

# Semiotic and Temporal Relativity in Arrival

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## Abstract

This paper is an attempt to discover the semiotic relationship between time and language in the motion film *Arrival*. There is a clear attempt from the makers of this film to blend linguistic research with humane narrative. Time and Semiotics play seminal factors in this film as they both mark the understanding of the unique plot structure of the film that converts a popular Hollywood theme into an academic research. This study will also examine the practicability of linguistic relativity in this film through the lead character Dr. Louise Banks. It will also shade some light considering novel languages from a culturally and temporally connected perspectives.

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*Index terms*— linguistic relativity, temporal reality, semiotic language, sapir-whorf hypothesis, arrival, film narrative.

## 1 Introduction

Outside the representation of hostile aliens, superintelligent computers, and peak human capabilities, it is rare to have a popular blockbuster exploring combinations of semiotic relativity, cognitive neuroscience, and humane narrative. In most cases, science fiction films, in general, try to explore elements of "fear and reasons" (Melvin and Matthews 51) as a guaranteed success for blockbusters. The sales are never dry for alien films. It is quite rare to find films that are out of commercialized film marketing stunts for those unseeingly "casual visitors" or aliens who usually almost in every film come to our planet uninviting. Before the 1950s, most sci-fi films were centered on a rogue philosophical attitude of attack and kill. It was until in the late 1950s as asserted by Melvin and Matthews that the 'outside visitors' were not as hostile and determined to annihilate sort of entities (49). As Larry Niven claims that the idea of accepting these other earthly creatures has rooted genes in our systems and "meeting aliens has been a normal thing for humankind (17)." *The War of the Worlds* by H.G. Wells is one of the popular and major champions of the 'alien terror' and the casual hostile 'others' resulted in a massive panic in an 'actual hoax' in 1938 ("War of the Worlds': Behind the 1938 Radio Show Panic"). The seminal point of projecting "alienness" alludes to the fact that, apart from being in the realm of high fantasy, the conceptualization of aliens in movies can be seen as 'manufactured' commodities every year.

In his attempt to comprehend aliens as found in films, Schelde said that, Most, however, does not deal with space travel or space aliens; most [films] deal with the disasters wrought here on Earth by the very tools humans used to kill the folklore monsters, namely, technology and science. Science grew out of myth and magic, which are, after all, attempts at explaining how the world functions. Science is simply a more efficient, more sophisticated and testable model of the world and the way it functions than is magic or myth or, for that matter, religion. But science and technology, like magic, are not just theories about the universe; they are prescriptions for how humans can get the greatest benefit from interacting with nature. And science shares another feature with magic: it has, or seems to have, mysterious and thus potentially dangerous properties (4)(5).

It is quite evident that the consideration of aliens derived by audiences' utmost curiosity and also the narrative and the language of film has grown up to a certain point that can be as tempting as well as a blatant provocation towards content-consumption fetish. Aliens are made to appear as our default arch enemies yet they apparently have greater sales values in film merchandise.

*Arrival* is a 2016 science fiction film by Denis Villeneuve about an alien visit to earth, adopted from the short story titled "Story of Your Life" by Ted Chiang. This film emphasizes that language research is as important as the typical scientific research like physics or mathematics ("Making Language Research Less Alien: The Science

of Arrival”). Language plays a big part in the film apart from the visitation of the aliens. The lead character, Dr. Louise Banks is the linguistics professor with the task to decipher the language of the aliens named as Heptapods. The ideas and the “logocentric” language have partially drawn inspiration from the Sapir-Whorf hypothesis which suggests that language can actually put an impact on the thought process; however, the theory is partly being fictionalized for better suitability with the film. Mostly, the philosophy of composition of Arrival suggests the representation of semiotic and temporal relativity. Language in this movie along with time dilation between future and present eludes to the fact that the alien language is circular which contains time and action in the same frame. Understanding the Heptapod language is altogether a different experience with time and space hence the linguistic relativity seems a fit for analysis for this film. The alien language, in the film, has two modules: the aural (Heptapod A) and the semiotic (Heptapod B) (“Jessica Coon: Linguistic Consultant on Arrival” 21). The film deals with an idea of singularity that the apparent symbolic language usually rewires the thought process of the lead character. Moreover, the science of Arrival is an attempt to retell Descartes’ famous idea, “Cogito, ergo sum” which simply means, “I think, therefore I am” and that sets apart a question which refers to as: “Does one actually for instance become Spanish simply by stating that, “I think [in Spanish]. Therefore, I am [Spanish]?” (“Arrival, Translation and the Sapir Whorf Hypothesis”). The film does not try to untangle these linguistic confusions rather it puts emphasis on time and its relation to language. This paper is an attempt to bridge a relation between the idea that time combined with semiotic reality is one of the seminal understandings that this film provokes. It will also endorse the point that a film such as Arrival expands a version of reality that the role of language is not merely for communicative purposes but it encompasses more symbolic elements than we ever thought it would be.

