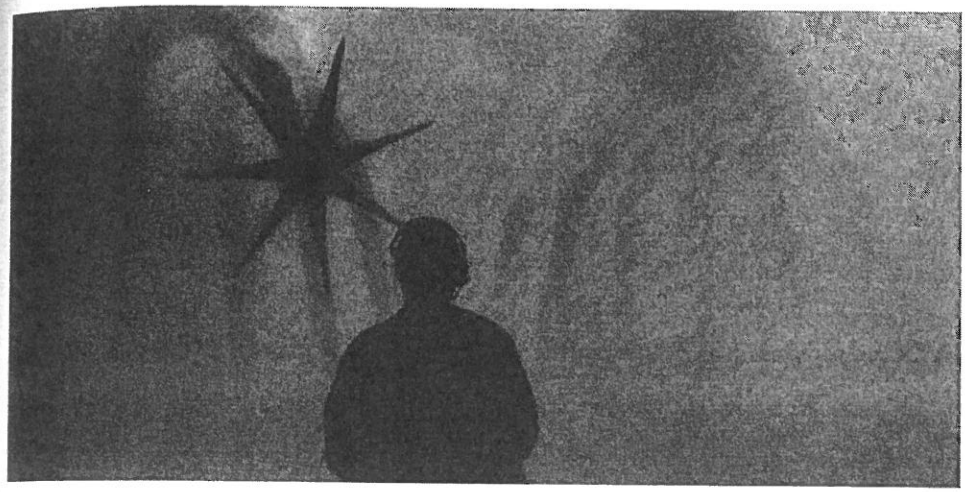
Could a Heptapod Act? Language and Agency in *Arrival*



In *Arrival* (Denis Villeneuve, 2016), Amy Adams stars as Dr. Louise Banks, a linguist endeavoring to find a way to communicate with an alien species whose ships have landed across Earth. The movie opens with a montage of Louise's memories of her daughter, a sequence that culminates in her daughter's untimely teenage death, as Louise says in somber voice-over, "Memory is a strange thing. It doesn't work like I thought it did. We are so bound by time, by its order." Over the course of the film, we watch Louise's ways of thinking about time and memory alter as she grapples with the alien language. Ultimately, learning how to talk with the aliens (which are called "heptapods" due to their seven tentacles) transforms her.

Arrival can be viewed as offering a useful thought experiment in the philosophy of mind and language. Assessing Louise's interpretive efforts to understand the heptapod form of life in both the movie and the novella from which it was adapted (Ted Chiang's "Story of Your Life") teach us how our understanding of selfhood shapes our conception of agency. Yet the cooption of filmic texts as grist for the philosophical mill is far from the only way of bringing film together with philosophy.[1] *Arrival*'s reflexive commentary on the cinematic experience is also an argument for the value of learning to communicate in cinematic language, thereby allowing movies to challenge the limits of our concepts and, ultimately, to transform us.

Interpreting the Heptapods

Louise confronts the problem of how to break into a wholly unknown language. Her situation demands what influential philosopher of language Donald Davidson calls "radical interpretation."[2] He formalizes radical interpretation as the construction of a theory of meaning. For each alien sentence S, our theory should yield a theorem "'S' means that p," where "p" is a sentence in our own language. Davidson proceeds to examine how linguists could construct a theory of truth for an alien language, with theorems of the form "'S' is true if and only if p." While not all truth theories are plausibly interpretive, he maintains that one that has been constructed on the basis of behavioral observations will give us all that is needed from a theory of meaning.[3] Davidson argues that his crisp articulation of the conditions under which our interpretation of other speakers is successful clarifies the nature of linguistic meaning.

Our first step, according to Davidson, is to coordinate alien utterances with occurrences in the world. This will yield such observational data as "the aliens utter 'globbolob' when a cat walks by." In time—and perhaps encouraged by alien gestures of approval when *we* try out saying "globbolob" when a cat walks by—we may hypothesize that "the aliens *hold* "globbolob" *true* when a cat is walking by." We may then proceed to build up a stock of such hold-true hypotheses, some of which could suggest alien grammar. (For instance, if the aliens hold "hobbolob" true when a dog is walking by, we might conjecture that "glob" and "hob" are nouns corresponding to our "cat" and "dog," and "bolob" a verb corresponding to our "to walk."[4])

Yet despite this progress, Davidson contends that we will face a dilemma in turning our hold-true theory about alien behavior into an interpretive truth theory for the alien language. Suppose we observe the aliens acting in a way that conflicts with what we would currently predict (for instance, they fail to assent to "globbolob" when a Manx cat walks by). Ought we alter our hypothesis about the alien language (to reflect that "glob" might correspond to "cat with a tail" rather than "cat"), or reckon the aliens to have made a mistake about the world (so that "glob" *does* mean cat, but that the aliens have failed to realize that Manx are a species of cat)?

To overcome this dilemma, Davidson counsels adopting the charitable principle that most of what the aliens *hold* true *is* true: "[We] solve the problem of the interdependence of belief and meaning by holding belief constant as far as possible while solving for meaning. This is accomplished by assigning truth conditions to alien sentences that make native speakers right when plausibly possible, according, of course, to our own view of what is right."[5] The principle of charity, then, entitles us to transform our hypotheses about the aliens' attitudes towards what they say into ones about the alien language itself, yielding claims such as "The alien sentence 'globbolob' *is* true when a cat is walking by." And since we have been careful to ground our theory of truth in observational data, Davidson concludes, it now functions as a theory of meaning: "The alien sentence 'globbolob' means that a cat is walking by."

