# Science-Fictional Linguistics: How the Arrival of Language Means the Dawning of New Worlds

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## Abstract

Using two recent science fictional (hereafter sf) treatments of linguistics, Ted Chiang's "Story of Your Life," and China Miéville's *Embassytown,* this article extends upon Wittgenstein's philosophy of language through the texts' respective imaginings of alien languages in order to reject the possibility of a normative account of language use. According to Wittgenstein's linguistic stance, as articulated in his *Philosophical Investigations*, language is constructed collectively from communication and the emergence of culture, and a language's development cannot in turn be divided from its community of origin. Structuralist accounts of language, such as Noam Chomsky's Universal Grammar, in contrast presuppose a normative view of language use in which innate mechanisms of the brain result in a relatively homogenous language output irrespective of culture. Troubling Chomsky's universalism, the contemporary sf texts, "Story of Your Life" and *Embassytown,* posit human populations whose very worlds are shaken by the arrival of alien populations with completely foreign forms of language and, consequently, alien forms of life. In both texts, the protagonist becomes the chosen ambassador between the human and alien populations, and their vehicle of understanding, language. The human ambassadors' subsequent actualization of a different worldview through their acquisition of the newly arrived alien language in turn demonstrates the importance of language to culturally acquired worldviews. Moreover, their gradual development of empathy for the alien beings as they become fluent posits language as, first and foremost, a tool of communication and understanding rather than the product of isolated minds. Ultimately, Chiang and Miéville's alien thought experiments illuminate how Wittgenstein's non-normative linguistic philosophies more fully account for language's transformative relation to culture than Chomsky's universalist structuralism.

## Keywords

Wittgenstein, Ted Chiang, China Miéville, linguistics, science fiction

In *Wittgenstein on Rules and Private Language*, Saul Kripke considers how the hypothetical existence of an alien speaker may present a threat to the ontological grounds of human language. Instead of answering 125 when asked the product of 68 plus 57, Kripke's speaker answers five, obeying the alien rule of quus addition. According to Kripke's thought experiment, quus addition means an addition function in which any case in which x and y is equal to or higher than 57 automatically results in five. Kripke in turn argues that no innate rule governs the human capacity for computation and makes one use of the addition symbol more correct than the other. He in turn parallels the arbitrariness of mathematical symbolism to the arbitrariness of language, which he argues is continually open to transformation. Normative views of language in contrast frame innate structures of the human brain as responsible for supposedly universal attributes of language use, such as syntactic patterns. Noam Chomsky's theory of universal grammar, which posits the existence of a language acquisition device within the brain, represents the forerunner of universalist linguistic theories. However, in the spirit of Kripke, the alien languages of two recent science fiction (hereafter sf) novels poke holes in the possibility of a universal theory of language. Ted Chiang's 1998 short story, "Story of Your Life," the inspiration for the 2016 film *Arrival*, and China Miéville's 2012 novel *Embassytown* both feature alien languages that differ from human language in their representation of meaning. In "Story of Your Life," the heptapod language both divides spoken language from written language and produces the written language non sequentially. In *Embassytown*, the Ariekei language lacks symbolic representation, rendering the Ariekei unable to use metaphors. Both texts in turn highlight the direct connections between language use, meaning and culture. Moreover, the war-like atmospheres created by linguistic contact point to how empathetic identification with other minds depends on common language use. Ultimately, Chiang and Miéville's alien thought experiments posit the very notion of an universal theory of language as antithetical to the purpose of language as a tool that does not fatalistically determine worldviews but rather creates a space in which individual minds can communicate and create new, shared meanings.

The alien language users posited by Kripke, Chiang and Miéville prompt the same question in the minds of the humans they encounter: what are they thinking? Language allows for the explicit communication of inner thoughts; when one speaks to a kin language user, a single conversation is sufficient to establish a rough idea of the person's intentions and desires. However, the minds of newly arrived beings with entirely alien languages present

seemingly impenetrable enigmas.

Recent research into theory of mind (hereafter ToM), meaning the ability of a person to attribute a critical mind to another entity and to speculate about the workings of that mind, accordingly points to its dependency on language (Goldman 2). Children with specific language impairments experience delays in the development of ToM (Farrant et al. 1842) and deaf children without a native speaker of sign language in their household experience similar delays (Peterson 123). However, the link between language and ToM development inspires contention. Currently, there are two vying theories behind the development of ToM: theory-theory and simulation theory. Theory-theory contends that the ability to project a different mind onto another person is an automatic human capacity; people in turn refine their innate theories about other minds through direct observations of a person's behavior. Simulation theory, on the other hand, holds that ToM is developed by learning to actively imagine the internal experience of a different person (Michlmayr 10).