## 2 II.

### 3 Visitation and Arrivals

Dr. Louise Banks, a linguistics professor is the protagonist and the narrator of Arrival. This film explores her experiences and reckonings as both as a linguist and as a mother. At the beginning of the film, we were shown some memories that seem like her past where she gave birth to a daughter; who reaches youth and eventually dies out of some incurable disease. In present at the university, she was interrupted by the news of the arrival of 12 alien ships positioned in different parts of the globe. She returns back to her lonely household captivated by the news. In the wake of these alien arrivals, the government orders a nationwide shutdown that also applies to the university where she works. Banks meets US Army Colonel Weber in her office. He was seeking help from her in deciphering a recording from the alien encounter. Weber asks her to figure out the reason behind the alien visitation from the recordings. She tells them, from her professional perspective that she needs to talk to them in order to get a clear picture of the situation. Colonel Weber however does not seem interested in that proposition.

Later as other experts failed in deciphering the messages, she was transported to the site. She meets the physicist Ian Donnelly en-route who says that he disagrees with her views on language. Donnelly thinks that science is the cornerstone of civilization, not language. While they are having the ‘language vs science’ debate, Colonel Weber explains to them their mission as to “discover the patterns...and map these patterns to the intended meaning” (“Jessica Coon: Linguistic Consultant on Arrival” 21). As they enter the spacecraft from underneath, they are faced with some unknown anti-gravitational mechanism which somehow amused the newest visitors. The aliens are some sort of advanced life forms. It appears as quite a shock for Banks when she finally has a real encounter with the ‘Heptapods’. The intriguing thing found in this alien abode is a giant screen that is facing them. The humans also brought a whiteboard to establish a possible communication. As a primary attempt to establish a communication with the ‘Heptapods’, they write “Human” on the board. The pods consider the human gestures as some sort of language and respond with a circular symbol like “nonlinear orthography (Villeneuve)”. From the linguistic relativity perspective words “can prime parts of the brain to work better (The Science Behind)” and Arrival tries to be an example of that experiment.

On the next trip, at some point in the conversation, Banks takes off her radiation suit to everybody’s surprise and Donnelly follows her. She wrote in the board “Ian” and points at Donnelly. The pods respond by drawing two symbols. It appears that the pods are distinguishable. Donnelly calls them ‘Abbott’ and ‘Costello’. The team goes through a series of back and forth conversations with the aliens which appear to sustain for a month. The purpose of these interviews is to find the answer to the question, “What is the purpose of your visit to Earth?” The communication process between the aliens and the humans appears to be complex with a relatively slow learning graph. The process of learning is long. The civilians and the army seem to be paranoid about the prolonged presence of the pods. There are grudges building inside and outside the army. Meanwhile, China decides to stop all communication with the aliens and go hostile and other nations follow suit. Eventually, every country working on this project together stops communicating with each other and tries to apply their own strategy. The last response the team gets from the aliens is translated into “use weapon”. This creates paranoia amid all the concerned.

After hearing the information about using the “weapon”, a fraction of the army decides to put a bomb in the alien ship and annihilate the pods. Banks and Donnelly come to the spot asking persistently to enter the spaceship. They feel that the message containing “use weapon” has been misinterpreted. The new language has become a ‘hammer’ as the aliens become the nails for the humans. When Banks and Donnelly meet the

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108 Heptapods, they pull out a lot of symbols on the board and throw both of them out of the ship, protecting them  
109 from the blast. The subtle difference and the following misunderstanding between words like 'weapon' and 'tool'  
110 create a pandemonium that might have led to disastrous consequences.