Davidson's work on interpretation reveals connections between a constellation of core linguistic and epistemological concepts, most centrally belief, truth, and meaning. But faced with the heptapods of *Arrival*—floating, 30-foot-tall squid-like creatures with no eyes or mouths in sight—the initial steps of his proposal for interpretation seem naïvely optimistic.[6] For how is Louise supposed to discern an attitude of "holding true" in their movements? How can she make out a heptapod's approving gesture, or what it is focusing upon in the environment? And how might she replicate their clicks and bellows?

Louise's task thus seems closer to a situation imagined by Ludwig Wittgenstein. Having emphasized that we must look for the behavioral gestures and practices through which those whom we seek to interpret teach and learn words, Wittgenstein observes that "if you went to Mars and men were spheres with sticks coming out, you wouldn't know what to look for."[7] Similarly, an interpreter who "went to a tribe where noises made with the mouth were just breathing or making music, and language was made with the ears" would be baffled.[8] Until we have identified alien behavioral patterns that conform sufficiently to our understanding of linguistic behavior we cannot isolate what is to *count* as an utterance, a step obviously prior to matching such utterances up to our own observations of the world.

Wittgenstein's Martians thus demonstrate that Davidson's account of radical interpretation can only work with a good many assumptions about the other form of life already in place. Do heptapods (or spheres with sticks coming out) have the sensory capacity to *discern* that there are cats in the vicinity?[9] Is "cat" a salient category for them? Absent some conception of their form of life, as Wittgenstein puts it, we simply don't know what to look for.

In *Arrival,* some of these difficulties are brought out in Louise's conversations with the U.S. military officer who recruits her, Colonel G.T. Weber (Forest Whitaker). Fighting exasperation, she tries to explain the complicated presuppositions of the question that the Colonel wishes her to ask the heptapods, "What is your purpose on Earth?":

> So, first we need to make sure that they understand what a question is—the nature of a request for information, along with a response. Then we need to clarify the difference between a specific 'you' and a collective 'you'—because we don't want to know why Joe Alien is here, we want to know why they all landed. And 'purpose' requires an understanding of intent. We need to find out: do they make conscious choices—or is their motivation so instinctive that they don't understand a 'why' question at all. And biggest of all, we need to have enough vocabulary with them that we understand their answer.

Louise here acknowledges a possibility that the Colonel has overlooked, that there is simply no reason for the aliens' arrival. What initially looks to us like intentional, and perhaps threatening, behavior may be nothing of the kind.

The opacity of behavior serves to justify Davidson's principle of charity, since he holds that both minds and languages are grounded in successful interpretation. Although other ways of breaking into the interdependence of meaning and belief are theoretically possible, the stakes of interpretation are high.[10] We are justified in attributing minds to others only if we can successfully interpret them as having beliefs about the world that we share, and we are entitled to call a pattern of behavior linguistic only if we can interpret it. If, even by being maximally charitable, we can't get a theory about what "globbolob" and other alien utterances mean off the ground, Davidson concludes that we will have to doubt our initial hypothesis that the

aliens mean something by "globbolob" at all, as opposed to meaninglessly squawking at one another like parrots.[11] Adopting the principle of charity might yield false positives (where we talk futilely at non-sapient brutes), but this is preferable to an interpretive principle that would admit false negatives (where we unjustly dismiss a sapient species as non-sapient).

Considerations like these lead Davidson to defend the unpopular thesis that nonhuman animals (for whose barks and meows we cannot construct truth theories) do not have languages, beliefs, thoughts, or minds. But his aim is not to demote animals, as René Descartes does, to sophisticated natural automata, and still less to deny that we may have moral duties towards other forms of life.[12] Rather, his point is that concepts like truth, belief, meaning—and, indeed, intention or purpose—are all *human* concepts whose domain of application is in the way *our* form of life encounters the world.[13] Davidson believes that philosophical reflection upon these concepts reveals the lattice which they form, a lattice against which they are all intelligible.[14] If, in contorting this lattice in our attempt to explain novel phenomena, we shift, distort, or leave some concepts out of the picture, they all fail to apply. Our imagination outstrips our good sense. So while it may be useful for us to say conversationally that our pets believe that it's dinner time, this is at best a metaphorical extension of our concept "belief." Pets don't believe anything at all, in our human sense of that concept, with its crucial connections to truth and meaning. Similarly, if the heptapods did not intend their arrival but only came to our planet on instinct or by accident, there may be no literal way to interpret them as having "beliefs."

Happily for Louise, *Arrival* does not dramatize this extreme situation. Adopting a suggestion from her colleague Dr. Ian Donnelly (Jeremy Renner), she distinguishes and names the two heptapods with whom they interact Abbot and Costello—an *homage* to the comic duo's famous routine of linguistic incomprehension "Who's on first?", in which Costello is mightily confused by Abbot's explanation of the occupants of various baseball positions since their names are also interrogatives like "Who" and "What." Recording and playing back the heptapods' rumbling groans results only in them recording and playing back fragments of human conversations.

