18. Language: How the language shapes the mind (comparison with other languages)

One of the greatest abilities humans have is this — Language. For so long, people have treated words as mere labels for objects, and languages as different ways to string words together to convey thoughts, feelings, and concepts. But language is more than that. Because of it, we can exchange complex thoughts and ideas with one another, whether it be spoken aloud or written in ink. It's also through language that we're able to trigger emotions, imagination, and action.

For a long time, the idea that language might shape thought was considered at best untestable and more often simply wrong. However, research by Lera Boroditsky and her peers has helped reopen this question. They have collected data around the world: from China, Greece, Chile, Indonesia, Russia, and Aboriginal Australia. What they have learned is that **people who speak different languages do indeed think differently and that even flukes of grammar can profoundly affect how we see the world**. But how does this happen?

Humans communicate with one another using a dazzling array of languages, each differing from the next in innumerable ways. Then, do the languages we speak shape the way we see the world, the way we

think, and the way we live our lives? Do people who speak different languages think differently simply because they speak different languages? Does learning new languages change the way you think? Do polyglots think differently when speaking different languages? Are languages merely tools for expressing our thoughts, or do they actually shape our thoughts?

According to Lera's experiment, the following are aspects which language has an effect on.

1. Space

In Lera's experiment, they visited Pormpuraaw, a small Aboriginal community on the western edge of Cape York, in northern Australia. She went there because of the way the locals, the Kuuk Thaayorre, talk about space. Instead of words like "right," "left," "forward," and "back," which, as commonly used in English, define space relative to an observer, the Kuuk Thaayorre, like many other Aboriginal groups, use cardinal-direction terms — north, south, east, and west — to define space. This is done at all scales, which means you have to say things like "There's an ant on your southeast leg" or "Move the cup to the northwest a little bit." One obvious consequence of speaking such a language is that you have to stay oriented at all times, or else you cannot speak properly.

The normal greeting in Kuuk Thaayorre is "Where are you going?" and the answer should be something like " Southeast, in the middle distance." If you don't know which way you're facing, you can't even get past "Hello."

The result is a profound difference in navigational ability and spatial knowledge between speakers of languages that rely primarily on absolute reference frames (like Kuuk Thaayorre) and languages that rely on relative reference frames (like English). Simply put, speakers of languages like Kuuk Thaayorre are much better than English speakers at staying oriented and keeping track of where they are, even in unfamiliar landscapes or inside unfamiliar buildings. What enables them — in fact, forces them — to do this is their language. People rely on their spatial knowledge to build other, more complex, more abstract representations. Representations of such things as time, number, musical pitch, kinship relations, morality, and emotions have been shown to depend on how we think about space. So if the Kuuk Thaayorre think differently about space, do they also think differently about other things, like time?

2. Time

To test this idea, they gave people sets of pictures that showed some kind of temporal progression (e.g., pictures of a man aging, or a crocodile growing, or a banana being eaten). Their job was to arrange the shuffled

photos on the ground to show the correct temporal order. If you ask English speakers to do this, they'll arrange the cards so that time proceeds from left to right. Hebrew speakers will tend to lay out the cards from right to left, showing that writing direction in a language plays a role. But for the Kuuk Thaayorre, instead of arranging time from left to right, **they arranged it from east to west**. That is, when they were seated facing south, the cards went left to right. When they faced north, the cards went from right to left.

People's ideas of time differ across languages in other ways. For example, English speakers tend to talk about time using horizontal spatial metaphors (e.g., "The best is ahead of us," "The worst is behind us"), whereas Mandarin speakers have a vertical metaphor for time (e.g., the next month is the "down month" and the last month is the "up month").

Even basic aspects of time perception can be affected by language. For example, English speakers prefer to talk about duration in terms of length (e.g., "That was a short talk," "The meeting didn't take long"), while Spanish and Greek speakers prefer to talk about time in terms of amount, relying more on words like "much" "big", and "little" rather than "short" and "long". Their research into such basic cognitive abilities as estimating duration shows that speakers of different languages differ in ways predicted by the patterns of metaphors in their language.

An important question at this point is: Are these differences caused by language per se or by some other aspect of culture? Of course, the lives of English, Mandarin, Greek, Spanish, and Kuuk Thaayorre speakers differ in a myriad of ways. How do we know that it is language itself that creates these differences in thought and not some other aspect of their respective cultures?

One way to answer this question is to **teach people new ways of talking and see if that changes the way they think**. In Lera's lab, they've taught English speakers different ways of talking about time. In one such study, English speakers were taught to use size metaphors (as in Greek) to describe duration (e.g., a movie is larger than a sneeze), or vertical metaphors (as in Mandarin) to describe event order. Once the English speakers had learned to talk about time in these new ways, their cognitive performance began to resemble that of Greek or Mandarin speakers. This suggests that **patterns in a language can indeed play a causal role in constructing how we think**.

In practical terms, it means that **when you're learning a new language, you're not simply learning a new way of talking, you are also inadvertently learning a new way of thinking**.

3. Colors

Beyond abstract or complex domains of thought like space and time, languages also meddle in basic aspects of visual perception — our ability to distinguish colors, for example. Different languages divide up the color continuum differently: some make many more distinctions between colors than others, and the boundaries often don't line up across languages.

To test whether differences in color language lead to differences in color perception, they compared Russian and English speakers' ability to discriminate shades of blue. In Russian there is no single word that covers all the colors that English speakers call "blue." Russian makes an obligatory distinction between light blue (goluboy) and dark blue (siniy). Does this distinction mean that siniy blues look more different from goluboy blues to Russian speakers? Indeed, the data say yes. **Russian speakers are quicker to distinguish two shades of blue that are called by the different names in Russian** (i.e., one being siniy and the other being goluboy) than if the two fall into the same category.

