Story of Your Life

INTRODUCTION

BRIEF BIOGRAPHY OF TED CHIANG

Ted Chiang, born in Port Jefferson, New York in 1967, studied computer science at Brown University. His first published short story, "Tower of Babylon," appeared in the science-fiction magazine *Omni* in 1990. In 1991, "The Tower of Babylon" won the Nebula Award for Best Novelette. He has published two books of science-fiction and fantasy short stories, *Stories of Your Life and Others* (2002) and *Exhalation: Stories* (2019). Ted Chiang is considered one of the most accomplished and influential science-fiction writers of the contemporary period. His short stories have won Nebula Awards, Hugo Awards, and a British Science Fiction Association Award. They have also been nominated for the World Fantasy Award and the James Tiptree, Jr. Award. In addition to writing short fiction, Ted Chiang has taught fiction writing at the Clarion Science Fiction and Fantasy Writers' Workshop. In 2016, his 1998 short story "Story of Your Life" was adapted into a film called *Arrival*.

HISTORICAL CONTEXT

Ted Chiang's "Story of Your Life" was first published in the science-fiction anthology *Starlight 2* in 1998. Among other themes, the story represents the tension between academic researchers' desire to understand mysterious aliens and the U.S. military's desire to control and exploit the aliens. 1998 coincided with President Bill Clinton's second term. In the year prior to the story's publication, the U.S. government admitted well after the fact that it had interfered in the Laotian Civil War from the 1950s through the 1970s and also apologized for unethical government medical experiments on African American men during the Tuskegee Syphilis Study from 1932 to 1972. The U.S. government's admissions of past grievous mistakes during this period may have influenced the depiction in "Story of Your Life" of U.S. military and government officials as hostile, aggressive, and suspicious toward an alien species.

RELATED LITERARY WORKS

Ted Chiang is a science-fiction and fantasy writer preoccupied with questions of language, technology, and free will. "Story of Your Life" imagines an alien language that enables the humans who learn it to "remember" their futures with absolute accuracy, thus depriving them of their free will. His short story "What's Expected of Us," originally published in the magazine *Nature* in 2005 and republished in his short story collection *Exhalation: Stories* in 2019, similarly tells the story of a new technology called the Predictor that can tell the future and thus reveals the nonexistence of free will. These stories were likely influenced by Isaac Asimov's *Foundation* (1951), which imagines an academic discipline called psychohistory that can accurately predict the futures of large populations, thereby casting doubt on the existence of free will as a characteristic of populations. As "Story of Your Life" and "What's Expected of Us" deal with forms of time travel, they may also have been influenced by Octavia Butler's 1979 *Kindred*, a science-fiction novel about an African American woman forced to travel back in time and meet her ancestors under antebellum slavery. As in "Story of Your Life," the protagonist is forced into traumatic situations to preserve the reality of her timeline.

KEY FACTS

- **Full Title:** Story of Your Life
- **Where Written:** United States
- **When Published:** 1998
- **Literary Period:** Contemporary
- **Genre:** Short Story, Science Fiction
- **Setting:** United States
- **Climax:** Dr. Louise Banks agrees to try for a baby with Dr. Gary Donnelly, despite already knowing that their daughter will die in a climbing accident at the age of 25.
- **Antagonist:** The U.S. military
- **Point of View:** First Person

EXTRA CREDIT

Crowd Favorite. *Arrival*, the 2016 film based on "Story of Your Life," was nominated for eight Academy Awards, including Best Picture and Best Director. It won the Academy Award for Best Sound Editing.

PLOT SUMMARY

In "Story of Your Life," the linguist Dr. Louise Banks is narrating to her unborn daughter the story of how she will come to be conceived. Louise tells her daughter that the story of her eventual conception begins with aliens visiting Earth. After mysterious aliens begin orbiting the planet and sending down communications devices known as "looking glasses" to the surface, Louise gets a phone call from the U.S. government asking for a meeting. Colonel Weber of the U.S. military and the physicist Dr. Gary Donnelly come visit Louise at her office. Colonel Weber plays a recording of the aliens' speech to Louise and asks her what she can tell him about it, but he refuses to give her any additional information. Louise explains to him that

to learn the aliens' language, she'll need to interact with them.

The U.S. military recruits Louise to learn the aliens' language in collaboration with Dr. Gary Donnelly, who is supposed to be learning the aliens' physics. They are one of many teams of researchers stationed at the aliens' "looking glasses" all over Earth. Through their "looking glass," Louise and Gary meet two aliens, called "heptapods." The heptapods, whom Louise names Flapper and Raspberry, each have seven arms and seven eyes arranged symmetrically around their torsos. At first, Louise's attempts to learn the heptapods' spoken language, which she calls Heptapod A, progress slowly.

Louise gets the idea to learn Heptapod A and the heptapods' written language, **Heptapod B**, simultaneously. Eventually Louise realizes that Heptapod B isn't an alphabetic language like English; instead of representing the sound of their spoken language, Heptapod B consist of pictures that represent words and that can be combined in any order into giant picture-sentences or picture-paragraphs. Examining tapes of the heptapods writing sentences, Louise realizes that they don't construct their picture-sentences word by word. Rather, they use brushstrokes that cross many different words, which suggests to Louise that the heptapods know exactly what they are going to write before they start writing.

As Louise and another researcher named Burghart become proficient in Heptapod B, they realize that the heptapods experience time differently from humans. Whereas humans experience time linearly, from past to future, the heptapods experience their entire lives simultaneously. In other words, the heptapods know exactly what they are going to write before they start because they can "remember" the future.

Learning Heptapod B, Louise becomes able to remember the future as well. In so doing, she loses the ability to make different choices from the ones that she knows she is going to make. She comes to feel a tremendous impulse to act out the future script she remembers, despite potential negative consequences. She begins to date Gary, for instance, even though she already knows that they'll marry and divorce in the future. Eventually, the heptapods leave Earth without ever explaining why they came or revealing the kind of scientific or technological information the military hoped they would.

Interspersed with story of Louise learning Heptapod B are Louise's memories of the future, which she narrates to her unborn daughter. As Louise falls in love with Gary, she already knows that they'll have a daughter together. Moreover, she knows that her daughter is going to die at the age of 25 in a climbing accident. Louise remembers both happy and upsetting moments from her daughter's life: funny things her daughter will say as a child, moments when the daughter will butt heads with her parents, how beautiful the daughter will look at her college graduation ceremony, and so on. At the end of the story, in the present, Louise agrees to have a child with Gary, remembering everything that's going to happen to her family but unsure of how she will feel about these things when they come to pass.

CHARACTERS

MAJOR CHARACTERS

Dr. Louise Banks – Dr. Louise Banks, the first-person narrator, is a linguist recruited by the U.S. military to learn the language of the heptapods, an alien species mysteriously orbiting Earth. An intelligent professional with a wry sense of humor, Louise collaborates with the physicist Dr. Gary Donnelly to learn both the heptapods' spoken language, Heptapod A, and their written language, **Heptapod B**. As she learns Heptapod B, a language in which picture-words can be combined into enormous designs and read in any order, Louise realizes that the heptapods experience time differently than humans do: whereas humans experience time in a sequence from past to future, the heptapods experience their entire lives simultaneously. Learning Heptapod B changes how Louise thinks: in learning it, she gains the ability to "remember" her own future, a shadow of the heptapods' ability to experience all time simultaneously. By remembering the future, Louise learns that she and Dr. Gary Donnelly are going to have a daughter and subsequently get a divorce. Their daughter will die in a climbing accident at the age of 25. "Story of Your Life" consists of Louise telling this unborn daughter the story of her conception, and the main narrative is interspersed with Louise's future "memories" of her daughter. Louise's new ability to remember the future deprives her of free will, in that she feels compelled to do exactly what she remembers she will do. At the end of the story, Louise agrees to have a baby with Gary and reflects that while she knows what is going to happen, she doesn't know what her subjective experience of the events will be when they actually occur.

Louise's Daughter – Dr. Louise Banks and Dr. Gary Donnelly's daughter is a character foil for Louise. Whereas Louise is academic, risk-averse, and self-reflective, her daughter is money-oriented, daredevilish, and impulsive. Louise and her daughter's relationship reflects the loss of free will that Louise experiences when she learns **Heptapod B** and begins to "remember" the future. While Louise clearly loves her daughter, there's no indication that she'll try to prevent the climbing accident that she knows will eventually kill her daughter. Louise even believes that her excessively cautious parenting may, through reverse psychology, create the daredevil tendencies that make her daughter climb in the first place, yet Louise does not (and seemingly *cannot*) change her behavior. At the same time, Louise and her daughter's relationship also underscores the overwhelming nature of the parental impulse. While Louise's daughter sometimes acts impatient or cruel toward her mother, Louise narrates the story of her daughter's conception to her with great love and joy. Moreover, Louise compares her maternal instinct to protect

her daughter with the overwhelming compulsion she feels to act out the future as she remembers it. Thus, the story suggests that parental instincts can override free will much in the same way remembering the future can.

Dr. Gary Donnelly – Dr. Gary Donnelly is a physicist who collaborates with Dr. Louise Banks in communicating with the heptapods (an alien species) and who eventually becomes her husband. Initially, Gary helps Louise elicit vocabulary from the heptapods by serving as her prop and acting out verbs. Later, when the humans understand the heptapods' language well enough to communicate with them, his explanations of the kind of physics concepts the heptapods find intuitive help Louise realize that the heptapods experience time not as a sequence but as a simultaneity. While working together to communicate with the heptapods, Gary and Louise begin to date. As Louise learns the heptapods' written language, **Heptapod B**, she gains their ability to remember the future and learns that she and Gary will marry, have a daughter together, and subsequently divorce. Like Louise's relationship with her daughter, Louise's relationship with Gary underscores the loss of free will she experiences when she begins remembering the future. Although Louise knows that she and Gary will divorce, she can neither avoid entering a relationship with him in the first place nor take action to prevent their divorce once they are married. Yet Louise does not seem to regret her relationship with Gary, suggesting that she truly loves him.

Colonel Weber – A member of the U.S. military, Colonel Weber recruits the linguist Dr. Louise Banks to learn the alien heptapods' language. Once he has recruited Louise, he oversees the attempts she and Dr. Gary Donnelly make to communicate with and learn from the heptapods. From the beginning, Colonel Weber suspects the heptapods of sinister motives in visiting Earth. He pressures Louise to teach the heptapods as little about human language and technology as possible, despite the problems this attitude causes her as she tries to understand the heptapods. Moreover, he seems determined to extract as much technological information from the heptapods as he can while giving as little as possible in return. Thus Colonel Weber represents how prejudice toward outsiders can impede understanding.

Burghart – Like Dr. Louise Banks, Burghart is a linguist assigned to learn the alien heptapods' language. Also like Louise, he becomes fluent in **Heptapod B**, begins "remembering" the future, and loses his free will. His character shows that the mental changes Heptapod B has on its learners are not unique to Louise. Any person who becomes proficient in Heptapod B will begin remembering the future and thus lose their ability to make choices other than the ones they are destined to make.

MINOR CHARACTERS

Hossner – Hossner is an employee from the U.S. State Department who lectures Dr. Louise Banks, Dr. Gary Donnelly, and other American researchers on what the U.S. government wants to get out of contact with the alien heptapods. Like Colonel Weber, he models an exploitative and prejudiced attitude toward alien "others."

Nelson – Nelson is the man Dr. Louise Banks begins dating after her divorce from Dr. Gary Donnelly.

Roxie – Roxie is a friend of Louise's daughter. She gossips with the daughter about Nelson before he comes to pick Louise up for a date.

Flapper – Flapper is one of the two alien heptapods, along with Raspberry, that teaches Dr. Louise Banks the heptapods' language. Flapper is not its real name; Louise nicknames it Flapper because she cannot pronounce its real name.

Raspberry – Raspberry is one of the two alien heptapods, along with Flapper, that teaches Dr. Louise Banks the heptapods' language. Raspberry is not its real name; Louise nicknames it Raspberry because she cannot pronounce its real name.

THEMES

In LitCharts literature guides, each theme gets its own color-coded icon. These icons make it easy to track where the themes occur most prominently throughout the work. If you don't have a color printer, you can still use the icons to track themes in black and white.

LANGUAGE

"Story of Your Life" suggests that language is not only a means of communicating our thoughts—language also determines the kind of thoughts we can think and constitutes a form of action in its own right. The story centers on Dr. Louise Banks, a linguist recruited by the U.S. government to learn the language of aliens called heptapods. The heptapods have deposited mysterious screens called "looking glasses" at various places on Earth, which Louise and other researchers use to see and communicate with the aliens. Louise is narrating the story of the heptapods to her unborn daughter. Strangely, Louise remembers events that she describes in the future tense—in other words, she seems able to "remember" the future. As the story progresses, it's revealed that this ability is rooted in Louise becoming proficient in **Heptapod B**, the heptapods' written language, meaning that this new language actually changes her perception of time. In Heptapod B, entire paragraphs can be expressed as a single drawing able to be understood instantaneously. By studying the heptapods' written language, Louise realizes that the heptapods do not experience their lives from past to future, the way humans do. Instead, the heptapods experience their entire lives as a simultaneous instant. Learning the heptapods' language

fundamentally changes how Louise thinks: she becomes able, like the heptapods, to experience her entire life as a simultaneity and thus seemingly "remember" future events. The change in Louise's thinking after learning Heptapod B implies that the languages we know determine the kind of thinking that we can do.