Having appreciated that with her human vocal cords "[She'll] never be able to speak their language—if they *are* talking," Louise tries to establish a common ground by demonstrating human script and soliciting heptapod script. The heptapods comply, spraying ink against the barrier. Such imitative responses are not definitive evidence of sapience, but nevertheless suggest that the heptapods may be seeking to interpret *her* as she works to interpret *them*. Unlike those philosophical models of interpretation that emphasize the role of dispassionate observation, *Arrival* displays the extent of the collaboration between interpreters and their subjects that is necessary for either to succeed in understanding the other.

Louise's next breakthrough is discovering that heptapods' spoken and written languages are unrelated. Whereas the component words that comprise the sentences of written human languages correspond to phonemes that speakers may vocalize, the component words of heptapod script are not systematically linked to the bellows of their speech. Written heptapod sentences are semasiographic, with components that represent meanings but not sounds. (Think of how a red traffic light represents the meaning but not the vocable *stop*.) Moreover, whereas written human sentences are linear, directional strings of characters that have a duration (in the sense that writing out a sentence takes time), written heptapod sentences are circular, nondirectional logograms that are formed in an instant and disappear after a moment.

Days stretch into weeks, and Louise's long hours studying the heptapod logograms take their toll. She begins to have waking visions of the aliens, and Villeneuve's camera often lingers upon her exhausted face frozen in thought, caught remembering fragments from her daughter's short life. Her slow progress is also threatened by political developments. Preempting an attack, China declares war upon the heptapods when their linguists decode a disturbing logogram mentioning "weapon." Louise is unconvinced by this translation. The Chinese sought to communicate with the heptapods by teaching them how to play Mahjong, which, she conjectures, has imputed a framework of competition and conflict to their interpretations. She desperately tries to communicate with Abbot and Costello, and surmises

that the heptapods mean to offer us technology rather than weaponry.

Using her smartpad, Louise displays a logogram asking them to give the technology now. Their response is to insistently tap on the barrier. This is a departure for the heptapods, who have thus far kept to mysterious floating. Whereas Ian is startled and confused by their behavioral shift, Louise somehow knows that they want her to write a logogram upon the glass. Yet she cannot do so: unlike the aliens, who are able to express logograms in inky expulsions from outstretched tentacles, she is forced to rely upon technology to reproduce digital images of heptapod script. Any attempt she might make to write directly on the glass—say, in marker pen—would bear the indelible stamp of her humanity. For drawing the arc describing the logogram and then adding the details that give it its precise meaning would be a directional and durational act of writing, in contrast to the non-directional and instantaneous logograms Abbot is capable of forming as jets of ink depart its body and bloom into focus.

Nevertheless, Louise moves closer and places her hands up to one of Abbot's seven tentacles, which has peeled itself into a seven-digit starfish shape against the glass. The ink swirling from Abbot's tentacle remains unshaped between them, as Louise laments that she cannot control it with both hands. But in a second moment of insight, she removes one of her hands from the glass, closes her eyes, and concentrates on a single image. We first see this image—Louise holding her daughter as a baby—and then, as Louise opens her eyes, watch the heptapod manipulate its seven digits into a second hand mirroring Louise's own. Then, twenty feet back from the glass, we are positioned with Ian as Abbot and Louise mold a logogram together, her hand sweeping down to the right, its sweeping down to the left.

In this sequence, we have witnessed a meeting of minds, the sharing of a single memory, the inscribing of a single thought. The procreative imagery throughout the scene—the content of Louise's memory, the relative privacy she and Abbot enjoy once the camera draws away from them (together with the voyeuristic position we adopt with Ian), the inky ejaculate that takes form between them—underscores that communication is not only interpersonal, but generative. Using language allows us to direct each other's thoughts, to

share recollections, and also to create new thoughts together.

Returning to base, Louise and Ian discover that their breakthrough has come too late. Following China's lead, military forces have mobilized across the globe, and communication between the various human governments, who had thus far been cooperating, has ground to a halt. Louise's memories of her daughter are also becoming more insistent, more distracting. She remembers a time when her teenage daughter had interrupted her wanting a "more scientific" phrase to describe a mutually advantageous trade for a school project. Soon afterwards, we watch Louise return to this memory, when Ian suggests that exchanging information with the linguists from other nations could be a non-zero-sum game.

This is a pivotal scene. At first, we seem merely to be watching another unwanted memory forcing itself upon Louise; hearing Ian say "non-zero-sum game" has prompted her to recall the moment that *she too* remembered this expression, and was able to help her daughter after all. But something stranger occurs. For, unlike the other memories we have witnessed, this is a memory of her remembering. As spectators, we watch her remembering in both times. And as the film crosscuts between the two time periods, Louise does not appear *just* to be lost in thought at the base remembering the time she remembered "non-zero-sum game," but also, paradoxically, lost in thought with her daughter remembering the time that Ian used the expression at the base.

Much as the circular heptapod script lacks the directionality of terrestrial languages, the movie now depicts memorial time as lacking its familiar direction. Louise is not remembering herself remembering some event in her further past, but remembering herself remembering *this very moment* of remembering, in a dizzying circle. Refused the linear earlier/later relation we have thus far been imposing upon Louise's experience of the two time periods, we become unmoored in time with her. While the discussion of the political crisis continues in the background, the movie cuts to Louise's first-person perspective, and we witness, as her, events we know have yet to occur: first, a smaller alien pod descending from a heptapod shell toward us, and then, looking down at her/our hands fingering the inky expressions

of the heptapods, no longer separated by glass.

