

Contents

Unit 1	Black Swan (2010)*	1
	Perfection	
Unit 2	Kramer vs. Kramer (1979)*	13
	Family and Marriage	
Unit 3	Sicko (2007)*	27
	Health Care System	
Unit 4	Dead Poets Society (1989)*	42
	School and Education	
Unit 5	The Help (2011)*	57
	Moral Courage	
Unit 6	The Reader (2008)**	73
	Guilt and Forgiveness	
Unit 7	Urbanized (2011)**	90
	City Planning and Design	
Project	Information Interview	113
	Social Practice	
Unit 8	The Shawshank Redemption (1994)*	128
	Hope and Friendship	
Unit 9	Arrival (2016)**	139
	Language and Thought	
Unit 10	Scent of a Woman (1992)**	158
	Integrity and Honesty	

Unit 11	The Hours (2002)*** Life and Death	173
Unit 12	Central Park (2004)* Environment and People	186
Unit 13	Life of Pi (2012)** Man and Nature	198
Unit 14	One Flew over the Cuckoo's Nest (1975)** Anti-Establishment	212
Appendix	Key	224

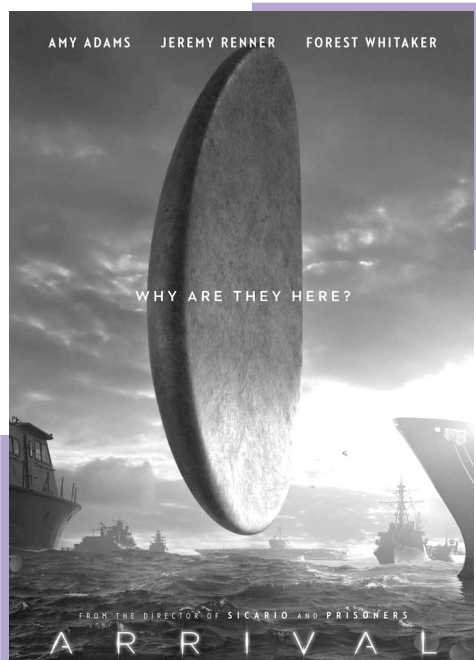
注：*代表单元难度。对于本科高年级学生及相应英语水平的读者而言：

* Standard: 语言、主题均为标准难度，学生基本不会有理解困难。

** Difficult: 语言为标准难度，主题层次较多、较难，会给学生带来一定理解困难。

*** Most difficult: 语言中带有一些难词，但总体不难。主题有深度，需要背景知识和理解力。学生可以在老师的指导下完成理解和欣赏。

Language and Thought



Lead-In

Denis Villeneuve directed this science-fiction suspense film about Earth's response to a possible alien invasion. After extraterrestrial spacecraft stationed themselves at various locations across the world, an elite team was formed to investigate the situation, including a linguist and a theoretical physicist. They must find a way to communicate with the alien visitors in order to learn what they want and whether they pose a threat to humanity.

I. Characters

Louise Banks (Amy Adams):

Ian Donnelly (Jeremy Renner):

Weber (Forest Whitaker):

Shang (Tzi Ma):

Hannah (Jadyn Malone):

linguist

theoretical physicist

Colonel Weber

General Shang

six-year-old Hannah

II. Questions for Thoughts

Read these questions first before you watch the movie. They are designed to inspire your thinking in the viewing process, though you don't have to remember them all. Your group and classroom discussions may also be based on them.

1. What moments of life are lingering in Dr. Louise Banks' mind and what message does she get out of them? What does she say about the later change of her perception?

2. What does Louise teach in the university? One day, her class is abruptly interrupted. Why?
3. How does the world make sense of the event? How do the general public and the countries across the world react to it?
4. Is Louise affected in a similar way? Why? Why does Colonel Weber pay a surprise visit to Louise at this point?
5. How does Louise respond to his offer and why? Why does Colonel finally come back to Louise?
6. What do we learn about Louise's general perception of language from the conversation she holds with Ian Donnelly, her team partner, in their first meeting in the helicopter? Does Ian agree with her?
7. What major parties are involved in this particular mission at the base? As core members of the mission, do you think Colonel Weber, Louise Banks and Ian Donnelly share the same priority? Please explain.
8. How do they prepare and proceed with the assessment of the Shell? And how do they make contact with the aliens?
9. What has the base already learned about the aliens? What happens in the team's first contact with the aliens? Is it a complete failure?
10. Why does Louise decide to change their strategy? What is the new plan for their second visit to the Shell?
11. Does Colonel Weber support Louise's change of the plan? Why? How does Louise talk him into her idea?
12. Why is Colonel Weber unsatisfied with Louise's choice of the vocabulary that is to be shown to the aliens? How does Louise explain such a procedure in language teaching and acquiring?
13. What breakthrough does Louise make in their third visit to the aliens? Why does she take such a risk?
14. During the month, Louise and Ian pay more visits to the Shell and manage to expand the vocabulary to be acquired by both sides. Meanwhile, what does Louise learn about the aliens' language and their way of thinking?

15. What does Louise keep visualizing while having herself immersed in the aliens' language?
16. What is unusual compared with Louise's memory of the girl before?
17. Does Ian notice her confusion? What do they discuss about the impact of language acquisition?
18. While Louise finally raises the question to the heptapods about their purpose of arrival, what answer does she get?
19. How does the American authority interpret the answer? What about other countries?
20. How does Louise react to the situation? Does she get enough attention from others?
21. What happens when Louise and Ian go to the Shell to clarify the message? What do the aliens show them at the last moment?
22. What message do Louise and Ian manage to decipher from the signs?
23. What do the aliens reveal to Louise about their mission and her role in helping accomplish the mission?
24. What is the astonishing discovery of her own life that has gradually dawned on Louise after her final exchange of words with the heptapods?
25. How does Louise figure out the meaning of the "weapon"? What is the purpose of the aliens' arrival?
26. How does Louise finally prevent the worldwide military attacks from being launched at the Shell and thus save the humans from misreading the intention of the heptapods' arrival?
27. What message does Louise help the aliens to communicate to the human world? And what choice does she make to face her own life?