In "Story of Your Life," language isn't only a means of communication or a determinant of thought. It is also a kind of action. After Louise begins to remember the future, she repeatedly compares taking actions that she already knew she was going to take to acting in a play. She also compares it to telling a story to an audience that already knows the ending, to making a promise, and to officiating a wedding: all examples of language that *does* something rather than merely communicating *about* something. By showing how language is intimately tied to thought and action, "The Story of Your Life" suggests that language is about far more than just communicating: it fundamentally shapes how we perceive and move through the world.

FREE WILL

"Story of Your Life" critiques the notion of free will by depicting aliens, called heptapods, who experience their entire life simultaneously rather than sequentially from birth to death. Because the heptapods already know what they are going to do, they do not have the ability to make choices. The heptapods' deterministic viewpoint is embedded in their written language, **Heptapod B**. In Heptapod B, sentences and even paragraphs can be read instantaneously and in any direction, suggesting that concepts like "end" and "beginning" or "cause" and "effect" are interchangeable. In the science-fictional world of "Story of Your Life," the ability to experience time as a simultaneity is reflected in Heptapod B. The humans who learn Heptapod B become able, like the heptapods, to remember their futures as well as their past. In so doing, they lose their ability to make choices other than the ones they "remember" making in the future.

Notably, since humans who learn Heptapod B can remember their own futures, this means that they know what will happen to everyone they know as well. For this reason, when Dr. Louise Banks (a linguist who learns Heptapod B) has conversations with humans who don't know Heptapod B, she compares them to actors who are reading from a script without knowing it. And even though Louise knows from "remembering" the future that she'll eventually get divorced from her future husband, Gary, and that their daughter will die at a young age, she chooses to pursue a relationship with Gary and have a child with him anyway. Because there is only one possible future, the future that speakers of Heptapod B remember, no one has the ability to exercise free will, to go off-script. In fact, Louise muses that if a person already knows their future, they may actually feel "a sense of urgency, a sense of obligation" to make the very choices that will lead to that known outcome. "Story of Your Life" thus suggests that humans believe they have free will only because of how they experience time, from past to future, and not because they ever have the power to do something other than what they are destined to do.

TIME

"Story of Your Life" depicts time not as an external reality but as a subjective experience. It tells the story of first contact between humans and an extraterrestrial species called heptapods, who subjectively experience their lives as a single simultaneous instant rather than a progression from birth to death. The first description of the heptapods hints at the strange way they experience time. They have seven arms and seven eyes arrayed around their torsos, so that their bodies have no front or back. The heptapods' simultaneous orientation toward all points foreshadows the revelation that they can remember both the past and the future, an ability that suggests time is not an external reality marching straight from the past to the future, but rather an experience that changes according to one's characteristics.

The heptapods are the most dramatic example in "Story of Your Life" of time as a subjective experience, but they are not the only example. The narrator, Dr. Louise Banks, also expresses a subjective experience of time in her relationship with her daughter. By learning the heptapods' written language, **Heptapod B**, Louise gains their ability to remember the future as well as the past. Thus, she knows exactly what is going to happen in her daughter's life. Yet she's repeatedly surprised at how fast her daughter grows up: for example, she is shocked when her adolescent daughter is embarrassed to be seen with her at the mall and shocked again when her daughter graduates from college. Louise already knows what will happen, but because time is a subjective experience, she is still capable of being surprised by its passage. In this sense, "Story of Your Life" suggests that time is an internal, subjective experiences rather than an external, objective reality.

OTHERNESS, PREJUDICE, AND COMMUNICATION

"Story of Your Life" suggests that prejudice is antithetical to communication. The story depicts the first contact between humanity and an alien species called heptapods. Throughout the story, the human military and government officials' intolerant attitude toward the aliens contrasts with human researchers' open, communicative attitude. When Colonel Weber approaches the story's narrator, the linguist Dr. Louise Banks, to get her opinion on a recording of the heptapods' speech, he's immediately aggressive and suspicious. He tries to tell Louise as little as he can about the

recording, and although Louise is academically qualified to speak to the aliens, he initially refuses to let her see them. Rather than wanting to share information with the heptapods, he is adamant that they should learn as little about human language and technology as possible, even though the heptapods must inevitably learn some amount of human language for Louise to learn their language. At almost every turn, Colonel Weber suspects the heptapods of nefarious motives and thereby impedes human researchers' attempts to understand them. Moreover, his sole motive in facilitating communication with the heptapods seems to be to trick them into sharing their advanced technology. His prejudice toward outsiders closes him off from genuine communication.

By contrast, Louise is interested in communicating with the heptapods simply for the sake of learning. She undergoes a painstaking process to learn the aliens' spoken language Heptapod A and their written language **Heptapod B**. In learning Heptapod B, Louise realizes that the heptapods have a radically "other" understanding of time and causality than do humans. Whereas humans experience time sequentially from past to future and see events in terms of cause and effect, the heptapods experience time as a simultaneity and see events in terms of goal-directed behavior. By learning Heptapod B, Louise not only becomes able to communicate with the heptapods but also appreciates and shares in their perception of time: she gains the heptapod ability to "remember" the future. She adamant that the way heptapods perceive the world is just as real and valid as the way humans do—it's just different. Notably, while Louise and another linguist named Burghart become able to understand and participate in the heptapods' alien worldview, none of the military and government personnel who want to exploit the heptapods ever do. And, importantly, the researchers are only able to gain this knowledge by working together and across different disciplines, emphasizing the value of collaboration. Thus, "Story of Your Life" shows how aggression and prejudice against outsiders impede understanding, whereas open communication fosters understanding.

PARENTHOOD

"Story of Your Life" depicts parenthood as an overwhelming instinct, something humans feel drawn to do despite knowing that it may turn out badly in various ways. In "The Story of Your Life," the linguist Dr. Louise Banks is assigned to research heptapods, an alien species that has decided to observe and communicate with earthlings. She learns **Heptapod B**, the heptapods' written language, and in doing so finds out that the aliens experience their entire lives as a simultaneous instant. In learning Heptapod B, Louise becomes able to "remember" her future as well as her past. Remembering her future, Louise learns that she is going to have a daughter, and that her daughter is going to die in a climbing accident at age 25. Counterintuitively, as a result of remembering the future, Louise feels an overwhelming instinct to do what she already knows she is going to do: have a child whom she knows will die at a young age. In other words, her maternal instinct usurps her free will. At one point, she compares this instinct to the instinct to protect her daughter from a falling object. By describing her parental instinct in this way, Louise suggests that having a child completely consumes parents and makes them act in ways that they never thought they would.

Yet surprisingly, despite knowing her daughter will die young, Louise never seems to regret either her daughter's birth or the way her maternal instinct usurps her free will. She describes her daughter's conception as the most important moment in her life and, throughout the story, remembers various moments of her daughter's life with joy. She observes how her infant daughter kicks her legs in the hospital, marvels at her toddler daughter playing with a puppy, and is astonished at her daughter's poise and beauty during the daughter's college graduation ceremony. Thus, "Story of Your Life" suggests that people's overwhelming instinct to parent brings joys that outweigh the inevitable pains.

SYMBOLS

Symbols appear in **teal text** throughout the Summary and Analysis sections of this LitChart.

HEPTAPOD B

Heptapod B represents both the effect of language on thought and the incompatibility of free will with knowing the future. Heptapod B is the written language of aliens, called heptapods, who experience time differently than humans do. Rather than experiencing time as a sequence moving from past to future, heptapods experience their entire lives simultaneously, with every moment occurring at once. When the heptapods come into orbit around Earth and send down communication devices called "looking glasses" to the surface, the U.S. government recruits the linguist Dr. Louise Banks to learn their language. As Louise learns Heptapod B, the way she experiences time begins to change. Rather than experiencing time as a sequence, she begins to experience time more in the way heptapods do: she begins "remembering" the future. Thus, Heptapod B symbolizes the idea that languages don't simply *convey* our thoughts. Languages also *determine* the kind of thoughts that we think.

In addition to representing the effect of language on thought, Heptapod B also represents the incompatibility of free will with knowing the future. Learning Heptapod B allows Louise to remember the future, but in remembering the future, she becomes unable to act contrary to it in any way. Before she

learned Heptapod B, Louise might have supposed that knowing the future was impossible because of free will, since someone could always choose to act differently than they were predicted to act. In learning Heptapod B and knowing the future, Louise realizes that it is not knowing the future, but free will itself, that is impossible for her.

QUOTES

Note: all page numbers for the quotes below refer to the Vintage edition of *Stories of Your Life and Others* published in 2016.

Story of Your Life Quotes

> 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. Your dad and I have just come back from an evening out, dinner and a show; it's after midnight. We came out onto the patio to look at the full moon; then I told your dad I wanted to dance, so he humors me and now we're slow-dancing, a pair of thirtysomethings swaying back and forth in the moonlight like kids. I don't feel the night chill at all. And then your dad says, "Do you want to make a baby?"
>
> [...]
>
> 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 your own, and we'll never get that chance.

Related Characters: Dr. Louise Banks (speaker), Louise's Daughter, Dr. Gary Donnelly

Related Themes:

Page Number: 91

Explanation and Analysis

This quotation comes at the very beginning of the story. Immediately, the story both illustrates and foreshadows the strange relationships that the narrator, Dr. Louise Banks, has with time and parenthood.

Louise seems to know the future. The indication of her foreknowledge comes in the very first sentence: "Your father is about to ask me the question." If this claim were in the past tense, the reader would accept it without hesitation: Louise would be conveying a sequence of events she remembered. Since the claim is in the present tense, however, Louise seems to be anticipating the future with perfect accuracy, as in fact the man she identifies as her child's father does go on to ask her to have a child with him. Louise's apparently accurate narration in the future tense continues as she tells her daughter that she'll never have the chance to have children of her own. Thus, the passage suggests that Louise's experience of time is fundamentally different from what the reader expects or believes to be possible.

Second, Louise displays a strange attitude toward parenthood. She describes the night on which her daughter is conceived as the most important of her life, yet she is also able to narrate in a dry, factual tone the revelation that her daughter will never get the chance to have children. The mystery of Louise's ambivalent attitude toward her unborn child's possibly tragic life creates suspense that propels the reader through the story.

> Colonel Weber frowned. "You seem to be implying that no alien could have learned human languages by monitoring our broadcasts."
>
> "I doubt it. They'd need instructional material specifically designed to teach human languages to nonhumans. Either that, or interaction with a human. If they had either of those, they could learn a lot from TV, but otherwise, they wouldn't have a starting point."
>
> The colonel clearly found this interesting; evidently his philosophy was, the less the aliens knew, the better. Gary Donnelly read the colonel's expression too and rolled his eyes. I suppressed a smile.

Related Characters: Colonel Weber, Dr. Louise Banks (speaker), Dr. Gary Donnelly

Related Themes:

Page Number: 94

Explanation and Analysis

This passage occurs shortly after aliens have begun to orbit Earth in spacecraft and have sent down communication devices known as "looking glasses" to speak with humans. Colonel Weber has come to the office of the linguist Dr. Louise Banks to see what she can glean from a recording of the aliens' speech. Colonel Weber is accompanied by a physicist, Dr. Gary Donnelly. This passage introduces the military's fear of the aliens. Rather than being excited that humanity has made contact with an extraterrestrial species, Colonel Weber implies that the aliens may have been "monitoring our broadcasts" and hopes that they have

learned nothing about humanity.

The passage contrasts Colonel Weber's suspicious attitude with the more academic attitude embodied by Dr. Louise Banks and Dr. Gary Donnelly. Rather than having a fearful attitude toward the aliens' language-learning capacities, Louise takes a factual and curious approach based on her experience as a linguist. Gary's eyerolling and Louise's suppressed smile suggest that they find Colonel Weber's narrow-minded suspicion comical. Thus, this passage sets up a contrast between the military's response to the aliens and the academics' genuine curiosity, foreshadowing conflicts that will play out between these two responses as the story progresses.

> Seven lidless eyes ringed the top of the heptapod's body. It walked back to the doorway from which it entered, made a brief sputtering sound, and returned to the center of the room followed by another heptapod; at no point did it ever turn around. Eerie, but logical; with eyes on all sides, any direction might as well be 'forward.'

Related Characters: Dr. Louise Banks (speaker)

Related Themes:

Related Symbols:

Page Number: 97

Explanation and Analysis

This passage occurs after the U.S. government has recruited Dr. Louise Banks to learn the aliens' language. Here, she sees the heptapods through their communications devices, which are called looking glasses. This description of the heptapods' bodies both illustrates Louise's acceptance of alien "others" and foreshadows the heptapods' radically non-human relationship to time.

When confronted with an alien "other," Louise remains observant and focused on facts: she counts the heptapods' eyes and analyzes its movements. While admitting she finds heptapod motion "eerie," Louise is nevertheless able to admire its logic. This shows that Louise has a curious, scientific openness toward the aliens and a willingness to take on their point of view, in contrast with the xenophobic, fearful attitude that military and government personnel will take toward the heptapods throughout the story.