Importantly, simulation theory also offers the better explanation for the connection between ToM and language development. Empathy underlies simulation theory; the ability to attribute a thinking mind to another person depends on one's ability to set aside their personal viewpoint in order to imaginatively simulate another's perspective. Paul Harris in turn argues that language facilitates ToM because conversation involves a constant exchange of differing viewpoints that provide feedback on the accuracy of one's simulation of their interlocutor (Harris 1996). Language thus not only provides the cognitive ability to discern the presence of different minds, but also helps one to imaginatively enter those minds.

The relationship between language use and ToM is also at the heart of the Kripkean challenge to normative language views. The point of Kripke's quus speaker is that his inner mind is essentially a mystery to others; the only understanding of his language one can grasp is through its ostensible use in the material world. In contrast, Noam Chomsky, whose universal grammar epitomizes the desire to standardize language use, insists that the interior contents of the mind are not only locatable, but are in fact the most important aspect of human language. In his official refutation of Kripke's thought experiment, Chomsky accordingly focuses on the Robinson Crusoe discussion at the end of *Wittgenstein On Rules and Private Language,* in which Kripke turns to Robinson Crusoe as a case study of an individual who performs language in isolation (*Knowledge of Language* 234).

The issue Chomsky takes with Wittgenstein's theories of language is their emphasis on community. Chomsky contends that the capacity for both language use and the subsequent development of language are determined by universal biological aspects of the human species. Wittgenstein, in contrast, argues that the forms language takes are grounded in communal rules, and that language cannot be divided from its community of origin. Robinson Crusoe, however, could serve as an exception to impossibility of private language theorized by Wittgenstein, for if the language Crusoe speaks while isolated on his island counts as valid due to its own internal rules, Wittgenstein's arguments for the necessarily communal development of language do not hold.

Interestingly, both Kripke and Chomsky's solutions to the Crusoe exception resemble the establishment of ToM. Kripke argues that Crusoe can be seen as playing a language game, because "our community can assert of any individual that he follows a rule if he passes the tests for rule following applied to any member of the community" (110). The community reads the individual as possessing the same linguistic rules as themselves and incorporates them into their language game, just as, in ToM, one's interpretation of another entity as a kin conscious individual leads them to attributes to them similar mental abilities. Chomsky's solution does not in turn significantly differ from Kripke's, though he frames it in support of a universalist perspective on language use. According to Chomsky, one could determine that Crusoe follows similar linguistic rules to humanity generally based on the Cartesian criteria of "other minds," in which "you seem to be a person, exhibiting characteristic features of will and choice, the creative aspect of language use, and other indications of intelligence" (235). Though Kripke connects the identification of a fellow linguistic speaker to community-specific criteria, and Chomsky to more general signs of human intelligence, both solutions depend on the tie between empathy and language. Their proposed criteria for identifying a fellow language user follow the same pattern as ToM, in which one is able to interpret the workings of another mind through its similarities to their own.

The ToM has dangerous implications for Chomsky's normative tendencies, however. Chomsky uses the Cartesian criteria of intelligent minds to justify a machine-like analysis of human language. In *On the Nature, Use and Acquisition of Language*, Chomsky argues as follows:

> We must resort to a representational theory of mind of the Cartesian sort, including the concept of the mind as an information-processing system that

computes, forms and modifies representations; and we must also adopt something like the Cartesian concept of innate ideas, biologically determined properties of the mind/ brain that provide a framework for the construction of mental representations. (7)

To Chomsky, the external criteria that enable one to categorize another person as an intelligent creature with equivalent language capacities support a computer model of the human mind. Notably, such a model homogenizes human minds through its emphasis on universal structures. The content the system analyzes is essentially irrelevant: the point is the common structures that allow for parallel processing. Language is merely the output-input of the system. Chomsky, however, neglects the fact that the intrinsic incommunicability of the mind is what makes the use of external criteria to determine the presence of intelligence necessary in the first place.