III. Excerpts for Appreciation and Imitation

All these excerpts are carefully selected based on their language or content values. They all help present the theme of the movie. The title of each excerpt, chosen from the very excerpt itself, is its highlight. Appreciate and imitate them.

1. WE ARE SO BOUND BY TIME.

LOUISE: I used to think this was the beginning of your story. Memory is a strange thing. It doesn't work like I thought it did. We are so bound by time. By its order.
(*To newborn baby*) It's okay. Come back to me. Come back to me. Come back to me.

...

LOUISE: I remember moments in the middle.

HANNAH: I love you ... I hate you!
(*Young Hannah died.*)

LOUISE: And this was the end. Come back to me. Please come back to me. But now I am not so sure I believe in beginnings and endings. There are days that define your story beyond your life, like the day they arrived.

[Note] Louise is trying to tell us from the very beginning that we human beings tend to perceive time as linear and fragmented, thus failing to see the past, the present and the future as interdependent and life as an intact experience. Such a limitation may leave us unable to go beyond the pains and gains at hand and once we see death as the end of everything, we cannot realize even the worst part of the future can be worthwhile to pursue because the future may bear the answers to the questions that are troubling us today. This revolutionary new vision may enable us to reassess all the norms and values that we are used to living by and it may ultimately solve the fundamental problems that have been troubling the human race for all the time.

2. HOW ABOUT WE JUST TALK TO THEM?

IAN: (*Reading Louise's book*) "Language is the foundation of civilization. It is the glue that holds the people together. It is the first weapon drawn in a conflict."

WEBER: Louise, this is Ian Donnelly. Louise Banks, Ian Donnelly.

LOUISE: That's quite a greeting.

IAN: Yeah ... you wrote it.

LOUISE: Yeah. It's the kind of thing you write as a preface. Dazzle them with basics.

IAN: It's great. Even if it's wrong.

LOUISE: It's wrong?

IAN: The cornerstone of civilization isn't language. It's science.

WEBER: (To Louise) Ian is a theoretical physicist from Los Alamos. You will be reporting to me, but will be working with him when you are in the Shell.

IAN: (To Louise) That's what they are calling the UFO.

WEBER: Priority one. What do they want? Where are they from?

IAN: Beyond that, how did they get here? Are they capable of faster-than-light travel? I made a list of questions, you know, to go over, starting with a series of "handshake" binary sequences.

LOUISE: How about we just talk to them before we start throwing math problems at them?

WEBER: This is why you are both here.

[Note]

The concerns expressed by Ian, Weber and Louise represent the three major approaches we tend to take in human communication and development. For Ian, development can be only measured and motivated by the purely objective force of science and the ultimate concern of communication is to advance man's knowledge of science and thus to reduce subjective intervention in the comprehension of life and universe. Anything beyond the sphere of science is of no particular value for the well-being of humanity. Weber's agenda represents the fundamental concern shared by a legitimate human community for defending self-interest which is considered always in competition with that of the others. Such a vision, in feeding the sense of Self, always casts a suspicious look on the Other. Comparatively, Louise holds the confidence in humanity and her suggestion for just talking to them makes it clear that she tends to see language communication as a positive force to promote understanding and enable cooperation, which she believes is truly constructive in saving man out of his trouble.

3. IS THIS HOW THEY THINK?

IAN: How do they communicate? Here, Louise is putting us all to shame. The first breakthrough was to discover that there is no correlation between what a heptapod says and what a heptapod writes. Unlike all written human languages, their writing is semasiographic. It conveys meaning. It doesn't represent sound. Perhaps they view our form of writing as a wasted opportunity, passing up a second communication channel. We have our friends in Pakistan to thank for their study of how the heptapods write. Because unlike speech, a logogram is free of time. Like their ship or their bodies, their written language has no forward or backward direction. Linguists call this non-linear orthography, which raises the question: "Is this how they think?" Imagine you wanted to write a sentence using two hands, starting from either side. You would have to know each word you wanted to use as well as how much space they would occupy. A heptapod can write a complex sentence in two seconds effortlessly. It's taken us a month to make the simplest reply.

[Note] As the Sapir-Whorf hypothesis implies, the language one speaks may shape the way one thinks. The aliens' language is so carefully analyzed that we can see all its special features are reinforcing one quality that is to adopt a non-linear approach in communication and thus cultivate a non-linear perception of time and universe, and such an approach can be highly efficient in producing meanings and exerting advanced control of life and environment.

4. IT'S A NON-ZERO-SUM GAME.

(Louise in dream, a voice from a girl)

GIRL: Mom. Mom.

LOUISE: Hm? Sweetie?

GIRL: What's this term for that thing, like a technical term, where we make a deal and we both get something out of it?

LOUISE: A compromise?

GIRL: No ... Like it's a competition. But both sides end up happy.

LOUISE: Like win-win?

GIRL: More science-y than that.

LOUISE: If you want science, call your father.

...

(Louise in the meeting with others)

LOUISE: What they're saying right here, is that, this is one of twelve. We are part of a larger whole.

HALPERN: Or we're one of twelve contestants for the prize.

...

LOUISE: "Many become one" could just be their way of saying "Some assembly required."