111 What Banks goes through during her interaction with the aliens is different from any other human experience.  
112 Donnelly mentions a theory about rewiring the brain with learning a new language. We can see that Banks has  
113 immersed herself into the alien language so much that her reality has been reshaped by the nature perceive all of  
114 her past, present and the future in the same frame. For Banks, time remains non-linear. Through her learning  
115 of the alien life, she starts to have visions of her future child, whom she will never be able to save.

116 The alien vessel goes up higher after the attack. The humans lose the access into the vessel. However, Donnelly  
117 has a breakthrough; he finds that the twelve alien ships are interconnected as they are probably urging humans  
118 to work together. Meanwhile, Banks travels through a transportation device that comes from the craft. She  
119 visits the aliens again and learns that Abbot is in "death process." Costello tells Banks that she needs to use  
120 'weapon'. Banks says that she does not understand what "use weapon" actually means. Later, it reveals that by  
121 'weapon' it means that the language of the aliens opens time dimensions. As Banks understands the language,  
122 it opens time for her. Costello tells Banks that in three thousand years the Heptapods will need humanity's  
123 help. It becomes quite evident that the reason she is seeing the future is also the reason the message has been  
124 misrepresented. China and the coalition get ready to attack and the alien ships go vertical either to attack or  
125 brace for impact. Banks sees into the future where she meets the Chinese general Shang as he tells her that he  
126 has come to the party only to meet her. He thanks her for the phone call that she made to his private number  
127 to change his mind. Banks has no clue about what the general is talking about. General Shang at the party  
128 gives her his private number. He also tells her that the reason he has called off the war is because of that phone  
129 call where Banks told him the dying words of his wife which translates as "In war there are no winners, only  
130 widows (Villeneuve)." In the present time, as Banks has access to the information, she steals a satellite phone and  
131 calls the Chinese general. Eventually, China calls off the attack and starts sharing all the information with other  
132 parties. We see that the purpose of the aliens is now complete as they impart their knowledge of their language  
133 to humans. They leave. Next, we see that Donnelly is the father of Hannah, the yet to be born daughter of  
134 Banks. It is also fascinating that her name is a palindrome, like a circle. We also see that after knowing the  
135 inevitable death of her child and separation with her husband, Banks embraces the future.

## 136 4 III.

## 137 5 Linguistic Relativity

138 The idea that language and thought are intertwined goes back to the classical civilizations, but that reference  
139 never came up to the 'mainstream' thought process as fundamental. Some people thought language is sort of a  
140 'veil' that covers up the eternal experience or exposition of truth from human experience. Saint Augustine, for  
141 instance, put one step forward into that direction and explained that language simply levels its own identities into  
142 pre-existing concepts (Gumperz and Levinson 1). For Immanuel Kant, language is one of the several tools used  
143 by humans to experience the world (Froster 285). In the late 18th and early 19th century, the idea of different  
144 national characters that are also known as the "Volksgeist" or "different" ethnic groups were the main force  
145 behind German romanticism (Benware 3). In relation to the communal spirit, the idea of the "Weltanschauung"  
146 or "world view" came through from the works of Humboldt. The speculation of language, culture, and thought  
147 can probably be traced back to the earliest days of philosophy; but the problem that is against the idea of  
148 language being the center or determiner of thought has a temporal identity, due to the relation of time and space  
149 the language occupies or describes. For instance, a stone can be called a stone whatever or, however, people call  
150 it. It has its relation to the fact that whether or not it can be labeled as something or not, the core idea remains  
151 the same.

152 The Sapir-Whorf hypothesis also known as the 'linguistic relativity' principle is the idea that at the center of all  
153 varying cultural concepts in sociopolitical categories and imagined/real cultural narratives of different languages  
154 tend to differ due to their linguistic differences. Roger Brown has drawn a distinction between weak linguistic  
155 activity where thoughts and feelings are limited by language, and on the hind side strong linguistic activity refers  
156 to the power of language in determining thought (Gumperz and Levinson 1). The idea of linguistic relativity has  
157 been subjected to condensed studies in various fields like anthropological linguistics, psychology, psycholinguistics,  
158 neurolinguistics, cognitive science, linguistic anthropology, sociology of language, and philosophy of language. The  
159 idea was first introduced in the German Romantic movement where, the notion of "individual thought inspired  
160 by language" was found heavily influencing the nationalistic feeling. In the 1960s, the idea of linguistic relativity  
161 fell out of favor in the academic establishment owing to Chomsky's theory of universal nature of grammar and  
162 thought. This principle was criticized for being not scientifically proven. Later in 1969 study, Brent Berlin and  
163 Paul Kay showed that in terms of color terminology there is the existence of universal color terminology hence  
164 leaving the Sapir-Whorf hypothesis discredited.