In addition, this passage foreshadows later revelations in the story about the heptapods' subjective experience of time. Upon learning the aliens' written language, Heptapod B, Louise will discover that the heptapods experience time as a simultaneity and thus know everything that is going to happen in their own lives—past *and* future. The description in this passage of the heptapod's eyes as "lidless"—and thus constantly seeing—hints at the alien's ability to "see" both past and future. Louise's observation that for the heptapods "any direction might as well be 'forward'" also hints that they experience time not from past to future but all at once.

> "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. Take a look." I showed him how the logograms were rotated.
>
> "So they can read a word with equal ease no matter how it's rotated," Gary said. He turned to look at the heptapods, impressed. "I wonder if it's a consequence of their body's radial symmetry: their bodies have no 'forward' direction, so maybe their writing doesn't either. Highly neat."

Related Characters: Dr. Louise Banks, Dr. Gary Donnelly (speaker)

Related Themes:

Related Symbols:

Page Number: 105-106

Explanation and Analysis

In this passage, Dr. Louise Banks and Dr. Gary Donnelly have begun trying to learn the heptapods' written language, Heptapod B, as well as their spoken language, Heptapod A. Louise and Gary analyze examples of Heptapod B script. The passage demonstrates both the connection between language and subjective experience *and* the openness of these scientists to unfamiliar concepts.

This section also foreshadows the revelation that Heptapod B gives its speakers the ability to "remember" the future as well as the past. Just as heptapod bodies have "no 'forward' direction," and Heptapod B sentences can be read in any order no matter how they are rotated, so speakers of Heptapod B gain the ability to experience time subjectively in a nonlinear, simultaneous fashion.

In addition, the passage underscores the different attitudes that scientists and military personnel take to the heptapods throughout the story. Whereas the military takes a suspicious and narrow-minded view of the heptapods,

scientists like Gary are curious about and impressed by the "otherness" of their bodies, language, and viewpoint.

"I wanna be in Hawaii now," you'll whine.

"Sometimes it's good to wait," I'll say. "The anticipation makes it more fun when you get there."

You'll just pout.

Related Characters: Louise's Daughter, Dr. Louise Banks (speaker), Dr. Gary Donnelly

Related Themes:

Page Number: 111

Explanation and Analysis

In this passage, Louise "remembers" a future event in which she and her daughter will plan to accompany Louise's future husband, Dr. Gary Donnelly, to a conference in Hawaii. Louise's daughter will be impatient to go, and Louise will try to assuage that impatience. In doing so, she reveals her own ability to "remember" the future, and the story also demonstrates the ways in which she relates to her daughter.

Louise could react in various ways to her strange subjective experience of time and her ability to remember the future. Always knowing what is going to happen *could* make her bored with her life, or it could make her impatient for the joyful experiences she knows are coming and fearful of the bad ones. By insisting to her daughter that there's value to be found in the feeling of anticipation, however, Louise suggests that her experience of time actually makes her life better. Because she knows what's going to happen to her but has to wait for it, she actually has more fun when the joyful experiences she foresees finally arrive.

Louise's attitude toward anticipation here hints at one reason she speaks of her daughter with such joy throughout the story despite knowing that she'll die young. She's able to bask in the various joys of motherhood, waiting for certain things to happen over the course of her relationship with her daughter and doing what she can to enjoy them. In turn, the story implies that she believes the rewards of having her daughter will outweigh the inevitable pain of losing her.

It won't have been that long since you enjoyed going shopping with me; it will forever astonish me how quickly you grow out of one phase and enter another. Living with you will be like aiming for a moving target; you'll always be further along than I expect.

Related Characters: Dr. Louise Banks (speaker), Louise's Daughter

Related Themes:

Related Symbols:

Page Number: 115

Explanation and Analysis

In this passage, Louise "remembers" a future event in which her daughter, at 13, will want to avoid being seen with her at the mall. This passage illustrates the story's exploration of what it feels like to know what's going to happen in the future, as well as what it feels like to actually experience the events in question.

Having learned Heptapod B, an alien language that allows its speakers to experience time as a simultaneity, Louise "remembers" the future and thus knows everything that will happen in her short-lived daughter's life. Yet Louise's daughter can still "astonish" Louise with her quick maturation. Louise's astonishment thus suggests that her experience of time is not really about knowing what's going to happen. Instead, it's about reconciling herself to what things feel like *in the moment*, which even someone who knows the future can't necessarily predict. There is, in other words, a difference between knowing the future ahead of time and experiencing it in real life. Because of this discrepancy, Louise can still be astonished by experiences she already knows she is going to have.

This distinction between objective knowledge and subjective experience of time also helps explain Louise's attitude toward parenthood in the story. Louise objectively knows all the facts of her daughter's life, including the fact that her daughter will die young. Yet Louise does not take a tragic attitude toward parenthood because she's still capable to being subjectively surprised by her daughter and thus of joyfully anticipating the future they'll have together.

There's a joke that I once heard a comedienne tell. It goes like this: "I'm not sure if I'm ready to have children. I asked a friend of mine who has children, 'Suppose I do have kids. What if when they grow up, they blame me for everything that's wrong with their lives?' She laughed and said, 'What do you mean, if'"

That's my favorite joke.

Related Characters: Dr. Louise Banks (speaker), Louise's Daughter

Related Themes:

Related Symbols:

Page Number: 123

Explanation and Analysis

This passage occurs as an aside in the middle of two flashbacks in which Louise slowly realizes that proficiency in Heptapod B confers the ability to know the future.

First, this passage illustrates Louise's attitude toward free will. Once Louise learns Heptapod B and begins remembering the future, she loses the ability to make choices other than the ones she "remembers" making. Surprisingly, Louise accepts her loss of free will without complaint. Her love of this joke suggests why: despite humans' subjective experience of free will, our futures may be set in stone anyway. For example, no matter what parents freely choose to do, they cannot change that their children will blame them for everything. Louise's acknowledgment of human powerlessness and her ability to find humor in it explain her ability to enjoy life after her subjective loss of free will.

Second, the passage illustrates Louise's attitude toward parenthood. After becoming proficient in Heptapod B, Louise learns that she will have a daughter and that her daughter will die young. Her appreciation of a joke about the pains of parenting suggests why Louise is able to look forward to her daughter's life despite foreseeing her death: she is able to find joy and meaning even in the painful aspects of her daughter's existence.

As I grew more fluent, semagraphic designs would appear fully formed, articulating even complex ideas all at once. My thought processes weren't moving any faster as a result, though. Instead of racing forward, my mind hung balanced on the symmetry underlying the semagrams. The semagrams seemed to be something more than language; they were almost like mandalas. I found myself in a meditative state, contemplating the way in which premises and conclusions were interchangeable. There was no direction inherent in the way propositions were connected, no "train of thought" moving along a particular route; all the components in an act of reasoning were equally powerful, all having identical precedence.

Related Characters: Dr. Louise Banks (speaker)

Related Themes:

Related Symbols:

Page Number: 127

Explanation and Analysis

This passage occurs as Dr. Louise Banks becomes more proficient in Heptapod B. The passage emphasizes that language is not merely a neutral vehicle for communication. Instead, the kind of language we use influences the way we think. Louise notes that Heptapod B actually induces a "meditative state" in her, or an altered form of consciousness.

Specifically, Heptapod B changes the way Louise thinks about time. Although her thoughts appear fully formed, she rejects language of speed such as "faster" and vehicular motion such as "'train of thought'" to describe thinking in Heptapod B. Instead, she embraces a language of stasis ("hung balanced") and nonlinearity ("no direction"). This change in Louise's experience of time as a result of learning an alien language shows how the story considers time a subjective experience rather than an objective reality. It also foreshadows the revelation that the heptapods literally experience time as a nonlinear simultaneity rather than as a "train" that moves from past to future.

"I should emphasize that our relationship with the heptapods need not be adversarial. This is not a situation where every gain on their part is a loss on ours, or vice versa. If we handle ourselves correctly, both we and the heptapods can come out winners."

"You mean it's a non-zero-sum game?" Gary said in mock incredulity. "Oh my gosh."

Related Characters: Hossner, Dr. Gary Donnelly (speaker), Dr. Louise Banks

Related Themes:

Page Number: 128

Explanation and Analysis

In this passage, an employee of the U.S. State Department named Hossner lectures Dr. Gary Donnelly, Dr. Louise Banks, and other human researchers about what the U.S. government wants from communication with the heptapods. Specifically, the government wants to trade with them. Meanwhile, Gary and Louise have been making snide comments about the lecture. The passage seems to indicate a turning point in the narrow-minded attitude that the military and government personnel have displayed toward the heptapods throughout the story. Up to this point, the government has been secretive and suspicious of the aliens. Now, it seems that the government has changed its tune: it's willing to admit that both sides can benefit—or "win"—from interacting with one another.

But Gary's aside to Louise mocks Hossner's overall approach, since it's clear that Hossner has had trouble coming to the conclusion that humans and the aliens don't need to be adversaries—this has been quite obvious to academics like Gary and Louise, but Hossner's militaristic approach has made it harder for him to recognize that the exchange between humans and heptapods could actually be mutually rewarding. Moreover, unlike researchers such as Gary and Louise (who simply want to learn from the heptapods), Hossner and the other government personnel in the story are still trying to extract something from them: in this case, alien technology or other economic resources. Thus, even when military and government personnel in the story seem interested in the heptapods, it's obvious that they're really just interested in what they can get from the heptapods—not in the heptapods themselves.

> The existence of free will meant that we couldn't know the future. And we knew free will existed because we had direct experience of it. Volition was an intrinsic part of consciousness.
>
> Or was it? What if the experience of knowing the future changed a person? What if it evoked a sense of urgency, a sense of obligation to act precisely as she knew she would?

Related Characters: Dr. Louise Banks (speaker)

Related Themes:

Related Symbols:

Page Number: 132

Explanation and Analysis

This passage occurs after Louise has outlined an extended philosophical thought experiment about whether knowledge of the future and free will are logically incompatible. She has just concluded that they are, in fact, incompatible. The passage marks an important moment of character development for Louise: it explains why she enacts the future exactly as she remembers it, despite knowing that bad things are going to happen to her.

As a result of learning Heptapod B, the heptapods' written language, Louise has embraced a mode of thinking that is partially alien. As such, readers can no longer expect Louise to react as they would expect "ordinary humans" to react. For humans who do not speak Heptapod B, free will is "an intrinsic part of consciousness," but for Louise, that's no longer the case. Instead, she has alien feelings of "urgency" and feels an "obligation" to behave the way she knows she will ultimately end up behaving. And yet, following this script-like life means going through the same motions that will eventually lead to her daughter's death. Interestingly enough, Louise accepts that she has to do what she *knows* she'll do anyway, and this complicates the idea that she has free will, or the choice to make her own decisions uninfluenced by anything else.

> When you are three, you'll pull a dishtowel off the kitchen counter and bring that salad bowl down on top of you. I'll make a grab for it, but I'll miss. The edge of the bowl will leave you with a cut, on the upper edge of your forehead, that will require a single stitch. Your father and I will hold you, sobbing and stained with Caesar dressing, as we wait in the emergency room for hours.
>
> I reached out and took the bowl from the shelf. The motion didn't feel like something I was forced to do. Instead, it seemed just as urgent as my rushing to catch the bowl when it falls on you: an instinct that I felt right in following.

Related Characters: Dr. Louise Banks (speaker), Louise's Daughter, Dr. Gary Donnelly

Related Themes:

Related Symbols:

Page Number: 132-133

Explanation and Analysis

When Gary invites Louise over for dinner for the first time, they stop at a market to buy dinner ingredients. At the market, Louise sees a salad bowl. The passage that follows about this salad bowl is significant because it makes an explicit comparison between Louise's parental instinct and her loss of free will due to Heptapod B: just as Louise will grab for the falling bowl in an attempt to protect her daughter (in the future), she also feels compelled to enact the future she "remembers" (a future in which she owns the bowl). The story thus suggests that her impulse to follow the actions she knows she'll eventually make is just as strong as her parental instinct to protect her daughter, thus challenging the idea that she has free will. By buying the bowl, Louise brings about a future in which she knows her daughter will be hurt: the bowl will fall on her daughter's head hard enough that her daughter will need to visit the hospital. Louise is not only powerless to make a different choice but actually feels "right" in bringing about this future. The passage thus highlights how much Heptapod B has changed Louise's thought processes, which now run contrary to ordinary human instincts.

> NOW is the only moment you'll perceive; you'll live in the present tense. In many ways, it's an enviable state.

Related Characters: Dr. Louise Banks (speaker), Louise's Daughter

Related Themes:

Related Symbols:

Page Number: 136-137

Explanation and Analysis

Louise "remembers" her daughter's infancy and explains her infant daughter's experience of time, which has to do with the fact that her newborn daughter can really only inhabit the present. This passage suggests that time is a subjective experience rather than an objective reality—not only for humans who have had their experience of time altered by Heptapod B, but for everyone, including babies. It is precisely the prelinguistic infant's lack of a remembered past or a projected future that form her internal reality.

