Class Fourteen: The Sapir-Whorf Hypothesis

Philosophy and Science Fiction - Ryan Simonelli

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1 Sapir-Whorf in *Arrival*

- **The Effects of Learning Heptapod B:** In *Arrival*, linguist Louise Banks is tasked with interpreting the language of the "heptapods," a group of aliens who've arrived at Earth. The specifically written language of the heptapods is so radically different than human languages that learning it has profound effects on the form of her experience.

- **A Semisaiographic Language:** In contrast to human written language, the written language of the heptapods is semisaiographic (yes, that's a real word), meaning that it doesn't function by representing the phonemes of a spoken language.

    ‣ Compare to musical notation or, perhaps better, signs like the "not allowed" sign:

    The "not allowed" sign does not correspond to phonemes of the spoken words "not allowed" (like the English written phrase "not allowed"), but it's also not *iconic* like the images (of smoking or skateboarding or whatever) to which it is applied.

- **The Structure of the Semagrams:** I always imagined the "semagrams" of the heptapods as more clearly intricate than depicted in the movie, more mandala-like, but the movie makes clear that there's a lot of structure in them, even if they look at first glance like unstructured ink-blots. Here's an idea of the sort of information they might contain:
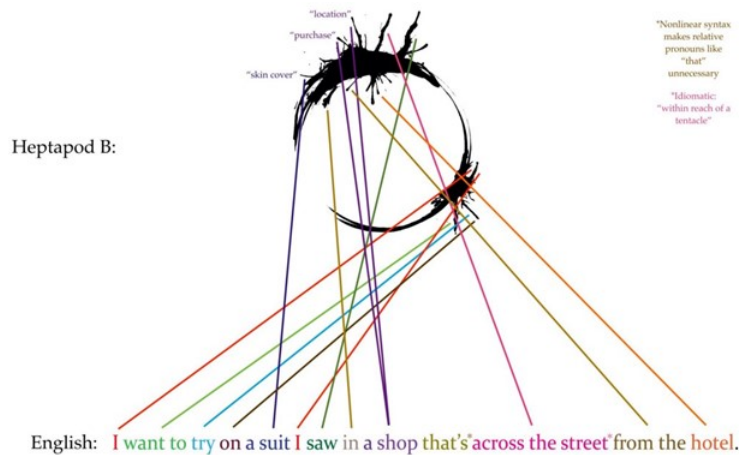
- **Holistic Construction:** When the heptapods construct a semagram, they do so *holistically*, not piecemeal in the way that we write a sentence. The end needs to be known in order to begin.

- **The Shocker:** When Louise begins really acquiring fluency with the language, her perception of time changes. She no longer experiences things sequentially, but rather, simultaneously. With this change comes a change in her understanding of agency as well.

  - *Note:* Learning just some of the language, as Ian does, seems to be insufficient to undergo these cognitive and perceptual changes. You have to really acquire fluency.

- **Language is Purely *Performative* rather than *Inquisitive* and *Informative*:** When we use language, our primary function is to inquire about things we do not know and to inform people about things we do. As described in the story, the use of Heptapod B is purely *performative*, not entirely unlike the wedding officiant's "I now pronounce you man and wife": everyone knows it's coming, but it still plays an important role, instituting a legal relationship.

- **An Implicit Metaphysical Assumption:** On an intuitive view about the nature of time, temporal progression is an objective feature of the universe. On a contrary view, temporal progression is fact about our *subjective consciousness*, not about the *objective universe*. On this latter view—the so-called "B-theory of time"—the fact that it's *now* November 14, 2022 is no more of an objective metaphysical fact than the fact that *here* is Cobb 319, Hyde Park, Chicago.

  - The scenario depicted in *Arrival* supposes that a B-theory of time is true: that past, present, and future are equally real and that these labels don't mark objective features of reality but subjective features of our consciousness.
  - Compare walking directly along a path where some things are behind you, some things are where you're currently at, and some things are in front of you. Now consider seeing yourself walking on a path from above: you still see the spatial ordering, but "in front" and "behind" become relative rather than absolute.
  - We will discuss this theory of time next week. For now, let's bracket it to the extent that we can.

- **An Explicit Linguistic Assumption:** The basic linguistic thesis depicted in the film is the so-called "Sapir-Whorf" hypothesis, which Louise sums up as "the theory that the language you speak determines how you think," and Ian adds "and affects how you see everything."

2 Whorf on Language and Thought

- **The "Natural" Attitude:** Thought is one thing and language is another. The main function of language is to enable us to express our thoughts, which are what they are independently of the linguistic medium with which we're able to express them.