Though Chomsky uses a Cartesian ToM as justification for a universal model of language, Wittgenstein offers a different solution. In *Philosophical Investigations*, he turns to the example of a man who constantly forgets what the word pain means, and, in his own mind, uses the word differently each time. However, all of his uses manage to correspond to others within his community's single understanding of the meaning of pain, and therefore they do not perceive that his understanding continually changes and differs from their own (95). By extension, Wittgenstein argues that, "the essential thing about private experience is really not that each person possesses his own exemplar, but that nobody knows whether other people also have *this* or something else" (ibid). Though the communal rules of language allows one to grasp similar footholds on the world to those they share it with, language, by nature of remaining externally in the world, cannot establish a definitive link between what one says and what one thinks. Kripke's linguistic ToM, in which one takes others into their language communities if they *appear* to follow similar language rules, works as a skeptical solution, but, ultimately, ToM points to the indeterminacy of language.

In "Story of Your Life" and *Embassytown,* the arrival of aliens makes the question of determining what *exactly* is in those other minds an urgent matter. "Story of Your Life" is a near-future sf narrative, in which planet Earth suddenly wakes up to twelve oval pods scattered across the globe, each containing a group of heptapods: aliens that resemble a giant, bird-like claw and do not immediately appear to speak an intelligible language. Chiang in turn focuses in on the pod that lands in the United States, making the American linguist

Louise Banks his protagonist. The U.S. government enlists Dr. Banks because the motive behind the heptapods' arrival obsesses them, and they want her to communicate with them. General Hossner pleads that, "we simply need to know why they're here, and what we have that they want" (22). The urgent stakes of determining the heptapods' mindset are made more explicit in Denis Villeneuve's film adaptation, *Arrival*, in which the army becomes convinced the word the heptapods keep communicating is weapon, despite the fact that the available linguistic evidence of its meaning could also indicate more neutral words, such as offering. The initial lack of a common language ground between humanity and the heptapods automatically engenders an environment of hostility. The US government in particular lacks empathy for the new arrivals, whose mysterious minds they instantly interpret as threats.

*Embassytown* is a more fantastical sf thought experiment; set in the imagined planet Arieka, the narrative of the novel focuses on Ambassador Cho, a human woman who lives in Embassytown, a colony of the ruling state of Bremen and the only location where the aliens of the novel, the Ariekei, and the humans interact. Cho and her co-workers receive years of training as to how to interact with the Ariekei, who are seen as dangerous, before they begin their careers as ambassadors. In the universe of Arieka, humans and the Ariekei have co-existed for years, though, so their arrival in Cho's life does not startle her as much as the heptapods' arrival startles Dr. Banks. However, the Ariekei possess a unique vocal instrument, the giftwing, that not only allows them to speak two words at once, but also renders the single speech of humans unintelligible to them, making communication initially impossible and interactions potentially threatening. Unfortunately for the humans of Bremen, the Ariekei also have advanced knowledge of biotechnology that the government is financially dependent on; Cho and her fellow ambassadors' mission to establish clear communication with the Ariekei is therefore crucial to the town's continued economic well-being.

In both texts the perceived urgency of communication is rivaled by its near impossibility, both because of the alienness of the languages and the intrinsic difficulty of all cross-mind communication. In *Embassytown*, the unusual sentience of the Ariekei doubled speech makes it impossible for them to identify human speech as meaningful. Ambassador Cho explains that, "Linguists invented notation like musical score for the interwoven streams of [Ariekei language], named the two parts according to some lost reference the Cut and the Turn voices" (56). Consequently, they view humans as machines rather thinking entities.

Ambassador Cho consider how, "understanding only Language-speakers to have minds, they must have thought it odd when Ambassadors carefully introduced them to speechless amputated half-things. As if an Ariekes insisted on one politely saying hello to its battery animal" (85). The particularly sentient nature of Ariekei language and their subsequent interpretation of humans as machines highlight the degree to which attributing intelligence to another creature is dependent on intelligible communication.