HALPERN: Why hand it out to us in pieces? Why not just give it all over?

LOUISE: What better way to force us to work together for once?

HALPERN: Even if I did believe you, how in the world you can get anybody else to play along, and give out their data?

ELDER STUFF: We offer ours in return.

WEBER: Yeah.

HALPERN: A trade?

ELDER STUFF: It's a non-zero-sum game.

(Louise back in dream. Responding to the girl)

LOUISE: Non-zero-sum game.

GIRL: That's it, yes, thanks.

[Note]

Louise is having a vision of a conversation with her future daughter who keeps asking for a term to describe a win-win cooperation which matches perfectly with the right interpretation of the message that the arrival of the 12 alien ships is trying to convey to the human world. Conventional wisdom tends to see the aliens' arrival in 12 separate locations as an attempt to divide the human community and set a trap for them to compete and fight against each other because we tend to believe self-interest can only be secured by taking advantage of the others and therefore feel reluctant to embrace a sharing spirit. However, the vision Louise gets about the future assures her of the fact that the aliens are actually making an effort to urge the human community to learn to play a non-zero-sum game in which there's no winner and loser but only humanity as a whole whose interest will be mostly enhanced by cooperation and win-win of all parties involved. Changing the perception of the game and taking a cooperative initiative, as Louise suggests, are the only way to solve the crisis and bring hope to the development of human civilization.

5. I'M UNSTOPPABLE.

(In dream)

GIRL: Help me, Mama. Mom! Mama.

LOUISE: *(To the girl)* Sorry, honey. What day is it, do you know baby?

GIRL: Sunday. Are you gonna leave me like Daddy did?

LOUISE: Oh, Hannah, honey, your daddy didn't leave you. You're gonna see him ... this weekend.

GIRL: He doesn't look at me the same way anymore.

LOUISE: It's my fault. I told him something that he wasn't ready to hear.

GIRL: What?

LOUISE: Well, believe it or not ... I know something that's going to happen. I can not explain how I know it, I just do. And when I told your daddy, he got really mad. He said I made the wrong choice.

GIRL: What is going to happen?

LOUISE: It has to do with a really rare disease and it's unstoppable. Kind of like you are. Your swimming and your poetry and all the other amazing things that you share with the world.

GIRL: I'm unstoppable?

LOUISE: Yeah.

[Note]

Louise now fully understands the meaningfulness of her visions of the future. When sharing her discovery with her future daughter, she is also reassuring herself that despite all the doomed pains and losses, her choice to live the life as how it will be unfolded is sound and reasonable because the value of the future is realized in its connection with the present and it is in the pains and losses that lies the key to finding happiness and fulfillment. A well-recognized scientist as Ian is, he does not have the insight to see such a fundamental truth of human experiences and therefore he is unable to see a life with pains and losses as worth living.

6. I WELCOME EVERY MOMENT OF IT.

(In dream again)

LOUISE: So Hannah, this is where your story begins. The day they departed ... Despite knowing the journey and where it leads, I embrace it. And I welcome every moment of it.

(with the girl) H-A-N-N-A-H. Now backward. H-A-N-N-A-H. Hannah.

IAN: You ready, baby? It's all right, see you.

GIRL: Daddy!

IAN: Are you OK? Daddy is gonna roll over you. Are you ready? Guess what? Star stuff.

LOUISE: Ian?

IAN: Yeah.

LOUISE: If you could see your whole life, from start to finish, would you change things?

IAN: Maybe I'd say what I feel more often. I don't know. You know, I've had my head tilted up to the stars for as long as I can remember. But you know what surprised me the most? It wasn't meeting them. It was meeting you.

LOUISE: I'd forgotten how good it felt to be held by you.

IAN: Do you want to make a baby?

LOUISE: Yes, yeah!

[Note]

Unlike Ian, Louise has the wisdom to view life and universe as a poetic flow of human energy and the name she gives to her daughter best exemplifies such an insight. Louise is the one who gets truly immersed in the aliens' language and thus adopts their non-linear way of thinking which empowers her to embrace the unstoppable future and appreciate it as how it should be. She knows there's no beginning and ending of human experience, no winner or loser, no losses or gains, only a life which, if you hold confidence in humanity and see life in a positive light, will unfold in front of you, positively. It is out of the new way of thinking which comes along with the newly adopted language that Louise develops the courage to say yes to a greatly challenging future.

IV. Articles for Understanding the Themes

These articles are probing into issues at a deeper level and from different angles. You may keep an open, critical and questioning attitude while reading them and develop your own way of thinking.

How Time Flies

The old man shields his eyes against the fierce light of the Altiplano¹ and considers the question. When he talks about his ancestors, does he mean the Incas²? No, he

¹ Altiplano: *n.* 阿尔蒂普拉诺高原

² Inca: *n.* 印加人

replies in a sort of Spanish creole¹, he means his great-great-grandfather. And with his right hand he makes a rotating gesture up and forwards from his body. The Incas, he adds, came way earlier. And with the same hand he sweeps even further forward, towards the mountains on the horizon.

In the next video clip, the researcher asks a woman to explain the origins of her culture. She starts by describing her parents' generation, then her grandparents', and so on, extending her arm further and further in front of her as she does so. Then she switches to talk about how the values of those earlier generations have been handed back to her (her hand gradually returns to her body from out front), and how she will in turn pass them on to her children (she thumbs over her shoulder).

The man and woman belong to an Amerindian group called the Aymara², who inhabit some of the highest valleys in the Andes³—in their case, in northern Chile. The researcher is Rafael Núñez, a cognitive⁴ scientist at the University of California, San Diego, who is interested in how we develop abstract ideas like time. Núñez now believes that he has definitive evidence that the Aymara have a sense of the passage of time that is the mirror image of his own: The past is in front of them, the future behind.