165 In the 1980s, a new branch of linguistic relativity scholars found some support in experimental contexts  
166 consisting of social and cognitive linguistics. The domain for linguistic relativity, after these experiments, found  
167 its home in three types of social conditions namely spatial cognition, social use of language and color perception.  
168 In recent days the research mainly focuses on creating a balanced view of linguistic relativity that was most likely

169 to be adopted by linguistics as a non-trivial way of using language in every context while exploring the plots of  
 170 the universal factors in language. Some of the current research focused on the ways of experimenting and viewing  
 171 the ways how language influences thought and also determines our relative nature of language.

172 Linguistic relativity explains the idea that language influences the thoughts of its speakers. It also makes  
 173 its subscribers dependent on the worldview and cognitive process. This process according to the hypothesis  
 174 offers two versions: the strong and the soft version. The strong version propagates the idea that language most  
 175 certainly determines thought whereas the soft version suggests that linguistics categories and language usages  
 176 only influence thought and decisions ??Hussein 642). It is needless to say that the Sapir-Whorf hypothesis is  
 177 controversial from its inception. Though this hypothesis has its heated moments but it is not completely a faulty  
 178 one. Hussein implies that learning a different language not only affects us but also it establishes one of the  
 179 fundamental questions asked on the plethora of linguistic universalism (Hussein 643). The major understanding  
 180 that it is quite common in scientific methods that the 'universal' comes only when there is something particular  
 181 exists in the first place.

## 182 6 IV. Semiotic and Temporal Relativity in

### 183 7 Arrival

184 From a semiotic understanding, the concept of arrival is two-fold: the first is the literal understanding of arrivals  
 185 of twelve ships and secondarily the birth of the future child of Banks and Donnelley. These arrivals play a crucial  
 186 plot in the film. The language shown in the film is called 'logo-gram', meaning only symbols that represent the  
 187 overall scenario including temporal and linguistic reality. The oral form of the language is not given a focus  
 188 due to the idea that the Heptapods mostly do not seem to use any larynx; their voice is deep and muffled.  
 189 Semiotic understanding plays a crucial part in the plot of the film. As Jessica Coon explains, "[T]here is no  
 190 clear beginning or end to the logograms, and the smoky blobs appear all at once. While Heptapod A-the spoken  
 191 language-is constrained by time in the same way that our spoken language is, Heptapod B apparently is not."  
 192 The symbolic exchange in the film is about the perception of time and the effect of language with temporal space  
 193 as the overall goal of the movie is to discover the patterns and produce a map of the linguistic understanding.  
 194 The film also endorsed the idea of communication as the Heptapods give away the message "twelve becomes one  
 195 (Villeneuve)." For instance, the words that almost have started a full-on assault on the aliens, "weapon" and  
 196 "tool" have been misrepresented but later we find out that these words mean "gift". The non-linear nature of  
 197 the language of the movie also deals with time. We can see that, the idea of time as seen through as a process  
 198 that indicates an asymmetrical space in time. There are representations of predestined understandings like Dr.  
 199 Bank's yet-to-beborn daughter, her childhood, youth, untimely death, and also Bank's conversation with the  
 200 Chinese general. This tragedy that is yet to come to the life of Banks and Donnelley also can be partially related  
 201 to Bayes's theorem which alludes to the fact that the probability of an event based on prior knowledge of separate  
 202 conditions might be related to that actual event.

203 For the Heptapods, the semiotics of their language also works as a spatial reality that Banks perceives as  
 204 a flux of temporal understanding. The Heptapod language moves in circles so as their time, which is spatial  
 205 and occupies the same space as their semiotic form (Does the Linguistic Theory). In the film, Donnelly tries to  
 206 understand what Banks feels as he poses a question if the Sapir-Whorf hypothesis has anything to do with what  
 207 she sees, but Banks disagrees. On the hind side, Jessica Coon, the linguistic expert of the film, feels that the  
 208 rewiring of the brain by learning a new language is quite a suspicious theory as she says, "I'm trying to think of  
 209 other sci-fi contexts where there is some kind of created language, George Orwell's 1984 is one example where the  
 210 government makes up this language that supposed to be really simple as way of mind control...But our human  
 211 brains seem to be fixated on the kind of language that we have (Relearn the Linguistic World in Arrival)."