Moreover, intelligibility promotes empathy. To overcome the seemingly impregnable linguistic divide between the Ariekei and the human ambassadors, for instance, scientists of Embassytown initially use the Stadt Dyadic Empathy Test to locate a pair of humans similar enough to produce unified speech. They believe that if a pair of two humans is able to, "attain a certain threshold together on its steep curve of mutual understandingness, fire up machines to connect various brainwaves, synching and linking them… [they] might just be able to persuade the Ariekei that there was meaning to their noses" (57). However, after years with no success, they switch to genetically raising ambassadors with matching genetic material, and connecting their minds with artificial biosensors, so that they grow up able to talk in sync and effectively mimic the Cut and the Turn voices. Cho explains that, "they had the same genes but much more: it was *the minds* those carefully nurtured genes made that the Hosts could hear. If you raised them right, taught them to think of themselves right… then they could speak Language" (58, emphasis added). Finally, the Ariekei interpret the twinned human ambassadors as an articulate, single person. Though the genetically-manipulated ambassadors thus achieve empathetic identification, the beginning of the novel thus frames cross-cultural understanding as impossible without biologically warping the human mind to accord with the Ariekei mind; mutual adaptation remains a dream.

Chiang more metaphorically demonstrates the difficulties with empathy engendered by the indeterminacy of communication through his depiction of Dr. Banks' relationship with her daughter. Though the story focuses on Dr. Banks' role as a professional linguist, Chiang also layers her interaction with the Heptapods with her memories of raising her daughter through alternating sections. Each memory represents the growing gulf of understanding separating Dr. Banks from her daughter, whose extraverted temperament differs radically from her own. The pastiches of their evolving relationship thus emphasize the limits of human understanding more explicitly centered around language in the Heptapod scenes. In one, Dr. Banks chastises her daughter for drinking too much at a party; her daughter replies

that her mom surely did the same as a teenager, while Dr. Banks knows inwardly that she never did. She ends the memory by stating that, "What I'll think is that you are clearly, maddeningly, not me. It will remind me, again, that you won't be a clone of me; you can be wonderful, a daily delight, but you won't be someone I could have created by myself" (11). Dr. Banks' lack of control over her daughter's growth parallels her increasing understanding of the Heptapod language, resulting in a reversal: as Dr. Banks comes close to fluency in the Heptapod language, living with her daughter becomes "like aiming for a moving target; you'll always be further along than I expect" (15). The inherent enigma of raising a child matches the enigma of learning another language. Though Dr. Banks controls many external factors of her daughter's life, such as her environment and education, she cannot control the interaction between external experience and the internal workings of her child's mind. In the same way, though one can learn the external signs and sounds of a foreign language, subsequent use of those signs is dependent on one's internal relationship to language. Learning a new word for "cat," for instance, will not significantly alter the meanings one has learned to attach it. As Wittgenstein puts it, "my own relation to my words is wholly different from other people's" (192). Though Dr. Banks comes to understand the Heptapod language at the same time as she increasingly misunderstands her daughter, both learning experiences ultimately point to the indeterminacy that exists between the inner world of the mind and the social world of communication.

Wittgenstein, however, offers a potential light in the storm. Though literary theorists insistent on the purely arbitrary nature of the sign bemoan linguistic indeterminacy as hopeless, Wittgenstein turns to the relation between language use and meaning to redeem semantics from a fundamental sort of meaninglessness. In his framework, the meanings attributed to words develop from their cultural history of usage in a linguistic community. He provides the example of "a language in which all statements had the form and tone of rhetorical questions," so that every sentence a speaker in that community utters has "the form of a question but is really a command" (10). Semantics, more than syntax, embodies cultural differences: even sentences with identical structures may lend themselves to different meanings in different contexts. From a communal perspective, meaning is not simply a correspondence between referent and representation, but a holistic interpretation of a linguistic communication within its cultural context.

The essential embeddedness of language use is what makes Miéville set his sf

exploration of linguistics explicitly in a *town*. As part of their training, Cho and her fellow ambassadors are taught to travel through the immer, a hypothetical zone of permanence underlying the temporary universes of mortal beings. The universe of Embassytown is the third universe produced from the immer, for instance. Cho describes describes the immer as "*beyond words*" (29); in turn, "the best we can do is say that the immer *underlies* or *overlies*, *infuses*, is a *foundation*, is *langue* of which our actuality is a *parole*" (31). Significantly, the timeless, peopleless structure of the immer elides linguistic description. In contrast, Embassytown, the center of trade operations for Bremen, is a hub of language, for it acts as the designated place for the Ariekei and human ambassadors to attempt communication. Miéville thus marks language as a zone of geographic navigation, evoking Wittgenstein's idea that "our language can be seen as an ancient city: a maze of little streets and squares, of old and new houses, and of houses with additions from various period" (8). Framing language geographically calls attention both to how language allows a person to ground themselves in the world and to the fact that language is always in flux, that "no *a priori* paradigm of the way concepts ought to be applied governs all forms of life, or even our own form of life" (Kripke 105). By making the protagonist of his novel an ambassador, Miéville highlights the essentially contingent nature of language as a tool invented for communication and thus continually open to the entry of new speakers and susceptible to the changes effected by those newcomers.