However, the Russian advantage disappears when subjects are asked to perform a verbal interference task (reciting a string of digits) while making color judgments but not when they're asked to perform an equally difficult spatial interference task (keeping a novel visual pattern in

memory). When Russian speakers are blocked from their normal access to language by a verbal interference task, the differences between Russian and English speakers disappear. It shows that language is normally involved in even surprisingly basic perceptual judgments — and that **it is language per se that creates this difference in perception between Russian and English speakers**.

4. Objects

Even what might be deemed frivolous aspects of language can have far-reaching subconscious effects on how we see the world. Take grammatical gender. In Spanish and other Romance languages, nouns are either masculine or feminine. In many other languages, nouns are divided into many more genders ("gender" in this context meaning class or kind). What it means for a language to have grammatical gender is that words belonging to different genders get treated differently grammatically and words belonging to the same grammatical gender get treated the same grammatically. Languages can require speakers to change pronouns, adjective and verb endings, possessives, numerals, and so on, depending on the noun's gender.

Then, does treating chairs as masculine and beds as feminine in the grammar make Russian speakers think of chairs as being more like men

and beds as more like women in some way? It turns out that it does. For example, when asked to describe a "key" — a word that is masculine in German and feminine in Spanish — the German speakers were more likely to use words like "hard," "heavy," "jagged," "metal," "serrated," and "useful," whereas Spanish speakers were more likely to say "golden," "intricate," "little," "lovely," "shiny," and "tiny." To describe a "bridge," which is feminine in German and masculine in Spanish, the German speakers said "beautiful," "elegant," "fragile," "peaceful," "pretty," and "slender," and the Spanish speakers said "big," "dangerous," "long," "strong," "sturdy," and "towering." The descriptions they gave differed in a way predicted by grammatical gender.

And they also show that it is aspects of language per se that shape how people think: teaching English speakers new grammatical gender systems influences mental representations of objects in the same way it does with German and Spanish speakers. Apparently even small flukes of grammar, like the seemingly arbitrary assignment of gender to a noun, can have an effect on people's ideas of concrete objects in the world.

5. Language and culture together

Language isn’t just a way to communicate, it’s a component of culture that makes it unique and specific. When language and culture are

discussed, the phrase “language is culture and culture is language” is often mentioned because the two are always intertwined. This means that the language you speak reflects what your values and beliefs are.

According to anthropological linguist Daniel Everett, language can be considered a cultural tool to relate a community’s values and ideals and is shaped and molded by these residents over time. For example, looking at the many idioms the Chinese culture has on family, you can definitely see how much they value that relationship. Another is with a unique Korean word “nunchi” (meaning eye-measure) that has no English translation. This word relates to the Korean belief in gauging how people are thinking and feeling in order to create connection, trust, and harmony.

From those samples (and perhaps some you can think from your own culture), you’ll observe that society and language are mutually important to each other. Because every person’s linguistic ability, knowledge, and usage are somewhat influenced by the social context of how they were raised and taught. So, if you’re looking to learn a new language, prepare yourself to be introduced to a new world apart from your own!

6. Conclusion

In Lera’s studies, she has described **how languages shape the way we think about space, time, colors, and objects**. Other studies have found

effects of language on how people construe events, reason about causality, keep track of number, understand material substance, perceive and experience emotion, reason about other people's minds, choose to take risks, and even in the way they choose professions and spouses. Taken together, these results show that linguistic processes are pervasive in most fundamental domains of thought, unconsciously shaping us from the nuts and bolts of cognition and perception to our loftiest abstract notions and major life decisions. Language is central to our experience of being human, and the languages we speak profoundly shape the way we think, the way we see the world, the way we live our lives.

Terms:

1. Lera Boroditsky: 雷拉·波洛狄特斯基，是语言和认知领域的认知科学家和教授，也是语言相对论的主要贡献者之一。其研究专注于人类沟通行为中的复杂区别。

2. Aboriginal Australi：澳大利亚原住民，是澳大利亚土著和托雷斯海峡岛民的总称，是欧洲人殖民大洋洲之前居住在澳大利亚大陆及其附近岛屿的原住民族群的后代。

3. Polyglots：通晓并使用多种语言的人。

4. Pormpuraaw：波姆浦洛原住民郡，是澳大利亚昆士兰州北部的特别地方政府，位于约克角半岛之西部。此郡居民多为澳大利亚原住民，与州内其他地方民情有别。

5. Cape York：约克角半岛，是澳大利亚东北部昆士兰州的一个半岛，其北端约克角是澳大利亚大陆的极北点，也是澳大利亚北部最大的未受破坏的荒野区。

6. Kuuk Thaayorre：库克萨优里语，是一种在约克角半岛使用的澳洲原住民语言。2006 年的资料显示，每 350 位族人之中约有 250 位族人使用库克萨优里语。这比例和其他澳洲原住民语言相比较高。该语言最大的特色是，没有左、右等相对方位词，要表示方位的话，一定要用绝对方位。

7. Daniel Everett: 丹尼尔·伦纳德·埃弗雷特，是美国语言学家和作家，他以研究亚马逊河流域的皮拉罕人及其语言而闻名。埃弗雷特（Everett）目前是马萨诸塞州沃尔瑟姆（Waltham）本特利大学（Bentley University）认知科学的信托教授。

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