At the same time, this passage hints at Louise's ambivalence toward the changes that learning Heptapod B has wrought on her mind. Having learned Heptapod B, Louise lives in a mix of the past, present, and future tenses. Some might view this increase in knowledge as desirable, yet Louise describes her infant daughter's ignorance as "an enviable state." Though Louise never explicitly regrets learning Heptapod B or remembering the future, her envy of her infant daughter suggests that she sometimes wishes for, or at least sees the benefits of, ignorance.

> Freedom isn't an illusion; it's 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. It's like that famous optical illusion, the drawing of either an elegant young woman, face turned away from the viewer, or a wart-nosed crone, chin tucked down on her chest. There's no "correct" interpretation; both are equally valid. But you can't see both at the same time.

Related Characters: Dr. Louise Banks (speaker), Dr. Gary Donnelly, Louise's Daughter

Related Themes:

Related Symbols:

Page Number: 137

Explanation and Analysis

Louise explains the difference between how humans and heptapods perceive the idea of free will. This passage is important because it explains the effects of the subjective experience of time on the subjective experience of free will. Linear time—that is, moving from past to future—provides the "context" in which someone can experience free will. In the world of the story, it's possible for certain people (or aliens) to experience time in a non-linear way, experiencing their entire lives in a single moment rather than a sequence of events. This means that free will is not a universal, objective truth, as Louise acknowledges here by comparing it to an optical illusion that two different viewers might see in two different ways. Free will is a context-dependent, subjective experience.

However, Louise also suggests that the heptapods also don't feel "coerc[ed]" to make certain choices just because they

can "remember" the future. Instead, she seems to be suggesting that they see their actions as *inevitable*—which is exactly how Louise feels when she learns Heptapod B and begins experiencing time in the same "simultaneous" way and "remembering" her future. For instance, she knows that her eventual marriage to Gary will fail and that their daughter will die in an accident at a young age, yet she still chooses to pursue a relationship with Gary and have a child with him. Her decisions seem to fall somewhere between (or perhaps *beyond*) free will and coercion—no one is forcing her to make the choices she does, yet she also feels that she can't *not* make them.

Notably, although Louise begins to experience time in a nonlinear way and experiences free will as "not meaningful," she does not denigrate the standard human experiences of linear time and free will. Instead, she judges that the human and heptapod views, though incompatible, are "equally valid." This judgment continues the story's characterization of Louise as open-minded and nonjudgmental, in contrast with its characterization of military and government personnel as close-minded and xenophobic. By the same token, she's adamant throughout the story that the although the heptapods' way of experiencing the world is very different than what humans are used to, this doesn't mean that it's inferior or wrong—one just "can't see both at the same time."

> "Well if you already know how the story goes, why do you need me to read it to you?"

"Cause I wanna hear it!"

Related Characters: Dr. Louise Banks, Louise's Daughter (speaker)

Related Themes:

Related Symbols:

Page Number: 138

Explanation and Analysis

In this passage, Louise "remembers" a future incident in which she will read a version of "Goldilocks and the Three Bears" to her daughter. Louise improvises on the story, but her daughter wants her to read the story aloud exactly as it is written down. The passage is important because it suggests that while the heptapods' attitude toward language may seem alien, it is more similar to human attitudes toward language than we might expect.

The heptapods never use language to exchange information; because they know the future, they always know what both they themselves and others will say. Therefore, they view language as a kind of recitation. In certain contexts, humans *also* use language as recitation. For example, Louise's daughter already knows exactly what will happen in the book her mother's reading aloud, but she nevertheless has a natural childish impulse to hear a word-for-word recitation of it because she values the experience of hearing it. In the same way, the heptapods value the experience of actually hearing the words they already know they and their conversational partners will say. Thus, the passage suggests that the heptapods aren't as different than humans as one might assume.

> Working with the heptapods changed my life. I met your father and learned Heptapod B, both of which make it possible for me to know you now, here on the patio in the moonlight. Eventually, many years from now, I'll be without your father, and without you. All I will have left from this moment is the heptapod language. So I pay close attention, and note every detail.
>
> 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?

Related Characters: Dr. Louise Banks (speaker), Louise's Daughter, Dr. Gary Donnelly

Related Themes:

Related Symbols:

Page Number: 144-145

Explanation and Analysis

This passage occurs toward the end of the story. Dr. Louise Banks has returned to her present moment, in which Dr. Gary Donnelly is asking her to have a baby with him. This passage makes very explicit that Louise knows exactly what's going to happen in the future ("I'll be without your father, and without you") without knowing how she is going to feel when it actually *does* happen ("But am I working toward an extreme of joy, or of pain?"). Once again, the story emphasizes that the objective facts of what will happen do not tell the whole subjective story. At this point, Louise has lost her free will. She knows that her daughter will die and that she is unable to prevent this from happening. Precisely

because objective reality and the subjective experience of time are not the same, however, Louise is able to maintain both hope and uncertainty about parenthood even as she "remembers" the entirety of her daughter's life.

SUMMARY AND ANALYSIS

The color-coded icons under each analysis entry make it easy to track where the themes occur most prominently throughout the work. Each icon corresponds to one of the themes explained in the Themes section of this LitChart.

STORY OF YOUR LIFE

The narrator (who is later revealed to be Dr. Louise Banks) tells her unborn child (later revealed to be a daughter) that she and her child's father (the narrator's husband) have just come back from a date. The narrator and her husband are in their thirties and have been married for two years. They're slow-dancing on the front porch of their house when the narrator's husband asks her whether she wants to have a baby. The narrator wants to tell her unborn child "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 your own, and we'll never get that chance."

Right from the beginning of the story, readers can sense something strange about the narrator's relationship to time. She seems to be narrating the story to her unborn child and to know with absolute certainty that the child is about to be conceived, though she gives no explanation as to how she could know this future event. The sense of the narrator's uncanny relationship to time is compounded when she states that her unborn child will "never get [the] chance" to have children. That the narrator can speak with factual resignation about her own child's permanent childlessness also hints that her strange relationship to time has affected her parental instincts in some way.

The narrator (Dr. Louise Banks) remembers how her daughter, at age 12, will complain that the narrator only had a child to force them to do chores. She also remembers that this incident will occur "in the house on Belmont Street," which she will sell "shortly after [her child's] departure." By that time, the narrator and someone named Nelson will have moved into a farmhouse, and the child's father will be living with "what's-her-name," a different woman.

Here the narrator clarifies her strange relationship to time, stating clearly that she is remembering future events, though she does not yet explain how such a thing could be possible. Notably, the narrator is not having vague premonitions of the future: she knows concrete details such as how her child will behave at age 12 and the name of the street where they will be living. Again, the narrator uses a dry, factual tone to relate her breakup from her child's father and to hint at an ominous "departure" for her child, leading the reader to wonder about her emotional state and her relationship to her child.

Finally, the narrator (Dr. Louise Banks) remembers how the story of her daughter's conception really began: with aliens visiting Earth, landing their ships in meadows. Tabloids spread rumors about these visits, while the government said very little. Then, the narrator got a phone call requesting a meeting.

That the narrator believes the story of her child's conception begins with aliens visiting Earth fundamentally shifts the way readers might approach "The Story of Your Life." Up to this point, the story might have been realist, but now it's clearly science fiction. The presence of aliens in the story hints at a science-fictional explanation for the narrator's memories of the future.

In a flashback, the narrator, whose name is now revealed to be Dr. Louise Banks, meets a man in a military uniform named Colonel Weber and a scholarly-looking physicist named Dr. Gary Donnelly at her office. Colonel Weber plays Louise a recording of alien speech, which sounds to her like a wet dog shaking itself dry. He refuses to tell her anything about when or how the recording was made. He asks her whether she can tell anything about the aliens' "linguistic properties," and she tells him that human ears and throats may not be adequate for hearing or speaking the alien language, in which case translators will need a "sound spectrograph." She also tells him that to determine whether she needs a sound spectrograph, she will need to meet the aliens.

That the alien speech sounds to Louise like a dog shaking itself dry suggests the aliens may be radically different from humans—they are truly "other." This suggestion is reinforced when Louise points out that humans may need technology even to hear and reproduce the aliens' language. Meanwhile, Colonel Weber's refusal to give Louise any additional helpful information about the recording creates a first impression of the military as a suspicious and uncooperative force in the story.

Colonel Weber refuses to let Louise meet the aliens, but she insists that "someone with training in field linguistics" will simply have to talk to them or learning the aliens' language will not be possible. Colonel Weber notes that she's implying the aliens cannot learn human language without speaking directly to humans either. He then asks whether Louise could learn the aliens' language while withholding knowledge of human language from them. She says they would probably learn some English from her, "but it wouldn't have to be much if they're willing to teach." Colonel Weber says he'll contact her later, ending the meeting.

Colonel Weber's interest in how much the aliens might know, as well as his desire to withhold information about human language from the aliens, suggests a suspicious, fearful, even xenophobic attitude toward them. Louise's attitude is much more academic and pragmatic: she simply explains who will be able to learn the aliens' language and under what conditions the aliens could learn human language.

Narrating to her unborn daughter, Louise says that the phone call to arrange that meeting was the second-most significant one in her life. The most significant one will come from Mountain Rescue. Though estranged from her child's father at this point, he'll accompany Louise to the morgue, where she will identify her daughter's dead body. "You'll be twenty-five then," she tells her daughter.

This passage explains the ominous hint made earlier in the story about Louise's child's "departure": Louise remembers that her daughter is going to die young. By describing her daughter's death as more significant than the opportunity to meet aliens, Louise reveals how much her daughter means to her while preserving an emotionally restrained tone.

In a flashback, Louise drives to a farm where the army has built a camp surrounding one of the alien devices that the humans have dubbed "looking glasses." The looking glasses act like video communication screens linking humans to the aliens in orbit around Earth. The looking glasses have descended to various spots on Earth. A linguist and a physicist are appointed to each looking glass; Louise and Dr. Gary Donnelly have been assigned to this one. They meet in the parking lot and approach the tent that's covering the looking glass. Military cameras will be recording everything Louise and Gary do, and Louise will have to send the military daily reports estimating "how much English [she] thought the aliens could understand."

Everything about this description reveals that the military fears the aliens and wants to control access to them: the army camp around the looking glasses, the military cameras recording the civilian researchers, and the reports Louise will be required to write on the aliens' language acquisition. By contrast, Louise maintains an observant calm.

Louise and Gary enter the tent and see what looks like a large "semicircular mirror." As they cart in their research equipment, the looking glass becomes gradually transparent. An image of a room appears in the glass, and a "radially symmetric" alien with seven arms and seven eyes enters the room. Because of their seven arms, Gary calls the aliens "heptapods." Louise gawks as the alien moves without turning, since it has eyes on every side of its body. Another alien subsequently enters as well. Louise is experienced with linguistic fieldwork, but it's always been a "bilingual procedure"—this procedure will be a "monolingual" one.

The heptapods' advanced technology, their non-humanoid appearance, and their surprising mode of locomotion all underscore their "otherness" relative to humans. Their bodies, especially their many eyes, hint that their worldview and modes of perception may be radically different from humanity's. Despite this sudden introduction to an extremely alien species, Louise draws analogies to previous fieldwork that she has done, suggesting that she is undaunted by the heptapods' difference.

Louise and Gary approach the looking glass, and the aliens do too. Louise points to herself and Gary and says the word "human." She then asks the aliens what they are. After Louise has tried to communicate this way several times, one of the heptapods makes a "fluttering sound." Then it indicates the other heptapod with one of its arms and makes the same noise. Louise checks her computer and sees "two virtually identical spectrographs representing the fluttering sounds." She plays back a recording of the fluttering sound while pointing at the heptapod. The heptapod makes another sound that seems to include the first fluttering it made. Louise repeats the same process—pointing, questioning, recording, and replaying—with what she believes to be a piece of furniture in the heptapods' room.

While the description of the heptapods' speech as "fluttering" highlights their difference from humans, their eventual understanding and mimicry of Louise's point-and-question procedure suggest similarities as well. The slow and arduous process of establishing a common vocabulary, meanwhile, emphasizes not only the difficulty of learning a new language but also Louise's professionalism.

On the computer, Louise labels the sound recordings for the words she believes she has isolated: "'heptapod' for [flutter1], 'yes' for [flutter2], and 'chair' for [flutter3]." She adds the heading "Language: Heptapod A." When Gary asks her why she has named the language "A," she replies that she wants to differentiate the language they are currently learning from other possible heptapod languages.

Again, the arduous process of recording and labeling the heptapods' utterances emphasizes both the difficulty of language learning and Louise's professionalism. That no one knows how many languages the heptapods have underscores how little the humans know about the heptapods, while the suggestion that they may have multiple languages foreshadows the introduction of another one.

Louise tries to reproduce the heptapod's word for "heptapod" with her own voice, but the aliens don't react. She and Gary conclude that they will have to use recordings of the heptapods, and not direct speech, to communicate with the heptapods in their own language.

Louise's inability to reproduce heptapods' sounds with her human physiology underscores the radical physical differences between humans and heptapods. It also hints that there may be other, invisible differences between humans and heptapods yet to be discovered.