Moreover, the communal rules, or language games, established for the sake of clear communication between the inhabitants of a given community give rise to specific forms of life that both influence and speak to that community's perspective on the world. Accordingly, the different meaning capabilities of the Ariekei and the heptapod languages determine the fundamental differences between their form of life and human life. The heptapods write the circular symbols of their written language all at once: the various physical attributes of the circle, which each stand for different words, are not only written instantaneously, but they are also written in an order irrelevant to the sentence structure, so that the placement of noun and verb phrases changes arbitrarily with each symbol. The non-sequential nature of their language in turn allows them to acquire a simultaneous worldview, meaning they interpret life events teleologically. Chiang exemplifies their unintuitive worldview to his human reader through Fermat's principle: the mathematical law that, given two points, light will take the path of least time between them. Light thus chooses its path based on its end goal. To the heptapods events are accordingly "meaningful only over a period of time" (23). In contrast to

the human tendency to rely on a cause and effect framework of interpretation, so that event A causes event B, the heptapods see events A and B as happening simultaneously. Theyin turn use language performatively rather than informatively. For instance, Dr. Banks notes how, even though they know in advance how their negotiations with the US government will end, they still play their role in their conversations. The way in which the heptapod language conveys meaning corresponds to their particular forms of behavior and perception.

The highly specific approach to meaning of the Ariekei language, in turn, results in a *limited* form of life. To an Ariekei, "speech was thought. It was as nonsensical to them that a speaker could say, could claim, something it knew to be untrue as, to me, that I could believe something I knew to be untrue" (83). As their language is purely referential, the symbolic use of language is lost on them. The closest the Ariekei can come to a metaphorical use of language is to physically employ objects as similes. Cho tells of "a house in Embassytown out of which, many years before, the Hosts had taken all the furniture, then put it back, to allow some figure of speech. The split stone, made so they could speak the thought, *it's like the stone that was split and put together again*" (106). With the arrival of human ambassadors in their lives, they employ humans as similes, as the idiosyncratic actions of living entities lend themselves to more nuanced figures of speech. Cho becomes their favorite simile, standing for "*the girl who ate what was given to her,*" meaning, approximately, a person forced into doing something they don't want to do. Their use of similes points to their desire to move beyond the current limits of their language, as their literalized experience of the world grounds them in immediate experience and cuts them off from the world of abstract thought and poetics offered by symbolic language. Miéville's depiction of a language limited in its access to meaning initially seems an apt demonstration of how one's linguistic perception of the world inescapably determines one's lived relationship to the world.

However, the Ariekei's frustration with the restrictive nature of their referential language recall Wittgenstein's frustration with his earlier, inflexible view of language. While in *Tractacus* he held that the limits of one's language *determined* the limits of one's world, in *Investigations*, he poses the perceptual limits of a language as necessary to its usage but also continually open to transformation. *Investigations* accordingly introduces the concept of aspect-seeing, which describes how language brings into focus certain aspects of objects in the world but inhibits the perception of others. To illustrate aspect-seeing, Wittgenstein points to the rabbit-duck illusion, in which an ambiguous cartoon head can either be seen as a duck

or a rabbit, but never both at once. Once the rabbit head is pointed out, the duck disappears, and vice-versa. Aspect-seeing thus highlights the contingent nature of a particular language: while a language clarifies certain aspects in one's environment, it never captures the full picture and is therefore subject to change by new information. Chiang captures the implications of aspect-seeing aptly when he describes the universe as "a language with a perfectly ambiguous grammar," (26) meaning that the vast fields of sensory information in the material world available for individual perception allow for endlessly different descriptive languages. Universalist accounts of language, in contrast, elide the necessary contingency of language as a momentary description of a particular perspective on the world. Like the referential language of the Ariekei, a universal theory of language risks limiting the potentiality of language by prioritizing fixity over flexibility, forgetting that "the multiplicity [of languages] is not something fixed, given once for all; but new types of language, new language-games, as we may say, come into existence" (Wittgenstein 11). Aspect-seeing brings language back down to its human limits, and, in doing so, redeems its potential for creativity.

