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Rewire the Brain: How Language Expands Perspective and Enables Greater Connection

“If you immerse yourself into a foreign language, then you can actually rewire your brain... the Sapir-Whorf hypothesis. It's the theory that the language you speak determines how you think and... Yeah, it affects how you see everything.”

—Eric Heisserer, *Arrival*.

Language enables us to interact with the world and with others. It is what connects us and shapes the world we see. In the 2016 movie *Arrival*, alien crafts touch down in multiple locations across the Earth, sending the world into a frenzy (Villeneuve). The main character, linguistics professor Louise Banks, is tasked with the laborious process of figuring out how to communicate with the alien entities. At first, Banks and her team have no luck communicating while researching the alien sound vibrations. When Banks shifts her focus to the written form of the language, these palindromic circular symbols, she begins to find patterns, and eventually, it all connects. Once the language clicks in Banks' mind and as she begins to grow her comprehension, she experiences something similar to a flashback about her own life, but both backward and forward in time. Banks starts remembering events that haven't happened yet but that reveal crucial information for her to help prevent a world war. As she begins to think in the alien language, her consciousness shifts to function on a non-linear timeline. She is essentially able to escape linear time because of how the language operates in this specific dimension. Escaping linear time offered her a new lens to see her life with. This new language opened new doors for Louise Banks that were previously closed. By connecting to the aliens and tapping into the way

they think and see the world, she was able to expand her own perspectives and abilities in a way that benefits the entire world.

While the example illustrated in *Arrival* might seem extreme, language really can shift the way we think. In the NPR podcast episode “Lost in Translation: The Power of Language to Shape How We View the World,” we hear a firsthand account of Professor Lera Boroditsky’s experience learning Kuuk Thaayorre, the language spoken by an aboriginal community in northern Australia. Boroditsky teaches and studies linguistics and cognitive science at the University of California, San Diego (a real linguist this time). According to the episode, Boroditsky had trouble, at first, while learning this new language and the culture that came with it. She struggled the most with one of the most common occurrences: the greeting. In this language, interlocutors greet one another by saying the equivalent of “Hi, which way are you heading?” and the expected answer would be in the cardinal directions: north, south, east, and west. Boroditsky had to constantly think about what direction she was facing and where she was heading. Orienting herself was a struggle. But after just a week of this Boroditsky tells us:

...one day, I was walking along... And all of a sudden, I noticed that there was a new window that had popped up in my mind, and it was like a little bird's-eye view of the landscape that I was walking through, and I was a little red dot that was moving across the landscape... when I turned, this little window stayed locked on the landscape, but it turned in my mind's eye. And as soon as I saw that happen, I thought, oh, this makes it so much easier. Now I can stay oriented. And I kind of sheepishly confessed this to someone there. I said, you know, this weird thing happened. I saw this bird's-eye view, and I was this little red dot. And they said, well, of course. How else would you do it? (Vedantam)

As Boroditsky notes in this excerpt, we think humans are incapable of the level of orientation that some other species have. That it is a skill we could never learn. But it only took Boroditsky a week for this amazing shift to happen in her mind. The Kuuk Thaayorre language required her to think in a way she never had before, and once it connected in her mind, it completely shifted the way she thought—shifted what she could see and how she could think. This is what language does; it shapes the way we think. Language is the essential vessel for thought and sets the boundaries for how we think.

A few key concepts are illustrated here, in both *Arrival* and the real-life example, that I will explore in this paper: first is the connective process of language, and the second concept is how language influences our perspectives and ways of thought. I argue that language is our key to creating connections with the world around us and a lens that opens us to new possibilities. I also suggest that we should prioritize language learning because of the vital role it plays in our lives. In this essay, I will first discuss and define what language is pertaining to this topic, covering its grand effects as a lens that affects the way we experience the world as well as its inevitable limitations. From there, I will analyze the experience of someone who has experienced what it's like to not have language, and finally, I will circle back to the main examples illustrated above and how learning new languages or, at least, reexamining our own can change us for the better, allowing us to better interact with and connect with the world around us.