With his collaborator, linguist Eve Sweetser, he will publish his findings later this year, but they have already prompted speculation as to whether other peoples might conceive of time like the Aymara. George Lakoff, a linguist at the University of California, Berkeley, thinks that it is a strong possibility. The clues lie in language, and as he points out, "There are 6,000 languages and most of them have never been written down." More fundamentally, Núñez and Sweetser's work highlights the illusory nature of time.

Time, as Einstein showed, is a tricky concept to nail down, and all languages resort to metaphor to express it. In fact, with staggering⁵ monotony⁶, they all resort to the same metaphor: space. If an English speaker says: "We are approaching the deadline," he or she is expressing imminence⁷ in terms of nearness, a property of physical space. Anyone listening will understand exactly what he or she means, even though the deadline is not an entity that exists in the physical world. Núñez says: "There is no ultimate truth that you could discover that is outside that metaphor."

So if temporal landmarks don't exist except in our heads, where does our notion of time come from? And why do we feel so strongly a sense of time as motion? In all Indo-European⁸ languages including English, and also in languages as diverse as Hebrew⁹, Polynesian¹⁰, Japanese and Bantu, speakers face the future. Time flows from a point in front of them, through their current position—the present—and back to the past. The Aymara also feel time as motion, but for them, speakers face the past and have their backs to the future.

...

¹ creole: *n.* 克里奥尔语

² Aymara: *n.* 艾马拉人（南美洲印第安人的一支）

³ Andes: *n.* 安第斯山脉

⁴ cognitive: *adj.* 认知的，认知能力的

⁵ staggering: *adj.* 难以置信的

⁶ monotony: *n.* 单调，千篇一律

⁷ imminence: *n.* 迫切，急迫，临近

⁸ Indo-European: *adj.* 印欧语系的

⁹ Hebrew: *n.* 希伯来语

¹⁰ Polynesian: *n.* 波利尼西亚语

Lakoff and Johnson realized that not only could different languages use different metaphors for time, but a single language could contain more than one metaphor. In English, for instance, speakers switch between at least two different frames of reference when discussing the order of events, a trick Núñez has demonstrated in a simple experiment. Ask any randomly selected group of English speakers to answer this question: If a meeting scheduled for Wednesday is moved forward two days, what day will it fall on? “More or less 50% of the people will say Friday, and 50% will say Monday,” says Núñez. The word “moved” allows the ambiguity that the meeting is either being moved forward in time, meaning it will happen later, or being brought closer in time to the person.

The reason for the split in answers is that half the people are using themselves as a reference. Time is moving towards them, so “forward” denotes into the future, hence Friday. But it is also possible to think in a temporal reference frame that excludes ego, as in, “Monday follows Sunday.” In that case, it is as if the speaker is looking out onto a landscape or conveyor belt of time from which he or she is removed. And on that conveyor belt, later events come after, or behind earlier ones. So moving the meeting forward means moving it to Monday.

...

“This Aymara finding is big news,” says Vyvyan Evans, a theoretical cognitive linguist at the University of Sussex. “It is the first really well-documented example of the future and past being structured in a totally different way from lots of other languages, including English.”

But Evans’ own research had already predicted that there would be people in the world who view time differently. The only thing that all humans have in common when it comes to temporal experience is their brains’ perceptual¹ mechanisms. “There is change in our environment, there is motion in our environment, and we need to be able to deal with that information,” says Evans. The human brain has therefore evolved to be able to recognize three basic components of time: duration, simultaneity and repetition.

Most languages have ways of expressing these three phenomena, but they might combine them into metaphors that are culturally determined. English, for instance, offers the possibility of buying time, while Aymara does not. The availability of different metaphors orients the whole language towards a subtly different, and perhaps unique, view of time.

The closer the languages, the closer the metaphors. The Aymara have been pretty much isolated from the rest of the world for a long time, and for the moment, theirs is the only language in which a really dramatic divergence² has been demonstrated. So it is hard to say to what extent their notion of time influences other areas of their thought—or how English or Hebrew speakers influence theirs. “It may not affect everything, but it may affect a lot of important things,” says Lakoff. “For instance, you’re probably not going to get the same metaphors for progress.”

¹ perceptual: *adj.* 知觉的

² divergence: *n.* 分歧, 差异

...

Comprehension questions

1. How do the man and the woman of the Altiplano answer the question about their ancestors, their cultural origin?
2. What do their answers indicate about the concept of time in their minds or their culture according to the researcher Rafael Núñez?
3. How is time related to language according to Einstein and other linguists' research findings?
4. What is the only thing that all humans have in common when it comes to temporal experience? What has the human brain evolved to be able to recognize?

Powerful Mental Blocks¹

...

Many linguists adhere to anthropologist Benjamin Whorf's hypothesis², which states that the language we speak largely determines our way of thinking, as distinct from merely expressing it. In other words, Germans and Japanese behave in a certain manner because the way they think is governed by the language in which they think. A Spaniard and a Briton see the world in different ways because one is thinking in Spanish and the other in English. People in the British Isles act and live in a certain way because their thoughts are channeled along Anglo-Saxon grooves³ which are different from neo-Latin, Japanese or Chinese grooves.

The Briton, the German and the Inuit⁴ may share a common experience, but it appears to each as a kaleidoscopic⁵ flux⁶ of impressions that has to be organized by the mind. The mind does this largely by means of language. Thus the three individuals end up seeing three different things. What is fair play to the Briton may be something else to the German, who needs to translate the concept into different words, and it may mean nothing at all in a society where there are no organized games.