As her drifting awareness docks once again at the base, Louise realizes that her visions are not mere fancies. Slipping outside, she finds the pod descending, enters it, and travels back towards the alien shell. Once inside, she communes with the aliens in their atmosphere and finds herself able to converse with them, understanding the logograms that hover in the cloudy atmosphere around her. Costello tells Louise that the heptapods arrived on Earth in order to help us, because they will in turn need help from humanity in three thousand years. But how can the heptapods know this, she asks? How can they know the future? In response, she is flooded with yet more memories of her daughter. "I don't understand," Louise says, "Who is that child?" We jarringly realize that she does not recognize her girl, as Costello forms the logogram: "Louise sees future." Like their language, time is non-directional for the heptapods. Louise's daughter's death—her daughter's *birth*—has yet to happen. Costello's final logogram, "Weapon opens time," invites us to circle back and realize that Louise is now following its earlier cryptic injunction that she "use weapon." The heptapods' technological gift to us *is* their language, which is somehow a device for unlocking time.

Later in the film, we learn that Louise writes a handbook about heptapod entitled "The Universal Language." Her title calls to mind the philosophical project initiated by Gottfried Leibniz and taken up by Gottlob Frege of designing a *characteristica universalis,* a logically perfect language within which any thought can be clearly expressed and any valid inference drawn. Frege is particularly eloquent regarding the advantages for rational inquiry of his new "concept script," which became the basis for modern symbolic logic.[15] Yet one's evaluation of a language, be it English, Frege's concept script, or heptapod, depends upon one's linguistic aims. (Frege's notation would be a poor medium for poetic allusion, for instance.) Whereas Frege's concept script was intended to perfect one of our extant abilities, *Arrival* presents heptapod as granting Louise wholly new abilities. But how could a language do this?

There is a modest sense in which we already acknowledge how adopting a new language alters what we can do, think and say. Just as we recognize

that users of a language whose grammar includes imperatives are capable of *commanding* each other, perhaps we can imagine a language whose syntax allows, say, sentences with which its users could *empath* each other, indicating the emotional attitude they wish others to adopt.[16] Heptapod is more radical.

In voiceover, Ian invokes a controversial interpretation of the Sapir-Whorf hypothesis, that the language one uses determines how one perceives reality. As he understands the hypothesis, "immersing yourself in another language [allows you to] rewire your brain." Few contemporary linguists find this hypothesis credible for terrestrial languages. We humans share a form of life, and use our various languages to engage in the same practices. While acquiring a second language broadens one's cultural awareness, it does not plausibly change the reality one perceives. Yet the semasiographic script of the heptapods is unlike anything found on Earth. Through learning to think in heptapod, Louise rewires her brain and is rewarded with an entirely new reality. The abilities heptapod grants changes the kind of being she is, altering her form of life. The film closes with Louise using her foreknowledge to avert the political crisis, ushering in a peaceful era of international communication and cooperation.

What is it like to be a Heptapod?

Arrival's answer to Colonel Weber's question is that the hepapods arrive because they know that they will eventually need us.[17] Teaching us their language is a non-zero-sum game. But can we make good sense of the form of life being attributed in this interpretation? *Arrival* invites the thought experiment: could beings exist that perceive reality as the heptapods do?

Ted Chiang's descriptions of the heptapods in "Story of Your Life" furnishes useful material with which to address this question. There, we read that heptapods have a simultaneous, rather than sequential, mode of awareness. Humans think in time, our thoughts having duration and our consciousnesses moving forward from childhood. Heptapods think outside of time, thinking instantaneously and conscious of all times at once. Chiang's protagonists are initially thwarted in their attempts to discuss scientific theories with the heptapods, as human scientific theories are typically

phrased in sequential terms of cause and effect. But a breakthrough occurs when they raise Fermat's principle of least time—that rays of light always take the fastest possible route to their destination—because this principle admits of a teleological interpretation as well as a causal one. Viewed one way, entering a different medium causes light to change direction. Viewed another, light rays must reach the location at which they aim. Heptapod science, we are to infer, is wholly teleological. Just as forming a logogram requires knowing the complete thought one wants to express, perceiving reality as a heptapod requires knowing how the world will come to be.

Although human and heptapod science differs, Chiang's protagonists discover that each is translatable into the other idiom: "Physical attributes that humans defined using integral calculus were seen as fundamental by the heptapods…the physicists were ultimately able to prove the equivalence of heptapod mathematics and human mathematics; even though their approaches were almost the reverse of one another, both were systems capable of describing the same physical universe."[18] Chiang's heptapods are interpretable as "describing the same physical universe" as humans, which suggests a Kantian model for making good philosophical sense of this alternative form of life. According to Kant, while human minds are constituted so that our judgments about the physical universe are framed in terms of the basic intuitions of space and time, there is no guarantee that other finite beings possess the same intuitions.[19] Perhaps spatiotemporally-minded humans can recognize the intelligibility of a "spatioteleologically-minded" alien, even if we (unlike Louise, whose brain is rewired) remain incapable of forming spatioteleogical judgments.