First, we will discuss what language is. And, to understand what language is, we need to break down how it works on a sentence and word level. Our words and phrases, the small parts that make up language, are just symbols of representation. This simultaneously is crucial for communicating and limits the ability and scope of our experience. In the Radiolab podcast episode “Words,” hosted by Jad Abumrad and Robert Krulwich, we hear the story of a man who

is deaf and never learned sign language and see a firsthand experience of how gaining language changed the way he saw the world. This middle-aged man had never known language and had no way to communicate. The American Sign Language (ASL) teacher Susan Schaller took it upon herself to teach him. His biggest problem was not in the ASL signs (the equivalent of words for us spoken language people) themselves, but understanding that they were symbols. If you signed ‘book’ for example, he would think you were asking him to open a book, and he’d grab a book to open. He couldn’t put together that the sign for the book was just its name. Just a *sign*. It was a long process but there came a moment when it finally clicked for him, and it changed him forever. According to Schaller, one day he began pointing at things demanding to see their sign and “...he started crying. He just collapsed and he started crying... What is it that happens in human beings when we get symbols and we start trading symbols? It changes our thinking. It changes our ideas of—it is no longer the thing, a table that we eat on but there's something about symbol table that makes the table look different” (Krulwich). This man finally understood that things have a name. That it is a symbol and doesn’t represent *the thing itself*. This is the first layer of comprehension language gives us. Once we understand that our words (or “signifiers”) are symbols that represent an idea about *the thing* and are not actually *the thing itself*, this is when we can take the next step and begin connecting ideas.

Moving to my next point, how language is a lens that affects the way we experience the world, let’s look at another example from the Radiolab podcast. In the same podcast episode “Words,” a study with rats is discussed. In the study, the rats are shown where some food is hidden in a room where the only defining trait is a single blue wall. The interesting bit is that after getting spun around the rats could no longer find the food they were shown. They would only get the direction it was in right *fifty-percent* of the time. It was completely up to chance.

This was because they knew ‘left’ and ‘right’ and they knew ‘blue wall’ (rats can see color) but they couldn’t piece those two thoughts together. They couldn’t think “left of the blue wall.”

Because they couldn’t connect this information together the rats couldn’t orient themselves to remember exactly where the hidden food was. In a similar study with young children, the same results were found in children younger than six. They couldn’t link ideas together. But around the age of six they began to form thoughts like ‘left of the blue wall’ they began to make these connections. Without our words to help us form ideas, we would be lost like the rats, unable to problem solve and unable to orient ourselves in the world. We need language, otherwise, we would be completely lost.

While language is something we cannot live without, it does come with its limitations. We are dependent on language to help orient ourselves in the world. As mentioned before, words are not *the thing itself* but only symbols of the thing. This means that the words are only representations of what is real and will never be the real thing itself. There will always be a lack. The poststructuralist Derrida explores this idea of “lack.” In his book *Of Grammatology*, he explores the advantages and limitations of language and meaning-making. In the book he introduces this key idea, “The play of substitution fills and marks a determined lack” (Derrida 157). The “play of substitution” refers to language. Signs and spoken words are symbols and “signifiers” for *the thing itself*, as shown in the story about the man learning ASL. This is why Derrida calls language a “play of substitution” because words will always be substitutes for *the thing itself*. Within the world of poststructuralism, *the thing itself* is known as the “referent” or the thing words attempt to refer to. So, in this case, “The play of substitution fills and marks a determined lack” could be read as language filling and marking the lack of the referent. To put this into practice let us look at the concept of loss (as in, losing a loved one). Loss is a literal lack

and the “play of substitution” aka, language, tries to fill and mark that literal lack in a person’s life. Feelings like grief, joy, and love aren’t something you can possess. Trying to hold onto or describe them is an impossible feat. With grief as another example, we try to find words for our loss and it never comes close to describing the grief right. The moment you try to find words to describe something you have already lost it. There is also difficulty in finding the right words because as we say them our thoughts change. When we experience grief, it changes. While describing it, it is changing within us. Despite this, trying to speak our grief still acts as a form of therapy and helps us process and “fill” that lack. This is why talk therapy exists. Why journaling about and talking about our feelings is something therapists recommend. Something is accomplished when we experience failed attempts at meaning-making. There is and always will be a lack but, through communication, we create some form of meaning. Communication isn’t meaningless. And like we discussed before; we need language to navigate the world. In this case we also need language to navigate our thoughts and feelings. Language is a limiting lens but otherwise there would be no way to interact with the world and with ourselves.

To put all of this together, we will analyze the experience of someone who has experienced losing language. Everything comes with a cost; language is no exception. There is a price we pay when we welcome language into our lives. How can we really know the effect language has on us without experiencing what it’s like without it? Some people have. One such person is Jill Bolte Taylor, a stroke survivor who experienced losing her language and memory. Taylor is an accomplished brain researcher who, in experiencing this massive stroke, watched the functions of her brain shut down, one by one, including her language. In this example, one can see everything I discuss in this paper at play. Jad Abumrad and Robert Krulwich, hosts of the “Words” podcast, interviewed Jill Bolte Taylor. In her own words, Taylor explains, “I lost all