¹ block: *n.* 障碍

² Benjamin Whorf's hypothesis: Benjamin Lee Whorf (April 24, 1897–July 26, 1941) was an American linguist. Whorf is widely known as an advocate for the idea that because of linguistic differences in grammar and usage, speakers of different languages conceptualize and experience the world differently. This principle has frequently been called the "Sapir-Whorf hypothesis," named after him and his mentor Edward Sapir.

³ groove: *n.* 沟, 槽

⁴ Inuit: *n.* 因纽特人

⁵ kaleidoscopic: *adj.* 万花筒似的, 千变万化的

⁶ flux: *n.* 连续的改变

⁷ Zulu: *n.* 祖鲁语, 祖鲁人

⁸ chasm: *n.* 分歧

English and Zulu⁷

If you think the notion of fair play is rather abstract, let us go to another instance where a very basic concept is seen in completely different ways by two people of diverse origins. My example involves an Englishman and a Zulu. While the cultural chasm⁸ is clear, it is the linguistic factor that dominates this instance.

The Zulu language has 39 words for *green*. I was interested in how the Zulus could build up 39 one-word concepts for *green*, while English has only one, and discussed this at length with

a former Zulu chief who had earned a doctorate in philology at Oxford. He began by explaining why Zulus needed 39 words for *green*. In the days before automotive transport and national highways, the Zulu people would often make long treks¹ across their savannah² grasslands. There were no signposts or maps and lengthy journeys had to be described by those who had traveled the route before. The language adapted itself to the requirements of its speakers. English copes with concepts such as contract deadlines and stock futures³, but our tongue is seen as poverty-stricken and inadequately descriptive by Africans and Native Americans, whose languages abound in finely wrought, beautifully logical descriptions of nature, causation, repetition, duration and result.

...

Language Straitjacket⁴

It was evident that my Zulu friend and I saw the world through different eyes. And yet it was not a question of eyes. However international, multicultural or all-embracing I wished to be, there was no way I could perceive or feel about nature the way he did, because I didn't have the language to do it with. It was not just a matter of familiarizing myself with the cultural habits, preferences and taboos of his tribe or even adopting his religion and philosophies. I could only experience reality as fully as he did by learning his language and escaping (in terms of descriptive ability) from the straitjacket of my own.

Just as seeing with two eyes gives us stereoscopic⁵ vision and a sense of depth, thinking in two different languages gives us added dimensions of reality. The bilingual Swedish Finn is a case in point. A striking idea is that while French (a language very similar to English) would expand our worldview by maybe an extra 10 percent, a "primitive" language totally different from our own, with its other logic and set of assumptions, might show us things we have never dreamed of!

The Greeks, who were the first people to inquire in depth into logic and reason, assumed that language was a universal untampered⁶-with element of reason. They believed it was a phenomenon shared by all mankind and, in the case of educated people, would provide a standard yardstick⁷ for comparison of ideas, experience and reality. They also assumed that ideas could be translated freely into any language. This is only true up to a point.

Those of us who have learned languages at school have noticed the difficulty our teachers have in translating such words as *panache*, *esprit de corps*, *Gemütlichkeit* and *Zeitgeist* into English. Interpreters at the United Nations are faced daily with similar problems, even with languages that are closely related. In one recorded case, the English speaker said "I assume," the French interpreter translated it as "I deduce⁸," and this was rendered by the Russian as "I consider"—by which time the idea of assumption had been lost!

...

¹ trek: *n.* 艰苦跋涉

² savannah: *n.* (热带或亚热带) 稀树草原

³ futures: *n.* 期货

⁴ straitjacket: *n.* 约束

⁵ stereoscopic: *adj.* 立体镜的, 有立体感的

⁶ untampered: *adj.* 不受干扰的

⁷ yardstick: *n.* 比较或衡量的标准

⁸ deduce: *v.* 推断

Thought = Internalized Language

There is a good deal of scientific support for the hypothesis that higher levels of thinking depend on language. Thought can be regarded as internalized language. Most of us conduct an interior monologue, often accompanied by visual imagery. The more educated and literate the individual, the more complex and sophisticated this monologue becomes, and there is no doubt that most of this goes on “in words,” whether expressed aloud or not.

We can assume that German, Italian and Malaysian businesspeople do the same thing in their own language. When each speaks, we merely glimpse the tip of a huge iceberg of verbal activity that never breaks the surface of audibility. If you make this reasonable assumption, then you can presume that whatever is said to you will be a brief projection of the inner world of the other person’s thoughts. What is said may be grammatically accurate or erroneous in the extreme, but it will be colored by the person’s view of reality, which is itself influenced by the rigidity of his or her own language structure.

...

Comprehension questions

1. What is anthropologist Benjamin Whorf’s hypothesis?
2. How is the very basic concept *green* seen completely different by two people of diverse origins, the English and the Zulu?
3. Why do different languages provide added dimensions of reality?
4. Why do we say that thought is the internalized language?

When They Came from Another World

What tense is this?

I remember a conversation we’ll have when you’re in your junior year of high school. It’ll be Sunday morning, and I’ll be scrambling some eggs ...

I remember once when we’ll be driving to the mall to buy some new clothes for you. You’ll be thirteen.

The narrator is Louise Banks in “Story of Your Life,” a 1998 novella by Ted Chiang. She is addressing her daughter, Hannah, who, we soon learn, has died at a young age. Louise is addressing Hannah in memory, evidently. But something peculiar is happening in this story. Time is not operating as expected.

