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A MYRIAD OF TONGUES

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A MYRIAD *OF* TONGUES

How Languages Reveal Differences in How We Think

CALEB EVERETT

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For Shan and Kris

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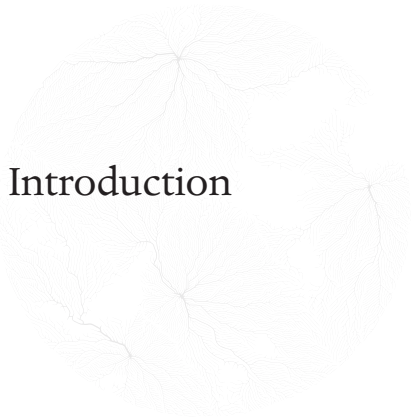

Introduction

THE FRIGID GUSTS are many degrees below freezing and, judging from the grimaces passing by, unpleasant even by the standards of Manhattanites. I take refuge in a closet-sized coffee shop at the base of the inclement canyon that is 8th Avenue. The city seems taken aback by the brutal January snowstorm as snow piles up alongside the crawling traffic of the morning commute. With sensation returning to my cheeks and a cappuccino in hand, I find that the view through the shop window becomes enchanting. This enchantment is soon interrupted by the scene on the corner of 8th and 42nd, where things do not seem ideal for a silver Prius that became mired in the snow as it attempted a right turn. The front tires are spinning in place as vehicles accumulate in the intersection, their horns blaring despite the clear helplessness of

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the hybrid's driver. A full minute seems to pass before the car's tires achieve traction, having spun through several layers of snow to reach the asphalt. The hatchback sleds off, headed uptown amid the current of impatient commuters.

A question occurs to me: Was it really snow that the car was stuck in? That word choice does not seem quite right. "Crushed snow" seems more appropriate, as "snow" by itself seems inaccurate or at least inadequate. "Packed snow"? It was not sleet, because it came down as flakes, not as ice pellets. I feel linguistically challenged as I grasp for a better descriptor. It clearly was a kind of snow, but each available term feels semantically imprecise. The car's wheels were stuck in "snowy ice," or "icy snow," or "snowy slush." All the terms that come to mind have a somewhat cobbled-together and unconventional feel, and most are a compound, with "snow" being modified by or modifying some other term.

Then a geographic coincidence occurs to me. I am sitting just a few miles away from the former workplace of Franz Boas, who planted the some-languages-have-many-words-for-snow tree of thought and is considered by many the founder of American anthropology. Boas was a professor at Columbia University and the first scholar to suggest that English's terminology for snow is relatively impoverished when he observed in 1911 that the language of the Inuit has at least four distinct and basic terms that are all translatable with the English word "snow" and associated descriptors. There is *qana,* or "falling snow"; *piqsirpoq,* or "drifting snow"; *qimuqsuq,* "snow that is already in a drift"; and *aput,* "snow that is on the ground." In a cycle of exponential exaggeration, Boas's observation eventually yielded the notion, in the zeitgeist if not among scholars, that Eskimos have dozens or even hundreds of words for snow. Such claims have been repeated in places like the *New York Times.* As noted in a decades-old humorous essay by the linguist Geoff

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Pullum, many of the claims surrounding the words-for-snow trope were comically inaccurate. Such inaccuracy does not imply, however, that languages do not vary in unexpected and profound ways with respect to how they describe certain physical phenomena. The extent of such variation was perhaps overlooked in some quarters precisely because of exaggerated claims like those surrounding Eskimo snow, claims that could easily be debunked. As we will see in this book, some analogous dismissals of linguistic diversity have surfaced repeatedly in the study of the world's languages. Setting aside that larger point, what is clear is that there has been plenty of subsequent debate about, and interpretation of, the exaggerated notion that some languages have boundless terms for snow. Much of this debate missed a key, simple point that Boas's example drives home: languages tend to reflect the environments in which they evolve. Populations in Greenland are likely to refer to different kinds of "snow" because they confront different kinds of snow so often and, relatedly, because they must coordinate their behavior and actions around it. In contrast, a group of indigenes in Australia may be wholly unfamiliar with snow and need no basic words to refer to it, much less varieties of it. The words-for-snow trope is, at its core, just a simple illustration of the fact that languages are influenced by their speakers' specific social needs and environments. The world's languages are incredibly diverse in part due to the varied physical and social environments in which humans live. In this book I will survey some key findings obtained from work on linguistic and cultural diversity, discussing new insights into how people communicate and think. This work aims to highlight particularly vibrant strands of the research produced by psychologists, linguists, anthropologists, and others that is reshaping our understanding of human speech and associated thought and behavior.[1]

The world's linguistic diversity is extreme and, in my experience, underestimated by most people. Consider this: When I teach an introductory

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course on anthropological linguistics at my university, in the first lecture of the semester I often ask the students to name as many languages as they can. The group of fifty students will struggle to name more than several dozen languages. They typically include Latin or Klingon or some other language of dubious qualifications. Individual students may struggle to name twenty languages. (This is not meant as a criticism, since most intelligent and well-read people struggle with this task—I leave it to you to try it if you are so inclined.) Yet there are, by most counts, over seven thousand languages in existence today. Furthermore, most of the languages that come to the minds of my students have European origins and are closely related. Setting aside a few commonly named languages like Mandarin and Arabic, the most frequently cited ones—German, Spanish, French, Italian, and even Latin—are representatives of only one of the roughly 350 language families in the world. These easily labeled languages trace their ancestry back to one language, Proto-Indo-European, which was spoken near the Black Sea roughly six thousand years ago. In short, most college students' awareness of linguistic diversity is formed by their extensive exposure to a small fraction of the languages that exist in the world today. And this fraction represents only one of the thousands of ancestral tongues that were likely spoken when Proto-Indo-European began its rise to prominence millennia ago.[2]