As imaginative illustrations of aspect-seeing, *Embassytown* and "Story of Your Life" foreground the way in which the linguistic transformations caused by cross-cultural contact disrupt the respective alien and human worlds. In *Embassytown,* the Ariekei's introduction to symbolic, human language sparks a cautious but curious relationship between the hosts and the ambassadors, culminating in "The Festival of Lies," in which the Ariekei have the genetically constructed ambassadors perform lies that they then attempt to mimic. As the genetically constructed ambassadors are technically human, they can perform the symbolic language act of lying. Cho describes a standard experience at the festival thus: an Ariekei points to a blue mushroom and asks the ambassador MayBel to describe it; obediently, "MayBel answered, May in the Cut, Bel the Turn voice. The Ariekei stepped up and down… A tense excitement… Scile looked as if in disbelief at me. 'They're saying 'It's red.'" (84). The ability to lie astonishes the Ariekei living in a referential mindset; they become so entranced with the possibility of lying that they turn the festival into an athletic competition, in which the Ariekei themselves try to lie. Again, Miéville points to the Ariekei's desire to escape the bounds of their language. To the referential Ariekei, linguistic innovation is both a spectacle and a feat. The most successful Ariekei liar, $\frac{\square\square\square\square}{\square\square\square\square-\square\square\square\square\square}$, for instance, learns to build up to a lie through half-truths; first he says, "*Before the humans came we didn't speak so much of certain things*," then, "*before the humans came we didn't speak so much*," and,

finally, "*Before the humans came, we didn't speak*" (157): a true lie. The other Ariekei respond to $\frac{\square\square\square\square}{\square\square\square\square-\square\square\square\square\square}$'s successful lie ecstatically. The ability to use language symbolically represents an opening into a new way of life.

For Dr. Banks, too, the transition from human to heptapod language acts as a cognitive awakening. After practicing the written heptapod language for weeks, she finds that "there were trance-like moments during the day when my thoughts weren't expressed with an internal voice; instead, I saw semagrams with my mind's eye, sprouting like frost on a windowpane" (22). Moreover, the visual representation of meaning changes her thought patterns; she, too, begins to see life teleologically: seeing a wooden bowl sparks a memory of her daughter dropping it, leading her to make the purchase (25). Like with the Ariekei, induction into a new form of language does not frighten Dr. Banks; rather, developing the heptapod language makes her realize that the human language was merely one of many possible perspectives.

Witnesses to the Ariekei and Dr. Banks' linguistic transformations, however, still unaware of language's contingency, fear the threat to culture posed by linguistic instability. In *Embassytown*, after $\frac{\square\square\square\square}{\square\square\square\square-\square\square\square\square\square}$ lies successfully, the conservative human ambassador, Valdik, kills him, believing that teaching the Ariekei to lie will ruin the purity of their language. Similarly, though, in "Story of Your Life," Chiang observes Dr. Banks' transition matter of factly, merely using her changing experience of time to illustrate his more academic explanations of Fermat's principle, the film adaptation focuses on the negative cultural effects of Dr. Banks' transition. In the short story, Dr. Banks and her husband, Ian, split due to personal differences and their daughter unrelatedly dies from a rock-climbing incident; however, in *Arrival*, Dr. Banks' husband divorces her because he finds out that she, like the heptapods, sees the future and foresaw the early death of their daughter by disease, but decided to have her anyway. Ian consequently believes his wife inhumanely subjected both them and their daughter to tragedy. To a heptapod speaker, however, the teleological worldview does not allow one to cause an event but only enact it.

For Ian, as for Ambassador Valdik, the window into new aspects opened by an alien language is a cause for fear rather than celebration. After all, the very phenomenon of aspect-seeing points to the necessity of taking a perspective; the risk Wittgenstein repeatedly warns of is, in turn, the ease with which one can become over-invested in a specific way of seeing.

The danger aspect-seeing presents is allowing "a *picture* [to hold] us captive," for, once held, "we [cannot] get outside it, for it lay in our language and language seemed to repeat it to us inexorably" (*Investigations* 48). Ian, uninitiated in the heptapod language, cannot even begin to understand his wife's new form of life, as he remains caught by the picture of free will inherent in human language. For Valdik, too, the referential nature of the Ariekei language is what preserves their integrity as a species. The power of language is its seemingly all-encompassing nature in relation to thought: once words mesh with personal values through a history of usage, it becomes nearly impossible to disentangle contingent patterns of thought from normative standards of behavior. *Embassytown* and *Arrival*'s cultural investigations of language highlight the resulting fear that, if language indeed structures communities, it can also destroy them.