definition of myself in relationship to everything in the external world... Language is an ongoing information processing, it's that constant reminder. I am, this is my name, this is all the data related to me..." (Krulwich). In this statement, Taylor explains the ways language shapes the way she sees the world. Without language, Taylor was incapable of separating the information around her. She found herself in a state like that of a baby. Totally absorbed in the present. Incapable of thinking that is a chair, that is a table, I am me, etc. She only experienced the pure moment she existed in. Abumrad and Krulwich pressed her further on this "pure silence" of the mind. Taylor explains, "imagine you don't hear that little voice that says man the sun is shining you just experience the sun and the shining" (Krulwich). Through Taylor's recovery she regained language little by little but it was not a completely happy experience. She explains, "that silence that [I] loved so much got pushed out... That was one of the sacrifices. For me that was a sacrifice... for us to communicate with language, we pull ourselves away from a different kind of experience" (Krulwich). The ability to have these quiet, pure experiences is stripped from us the moment language clicks for us. Suddenly we think "car" when we see a car drive by. It is impossible to not look at the world around us without it filtering through the lens of language. A lens of interpretation. While helpful, this lens means that what we see is limited and may be lacking as mentioned in our discussion on Derrida's concept of 'lack' within language.

Moving on from this example, I would like to share why learning a new language is so beneficial. We often forget that we see everything through language. We forget this lens which we see the world through. Our language is so habitual that it becomes "transparent" to us, "...we learn our native tongue at such an early age that it seems transparent" (Belsey 7). We rarely think about our language when we speak or hear it. Anyone who has tried to learn another language can attest that this is true. While learning a whole new batch of signifiers (sound, word, or

image) and signified (the meaning or idea expressed by a sign) we will come across terms with no direct translation of meaning to our first language. Words and phrases that open up a new avenue of expression. This idea is discussed in the “Lost in Translation” podcast:

There are phrases in every language that are deeply evocative and often untranslatable...

If you're bilingual or you're learning a new language, you get [this] experience... the joy of discovering a phrase that helps you perfectly encapsulate a feeling or an experience.

The phrase brings an entire world with it—its context, its flavor, its culture... Languages are not just tools to describe the world. They are ways of seeing the world. (Vedantam)

This is the benefit of learning a new language. The experience of opening one's mind to new ideas, perspectives, and possibilities. When you learn a new word that other languages do not have a word for, you suddenly have a new way to express yourself and to experience the world. In *Arrival*, the alien language acted much the same as the experience in the quote above. Instead of just learning a new word or phrase though, it completely shifted the main characters perspective on time. With this new perspective she was able to accomplish things she couldn't have before. She was able to gain insight from the future to save the aliens and the earth from war. In our real-life example with professor Boroditsky, as she completely immersed herself in the aboriginal community and the Kuuk Thaayorre language, she was able to essentially ‘unlock’ an ability she once thought was impossible for humans to have. Her sense of place and direction in the world was greatly enhanced and it allowed her to navigate the world better than she had before. Language is the instrument for thought, so by learning a new language (as shown in these examples) we gain the ability to think in new ways. But, as we have discussed, there are limitations. If language is our vessel for the ability to think, then its system also dictates the ways we can think. Which, at times, can be limited. Without language there would be no way to

interact with and navigate the world. We can't live without it. If we accept the necessity of language along with its limitations, then we understand why learning new languages is our only way to expand the abilities of the mind.

My point here on the positive changes learning new languages has on the brain should interest those who study cognitive science and/or linguists who encounter these changes every day. Beyond this limited audience, however, my point should speak to anyone who cares about the larger issue of the limitations of only knowing one language. Language here doesn't only refer to English, Spanish, French, etc. but also calls to the perspectives we hold and the connections we make. The smallest bit of new language we learn, even a single word, can unlock a whole new world for us.

New ability and perspective aren't only found by learning a foreign language, but can be found within our own language. The worlds of math, science, sports, etc., each contain words, phrases, and philosophies unique to their specific topic or culture. As we explore these cultures and immerse ourselves in their unique language, we can experience a similar effect to the experience of the main character in *Arrival* and Boroditsky's experience. New phrases, words, and ideas, are all around us, new languages to be learned, and with them, new ways to think and new ways to navigate the world. New tools for the toolbox of the mind. Seek out new languages. Let 'left' and 'blue wall' connect and become 'left of the blue wall.' Allow each word to change the world you see and watch as they endow you with ability you never thought possible.

Expanding the scope of our language is what helps us grow because language changes the way we think, it opens doors for new connections, and, without it, we would be lost with no way to interact. Language allows us to communicate with others and the world around us. With it, we will feel less alone and with all those we cross paths with, we can find deeper, richer connection.

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