Chiang turns to J.L. Austin's philosophy of language to further limn heptapod consciousness. Austin argues that *performative* utterances like "I do," spoken within the context of a wedding ceremony, are actions. Uttering these words in felicitous circumstances constitutes the action of marrying. Chiang builds upon Austin's speech act theory: "For the heptapods, all language was performative. Instead of using language to inform, they used language to actualize. Sure, heptapods already knew what would be said in any conversation; but in order for their knowledge to be true, the

conversation would have to take place."[20] Just as humans who participate in a wedding know in advance what is to be said and actualize their marriage in part by saying certain words in the relevant context, Chiang wants to say that heptapods *always* know what is to be said (and what has been said). Their language is not for communication, but rather for doing, by speaking at the appropriate time.

However, I think that Chiang's appeal to Austin is problematic. For one thing, although the needs of metabolization might require spatioteleogical beings to move, ingest, etc., it is not clear why such beings would evolve a *linguistic* ability. Human communication is necessary for us to coordinate our activities, and the language our ancestors developed allowed them to better accomplish their shared goals. Some of our institutions (such as promising) may have required performative utterances as public records of our intentions. But in simultaneously experiencing the entire course of their lifetimes, the ancestors of the heptapods would have had no reason to make utterances of either kind to one another.

Beyond this, I am skeptical that beings whose language was wholly performative could count as agents. On what David Velleman calls the standard story of human action, an agent acts when its belief that it can attain something it desires by completing a certain task or series of tasks produces an intention to complete those tasks, an intention that initiates causal processes within it that yield physical movement.[21] Yet he argues that this story problematically leaves the agent itself out of the picture: "Psychological and physiological events take place inside a person, but the person serves merely as the arena for these events: he takes no active part."[22] Since it is "our perceived capacity to interpose ourselves into the course of events in such a way that the behavioral outcome is traceable directly to us" that makes us "agents rather than merely subjects of behavior," Velleman contends that the philosophy of action must confront the problem of "finding an agent at work amid the workings of the mind."[23] And it is just here, I believe, that the intelligibility of spatioteleological agency flounders, because such beings must lack the concept of selfhood needed for what we call action.

In contemplating heptapod conversation, Chiang's Louise finds comfort in an analogy to human performance: "I suddenly remembered that a morphological relative of 'performative' was 'performance,' which could describe the sensation of conversing when you knew what would be said: it was like performing in a play."[24] But not only do human performers in plays make choices in deciding how to perform their lines (choices that would be denied the heptapods since they already know how what is said will be said), if *all* of our utterances and thoughts were prescribed we would be reduced to passive observers of everything we do. Our capacity to make sense of ourselves as genuine agents in cases where we act in a way that has been laid out for us, as when we participate in a wedding, is predicated upon the contrast we are able to draw between such cases and our typical actions—i.e. ones where we decide what to do. Were we always doing what we knew was to be done, we would lose contact with our own agency, with the sense in which *we* are the ones doing anything at all. A spatioteleogical being might be capable of perceiving psychological and physical happenings in its vicinity, but could not identify itself as the operative force behind the changes that *we,* as its spatiotemporal interpreters, would in thinking of it as an agent. Nor could it identify itself as the owner of beliefs.

If this line of argument is sound, then *Arrival's* thought experiment has revealed the core position that selfhood and agency have in the lattice of concepts Davidsonians thinks necessary for interpretation. The optimistic Kantian thought that we can make sense of spatioteleogical judges capable of forming thoughts about our world proves illusory. While floating alien cephalopods, and perhaps even beings capable of perceiving the space-time manifold differently, may exist in our universe, we cannot coherently use our concepts to interpret spatioteleogical aliens as agents.

Yet there is a further layer to this thought experiment, one that suggests putative spatioteleogical beings may function as an aspirational limit case despite our inability to ascribe our epistemological concepts to them. For in thinking seriously about what it is like to be a heptapod, one strives to imagine what it would be like to lack agency, purpose, and desire, to think only what is to be thought, and do only what is to be done. In the Daoist

tradition, these correspond respectively to "wu-nien" (thought of non-thought) and "wu-wei" (action of non-action). Their pursuit is the highest form of virtue. Achieving enlightenment by fully embracing them requires a person to relinquish their self and act solely in accordance with the universe.[25] In a sense, the enlightened transcend their humanity. So, perhaps heptapods serve as a model for Daoist enlightenment. We have seen that the heptapod form of life is indescribable using human concepts, just as, arguably, the experience of true enlightenment is indescribable using the vocabulary of the unenlightened. Yet maybe our imaginative labor affords us insight into the selflessness we should aim for in our own lives in order to live well.

I think that the conjectures Chiang's Louise makes about what being a heptapod is like are best understood as part of her own struggle for self-understanding. Rewiring her brain does not make her heptapod-minded. Instead, she comes to view her consciousness as an "amalgam of human and heptapod."[26] Although her memories begin to fall into place indiscriminately from the past and the future, her conscious awareness continues to move inexorably forward in time. It is only when in a deep, meditative state of thinking in heptapod that she is able to acquire momentary glimpses of what she takes to be heptapod consciousness. At these times, Louise reflects, "I experience past and future all at once; my consciousness becomes a half-century-long ember burning outside time. I perceive—during those glimpses—that entire epoch as a simultaneity. It's a period encompassing the rest of my life."[27]