212 The alien language in the film works first as a pidgin by imitating the 'to do' sort of actions. However, as the  
 213 time escalates Banks is forced to bring out a more complex question, "What is your purpose here?" This later  
 214 one lands as a misunderstood indication of conflict as the aliens reply "to offer weapons' ". We can see how time  
 215 can be a crucial factor for pidgin to transfer itself in a creole which we see later in one of Bank's visions as she  
 216 teaches her students the Heptpod language. The relativity in the language refers to one of Lacanian notions-"As  
 217 such, the self is cast as identical to the idealizations and identifications of a stage of development before language  
 218 came into operation, which in turn set up the true basis of the mind -the Symbolic, which is ruled by, indeed  
 219 identified with, what used to be the unconscious. On such a view the unconscious is understood in terms of a  
 220 linguistic model. Language is taken to be profoundly important in determining the 'structure' of what we may  
 221 call persons. On the other hand, the more recent a cognitivist view is anti-psychoanalytical. And while it has  
 222 rehabilitated the conscious subject as a central element in unpacking the experience of watching film, it has at  
 223 the same time reduced the conscious spectator to a nexus of perceptual and cognitive capacities and skills by  
 224 which persons sustain and negotiate their relations with film and with the world (Pray 52)."

225 We could see the inner realm of Dr. Banks as she perceives the unpacking of herself while all her present and  
 226 future mingles in the same environment which she has no control of. The significance of how language plays a  
 227 crucial part in the film also tells us about some of the propositions like, "what is it about our human brains that  
 228 makes some types of systems "unlearnable?" (Relearn the Linguistic World in Arrival)" It is true for the others

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229 in the films as well. Like most of the human characters, they sort of come close to the Heptapod language though  
230 none but Banks feels the ripple effect of the time dilation. This is one factor the film fails to mention.  
231 V.

## 232 8 Conclusion

233 The linguistic boundary of the film Arrival is limited to cinema screen projection so as the narrative. The aliens  
234 are projected as symptomatic and semiotic realities of time and place. As interesting as it may sound, the film  
235 is quite far from reality, because the idea that language rewires the brain can possibly be impossible owing to  
236 the nature of universal grammar. Thinking in the second language, or even dreaming about it takes years to  
237 come affront. But the idea that a linguist deals with an unknown creature from space through an unknown  
238 language is quite fascinating to look up to. Linguists can appreciate the nature and perspective of Arrival as a  
239 settlement of an age long dispute: whether language can determine the speakers' thought. This film can provide  
240 a solid answer to that dispute; hence it also creates another debate: whether time can change our reality or not as  
241 semiotics. Whorf argues in this regard that linguistic relativity is connected to linguistic and cultural determinism  
242 ??Gumperz and Levinson 614). This view also is supported by Noam Chomsky in one of his interviews as, so  
243 when technology develops you get a whole new vocabulary (The Concept of Language).

244 The view of the language is also shared by linguists Guy Deutscher as "habits of speech are cultivated from the  
245 earliest age, it is only natural that they can settle into habits of mind that go beyond language itself, affecting your  
246 experiences, perceptions, associations, feelings, memories and orientation in the world (Does the language you  
247 speak)." The misreading of language is part of linguistic relativity that we lose in terms of learning a new language  
248 because of symbolic exchange of meaning. Symbols are mostly cultural codes that have multiple orientations. It  
249 is quite evident that Arrival as a feature film features more about memory, thought rewiring, love and fortitude  
250 of human relationship rather than a human story told through semiotics and linguistics.

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252 Volume XX Issue XIII Version I ?.when we talk about language change, what's actually happening is that there's  
253 some kind of species changing the mixture of all sorts of dialects and the mix changes over time either because  
254 of conquest or some political change or boundaries are drawn in a different place or you know some kind of  
255 commercial interchange or whatever the mixture of these things changes over time?you take a look at it a few  
256 centuries apart it looks like there's a different language between generations there are usually small changes having  
257 to do with other influences from the outside and so on and these things are cumulative sometimes they lead to  
258 pretty dramatic changes nothing within a couple of generations the language can have a contained structurally  
259 in quite dramatic ways and of course in say lexicon you know the words of the language will that's a different  
260 matter altogether



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