In an aside, Louise tells a story about Captain Cook's sailors trying to communicate with Aboriginal Australians. According to the story, a sailor pointed to a kangaroo and asked an indigenous person what it was. The indigenous person said "Kanguru," which gave the animal its name in English, although the indigenous person was in fact asking, "What did you say?" This story is probably fictitious, but Louise tells it to her students every year. She knows that the story her undergraduates will really want to hear is the one about the heptapods, which is why many of them will sign up for her class. She'll show her students the videotapes of her talking to the heptapods in the tent.

This aside reveals that Louise has a sense of humor: every year, she tells her students a joke about how English obtained the word for kangaroo, even though she knows the joke is probably not based on a real incident. It also reveals that Louise will attain a measure of fame for her work with the heptapods.

Louise's favorite source of "language-learning anecdotes" is children. Narrating to her unborn daughter, she recalls when her daughter, at five years old, will ask whether she can be "honored," that is, "made of honor." Her daughter will have misunderstood one of her kindergarten classmates talking about how she was her older sister's maid of honor.

Again, Louise displays her sense of humor, this time applied to parenting: she is able to find joy in future memories of her young daughter's linguistic mistakes. That Louise can find joy in memories of her daughter despite also knowing about her daughter's early death suggests that for Louise, happiness in parenting might be powerful enough to outweigh grief.

In a flashback, Louise and Gary visit Colonel Weber in the army camp's operations center. Louise asks Colonel Weber for a digital camera and a large video screen so that she can display written words to the heptapods. She believes that seeing the heptapods' language written down will make it easier to learn. Colonel Weber cautions her that they shouldn't show the heptapods too much human technology, but Louise persists.

This flashback illustrates the different attitudes the researchers and the military personnel take toward the heptapods. Whereas Louise is focused on communicating with the heptapods, Colonel Weber is still suspicious of them and convinced that humans should be limiting what the heptapods learn.

Colonel Weber asks Gary for his thoughts, and Gary backs Louise up. He's curious whether the heptapods will be able to read words on the humans' video screens, since the looking glass technology is completely different. Colonel Weber agrees to let them use additional equipment.

Again, this passage shows the difference between the researchers' and the military's attitude toward the heptapods. Whereas Colonel Weber is hesitant to communicate with these outsiders, Gary is genuinely curious about the heptapods. The passage might also imply a degree of sexism from Colonel Weber: he won't grant a female researcher's request until a male researcher backs her up.

Narrating to her daughter, Louise describes an evening when she'll wait for her date, Nelson, to pick her up. Louise's 16-year-old daughter and her daughter's friend Roxie will wait with her. Louise will ask them not to provide commentary on Nelson when he arrives. But Louise's daughter will instruct Roxie to ask her about the weather, planning to respond with coded commentary on Nelson.

This passage illustrates the different uses to which language can be put. Whereas Louise and Gary have been trying their hardest to communicate clearly with the heptapods in the flashbacks, here Louise's daughter and her friend Roxie plan to use coded language to conceal their meaning from a third party. Thus, language can be used to confuse others—and conceal things from them—as well as to communicate with them.

When Nelson does arrive, Roxie will ask about the weather, and Louise's daughter will say that "it's going to be really hot." Nelson will say that he thought the weather was going to be cool, but Louise's daughter will assure him that she can sense otherwise. As they walk to the car, Nelson will ask Louise what was going on, and she'll call it a "private joke."

Here Louise's daughter uses language not only to conceal from Nelson her appraisal of him but also to joke around with Roxie and her mother about her ability to sense the weather. Jokes, including private jokes between friends or between parents and children, are another example in the story of speech intended for reasons other than communication, such as humor or intimacy.

In a flashback, Louise and Gary set up the additional equipment Colonel Weber has granted them and begin projecting written words in English to the heptapods as they speak them. The heptapods set up their own writing equipment and do the same. Louise determines that the heptapods use logographic writing rather than alphabetic, which disappoints her. She points to the heptapods' various body parts, and they give her the words for each one. She also asks the heptapods for their names, but as she cannot pronounce them, she begins to call the two aliens Flapper and Raspberry.

Louise's inability to pronounce the heptapods' real names once again underscores their otherness and the genuine difficulty humans have communicating with them. At the same time, nicknaming the heptapods gives Louise another opportunity to demonstrate her sense of humor. While she could have named her heptapods something functional, such as Heptapod 1 and Heptapod 2, she chooses to give them whimsical nicknames.

Louise asks Gary to perform various actions so that she can elicit the words for various verbs from the heptapods. The heptapods do the same, one acting out verbs, the other speaking and writing words. Louise notices that in the written form of the heptapods' language, they write "a single logogram instead of two separate ones" for the word "heptapod" and the verb the heptapod subject is performing.

While the narrative has just underscored the heptapods' radical difference from humans, Flapper and Raspberry's ability to perform actions approximate to Gary's emphasizes the similarities they do share with humans. Meanwhile, that the heptapods write subjects and verbs as a single logogram suggests that they may think differently about action than humans do.

Louise tries to elicit some subject-verb-object sentences from the heptapods by making Gary eat an apple and some bread while asking the heptapods to describe it. In response, Raspberry eats some alien food while Flapper speaks and writes a description. Louise notices that the different logograms for the heptapod, the food, and the action are written "as if they had been melted together" into a single word.

That the logograms look "melted together" to Louise implies the difficulty that she is having in interpreting the heptapods' written language, even relative to the difficulty she has had with their spoken language.

Louise, frustrated, explains to Gary that the heptapods' written language does not separate words. Instead, they write sentences by "joining the logograms for the constituent words," which they do by "rotating and modifying" the logograms. This fact will make writing the heptapods' language much more difficult for humans. Gary thinks it's interesting that the heptapods can read a word no matter how it's rotated, which he thinks is probably because their bodies are the same on all sides.

Gary's ideas about the relationship between the heptapods' language and their bodies suggests that the heptapods might think as differently from humans as they look. Notably, however, Gary does not react to this revelation with suspicion, as Colonel Weber might do. Instead, Gary finds it interesting.

The heptapods continue to teach Louise and Gary their language. Louise meets via video conference with the researchers stationed at different looking glasses, who are learning from other heptapods. The researchers' video screens seem "primitive" compared to the looking glasses, which creates the surreal sense that Louise's colleagues are even farther away from her than the aliens are. The researchers aren't ready to ask the heptapods about the physics of their technology yet, so they stick to discussing language. The heptapods at all of the different looking glasses use the same language, so the researchers can compare notes.

The "primitive" nature of human technology compared to heptapod technology underscores the radical differences between the two species and may partly explain why the military finds the heptapods so threatening. That Louise feels closer to the heptapods than her colleagues both indicates Louise's openness to communicating with the alien "others" and hints that Louise might grow even closer to the heptapods as she continues to learn their language.

The heptapods' writing is particularly confusing because it's nonlinear and the words look like graphic designs. This language seems too primitive given the heptapods' sophisticated technology. Louise lands on three possible conclusions: the heptapods are hiding their real writing system, they're using a different species' technology, or their nonlinear system really is "true writing."

That the heptapods have a nonlinear writing system suggests they might think differently about concepts such as linearity, time, and cause and effect. Louise's speculations about the heptapods indicate that she is not totally immune to the military's suspicion of the heptapods: she wonders if they're hiding information about their writing or have stolen their writing system from another species. That said, she seems to lend most credence to the idea that the heptapods' writing system is "true writing," which underscores her basic openness to trusting the aliens.

Narrating to her unborn daughter, Louise remembers when her daughter, then a junior in high school, will tell Louise about how drunk she got at a party the night before. When Louise looks disapproving, her daughter will claim that Louise "did the exact same things" as a high schooler. Although Louise did not, in fact, do those things as a high schooler, she'll avoid telling her daughter that. Instead, she'll caution her daughter to never drink and drive. She'll also ponder how different her daughter is from her, "not a clone" of her mother—Louise couldn't have made her daughter by herself.

This passage illustrates the difficulty that Louise will have parenting her daughter after her divorce. The passage also illustrates Louise's intellectual engagement with the mysteries of parenting, something that Louise does throughout the story. Despite knowing a great deal about her future daughter, Louise still finds herself pondering why her daughter makes different choices than the ones Louise herself would have made.

In a flashback, Louise sees Gary at the camp around the looking glass and runs to tell him what she has realized: the heptapods use a "semasiographic writing system." She gives the example of the phrase "NOT ALLOWED" written in English and a circle with a line through it—both mean the same thing, but only the former is "a representation of speech." The printed words are glottographic, while the symbol is semasiographic. Louise shows Gary how, in the heptapod language, a word's meaning depends on its inflection and its logogram's orientation relative to other logograms. Essentially, the heptapods' written system has a visual grammar that's completely distinct from their spoken language's grammar.

This new revelation about the heptapods' language deepens the mystery surrounding it: why do the heptapods have two completely distinct languages for writing and for speaking? Louise will have to struggle with this uncertainty as she continues to research the linguistic differences between the heptapod's verbal and written languages—a task that is made all the more difficult by the fact that human verbal language is directly correlated to human written language.

Gary asks Louise whether humans have any such writing systems, and Louise tells him the only human equivalents are "specialized" systems such as those for writing "mathematical equations." Because the written language is entirely different from the spoken language, Louise dubs the written language "**Heptapod B**."

Heptapod B highlights both the similarities and the differences between heptapods and humans. On the one hand, like the heptapods, humans have also created semasiographic writing systems. On the other hand, unlike the heptapods' writing systems, human semasiographic writing systems are "specialized," not generally used. This difference suggests further differences in the ways that heptapods and humans think.

Gary asks Louise why the heptapods would have two entirely different languages for speaking and writing. She speculates that the answer to that question would reveal a lot about the heptapods. Gary notes that, given the differences between the two languages, **Heptapod B** will not actually help the researchers decode Heptapod A. Louise agrees but resolves to learn both. She also notes that learning Heptapod B will help in understanding the aliens' mathematics. Gary expresses impatience at the slowness of the research, and Louise smiles and says, "patience is a virtue."

Louise speculates that discovering the reasoning behind the heptapods' two languages will reveal a lot about them. In turn, she implies that language is not merely a vehicle for communication but an expression and a shaper of worldviews. Meanwhile, her admonition to Gary that "patience is a virtue" foreshadows the importance that time and anticipation will have in the story.

Narrating to her unborn daughter, Louise says that when her daughter is six, they will plan to go with the daughter's father to a conference in Hawaii. Louise's daughter, impatient, will pack her toys well in advance and ask to put some in Louise's luggage. Louise will tell her that she doesn't need to pack so many toys, as she will enjoy Hawaii without them. Louise's daughter will complain about waiting for the trip, and Louise will respond, "Sometimes it's good to wait […] The anticipation makes it more fun when you get there."

This passage hints at Louise's attitude toward her knowledge of the future. While knowing what will occur in the future could make someone bored with life, Louise does not seem to have this reaction. Instead, her anticipation of what she knows will happen creates more "fun," even joy, for her. This is the lesson she attempts to impart to her daughter as her daughter waits impatiently to go to Hawaii.

In a flashback, Louise proposes the term "semagram" to describe words in **Heptapod B**, since "logogram" would imply that the written words represent spoken words. She notes that Heptapod B contains no punctuation or clear syntax; instead, the heptapods combine semagrams into what are essentially large, intricate drawings. Louise compares the "biggest sentences" in Heptapod B to "psychedelic posters," calling them "hypnotic."

The comparisons of Heptapod B to art, psychedelia, and hypnosis all imply that the language is not merely a vehicle for communication but an experience in its own right, an experience that may affect the consciousness of those who speak it in unexpected ways. How Heptapod B will affect Louise's consciousness remains to be seen.

Narrating to her unborn daughter, Louise describes a photograph of her daughter from her college graduation, wearing sunglasses and posed sassily. Having Nelson, the daughter's father, and "what's-her-name" at the graduation ceremony will be distracting, but that won't matter much. Louise will feel astonished that her daughter, whom she remembers as a young girl playing dress-up, is now a college graduate. The daughter will go to work as a financial analyst after graduation. Louise won't understand her daughter's ambitions regarding money, but her own mother didn't understand Louise's ambitions either. Louise concludes, "You'll do what makes you happy, and that'll be all I ask for."

On the face of it, Louise's astonishment at her daughter's maturity here seems strange. After all, Louise seems to remember the entirety of her daughter's life. If she knows everything that is going to happen to her daughter, how can her daughter astonish her? This reaction points to the difference between an objective knowledge of facts and a subjective experience of time passing. Louise knows all the objective facts of her daughter's life, yet her subjective experience of her daughter is still capable of surprising her. Meanwhile, the passage also expresses both the difficulty and the love that Louise experiences as a parent: she doesn't understand or share her daughter's ambitions but still genuinely wants her to be happy.

In a flashback, the linguists working with the heptapods try to help human mathematicians and physicists communicate with the heptapods about the aliens' math and physics. The heptapods have difficulty understanding anything more difficult than "basic arithmetic" in human math and "anything remotely abstract" in physics.