On the basis of such experiences, she tries to imagine life as a heptapod. "What if the experience of knowing the future changed a person?" she wonders; "What if it evoked a sense of urgency, a sense of obligation to act precisely as she knew she would?"[28] This is roughly how remembering the future changes *her*. The novella presents her as ruefully enjoying her conversational performances: "That was my cue to frown, and for Burghart to ask, 'what does it mean by that?' His delivery was perfect."[29] She also reflects on volition: "What distinguishes the heptapods' mode of awareness is not just that their actions coincide with history's events; it is also that their

motives coincide with history's purposes. They act to create the future, to enact chronology."[30]

These musings give her peace. Yet crucially, while Louise's hypotheses about the heptapods' form of life help her to make sense of her own transformation, they are never confirmed. For in Chiang's novella, humans *never* discover why the heptapods came to Earth, or why they eventually depart. There is no sense in which the heptapods intend to gift us their language, as there is in *Arrival*. There is no clarifying final conversation between Louise and Costello about the heptapods' future need of humanity. By leaving the heptapods' purpose mysterious, Chiang allows the possibility that philosophical reflection insists must be allowed, namely, that the heptapods have no purpose that we call purpose, because a spatioteleological form of life lacks the structure against which concepts like "purpose," "action," and "reason" find application.

Assessing *Arrival*

Since *Arrival* presents Louise successfully discerning the heptapods' intentions, and the heptapods as acting for reasons, one might be tempted to impugn the movie as a philosophically inconsistent adaptation of Chiang's story. Yet this would be too hasty. I began this essay by noting that treating movies as thought experiments is only one way of bringing film and philosophy together. In this final section, I hope to show how Villenueve's movie has something to teach us about the distinctive philosophical contributions of cinema.

First, by presenting the heptapods as choosing to arrive because they knew of their future need, *Arrival* is able to explore the responsibility Louise has, and feels that she has, for her actions. Learning that someone had no other choice but to do what they did is often accepted as diminishing a person's responsibility for their actions. So, if the nature of heptapod consciousness were presented as precluding choice, the culpability of beings with foreknowledge would be dubitable. Yet the movie wants Louise to be understood as making choices despite knowing the future. Indeed, her capacity for choice is the emotional crux of *Arrival*. Knowing that the daughter she has been remembering will die young, and that her relationship

with Ian will crumble once he appreciates that she knew this fact (he will, we learn, accuse her of having made the "wrong choice"), *Arrival* ends with Louise nevertheless deciding to have her baby. Chiang's novella had Louise's daughter die of a mountaineering accident, but *Arrival* employs a terminal illness to focus our attention on the fatalism of Louise's decision. She is not a prophet, whose visions of future disasters once anticipated may be avoided. She is a being who remembers the future. We sometimes misremember, but in this story memory is reliable. Louise's memories of both past and future are infallible, and yet she is presented as choosing what to do in each moment.

Robert Sinnerbrink has recently argued for what he calls "cinempathy" (the distinctive emotive power of movies to cause a feedback loop of sympathy and empathy in audiences) as a basis of cinematic ethics.[31] He contends that, by employing formal techniques that result in viewers identifying with onscreen events, and thereby inviting us to reflect on our own lives, films can sharpen our moral sensibilities. We can view the way that *Arrival* plays with time in its presentation of Louise's dilemma as a cinematic ethical argument about how to process the pain of difficult decisions.

By introducing us to Louise as a playful, joyful mother, and then showing her as a grieving one, the movie's opening sequence frames her as a woman whose happy days are behind her, an impression that seems confirmed when we see her harried and buried in academic work. But the end of the movie moves us to reject our initial assumptions. Louise's happiness as a mother is still before her. Despite the devastating loss that she knows she will feel when her daughter dies, her decision also actualizes the years of happiness to come. As we re-sequence the emotions we have been attributing to her, we realize that, however much our emotions shape our world while we experience them, they have duration. Louise is not—and never was—simply a grief-stricken parent doomed to a life of melancholy.

So, too, when we face difficult choices whose consequences we can predict (albeit not with Louise's certainty), it is tempting to conclude despairingly that our emotional turmoil will forever endure. *Arrival's*

simple but liberating ethical argument is its call for viewers to acknowledge the different emotional valences our choices have from different temporal perspectives. Beyond this, however, I believe that *Arrival* functions to teach spectators how to be receptive to the cinempathic power of movies. Attending to three further ways that the film departs from its source text brings out this reflexive pedagogical argument.

First, the movie portrays Louise's understanding of, and connection to, the heptapods as unique. She is the sole human to enter the heptapod shell, and the sole human capable of foreknowing. In contrast, other linguists in Chiang's story are able to puzzle their way to a partial grasp of the future by learning to think in logograms.

Second, the movie consistently emphasizes a contrast absent in Chiang's story between Louise's work as a linguist and that of her scientific colleagues. Ian, the physicist, smugly informs her on their first meeting that the introduction to her book is wrong: "*Science* is the cornerstone of civilization, not language." Louise underscores this opposition in a later flash-forward, telling her daughter "if you want science, call your father." Chiang's Louise grapples with constructing and then testing a series of hypotheses about how to parse the heptapod language (such as identifying verb inflection by rotating components of a logogram). Villeneueve's Louise works more intuitively, as when she somehow *knows* that the heptapods want her to draw a logogram on the barrier.