Ambassador Valdik and Ian moralize the value systems of languages on the brink of transformation because they fear that chaos lurks in the space between languages. However, to Wittgenstein, the contingent nature of aspect-seeing ensures the continual dawning of new forms of expression. The "*possibilities* of phenomena" (Wittgenstein 8) intrinsic to language use are in fact more representative of human experience than the provisional nature of communication. Language is a shallow representation of the half-formed ideas and vague intuitions that characterize the depth of human thought. For instance, Wittgenstein uses the example of seeing a familiar face in a crowd and the resulting moment in which the partially perceived face of a stranger becomes the fully recognized face of a friend to exemplify the nature of dawning (*Investigations* 197). In such cases, dawning produces a distinct sensation, in which "the flashing of an aspect on us seems half visual experience, half thought," (ibid) because dawning can only occur if the particular contours of one's thoughts are already partially prepared for the aspect. In his article on aspect-seeing, Reshef Agam-Segal uses a musical metaphor to highlight the half-prepared nature of dawning aspects, arguing that, "things resonate in us, in aspect-perception, by activating in us conceptual capacities; they play on the keyboard of our mind" (46). Thus, it does not follow from Wittgenstein's posited connection between language use and cognitive perception that language controls thought; on the contrary, aspect-seeing reveals language as only a single expression of thought's latent potentialities. The heptapods activate an aspect of Dr. Banks' perceptual system not formerly in use, just as the ambassadors introduce the Ariekei to their inactive but latent capacity for symbolism. The dawning of new aspects rather ensures that the solidity of language never locks the fluidity of thought into stasis.

Wittgenstein's insistence on the indeterminacy of language in *Philosophical Investigations* shows how the intuitive suspicion that one's language means one's world is only an illusion: language is, rather, a temporary grasp at expressing the deeper world of the mind for the sake of immediate communication. Language expresses a way of seeing in a given moment, but "what dawns here lasts only as long as [one is] occupied with the object in a particular way" (Wittgenstein 210). *Embassytown* in turn portrays the inevitability of linguistic pluralism given that language games develop out of the play between different perspectives on the shared object that is the world. It is ultimately through the introduction of ambiguity that the Ariekei come into a full use of language; they become addicted to the speech of the ambassador EzRa: the only ambassador able to speak Ariekei not formed through eugenics. EzRa is in fact two different humans with similar enough minds to produce simultaneous speech. As such, the Ariekei can recognize EzRa's speech as meaningful, but not *quite* Ariekei. As Cho's friend Bren explains: "the unity's there and not-there?... It's impossible, is what. Right there in its form. And that is intoxicating… It's like a hallucination, a there-not-there. A contradiction that gets them high" (169). The fact that EzRa's speech sits on the edge of intelligibility becomes literally addictive to the Ariekei, whose entire former relationship to linguistic expression depended on its direct relationship to perception and resisted the complication of private thought. Cho notes how, "in the beginning was each word of Language, sound isomorphic with some Real: *not a thought*, not really, only self-expressed worldness, speaking itself through Ariekei. Language had always been redundant: it had only ever been the world. Now the Ariekei were learning to speak, and *to think*, and it hurt" (311, emphasis added). The ambiguity of EzRa's speech entrances the Ariekei to the point where his public speaking events consist solely of mundane stories from his childhood: the Ariekei are addicted not to the content of his speech but to the cognitive possibilities it represents. Their addiction represents their desperation to enter the richer world of linguistic difference previously hinted at by the Festival of Lies.