This passage introduces yet another mystery concerning the heptapods. The heptapods have more advanced communications technology than humans and are capable of space flight, yet they find basic human math and physics confusing. Again, the story is foreshadowing cognitive differences between the heptapods and humans.

Meanwhile, the linguists working with the heptapods discover that Heptapod A, the aliens' spoken language, has "free word order." **Heptapod B**, the written language, can express grammatical relationships according to variations in the drawing of semagrams, or symbols' physical relationships to one another. Despite the progress the linguists are making in learning Heptapod A and Heptapod B, they cannot get the heptapods to say anything more informative about why they are visiting Earth than that they want "to see." The heptapods could be scientists or tourists. The State Department cautions the researchers not to reveal too much about humanity, which is easy because the heptapods don't ask questions.

Once again, the strangeness of the heptapods' languages reflects the strangeness of their mindset. Despite their best efforts, the humans cannot parse the heptapods' motivations for visiting Earth. Although the heptapods say they want "to see," they confusingly do not display curiosity in the form of asking questions. Predictably, the government personnel in the story react to the heptapods' strangeness and inscrutability with suspicion, trying to conceal information from them in order to protect humanity from any potential threat the aliens might pose—a threat that is, at this point, seemingly nonexistent.

Narrating to her unborn daughter, Louise describes a time when her daughter is 13 and Louise will take her to the mall. Louise's daughter will ask for Louise's credit card so that she can shop alone, but Louise will refuse. Her daughter will ask instead that Louise walk at a distance from her, so that her friends won't know she's shopping with her mother. When Louise protests, her daughter will say she doesn't want to be seen with her mother. Louise will refuse to go along with her daughter's plan, at which point her daughter will throw a tantrum. Louise muses that her daughter used to like shopping with her; it will be difficult to keep up with her ever-changing phases.

Like the passage about Louise's daughter's college graduation, this passage illustrates the difference between Louise's objective knowledge of what will happen and her subjective experience of time passing. Because Louise knows the future, she should be able to easily keep up with her daughter's phases. Yet, in her subjective experience, Louise is always a step behind. This passage also emphasizes the difficulty and conflict in Louise's relationship with her daughter; though Louise loves her daughter, they will not always get along.

In a flashback, Louise sits at her desk examining a sentence of **Heptapod B** she has tried to write. Gary enters and tells her that the researchers in Illinois have had a breakthrough communicating with the heptapods about physics and begins explaining to her what it is. First, he draws her a diagram of light moving from a point A in the air to a point B in water; the line the light takes changes as it hits the water. Then Gary tells her that despite the change in direction, the light has taken "the fastest possible route" between point A and point B.

Here, the story provides a partial explanation to the mystery of the heptapods' incomprehension of human math and physics. The breakthrough in physics communication suggests that the problem was not that the heptapods do not understand physics, but that they understand physics differently from the way humans do. The humans were simply not communicating about physics in the right way.

Louise asks for an explanation. Gary adds to his diagram, drawing a line from point A to point B, and tells her that this second line is shorter in distance but would take longer for light to traverse, because "light travels more slowly in water than it does in air, and a greater percentage of this path is underwater." Then he draws a third line from point A to B, where the path is longer but less of it is underwater, and notes that this path also takes more time. He concludes, "the route that the light ray takes is always the fastest possible one. That's Fermat's Principle of Least Time."

That the breakthrough in physics communication between heptapods and humans occurred in a discussion of Fermat's Principle of Least Time is notable because it's an earthly principle—that is, it's a scientific idea that applies to the physics of life on earth. By using a familiar scientific framework, then, the physicists have managed to identify the ways in which human physics does and does not apply to life for the heptapods. This comparative method is similar to what Louise does as a linguist: she uses what she knows to find out more about what she doesn't *know.*

This principle is the first advanced physics communication that the heptapods have understood. Louise asks why the linguists aiding the physicists in communicating with the heptapods weren't briefed on Fermat's Principle of Least Time, and Gary explains that the principle requires advanced calculus, so the physicists didn't guess that it would be the first breakthrough.

This passage reveals that whatever the reason behind the heptapods' difficulty understanding human math and physics, it is not because the heptapods' own understanding of math and physics is primitive: they are able to understand physics concepts that require advanced calculus. Thus, the difficulty is most likely due to a problem in communication or to the radical differences between human and heptapod modes of thought.

Louise asks, "You think the heptapods' idea of what's simple doesn't match ours?" Gary says yes, and he speculates that heptapods may have different ideas than humans do about what is complex in math. Louise asks him whether the breakthrough with Fermat's Principle of Least Time will be helpful in other areas. He says yes, because the principle belongs to a category of physical principles he calls variational principles. Fermat's Principle is incomplete: sometimes "light follows a path that takes more time than any of the other possibilities. It's more accurate to say that light always follows an extreme path, either one that minimizes the time taken or one that maximizes it."

Yet again, the passage is underscoring the radical "otherness" of the heptapods relative to humans. What is complex to humans is simple to heptapods, and vice versa. The full explanation of Fermat's Principle of Least Time that Gary supplies here also foreshadows the importance of the idea of extremity—minimums and maximums—later in the story.

Because Fermat's Principle of Least Time is mathematically similar to other variational principles, Gary explains that this breakthrough could help humans understand heptapod math. Then, unexpectedly, he asks Louise to dinner, and she says yes.

Up to this point, Louise and Gary have had an increasingly close collegial relationship. Now Gary seems to be making a romantic overture. The story suggests that the effort Louise and Gary put into understanding the heptapods also brings them closer together.

Narrating to her unborn daughter, Louise remembers that when her daughter first learns to walk, Louise will feel the pain of her daughter's falls "like it's [her] own." She also remembers the joy she'll feel when her daughter laughs, which will make her feel "like a fountain, or a wellspring."

This passage poignantly emphasizes the vulnerability of parenthood. Louise will experience great joy at having generated life, the way a fountain or a wellspring generates water. At the same time, however, she will constantly feel her daughter's pain. The passage is especially poignant in its evocation of the daughter's childhood falls, since Louise knows that later, a much larger fall will end her daughter's life.

In a flashback, the human mathematicians and physicists working with the heptapods begin to understand heptapod math and physics. They discover that physics concepts the humans consider advanced are fundamental to the heptapods. Louise ponders what it means that what is advanced to humans is simple to the heptapods, and vice versa.

Louise's thoughts in this passage make explicit what the story has been hinting throughout, namely, that heptapods' radically different take on physics and math is just a symptom of their radically alien worldview, which the humans do not yet understand.

Narrating to her unborn daughter, Louise says that the daughter's eyes will be blue like her father's, not brown like Louise's. She narrates a time when her daughter, then 15, will complain about her father's questions regarding her boyfriends. Louise will tell her daughter that it's natural for her father to react this way to her dating. Louise's daughter will ask how long her maturation will bother her father, and Louise will counter that her (Louise's) maturation still bothers her own father.

This passage highlights the difficulties that come along with parenting—especially parenting teenagers. *It also underscores the extent to which parenting is largely a process of letting go, as parents are forced to live with certain developments in their children's lives that they might not necessarily approve of. Of course, Louise will also have to let go of her daughter in a much more profound and heartbreaking way when her daughter eventually dies at the age of 25.*


In a flashback, Louise video conferences with Cisneros, a linguist working with the looking glass in Massachusetts. Cisneros wonders whether the heptapods write the semagrams in a "particular order" while drawing one of their sentences. To find out, Louise requests that Flapper and Raspberry show her how they write sentences instead of just showing her the completed semagram. After they comply, she reviews the tape. She picks out a portion of the semagram that describes the heptapods' planet's moons, chemical composition, and topography. When spoken, it translates literally to "inequality-of-size rocky- orbiter rocky-orbiters related-as-primary- to-secondary."

At this point, the story has already mentioned that the heptapods have free word order in their spoken language and nonlinear script in their written language. To understand the heptapods, the humans are still trying to find some linearity, some "particular order," in the heptapods' language. The alienness of literally translated heptapod ("inequality-of-size rocky-orbiter," etc.) hints that the linguists may fail in imposing a humanly explicable order on the heptapods' "otherness."


Louise finds that the first line Flapper drew travels across several different semagrams in the completed sentence, which suggests that Flapper knew "how the entire sentence would be laid out before it could write the very first stroke." The other strokes are also interconnected—removing one would change the whole sentence.

Here Louise has discovered something strange about Flapper's relationship to language and time: as a condition of writing Heptapod B, Flapper seems to have to know in advance how entire very complicated sentences are going to turn out.

In an aside, Louise recounts a joke by a female comedian about why she's hesitant to have children. In the joke, the comedian asks a friend who is a mother what would happen if she had children and, later, the children blame her for everything. The friend replies, "What do you mean, if?" This is Louise's favorite joke.

Like the earlier scene in which Louise claims that all fathers have difficulty with their daughters' maturation, this joke suggests that parenthood is destiny. No matter what parents do, no matter what choices they make, the end result will be the same: their children will blame them for everything. That Louise enjoys this joke suggests that she is able to find humor even in the more painful aspects of parenthood.

In a flashback, Gary and Louise are eating dinner together at a Chinese restaurant that they've started going to regularly. She asks him about his **Heptapod B** practice. When he fails to respond, she accuses him of having given up. He admits that he has. When Louise points out that learning Heptapod B would help him communicate with the heptapods about physics, he counters that since the physicists' "breakthrough" with Fermat's Principle of Least Time, he can "get by with just a few phrases." Louise admits that she is no longer trying to learn heptapod math, and she and Gary declare themselves even.

This flashback reveals the progression of Louise and Gary's relationship: they have started going on regular dinner dates, during which they discuss their progress in their respective areas of research. Attempting to understand the heptapods has indeed brought them together. And yet, they've both stopped trying to learn more about each other's respective fields, hinting at a dynamic that could lead to a certain disconnect in their relationship down the road.

Louise tells Gary that Fermat's Principle of Least Time still feels strange to her. Gary tells her it's because whereas we usually think about physics principles "in terms of cause and effect," Fermat's Principle of Least Time "describes light's behavior in goal-oriented terms," the goal being either to minimize or maximize the time it takes to travel a path between two points. Louise takes out a pen, draws a diagram of a ray of light, and asks how the light fulfills its goal. Gary tells her that the light would have to calculate how long each possible path would take. Louise notes that to calculate the possible paths, the light "has to know just where its destination is" before it begins its journey. Gary agrees. Louise realizes what Fermat's Principle of Least Time reminds her of.

By implication, Fermat's Principle of Least Time seems to remind Louise of Flapper writing in Heptapod B. Just as the ray of light has to know its destination before it begins its journey, so Flapper has to anticipate the entire complicated sentence it is going to draw before it can begin writing in Heptapod B. This parallel implies the difference between human and heptapod understandings of physics. Whereas humans think in terms of cause and effect, heptapods think in terms of goals.

Narrating to her unborn daughter, Louise recalls that her daughter, at 14, will ask for help on her homework. Specifically, Louise's daughter will ask her mother what special term for a "win-win" situation her father used previously, so that she can use it in a report. Louise won't be able to remember and will suggest that her daughter call her father. Reading her daughter's face, Louise will note that she and her father have been fighting recently. Her daughter will ask Louise to make the call instead, but Louise will refuse. Her daughter will blame her father and Louise's divorce for her inability to get the help she wants. Louise will repeat that she can't remember the special term, and her daughter will storm off.

Once again, Louise's thoughts about her daughter highlight the difficulties of parenting. They also invite readers to question why Louise doesn't try to do something to change the outcome of the future—she seems to know everything that will happen to her and her daughter in vivid detail, but she doesn't seem particularly motivated to help her future self avoid hardship, though this is perhaps because she knows she can't change the future.

In a flashback, Louise learns over time to write **Heptapod B**. She becomes able to write complete sentences without planning them out in advance, despite the complex interconnections of the semagrams. She notices that learning Heptapod B is influencing her thinking. Usually, her thoughts involve "speaking in an internal voice." She notes that her internal voice usually speaks English but doesn't always; for example, between high school and college, she entered a Russian immersion program during which her internal voice spoke Russian. She muses that she's always found curious the "idea of thinking in a linguistic yet non-phonological mode." She uses as an example a friend of hers who thinks in American Sign Language, a "manually coded" language.

This passage explicitly states a point that has been hinted at elsewhere in the story, namely, that language is not only a vehicle for communication but also something capable of shaping *the thoughts people have. Because the story has already established that the heptapods think in radically different ways from humans, readers might be curious to know how learning the heptapods' languages, in particular Heptapod B, could change the way Louise thinks.*

Due to her practice in **Heptapod B**, Louise is now seeing her thoughts as written semagrams. She notes that rather than progressing linearly, her thoughts in Heptapod B "appear fully formed, articulating complex ideas all at once." Despite this, Louise does not perceive herself to be thinking more quickly. Instead, she finds herself in a "meditative state" thinking about how argument, reason, and thought are nonlinear.

Learning Heptapod B alters the way Louise perceives time. Rather than continuing to think in a linear, human way, she begins to adopt the heptapods' nonlinear, "all at once" worldview. Louise emphasizes that Heptapod B alters her consciousness when she compares thinking in Heptapod B to meditation, a practice often undertaken to help alter the way people think (or the way they approach their own thoughts).