If linguistics is the scientific study of language, why does the movie shy away from viewing Louise as a scientist? If its other characters represent human institutions—Ian the scientist, Col. Weber the military, CIA Agent Halpern (Michael Stuhlbarg) the government—of what is she representative? One explanation worth considering is that our culture—and perhaps particularly our sci-fi culture—continues to be disturbed by the depiction of female scientists. Other recent sci-fi blockbusters with female leads, such as *Gravity* (Alfonso Cuarón, 2013), have similarly emphasized their heroines as mothers rather than taking their work, and work ethic, seriously. But I think that *Arrival* is not impugning Louise's academic credentials by emphasizing her intuitive understanding (as opposed to her

rigorous labor). Rather, it is asking us to question the limits of working within a scientific theoretical paradigm. The methods of linguistics, like those of philosophy, do not fit neatly on either side of the traditional divide between the sciences and humanities.

Finally, the movie introduces religious imagery in the human encounters with the heptapods. When Louise first enters the visitation chamber, she must take a "leap of faith" to adjust to the gravity of the alien shell. Meeting the heptapods requires a slow vertical ascent. When Louise later enters the alien atmosphere, she finds herself walking across a billowing white cloudy ground above which heptapods float. Coupled with the opposition to science, this religious imagery suggests that Louise's learning of the heptapod language is closer to revelation than theory construction: she acquires the gift of foresight and the ability to understand heptapod from her direct contact with them, contact that is also *Arrival's* invention.

If we tie these threads together—Louise as unique, as non-scientific, and as revealed to—I think that we can view *Arrival* as treating the encounter between humans and heptapods as a metaphor for the cinematic experience. The visitation chamber is a darkened room, like a movie theater. Both spaces feature rectangular screens, with similar aspect ratios, and which are the sole source of light. Just as we viewers are wonderstruck interpreters of the movies we watch, especially of spectacular fictions with high-quality visual effects like *Arrival,* Louise and Ian are captivated by the massive heptapods moving above them on the screen, puzzling out what they might mean. And Louise herself, who is led closer and closer to the barrier as her wonder about the heptapods intensifies, lives out the fantasy that we might immerse ourselves in the cinematic world, that we might, as she does, break through and encounter those inhabiting the screen before us.

One converses with a movie by oneself. Even if others are present in the audience, one's reactions to it are unique. To watch a movie from afar, like Ian the scientist—and perhaps, too, the philosopher of film who treats movies as a source of thought experiments (i.e., largely as narratives with little attention to the force of sights and sounds)—is to keep the film at a distance, as an object of critical study from the position afforded us by our

current theory. Reflecting on movies may reveal insights about the limits of our concepts, such as the relationship between selfhood and agency I discussed above. But this is not the only way to critically engage with a text. If we watch a movie up close, like Louise the unscientific linguist—and perhaps, too, the film-philosopher who seeks cinematic ethical insight—we open ourselves up to the cinempathic power of film, of being revealed to, of being challenged and changed, of reshaping our aesthetic and ethical sensibilities. Instead of laboring over the question of whether foreknowledge precludes genuine decision, we may accept the film's invitation to reflect upon the temporal dimension of our own difficult choices and empathize with Louise's painful choice to have her baby. Such cinempathetic experiences may demonstrate lacunae in our extant worldview, revealing the need for new concepts with which to negotiate our experiences.

"Memory is a strange thing," Louise tells us. "It doesn't work like I thought it did. We are so bound by time, by its order." Experiencing time sequentially is not to be caught in a trap; rather, it is one of the conditions that makes our distinctively human form of life possible. But *Arrival* is an argument that learning to speak cinematic language enriches our form of life, just as learning heptapod enriches Louise. Cinema not only affords us a medium through which we can twist and play with time, but empowers us with a way of learning how we can, and should, feel about the situations we confront.[32]

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Endnotes

[1] Thomas Wartenberg argues for the value of films as thought experiments in *Thinking on Screen: Film as Philosophy* (2007); others view films as themselves *doing* philosophy (for discussion, see Robert Sinnerbrink *New Philosophies of Film: Thinking Images* [2011]).

[2] Davidson, "Radical Interpretation" [1973]. Rpt. in *Inquiries into Truth and Interpretation* (2001), 125-140. Our shared ancestry and the families to which our languages belong aided historical interpretive projects. Calling the project in which he is interested "radical" is meant to abstract from these contingencies. In this and subsequent work, Davidson usually presents the radical interpreter as investigating a hitherto unknown and isolated tribal community.

[3] For an example of a noninterpretive truth theory, consider a theory for German in English that entails the theorem "'Schnee ist weiss' is true if and only if grass is green." This theorem is true, since both "Schnee ist weiss" and "grass is green" are true. But plainly this theorem does not show the German sentence *Schnee ist weiss* synonymous with the English sentence *grass is green*. For more, see Davidson, "Reply to Foster" [1976], Rpt. in *Inquiries into Truth and Interpretation* (2001), 171-180.

[4] Fluency in a natural language confers the ability to understand an infinite number of sentences. Davidson maintains that the only way finite beings like us could acquire such a remarkable skill is that languages have a recursive, compositional structure. Radical interpreters must therefore search for alien grammar in constructing their theory. Each alien sentence "S" must be structurally described if our theory of meaning is to be more than a list of observed equivalences. See Davidson, "Truth and Meaning," Rpt. in *Inquiries into Truth and Interpretation* (2001), 22.