What if the future is as real as the past? Physicists have been suggesting as much since Einstein. It’s all just the space-time continuum. “So in the future, the sister of the past,” thinks young Stephen Dedalus in *Ulysses*, “I may see myself as I sit here now but by reflection from that which then I shall be.” Twisty! What if you received knowledge of your own tragic future—as a gift, or perhaps a curse? What if your all-too-vivid sensation of free will is merely an illusion? These are the roads down which Chiang’s story leads us. When I first read it, I meant

to discuss it in the book I was writing about time travel, but I could never manage that. It's not a time-travel story in any literal sense. It's a remarkable work of imagination, original and cerebral¹, and, I would have thought, unfilmable. I was wrong.

The film is *Arrival*, written by Eric Heisserer and directed by Denis Villeneuve. It's being marketed as an alien-contact adventure: Creatures arrive in giant ovoid² spaceships, and drama ensues. The earthlings are afraid, the military takes charge, fighter jets scramble nervously, and the hazmat suits come out. But we soon see that something deeper is going on. *Arrival* is a movie of philosophy as much as adventure. It not only respects Chiang's story but takes it further. It's more explicitly time-travelish. That is to say, it's really a movie about time, fate, and free will.

In both the novella and the movie, two stories are interwoven. One is the alien visitation, a suspenseful narrative. Are the visitors friend or foe? Is their arrival a threat or an opportunity? The other is the story of a mother and a daughter who dies. Movies have a standard device for this sort of interweaving: We see flashbacks—newborn baby, four-year-old cowgirl, eight-year-old tucked into bed, twelve-year-old in hospital, eyes closed, head shaved. Before any of that, a question: "Do you want to make a baby?" We understand this film language: fragmentary images, representing memories. Lest there be any doubt, we hear Louise in voice-over: "I remember moments in the middle." But she also says: "Now I'm not so sure I believe in beginnings and endings."

...

The spaceships arrive, taller than skyscrapers, at twelve different places around the globe. One site is in scenic Montana. Why? No one knows. Louise, a linguist and, evidently, translator extraordinaire, played by Amy Adams, is pressed into service. She once helped Army Intelligence decode some Farsi, so why not some Alien? "You made quick work of those insurgent videos," says her handler, Colonel Weber (Forest Whitaker, exuding can-do decisiveness). She sniffs, "You made quick work of those insurgents." He has a question he needs answered, pronto³. They write it on a whiteboard so we can focus: "What is your purpose on Earth?" She needs to explain that even simple-seeming words are not as cooperative as Colonel Weber thinks. She has a whole language to learn.

On boarding the spaceship, Louise and her scientific teammate, a physicist called Ian (a boyish and charming Jeremy Renner), first see a pair of aliens floating like statuesque octopuses behind a glass wall in their atmosphere of misty fluid. One limb short of an octopus, they are dubbed heptapods. They turn out to be virtuosos⁴ of calligraphy: Their feet/hands are also nozzles⁵ that squirt⁶ inkblots, which swirl and spin and coalesce⁷ into mottled⁸ circles with intricate adornments. Louise says these are logograms⁹. For her they are puzzles, ornate and complex.

Colonel Weber doesn't want Louise to teach the aliens English or anything else they might be able to use against us. Earth history has provided plenty of lessons in how

¹ cerebral: *adj.* 思想深奥的

² ovoid: *adj.* 卵形的

³ pronto: *adv.* 很快地, 极速地

⁴ virtuoso: *n.* 艺术大师, 名家

⁵ nozzle: *n.* 管嘴, 喷嘴

⁶ squirt: *v.* 注射, 喷射

⁷ coalesce: *v.* 联合, 合并

⁸ mottled: *adj.* 斑驳的, 杂色的

⁹ logogram: *n.* 语标符号

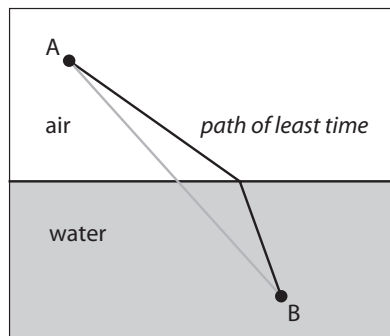
explorers treat indigenous¹ peoples, and linguists aren't usually leading the charge. Louise tells the story (apocryphal, unfortunately) of James Cook arriving in Australia and asking an aborigine² for the name of those funny macropods³ hopping around with their young in pouches⁴. "Kangaru," was the reply. Meaning, "What did you say?" We know how it worked out for them. Anyway, the heptapods seem to be more interested in talking than in listening.

- ¹ indigenous: *adj.* 土生土长的, 土著的
² aborigine: *n.* (尤指澳大利亚) 土著居民
³ macropod: *n.* (袋鼠的另一名称) 长脚, 大脚
⁴ pouch: *n.* 小袋, 育儿袋
⁵ trench: *n.* 战壕
⁶ sequential: *adj.* 按次序的, 相继的

After some hard work in the linguistic trenches⁵, she tentatively translates one message as "offer weapon," and all hell breaks loose. The soldiers around her are nervous and well-armed, and meanwhile the eleven other spaceships are surrounded by teams from similarly militarized and trigger-happy nations. We are reminded that Earth is a planet with decentralized leadership. Russia controls two of the landing sites, and China's decision-maker is a man called General Shang.

Louise and Ian try to calm everyone down. Maybe the word doesn't mean only "weapon;" maybe it can be read as "tool" or "gift." The heptapods' language is "semasiographic," Louise explains (in the story, not in the movie, understandably): signs divorced from sounds. Each logogram speaks volumes. They carry the meaning of whole sentences or paragraphs. And here's a curious thing. The logograms seem to be conceived and written as unitary entities, all at once, rather than as a sequence of smaller symbols. "Imagine trying to write a long sentence with two hands, starting at either end," Louise tells Ian. "To do that, you'd have to know every single word you're going to write and the space all of it occupies." It's as if, for the heptapods, time is not sequential⁶.