Louise and Gary attend a lecture by a man named Hossner, an employee of the U.S. State Department, who is speaking to the researchers about U.S.-heptapod relations. Gary finds the man tedious. Hossner argues that while the heptapods do not seem to want to conquer Earth, the researchers still need to determine the heptapods' motives for visiting. That way, humans can offer the heptapods what they want, whether it's to evangelize, research, or extract resources, in exchange for whatever humans may want from the aliens. Hossner takes care to note that the humans and heptapods could find themselves in a win-win situation. Gary says sarcastically, "You mean it's a non-zero-sum game? […] Oh my gosh."

This passage illustrates a different side of the guarded attitude that the military and government personnel have toward the heptapods. Whereas the military personnel fear the heptapods and want to conceal information of them, the other government personnel want to exploit them for economic gain. Hossner is not genuinely interested in communicating with the heptapods—he just wants to somehow benefit from their arrival. Gary, in mocking Hossner, represents the position of the scientists and other researchers who oppose the government's close-minded attitude and do genuinely want to understand the heptapods.

When her daughter is 14, Louise will recall the special term for a win-win situation that her daughter's father used and that her daughter wanted to use in her report: a "non-zero-sum game." Her daughter will thank her. Louise will note that she must have learned something from her daughter's father after all. Her daughter will hug Louise.

This passage heavily implies what readers may have already suspected: Gary is the father of Louise's daughter. The passage also illustrates another side to Louise and her daughter's relationship. While many of Louise's thoughts about the future show her in conflict with her daughter, this one shows her daughter genuinely appreciating her help. Louise's experience of parenting will thus contain joy as well as pain.

In a flashback to Hossner's lecture, Gary calls Louise's name. She apologizes for her distraction and asks him what he said. He asks Louise what she thinks of Hossner, and Louise replies that she would rather not think about him. Gary counters, "I've tried that myself: ignoring the government, seeing if it would go away. It hasn't." Hossner asks the researchers whether they've been able to determine why the heptapods came to Earth or what they want. Louise mutters sarcastically that the researchers never thought of that.

This moment clarifies the power dynamics between the researchers and the government personnel in the story. The researchers like Gary and Louise, who are genuinely interested in communicating with the heptapods, wish that they could avoid thinking about the government personnel and their agendas. Unfortunately, the government is the one who controls the researchers, and the researchers can't just ignore them and make them "go away." Gary and Louise are therefore reduced to venting their feelings in sarcastic comments.

Hossner takes questions. A linguist named Burghart working on a looking glass in Fort Worth tells Hossner that the heptapods have already said they came to Earth to observe. Hossner refuses to believe that that could be the truth. Gary asks Louise to wake him up if Hossner says anything interesting, and Louise replies that she was about to make the same request of Gary.

None of the humans seem truly to understand what the heptapods mean when they say they came to Earth to observe. Yet the researchers like Burghart are willing to take the heptapods at their word and try to understand them, whereas the government personnel like Hossner take a cynical approach and refuse to believe the heptapods are telling the truth. Gary and Louise, powerless to change the government's viewpoint, have essentially given up on persuading people like Hossner.

Louise thinks about the difference between human and heptapod physics and the difference between human and heptapod viewpoints more broadly. She concludes that humans like to think of things in terms of cause and effect and "at a moment in time," whereas the heptapods like to think of things in terms of goals and "over a period of time." To inhabit the heptapods' goal-oriented mindset, you need to know your endpoint before you begin. She muses that she is beginning to comprehend the heptapod viewpoint.

Here Louise spells out several points that the story has previously hinted at. The heptapods' radically different take on physics indicates their radically inhuman viewpoint more generally. The difference in human and heptapod viewpoints turns on the two species' different perceptions of time; that the two species perceive time so differently suggests that time is not an objective reality but a subjective experience. Because the languages to which we have access shape the way we think, Louise, by learning the heptapods' languages, in particular Heptapod B, is transitioning from a fully human to a more heptapod-like viewpoint.

Narrating to her unborn daughter, Louise recalls her daughter, at age three, asking why. Louise will tell her daughter that it's her bedtime. Her daughter will point out that she isn't sleepy and try to select a video to watch instead. Louise will tell her daughter that even though she isn't sleepy, it's bedtime. When her daughter asks why again, Louise will reply, "Because I'm the mom and I said so." As she hauls her protesting daughter to bed, Louise will conclude that despite her high-minded intentions to do otherwise, she's acting just like her own mother.

Like the passage about fathers unable to handle their daughters' maturation and the passage about Louise's favorite joke, this passage suggests that parents in some sense lack choices and free will. Although Louise previously intended to act differently from her own mother, when confronted with her actual child's difficult behavior, she finds herself repeating stock mom phrases and imitating behavior she remembers from her own childhood.

Louise wonders whether you can know the future. She notes that most people conclude it may be scientifically possible but still reject the possibility because of its implications for free will. To explain the relationship between knowing the future and free will, Louise imagines a woman reading something she calls the *Book of Ages*, a hypothetical book including the story of everything that has happened and will happen. The woman reads her immediate future, which involves winning a large bet on horseracing. To thwart the prediction, the woman decides not to place the bet.

At this moment, the story tackles head-on the question that may have been lurking in the back of readers' minds: if Louise knows the future, why doesn't she act to prevent the bad outcomes she foresees, such as her divorce or her daughter's death? That Louise explains the relationship between knowledge of the future and free will through an extended parable suggests both Louise's academic bent and the complexity of the topic.

Most people believe that the woman's decision not to bet results in a paradox, because the *Book of Ages* is supposed to be infallible, and yet the woman reading it has the free will to act contrary to what she reads about her future. Ergo, perfect knowledge of the future cannot coexist with free will. Most people believe free will exists because they have experienced exercising their own free will. Louise, however, is beginning to wonder whether knowing the future would give the woman who read the *Book of Ages* "a sense of obligation to act precisely as she knew she would."

Here Louise speculates that foreknowledge of the future, not an ordinary part of human subjective experience, would lead the people who do experience it to react in ways that are not an ordinary part of human psychology: in other words, rather than trying to avoid the bad outcomes they foresee, they would feel "a sense of obligation" to enact them. Since Louise does in fact seem to know the future, her speculation here implies an answer to the question of her attitude toward her divorce and her daughter's death. She does not take action to prevent them because she feels an obligation not to.

In a flashback, Louise enters Gary's office and asks him to dinner. He suggests they go to his house and offers to cook. When Louise asks him whether he can cook, he tells her he can make a single recipe, but it's tasty. She agrees.

Louise and Gary are growing still closer. Whereas before they ate together at restaurants, Gary now invites Louise to his house for the first time. Their closeness is the result of their shared work on and fascination with the heptapods.

On the way to Gary's house, they stop at a market to buy ingredients. In the market, Louise sees a wooden salad bowl. She remembers that when her unborn daughter is three, the daughter will knock the salad bowl off the counter. Although Louise will try to catch hold of the bowl, it will fall on her daughter's head and require a visit to the emergency room. In the market, Louise takes the bowl and thinks, "The motion didn't feel like something I was forced to do. Instead, it seemed just as urgent as my rushing to catch the bowl when it falls on you: an instinct that I felt right in following." She tells Gary she could use the bowl. He notes that it's a good thing they stopped at the market, and Louise agrees.

In light of ordinary human views about parenthood, Louise's description of her own feelings here seems strange. She compares her instinct to buy the bowl, which she knows will later put her daughter in the emergency room, to her instinct to protect her daughter. This strange, almost paradoxical comparison emphasizes the extent to which Louise's foreknowledge of the future has nullified her free will and, as a result, alienated her from expected parental behavior.

Louise meditates on the sentence "The rabbit is ready to eat." She notes that, depending on context, it might mean either that a rabbit has been successfully cooked or that it's a pet rabbit's dinner time. Then she meditates on a ray of light changing directions as it moves from air to water. Humans see the change of direction in terms of cause and effect: the move from air to water causes the light to change directions. Heptapods see the change of directions in terms of goal-oriented behavior: the ray of light is taking the shortest possible path from point A to point B. Louise compares the laws of physics to a sentence that can be interpreted in two different, legitimate ways. Humans interpret the laws linearly and in terms of cause and effect, and heptapods interpret them simultaneously and in terms of goals.

Once again, Louise attempts to understand the radical differences between humans and heptapods, this time by drawing on a comparison from her own field of study, linguistics. This comparison underscores that language shapes worldviews. By comparing the laws of physics to an ambiguous sentence, Louise makes it clear that she sees both human and heptapod interpretations of the world as legitimate: neither one is better than the other. Louise's generosity toward the heptapod's viewpoint stands in stark contrast to the close-mindedness displayed by military and government personnel throughout the story.

Louise describes a recurring dream about her daughter's death. In the dream, Louise is rock-climbing and carrying her toddler-aged daughter in a backpack. Her daughter climbs out of the backpack, and though Louise screams at her to stop, the daughter continues climbing and eventually falls. After the daughter falls, the dream shifts to the morgue, where Louise is identifying her 25-year-old daughter's body.

Louise's recurring dream about her daughter's death, in which Louise screams and attempts to prevent the fall, reveals her grief and trauma. Although Louise doesn't try to prevent her daughter's death due to her own loss of free will, she still cares very deeply about her daughter. Her failed attempt to save her daughter in the dream may express a subconscious regret that her foreknowledge of the future prevents her from acting to change it.

In a flashback, Gary asks Louise whether she's okay. They're in bed together, and Louise has just woken Gary by sitting up suddenly. Louise tells him that she was just disoriented because she briefly didn't remember where she was. Gary replies that they can sleep at her place the next time. Louise kisses him and tells him that his place is fine. They go to sleep.

The transition from Louise's description of her recurring dream about her daughter's death to Louise sitting up suddenly in bed implies that Louise has just had the dream. That Louise begins dreaming about her daughter's death before her daughter's birth—during the period of time in which she communicates with the heptapods—implies that her ability to "remember" the future is related to the fact that she's learning Heptapod B. In turn, the story suggests that language can profoundly shape the way people think.

Narrating to her unborn daughter, Louise remembers that when her daughter is three, she and Louise will be climbing stairs together. Louise will hold her daughter's hand tightly. Her daughter will wriggle out of Louise's grip and insist she can climb by herself. Louise will remember her recurring nightmare about her daughter falling to her death. Recalling all the times similar incidents occurred during her daughter's childhood, Louise wonders whether her own protectiveness will cause her daughter's lifelong desire to climb, which will ultimately lead to her fatal accident.

This memory tightens the link the story has forged between parenthood and the loss of free will. Due to her loss of free will, Louise is unable to modify her protectiveness toward her daughter, despite suspecting that this protectiveness will prompt the behavior that leads to her daughter's death. Yet protectiveness is such a natural parental instinct that it is not clear Louise could have modified her behavior even if she still technically retained free will. Thus, the story suggests that foreknowledge of the future and parenthood both produce instinctive responses that override free will.

In a flashback, Louise writes an enormous sentence in **Heptapod B** and then examines it. She realizes that the heptapods write the way they do because their "simultaneous mode of consciousness" is better suited to writing that can be perceived in a single instant. The heptapods prefer writing to speech because speech is linear, not simultaneous. Louise also realizes that Heptapod A's peculiar grammar is a result of the heptapods' straining against "the confines of sequential speech."

This passage reiterates that the strangeness of the heptapod language to humans results from the different ways humans and heptapods experience time. As Louise is beginning to think more like a heptapod due to learning Heptapod B, the story may be implying that in the nonlinear way Louise narrates her daughter's life, Louise too is straining against "the confines of sequential speech" to express a "simultaneous mode of consciousness."

Gary enters Louise's office and tells her that Colonel Weber is coming. Louise recalls that she is supposed to be acting as a translator between Colonel Weber, Flapper, and Raspberry soon. Then Gary closes the door and kisses Louise. She asks him whether he's trying to make her feel better, and he replies that he's trying to make *himself* feel better. She jokingly accuses him of joining the heptapod research team to get with her. He says, "Ah, you see right through me," to which she replies, "You better believe it."

In this passage, Louise speaks with a double meaning. Although she seems to be joking when she affirms that she can see right through Gary, readers realize that in some sense it is literally true: because Louise can remember the future, she knows everything that Gary will say and do in her presence before he says or does it. The eeriness of her double meaning emphasizes how learning Heptapod B has changed Louise's subjective experience of time and made it more alien, more like a heptapod's.

Narrating to her unborn daughter, Louise remembers how she will breastfeed her daughter when her daughter is a month old. She notes: "The word 'infant' is derived from the Latin for 'unable to speak,' but you'll be perfectly capable of saying one thing: 'I suffer.'" Louise will appreciate how her infant daughter is able to communicate either her pain or her joy perfectly. She'll also note that her daughter will seem not to remember the possibility of unhappiness when she is happy or the possibility of happiness when she is unhappy: "NOW is the only moment you'll perceive; you'll live in the present tense. In many ways, it's an enviable state."