Similarly, Chiang's positing of two antithetical linguistic worlds reveals the insistence on universality that underlines structuralist theories as an inadequate approach to contextualized language use. Dr. Banks points out that the difference between sequential and simultaneous consciousness is, "simply a different context, no more or less valid than the other" (28). Chomsky's universal theory of language seeks the ultimate explanation for linguistic variety in innate biological structures of language production, but the temptation to subsume linguistic innovation under a single structure within the mind perhaps comes from

the lived experience of language itself. Language provides the stability of articulation, in which one's vague thoughts about the world are transformed into tangible observations. Wittgenstein provides the example of how one may, "interpret a grammatical movement made by yourself as a quasi-physical phenomenon which you are observing," but quickly concludes that actually "what you have primarily discovered is a new way of looking at things" (121). What feels like a concrete understanding of the world is only a temporary form of perception. The seeming stability and the actual ephemerality of language thus go hand in hand: each language game gives birth to a new aspect that has a lasting influence on human consciousness, but whose literal form in a specific sign rarely lasts. Miéville accordingly characterizes the transformed Ariekei as primarily in awe of the power of language to change their cognitive relationship to the world; he describes how, "there wasn't supposed to be such a thing as uncertainty in the minds of [the Ariekei]. Its *sudden arrival* arrested them" (323, emphasis added). Though words may fade, their effect on human thought remains.

Moreover, the long awaited arrival of human language and its capacity for symbolism allows the Ariekei to adopt a more inclusive ToM. Towards the end of the novel, after EzRa's death sparks a war between the addicted Ariekei and the ambassadors, Ambassador Cho attempts to teach the Ariekei to comprehend human language as intelligible speech, so that the human ambassadors and the Ariekei can communicate and re-build Embassytown. To do so, she has the constructed Ambassador YlSib translate her words, in which she continually insists that she is not only the simile, *the girl who ate what was given to her*, but is also, like them, a living creature. She explains to the Ariekei $\frac{\square\square\square\square\square\square\square}{\square\square\square\square\square\square}$ that, "I waited for things to be better, Spanish, so I'm like you. I am you… I glow in the night, I'm like the moon. I am the moon… I'm so tired I lie as still as the dead, I'm like the dead. I'm so tired I *am* dead. See?" (308). The chain of similes sets up a path to metaphor, which, in turn, allows for identification with an Other: a mature ToM. According to Avin Goldman, key to the ability to simulate ToM is the "projection of the self into alternative situations, involving a perspective shift from the immediate environment to an imagined environment" (14). Just as with metaphorical thinking, ToM involves using the imagination to step outside of one's immediate, sensory understanding of the world. With Cho's help, $\frac{\square\square\square\square\square\square\square}{\square\square\square\square\square\square}$ eventually realizes that, "*You are the girl who ate. I'm* $\frac{\square\square\square\square\square\square\square}{\square\square\square\square\square\square}$. *I'm like you and I am you… waiting for change*" (309). Metaphors capture aspects of world-experiences in a word or turn of phrase not grounded in reality; they in turn suspend perception in the abstract realm of

imagination, allowing linguistic beings to share common truths across time and space. Through the introduction of symbolic language, the Ariekei are able to recognize human ambassadors as thinking entities with minds different than their own but no less open to the possibility of communication.

Both Chiang and Miéville trouble normative understandings of language use through their illustrations of radically alien languages. Chiang's heptapods' and Miéville's Ariekeis' multivalent speech patterns highlight how language is never a closed system but rather a cognitive tool that continually reveals new meanings to the perceiving mind. Moreover, their alien thought experiments, like Kripke's hypothetical quus addition rule, push further than the descriptive linguistics of universal theories in order to point to the inadequacy of accepting language as it is rather than considering what it can be. The alien speech of the Ariekei and the heptapods highlight the ways in which language only temporarily grounds people within communal systems of communication and is ultimately always destabilized by the transformative nature of thought. Further, the growth in understanding between the human ambassadors of the novels and their alien counterparts points to language's ability to promote empathy by allowing speakers to share in their different perspectives. While Chomsky's preoccupation with discovering homogenous and universal mechanisms behind language production effectively divests language of its purpose in expanding human knowledge, cultural considerations of language capitalize on the productive differences between divergent linguistic perspectives. Towards the end of *Investigations*, Wittgenstein fittingly poses an invitation to his unconvinced readers in the hope of inspiring openness to the radical possibilities of language:

> if anyone believes that certain concepts are absolutely the correct ones, and that having different ones would mean not realizing some thing that we realize- then let him imagine certain very general facts of nature to be different from what we are used to, and the formation of concepts different from the usual ones will become intelligible to him. (230)

The alien civilizations of *Embassytown* and "Story of Your Life" accordingly question the possibility of uncovering universal "facts of nature" within linguistic patterns. The difference being, the aspects they reveal dawn not on the alien worlds of the novels but the human world of the reader.

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