[5] "Radical Interpretation," 137. The "plainly plausible" clause functions to prevent charity from lapsing into credulity. If we are positioned to see a cat walking behind a wall that the aliens cannot, we should not rush to change our hypothesis if the aliens fail to assent to "globbolob."

[6] For a discussion of the relevance and limitations of Davidson's conception of interpretation to the search for extraterrestrial intelligence (SETI) project, see Neil Tennant "Radical Interpretation, Logic, and Conceptual Schemes" in *Interpretations and Causes: New Perspectives on Donald Davidson's Philosophy,* ed. Mario de Caro (1999).

[7] Wittgenstein, *Lectures and Conversations on Aesthetics, Psychology, and Religious Belief,* (1967), 6.

[8] Ibid., 6.

[9] For a useful discussion of the challenges of interpreting species with differing sensory capacities, see Tomáš Marvan, "Interpretability, Perceptual Schemes and Triangulation" *Sats - Nordic Journal of Philosophy,* 4, 2 (2003): 93-107.

[10] Critics have frequently misunderstood this point. Anil Gupta, for instance, charges Davidson's argument with relying on a "plainly invalid transition," since charity is one among many possible assumptions an interpreter could make prior to developing a workable theory of meaning for another language (*Empiricism and Experience,* 2006, 195*)*. Yet charity is not to be justified as the only possible starting assumption, but what is demanded of us if we are to avoid parochialism.

[11] Might the Colonel not counter that heptapods are obviously no mere parrots, given their technological sophistication in creating ships capable of interstellar flight? Nicholas Rescher presses a similar objection against Davidson, arguing that we may ascribe minds to others prior to interpretation if the beings whom we observe are "obviously" intelligent, imagining a planet of uninterpretable aliens who live in cities with stylish architecture ("Conceptual Schemes," *Midwest Studies in Philosophy V.* Eds. P. French, T. Uehling and H. Wettstein, 1980, 328 ff). But appealing to "obviousness" here reveals only the limits of one's imagination. For what first appears to us as carefully designed architecture may turn out merely to be instinctively constructed nests. Similarly, it is an assumption that the heptapods created and are piloting their interstellar vessels.

[12] Descartes, "Animals are Machines," [1649]; *Passions of the Soul,* Trans. Stephen Voss, 1989; Davidson, "Rational Animals," [1982] Rpt. in *Subjective, Intersubjective, Objective,* 2001: 96 n1.

[13] "Aspects of our interactions with others and the world are partially constitutive of what we mean and think. There cannot be said to be a proof of this claim. Its plausibility depends on a conviction…*a priori* if you think, as I tend to, that this is part of what we mean when we talk of

thinking and speaking. After all, the notions of speaking and thinking are ours." ("Comments on the Karlovy Vary Papers" *Interpreting Davidson,* Eds. P. Kotatko, P. Pagin and G. Segal, 2001, 294.)

[14] "Truth is one concept among a number of other related concepts [Davidson here mentions intention, belief, and desire] which we use in describing, explaining, and predicting human behavior…All these concepts (and more) are essential to thought, and cannot be reduced to anything simpler or more fundamental. Why be niggardly in awarding prizes; I'm happy to hand out golden apples all round" ("Truth Rehabilitated," [1997] Rpt. in *Truth, Language, and History* 2005, 17).

[15] Frege, *Grundgesetze der Arithmetik,* Vol 1. [1893], Trans. Montgomery Furth as *The Basic Laws of Arithmetic,* (1964) xi-x.

[16] Similarly, a script's punctuation marks may accentuate or facilitate certain linguistic abilities. The evolution of the script of a natural language like English shows certain forms of punctuation (like exclamation marks) being adopted, others (like pilcrows) falling out of favor, and others (like interrobangs) still being pondered. It is interesting to speculate how our culture (and particularly our online interactions) might change if, as some have suggested, we were to introduce a mark to indicate that we intend our statement to be snarky, but this would take us beyond the limits of this paper.

[17] The nature of our help remains obscure. Will humanity only be able to do so once we have mastered heptapod, or is the heptapods' linguistic gift merely a goodwill gesture? Is our current political moment so fraught that the heptapods know we need their language now if we are to survive the next 3000 years?

[18] Chiang, "Story of Your Life" [1998], Rpt. in *Stories of Your Life and Others,* 2016: 120-121.

[19] Kant, *Anthropology from a Pragmatic View,* [1798] trans. Victor Dowdell, 1978.

[20] Chiang 2016, 138.

[21] Velleman, "What Happens When Someone Acts?" *Mind,* 101, 403 (1992): 461-481.

[22] Ibid. 461.

[23] Ibid. 465-466, 469.

[24] Chiang 2016, 139.

[25] See Philip Ivanhoe, *The Daodejing of Laozi,* 2002, xxii.

[26] Chiang 2016, 140.

[27] Ibid., 140-141.

[28] Ibid., 132.

[29] Ibid., 142.

[30] Ibid., 136.

[31] Sinnerbrink, *Cinematic Ethics: Exploring Ethical Experience Through Film,* 2016.

[32] I would like to thank Evgenia Mylonaki, Dan Shaw, Kyle Stevens, and audiences at Bridgewater State University and Appalachian State University for helpful comments on earlier drafts of this paper.