Louise is a linguist, so she values the written and spoken word. Here, though, she generously and respectfully describes the communicative ability of her speechless infant daughter, acknowledging how her daughter expresses suffering without using words. This acknowledgment suggests that the generous, curious attitude Louise takes toward communicating with the heptapods also characterizes her communication with humans who are unlike her. Interestingly, although Louise never explicitly regrets her own ability to remember the future, her claim that living in the present tense is "an enviable state" implies that she sometimes wishes she had a different subjective experience of time, one that did not foist knowledge of tragic future events on her.

Louise muses that while the heptapods don't have what humans would call free will, they're nevertheless willingly acting to bring about the futures they know are going to occur. She compares free will to a "famous optical illusion" of a drawing that looks either like a young woman or an old one depending on one's perspective. Though the idea of free will is a legitimate way to interpret events from a human viewpoint, it vanishes from the heptapod viewpoint. Louise also notes that her facility with **Heptapod B** has removed her free will: she can only do what she already remembers doing. This loss of free will also prevents her from telling anyone about her ability to remember the future.

That Heptapod B has given Louise the ability to remember the future (and, in so doing, stripped her of free will) serves as a powerful example of language's ability not only to facilitate communication but to determine worldview and subjective experience. Once again, Louise takes a generous and even-handed attitude toward human and heptapod differences: she acknowledges that relative to each species' viewpoint, their beliefs about time and free will are legitimate. Yet her comparison of free will to an "optical illusion" suggests that free will is not a characteristic of objective reality, but a subjective phenomenon created by humans' mode of experiencing time.

In a flashback, Louise watches a videotape in which the linguist Burghart is translating a conversation between some heptapods and a human diplomat. The diplomat is trying to explain human altruism to the heptapods. Louise thinks that an outside observer might wonder why the heptapods bother to participate in the conversation if they already know what is going to happen. Louise answers this imaginary outside observer by pointing out that for some kinds of speaking, such as promises and wedding ceremonies, it doesn't matter whether people already know what is going to be said—it still has to be said, or "the ceremony didn't count." She concludes that all kinds of speaking are, for heptapods, like promises or wedding ceremonies: "instead of using language to inform, they used language to actualize."

As previously mentioned, the story makes clear that language is not only a vehicle for communication but also something that shapes how people think. Now, though, the story adds a new element to this idea: namely, that language is not only a means of conveying information, but also a means of doing things. For example, a marriage wouldn't "count" unless the appropriate words are said. With this in mind, Louise points out that language can "actualize" something, or make things happen. Language is therefore not just a mode of description, but an actual constructive tool that can be used to build the concepts that lie at the heart of human life.

Louise remembers that she will read the story of Goldilocks and the three bears to her daughter. Louise will change different part of the story, and her daughter will insist that she stick to what is written down. Louise will ask her daughter why she wants to hear the story if she already knows what is going to happen. Her daughter will reply, "Cause I wanna hear it!"

Coming after Louise's discussion of the heptapods "us[ing] language to actualize," this memory suggests that the heptapods' use of language is less alien to humans than readers might think. Like the heptapods, Louise's daughter already knows the words in the story she is going to hear, but also like the heptapods, she still wants to hear them. Language, for the heptapods and for Louise's daughter, is not about conveying new information but about performing a certain action.

In a flashback, Louise is talking with Gary and Colonel Weber in Colonel Weber's office. She explains to Colonel Weber that the heptapods are going to give the humans something, and the humans are going to give the heptapods something, but the heptapods will not say what they are giving in advance of the transaction. Colonel Weber asks whether the transaction counts as gift-giving, and Louise says that the humans shouldn't assume so. As she already knows what she and Colonel Weber are going to say, she feels as though she is "performing in a play."

The difficulty that the humans experience in understanding the heptapods' gift-exchange ceremony emphasizes how alien, new, and inscrutable the heptapods' culture is to them. Louise's sensation that she is "performing in a play," meanwhile, provides yet another analogy to describe how heptapods and other speakers of Heptapod B experience language in the absence of free will: they are like actors reciting lines.

Colonel Weber asks whether humans can ask for something specific. Louise tells him that the heptapods won't ask for something specific from the humans, but the humans can ask for something, though the heptapods still won't say what they're giving in advance of the transaction. He asks whether requesting something specific will make it more likely that the humans get what they want. Louise says she doesn't know but thinks it's unlikely. Finally, he asks whether the value of the gift the humans give the heptapods will affect the value of the gift the heptapods give the humans. Louise says no: "the value of the exchanged items is irrelevant." Gary comments that he wishes his relatives took that attitude to gift-giving.

Throughout his conversation with Louise, Colonel Weber is focused on whether the humans can extract something of value from the heptapods, either by direct request or by manipulation. He is not really interested in understanding the meaning of gift-exchange for the heptapods. This lack of interest in the heptapods once again demonstrates the xenophobia and lack of openness to the alien "other" that military and government personnel display throughout the story. This attitude contrasts with the attitude of the heptapods themselves, for whom "the value of the exchanged items is irrelevant." Unlike the human military and government personnel, the heptapods do not seem to want to manipulate or exploit their human counterparts.

Colonel Weber asks Gary whether he has found out anything additional about heptapod physics. Gary says no: the heptapods will share how they mathematically represent physics concepts that humans represent to them, but nothing more. Colonel Weber seems displeased; he suggests that he'll talk to the State Department about arranging a "gift-giving ceremony." Louise tells him she thinks that's a good idea.

Colonel Weber is interested in extracting valuable information as well as other items from the heptapods, hence his disappointment that the heptapods are not sharing novel physics concepts with the humans. It seems that Louise is being ironic when she tells Colonel Weber she thinks he's had a good idea, as the idea for the "gift-giving ceremony" was originally the heptapods', not Colonel Weber's. Louise is using humor to vent her feelings about the government's attitude toward the heptapods.

Louise muses that while **Heptapod B** has changed the way she thinks, she still doesn't think entirely like an alien: "My worldview is an amalgam of human and heptapod." While her memories used to be solely of the past and progress in a linear fashion, she began to remember the entirety of her future up to the point of her death once she became proficient in Heptapod B. Usually, the changes in her consciousness amount simply to remembering the future as well as the past. But occasionally, she "experience[s] past and future all at once; [her] consciousness becomes a half-century-long ember burning outside time." She notes that this half-century-long period includes her daughter's entire life, from birth to death.

This passage suggests that the power of language to reshape consciousness has limits. While Louise's consciousness has changed as a result of learning Heptapod B, she thinks not entirely like a heptapod but like "an amalgam of heptapod and human." Her nonlinear subjective experience of time, specifically her ability to remember the future, is an example of this amalgamated human-heptapod perspective. On those occasions when Louise accesses something closer to a pure heptapod perspective, her experience of time is not merely nonlinear but absent: she is "outside time."


In a flashback, Louise writes out a sentence in **Heptapod B** suggesting the heptapods begin the gift exchange. Raspberry agrees. This is the second gift exchange Louise has participated in. She, the heptapods, Gary, Colonel Weber, the linguist Burghart, and other researchers are present. The humans present the heptapods with pictures of the Lascaux cave paintings. There have been previous gift exchanges, in which the heptapods merely repeated information about humans that the researchers had already told them. This infuriated the State Department, but the researchers remain hopeful that the heptapods might reveal scientific innovations.

That the heptapods repeated human information back to the humans as a gift suggests that heptapods may have a different idea of what constitutes a gift than humans do. This suggestion adds to the sense of the heptapods' "otherness." It is notable that the government reacts with anger when the heptapods do not give a more valuable gift, suggesting an entitled, narrow-minded attitude toward them, as well as a lack of genuine curiosity about what their behavior might mean.

At this particular exchange, the humans can't immediately understand what the heptapods are presenting them in return. Gary speculates from the equations involved that it could be "materials technology." In response, Colonel Weber says, "Maybe we're finally getting somewhere." Louise thinks that she would prefer a different kind of gift: "I didn't want the heptapods to give us new technology, because I didn't want to see what our governments might do with it."

Colonel Weber's comment, "Maybe we're finally getting somewhere," shows that Colonel Weber does not value communication with the heptapods in and of itself. He feels that simply making first contact with an alien species, which ought to be an astounding experience, does not constitute "getting somewhere." This attitude exemplifies the close-mindedness of the military and government personnel in the story. Throughout most of the story, Louise has demonstrated her disagreement with the government's attitude by modeling openness and curiosity toward the heptapods. Here, for the first time, she overtly expresses distrust and fear of human governments.

Louise examines Raspberry for any signs of what she already knows is about to happen, but she finds none. Colonel Weber orders Louise and Burghart to set up another gift exchange. Louise and Burghart engage in small talk. Because they both speak **Heptapod B** and can remember the future, Louise compares their conversation to "the carefully bland exchanges of spies who meet in public, but never break cover." Louise writes to the heptapod Raspberry requesting another meeting, but Raspberry replies that the heptapods are leaving the looking glasses. Colonel Weber demands to know what's going on, and Louise explains what Raspberry said. Colonel Weber orders Louise to get clarification from Raspberry, but Raspberry has already left the looking glass.

Louise's comparison of herself and Burghart to spies trading "carefully bland exchanges" underlines how Heptapod B has changed her relationship to language: whereas language for Louise used to be primarily a mode of communication, it is now a form of acting. The comparison to "spies" also suggests that Louise and Burghart have switched allegiances. While they seem to be employees of the human government, their sympathies are in fact with the heptapods.


The looking glass goes blank. Colonel Weber again demands to know what's going on. Gary approaches the looking glass, touches it, and suggests that they've just witnessed "a demonstration of transmutation at a distance." Louise hears someone approaching. A soldier runs into the looking-glass tent and hands Colonel Weber a walkie-talkie.

In science, "transmutation" is the process of converting one element into another. Yet the word has associations with the pseudoscience of alchemy, where it refers to transforming a base metal into gold. The alchemical connotations of the word "transmutation" suggest that "transmutation at a distance" is technology so advanced as to be almost magical. This shocking development, together with the mystery of the heptapods' departure, emphasizes once again how foreign and inscrutable the heptapods are to the humans in the story.

Narrating to her unborn daughter, Louise recalls how she will see her daughter shortly after her birth in the hospital. Her daughter will look strangely small to her. She will see her daughter kick and remember feeling that kick from the inside while she was pregnant. She will muse that she would be able to recognize her daughter anywhere and repeat the words she will eventually use to identify her daughter at the morgue: "Yes, that's her. She's mine."

That Louise uses the same words to identify her daughter shortly after birth and to identify her daughter in the morgue suggest how her subjective experience of time (that is, remembering the future) has shaped her experience of parenthood: even in moments of great joy, Louise still subconsciously dwells on her daughter's death.


Still narrating to her unborn daughter, Louise recalls how, after the gift exchange with the Lascaux cave paintings, all the heptapods simultaneously left orbit around Earth. Human research into the looking glasses found nothing; after the heptapods left, the looking glasses became merely "sheets of fused silica, completely inert." The apparently promising information the heptapods shared in the final gift exchange will turn out to be information humans had already discovered. The humans never figured out the reasons behind the heptapods' visit to Earth, despite some humans' ability to think in **Heptapod B**.

The near-magical transformation of the looking glasses into "completely inert" silica and the unresolved mystery of the heptapods' reasons for visiting Earth emphasize the alienness of the heptapods' technologies and motives. Notably, although learning Heptapod B has made some humans think more like heptapods, their heptapod-like consciousness is not enough to decode the mysteries of the heptapods' behavior. This detail points to the limits of language's ability to reshape consciousness. At the same time, though, it's arguable that the heptapods actually did *give humans useful information, even if the humans technically already knew that information. What the heptapods give back to the humans is essentially common knowledge in translation, but because their language is so different (and because language shapes thought), these translations have the potential to provide new insight into the things humanity has taken for granted.*

Louise wishes that she better understood **Heptapod B**, so that she could "immerse herself fully in the necessity of events," but she acknowledges that her understanding of Heptapod B has stalled with the aliens' departure. Nevertheless, she notes that meeting the heptapods "changed [her] life," as it led to meeting her daughter's father and learning Heptapod B.

Louise's wish that she could "immerse herself fully in the necessity of events" suggests that she hasn't *fully embraced the future she knows is coming. In other words, it suggests that Heptapod B's powerful ability to change how humans think and subjectively experience time has not entirely reconciled Louise to her loss of free will or her daughter's death. At the same time, Louise's acknowledgment that meeting the heptapods "changed [her] life" by introducing her to her daughter's father and thus to her daughter implies that Louise is more grateful than regretful.*

Louise's mind returns to the present moment, when she is slow-dancing with her unborn daughter's father on the front porch of their house. She acknowledges to herself that she is going to lose both her daughter's father and her daughter. She thinks: "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?" Her unborn daughter's father asks her whether she wants to have a baby. Louise agrees, and they walk inside hand in hand.

In this passage, Louise implicitly compares herself to the ray of light in Fermat's Principle of Least Time. Like the ray of light, and like the heptapods, Louise knows her future. Yet, in this passage she once again emphasizes the difference between objective knowledge and subjective experience. Despite knowing exactly what will happen to her, Louise is still not sure whether she is "working toward an extreme of joy, or of pain." By concluding on a note of uncertainty about the emotional outcome of Louise's decisions, the story retains the hopeful possibility that Louise might find parenthood more joyful than painful despite her daughter's unavoidable early death.

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