Amazingly, we interrupt all this suspenseful activity for a mini-lecture on physics. In "Story of Your Life," Chiang gives us a diagram, which looks like this:



The line could represent a lifeguard running across a beach and then swimming through the water to save a child. To save time, the lifeguard shouldn't run directly toward the child, because running is faster than swimming. Better to spend less time in the water, so the most efficient path—the path of least time—is angled, as in the diagram.

Or the line could represent a ray of light, which bends when it passes from air to water. It is refracted, at a specific and calculable angle. Like the lifeguard, light travels more slowly through a denser medium. And like the lifeguard, light somehow knows to take the path of least time. Pierre de Fermat stated this as a law of nature in 1662.

But how does it do that? We seem to be anthropomorphizing¹ particles of light. When a photon² leaves A on its way to B, does it choose its path, like the lifeguard? Perhaps the path is simply fate. The photon fulfills its destiny. Principles of least time, or least “action,” as they are also known, crop up³ everywhere in physics, and Ian begins to suspect that this is the key to the heptapods’ worldview. Instead of one thing after another, they see the picture whole. In the film he explains this to Louise—a cameo⁴ by Fermat and a microtutorial⁵ in physics—but you’ll miss it if you blink.

We start to sense that Heisserer and Villeneuve are strewing⁶ clues for us like breadcrumbs. “I asked about predictability,” Louise says. “If *before* and *after* mean anything to them.” As she becomes proficient in the heptapods’ language, she starts getting headaches and having dreams. We see flashes of Louise with her daughter, Hannah. Louise telling stories; Hannah making pictures. According to the conventions of film, these seem like conventional flashbacks, but are they? Another clue: Ian asks Louise about the Sapir-Whorf hypothesis of linguistics, the notion that different languages create different modes of thought. “All this focus on alien language,” he says. “There’s this idea that immersing yourself in a foreign language can rewire your brain.” Eventually it will dawn on us: Louise can see the future.

If her visions are patchy⁷—limited in perspective, incomplete in detail—well, so are our memories of the past. She is *remembering* the future.

There is a strain of physicist that likes to think of the world as settled, inevitable, its path fully determined by the grinding⁸ of the gears of natural law. Einstein and his heirs model the universe as a four-dimensional space-time continuum—the “block universe”—in which past and future are merely different places, like left and right. Even before Einstein, a deterministic view of physics goes all the way back to Newton. His laws operated like clock-work and gave astronomers the power of foresight. If scientists say the moon will totally eclipse the sun in New York on April 8, 2024, beginning at 12:38 PM, you can bank on it. If they can’t tell you whether the sun will be obscured by a rainstorm, a strict Newtonian would say that’s only because they don’t yet have enough data or enough computing power. And if they can’t tell you whether you’ll be alive to see the eclipse, well, maybe they haven’t discovered all the laws yet.

As Richard Feynman put it, “Physicists like to think that all you have to do is say, ‘These are the conditions, now what happens next?’” Meanwhile, other physicists have learned about chaos and quantum uncertainty, but in the determinist’s view, chance does not take charge. What we call accidents are only artifacts of incomplete knowledge. And there’s no room for choice. Free will, the determinist will tell you, is only an illusion, if admittedly a

¹ anthropomorphize: v. 人格化, 赋予人性

² photon: n. 光子

³ crop up: 突然出现, 突然发生

⁴ cameo: n. 客串演出

⁵ microtutorial: n. 微观教程

⁶ strew: v. 散播

⁷ patchy: adj. 斑驳的, 不完整的

⁸ grind: v. 磨碎, 碾碎

persistent one.

Even without help from mathematical models, we have all learned to visualize history as a timeline, with the past stretching to the left, say, and the future to the right (if we have been conditioned Sapir-Whorf-style by a left-to-right written language). Our own lifespans occupy a short space in the middle. Now—the infinitesimal¹ present—is just the point where our puny² consciousness happens to be.

This troubled Einstein. He recognized that the present is special; it is, after all, where we live. (In Chiang's story, Louise says to her infant daughter: "NOW is the only moment you'll perceive; you'll live in the present tense. In many ways, it's an enviable state.") But Einstein felt that this was fundamentally a psychological matter; that the question of *now* need not, or could not, be addressed within physics. The specialness of the present moment doesn't show up in the equations; mathematically, all the moments look alike. *Now* seems to arise in our minds. It's a product of consciousness, inextricably bound up with sensation and memory. And it's fleeting, tumbling³ continually into the past.

Still, if the sense of the present is an illusion, it's awfully powerful for us humans. I don't know if it's possible to live as if the physicists' model is real, as if we never make choices, as if the very idea of purpose is imaginary. We may be able to visualize the time before our birth and the time after our death as mathematically equivalent; yet we can't help but fret more about what effects we might have on the future in which we will not exist than about what might have happened in the past when we did not exist. Nor does it seem possible to tell a story or enjoy a narrative that is devoid of intention. Choice and purpose—that's where the suspense comes from. "What is your purpose on Earth?"

Certainly no one in *Arrival* acts as though their future is predetermined and all they have to do is watch.

They're full of energy. Louise and Ian work urgently against the clock. Renegade soldiers set a bomb to blow up some heptapods and we get to watch the traditional electronic readout counting down the seconds. The aliens themselves seem to have a purpose: to give Earth a gift—"Three thousand years from this point, humanity helps us. We help humanity now. Returning the favor." Perhaps there are two gifts. One seems to be some super technology, unspecified, a MacGuffin⁴. Evidently it comes in twelve pieces, and all the earthlings need to do is share them, in peace and harmony, for once.