- **Whorf's Rejection of the "Natural" Attitude:** Rather than simply being a means of expressing thoughts, language largely determines the shape and structure of the thoughts that one is able to think

- **Whorf's Unfortunate Example:** Whorf's main case study for his claims about linguistic relativity is the Native American language of spends quite some time explaining how, in Hopi, there really was no "arrow of time," since the language (as he understood it) lacked tense.

  - The situation of Hopi, as Whorf understands it, is actually quite like that of the Heptapods in *Arrival*.
    * I don't think this is an accident—Chiang was likely directly influenced by Whorf's claims about Hopi. Regardless of their actual truth, they make for an interesting thought.
    * Whorf suggests that Hopi physics would have to be entirely different and that the notions of time and velocity wouldn't be able to appear in their physical equations. This is actually just like how heptapod physics is described in "Story of Your Life."

- **Whorf Refuted:** Though the radical sort of claims made by might apply to aliens, they don't apply to humans (at least not as far as we know).
  - ‣ In his 600 page book *Hopi Time,* Ekkehart Malotki thoroughly refutes Whorf's claims about Hopi lacking time, showing in detail how time works in the Hopi language.
- **Two Versions of Whorfianism:** Guy Deutscher makes a distinction between two versions of Whorfianism, rejecting the former but endorsing the latter.
  - ‣ **Strong Whorfianism (Whorf himself):** Your language constrains what you're *able* to think.
  - ‣ **Weak Whorfianism (Deutscher):** Your language shapes how, by default, you *do* think.
- **Deutscher's Better Examples:** Deutscher provides some compelling examples, backed by actual evidence, that language does indeed shape the way one thinks:
  - ‣ **Grammatical Gender:** Studies have shown that speakers of languages that assign genders to nouns think differently about the things that are expressed by those nouns.
  - ‣ **Egocentric vs. Geographic Directions:** When we give directions, we do in an "egocentric" way, with us as the center and the directions in relation to us—forward, backward, left, right. Some languages, like the Aboriginal language Guugu Yimithirr, simply use the cardinal directions, and it has a significant effect on their experience of space.

3   Other Examples of Alien Language in Sci-Fi and Real Life

- **The Metaphorical Language of Star Trek's Tamarians:** In the episode "Darmok" of *Star Trek: The Next Generation*, there is an alien species who communicates solely in metaphor.
  - ‣ It's not clear how coherent the idea of this language really is. When we use a metaphor, this seems to presuppose that we have a grip of language used in the metaphor that is, itself non-metaphorical. For instance, if we say "Juliet is the Sun," it seems to presuppose that we have a grip on the Sun that is not metaphorical, but Darmok is supposed to be metaphor "all the way down."
- **The Idealist Languages of Borges's (Doubly) Fictional World Tlön:** In Borges's "Tlön, Uqbar, Orbis Tertius," a fictional world is described in which languages are spoken in which there are no nouns. Rather:

  > [T]here are impersonal verbs, modified by monosyllabic suffixes (or prefixes) with an adverbial value. For example: there is no word corresponding to the word "moon," but there is a verb which in English would be "to moon" or "to moonate." "The moon rose above the river" is *hlör u fang axaxaxas mlö*, or literally: "upward behind the onstreaming it mooned."

  Speakers of these languages are idealist and don't think of objects as persisting independently of observers. Indeed, most speakers are incapable of even comprehending the sort of permanence we normally attribute to objects.
  - ‣ The philosopher Wilfrid Sellars endorsed a "pure process ontology" according to which such a language is actually more apt to describe reality as it really is. As Sellars imagines such a language, however, it doesn't have the idealist implications that Borges imagines it to have.
- **The Oppressive Language of Orwell's *1984*:** In George Orwell's *1984*, the totalitarian government of Oceana institutes a language called "Newspeak" designed to constrain thinking in ways that would oppose the government:

  > It was intended that when Newspeak had been adopted once and for all and Oldspeak forgotten, a heretical thought—that is, a thought diverging from the principles of Ingsoc [the socialist party]—should be literally unthinkable, at least so far as thought is dependent on words.

- **The Constructed Languages of Toki Pona and Ithkuil:** Two constructed languages can be helpful in thinking about possible effects of language on thought:
  - ‣ Toki Pona is a complete language with only 137 words total. There is surprisingly little that can't be said in Toki Pona, though saying things in Toki Pona involves expressing complex ideas using very simple concepts, which also involves significant subjectivity in the language. For more info, see this video:
  https://www.youtube.com/watch?v=eLn6LC1RpAo
  - ‣ Ithkuil is another constructed language, which is not humanly learnable, and, through a very complex morphology, has a perfectly precise word for practically *everything*. For instance, the two word sentence "Tram-ml̦öi hhâsmařpṭuktôx" can be translated into English as "On the contrary, I think it may turn out that this rugged mountain range trails off at some point. For more info, see this video:
  https://www.youtube.com/watch?v=x_x_PQ85_0k