – the heptapods might have left and taken with them the knowledge of the future, but literature, in particular science fiction, is capable of returning it to the present. In a sense, science

fiction exists not only as a glimpse into the possible, the wonder, and the unknown, but also as the future knowledge that communicates with the present and shapes our current experience. Just as Louise had to say "yes," so too must we exercise our freedom and experience the birth of new world, new wonders, and new unknowns. Science fiction is the Story of Our Lives, and despite the fact, that like Louise we each know the end of a sf novel after reading it, we must still choose to experience it – to grow and develop with the characters, with the plot, and with the ideas. Mathematics might be the language of beauty and nature, but literature, and in particular, sf is the language of humanity, creativity, and possibility; sf is our Heptapod B[i], and in a sense the very expression of free will despite the possibility of a predetermined future.

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[i] Nick, thank you for the time you have taken to read this essay. It's not anything ground breaking (there are certainly others out there with ideas much more complex and further developed than this one), but it's something I'm proud of. I wish I had had more time to cut a few things here and there, and to develop the idea of mathematics as the language of nature a bit further. Anyway, Happy Christmas! (if you celebrate, if not, Happy Holidays!)