But the generals and technocrats⁵ can't get their act together. Instead they find themselves at the brink of war. The general, Shang, cuts off communication and prepares to pull the trigger. If we think about it—which we are not meant to do, at least while the action is underway—we may see a paradox here. The heptapods already know the future. They're all *Que sera, sera*⁶. So if we're living in their deterministic universe, where's the suspense?

¹ infinitesimal: *adj.* 极微小的, 无限量的

² puny: *adj.* 弱小的, 微小的

³ tumble: *v.* 翻滚

⁴ MacGuffin: 麦格芬 (一个电影用语, 指在电影中可以推展剧情的对象、任务或目标)

⁵ technocrat: *n.* 技术专家

⁶ Que sera, sera: 随便啦

The real gift has already been received by Louise. The gift—not a weapon after all—is the language itself, and the knowledge of future that it provides. It alters her brain, enabling her to see time as the heptapods do. *Arrival* brings the paradox out into the open, plays with it, creates a mind-bending science-fictional time loop. This isn't in Chiang's original story. Louise has a waking dream, a vision of the future. Dressed up in a gown, she is attending what looks like a formal reception. General Shang is there, too, in a tuxedo¹. He wants to thank her, for saving the world, more or less, for "the unification²." He tells her (reminds her?) that she phoned him at the critical last minute on his private number. But she doesn't know his number, she says, puzzled. He shows her the screen of his phone. "Now you do," he says. *Now*. "I do not claim to know how your brain works, but I believe it is important that you see that." The future is communicating with the past. The scene leaps back to Montana, where Louise is placing an urgent call to China. She has something to explain to General Shang, and does in fluent Chinese.

In the event, this is a beautiful piece of filmmaking. The revelation is exhilarating, and it gives the viewer a sense of the profound. Yet if you think about it closely, it's not logical. It breaks down, just as every time-travel paradox breaks down under analysis. If Louise prevents the war and saves the world by phoning Shang, surely she will remember that at the celebratory party. And from Shang's point of view, he won't need to provide his number; she'll already have known it. It's always like this—a trick somewhere. Time travel violates everything we believe about causality. The best time travel succeeds by hiding the trick.

...

No one, not even the most devout of physicists, behaves as though their life is predetermined. We study the menus and make our choices. If we knew—really *knew*—that the future was settled and our choices illusory, how would we live? Could we do that? What would it feel like?

Louise is about to find out. What will she do when Ian asks—as we know he will—"Do you want to make a baby?" There's not much worse than a child's death. It's what the word "untimely" was made for. At least in real life the grief comes after the fact. A lifetime of memories is instantly shrouded³ in a veil of pain. For Louise, grief is part of the story from the beginning. The pain must color not only memory but also the experience of each day, each moment.

Nothing about time will be the same. "It won't have been that long since you enjoyed going shopping with me," she says; "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."

At some point, too, we realize that she is going to tell Hannah's father what she knows, namely that their daughter will die, and that will be a mistake. He will not be able to handle it. But she will find a way.

For us ordinary mortals, the day-to-day experience of a preordained⁴ future is almost unimaginable, but Chiang's story does imagine it. This is where the movie can't quite follow, for all its vividness.

¹ tuxedo: *n.* 无尾晚礼服

² unification: *n.* 联合, 统一

³ shroud: *v.* 遮蔽

⁴ preordained: *adj.* 命中注定的

He offers another paradox—as he says, a Borgesian¹ parable. Let’s say you get to see “the *Book of Ages*, the chronicle that records every event, past and future.” You flip through it until you find the page on which, it says, you are flipping through the *Book of Ages* looking for this very page, and then you read ahead, and decide to act contrary to what is written. Can you do that? Logically, no. If you accept the premise, the story is unchanging. Knowledge of the future trumps² free will. And maybe that’s all right. “What if the experience of knowing the future changed a person,” Louise muses³. “What if it evoked a sense of urgency, a sense of obligation to act precisely as she knew she would?”

She can be comfortable with her new way of seeing. It’s like the photon fulfilling Fermat’s principle of least time. We can view its path sequentially, one thing after another, or we can view it from above, a whole, all at once. “Two very different interpretations,” she sees:

The physical universe was a language with a perfectly ambiguous grammar. Every physical event was an utterance that could be parsed⁴ in two entirely different ways, one causal and the other teleological⁵.

In the same way, language can be seen as purposeful and informative, or it can be seen as performative⁶.

“Now that I know the future, I would never act contrary to that future, including telling others what I know,” says Louise. “Those who know the future don’t talk about it. Those who’ve read the *Book of Ages* never admit to it.”

So, as she comes to understand her gift, she feels like a celebrant⁷ performing a ritual recitation, or an actor reading her lines, following a script in every conversation. The rest of us don’t know we’re following the script. Are we, too, trapped? Enacting destiny? The only alternative is Woody Allen’s version of Buñuel: just walk out of the room.

¹ Borges: 博尔赫斯 (阿根廷作家、诗人、翻译家)

² trump: v. 赢, 胜过

³ muse: v. 沉思, 冥想

⁴ parse: v. 解析

⁵ teleological: *adj.* 目的论的

⁶ performative: *adj.* 涉及行动作为的

⁷ celebrant: *n.* 主持 (参加) 宗教仪式的人

Comprehension questions

1. Is the movie *Arrival* simply about future, or time travel? If not, what is it about?
2. What is special about the language of the heptapods?
3. What makes the heptapods’ language and thought hard for the physicist to follow?
4. Why do the 12 gigantic spaceships land on Earth? What do they really want?

V. Research Activities

Same as Unit 1