This bias extends beyond undergraduates. Languages of European ancestry have for centuries received inordinate attention from scholars in the West. This common fixation has clear and understandable historical roots, but since it helped to shape many theories of language, many cognitive scientists rightfully see it as problematic. Even during the twentieth century, when scholars were already aware that a very large number of languages existed around the globe, linguistic theories were informed in large measure by our understanding of European

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languages like English, languages that most of these theorists spoke natively. In some circles this theoretical bias remains even today. It has contributed to an unfortunate tendency to think of languages as being broadly similar, since many Indo-European languages are in fact similar to each other due both to their relatedness and to the frequent interactions between their speakers. This narrow focus helped foster the once-prominent view that languages exhibit only superficial variation that obfuscates profound similarities or even a "universal grammar." The universalist perspective is becoming less influential in the language sciences, judging from the research that is most impactful these days, and I suspect the reason why is simple. Once linguists really expanded the scope of their inquiries to look closely at the world's languages, they found that those languages were much more diverse than many theories presumed. If biologists primarily studied a few related species in one ecosystem, only occasionally studying species elsewhere, they would likely underestimate the world's range of biodiversity. Thankfully, there has been a radical shift that is still underway in the study of language, alongside a parallel shift in the study of human thought and behavior. These shifts have resulted in a clear focus not on the hypothetical universal features evident in all languages, but on the critical ways in which languages diverge—and what that divergence can tell us about humans more broadly. For instance, a new study authored by a team of well-known scholars, widely shared on social media in late 2022, surveyed the many ways in which overreliance on English has limited our understanding not just of languages but of human thought. The authors of that study note that a recognition of the extensive linguistic and cognitive diversity of *Homo sapiens* is essential to a deeper understanding of our species. This diversity is at the heart of the story this book will tell, though subtle and pervasive tendencies in the world's languages are part of the story too.[3]

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In a paper just over a decade old, entitled "The Myth of Language Universals," linguists Nick Evans and Stephen Levinson offered a litany of ways in which linguistic diversity contravenes the notion that the world's languages have meaningful universals. Many linguists who have spent extensive time doing fieldwork on diverse languages in remote locales (myself included) agreed with the central claims of the article, which was published in the journal *Behavioral and Brain Sciences.* The lack of linguistic universals is in some ways surprising given that all human populations have the same basic anatomy associated with thinking and speaking, all of which evolved prior to our African exodus. It is also somewhat surprising because language serves similar functions across populations. Still, while these functional pressures do yield many similarities of form across languages, the pressures are insufficient to yield any true linguistic universals. In fact, Evans and Levinson suggested that the principal question linguists should try to answer is why languages are so diverse. They noted that ours is the only known species whose communication system varies so much across population groups. The countless studies that have focused on languages from diverse families and regions present unequivocal evidence of this profound variation, which includes everything from the kinds of tenses languages use (see Chapter 1), to the basic word orders they use (see Chapter 8), to, yes, the kinds of words for snow they use (see Chapter 5). No single book could catalog all this variation, but by reading this one you will get a better sense of the extent of the linguistic and associated cognitive diversity that exists across the globe.[4]

Linguists are still coming to grips with how incredibly distinct the world's languages are. Meanwhile, psychologists and others are better appreciating the diversity of thought and behavior across human populations. In another famous paper published in *Behavioral and Brain Sciences* a little over a decade ago, psychologists Joseph Henrich, Steven

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Heine, and Ara Norenzayan made a critical point about our understanding of human cognition: nearly all of it is based on studies of people from Western, educated, industrialized, rich, and democratic (WEIRD) societies. These societies are weird indeed when contrasted to the bulk of human societies that exist or ever have existed. Henrich and colleagues suggested that "members of WEIRD societies, including young children, are among the least representative populations one could find for generalizing about humans." This is true for a variety of reasons, including the dramatic effects that industrialization and literacy have had on the social and material environments in which many of us WEIRD people were raised.[5]

The fact that WEIRD populations are a weak proxy for all humanity is also due to the effects that intensive schooling has had on the kinds of symbolic and mathematical thought with which we are routinely engaged from a young age. In my previous book, *Numbers and the Making of Us*, I discussed research suggesting that humans' numerical practices vary more substantially across cultures than many people realize. That book was based partially on my own work with indigenous populations who use number systems very distinct from those with which most of us are familiar. I suggested in the book that most human populations that have existed over the course of our species' history, and certainly those that developed prior to our ancestors' emigrations from Africa about one hundred thousand years ago, were not affected by repeated exposure to mathematical symbols and words. Our understanding of human psychology regarding things like numerical thought is informed largely by one strain of human populations, a strain that is hardly representative of our species in either a contemporary or historical sense. After all, most major universities and research centers have relatively easy access to WEIRD populations, primarily college students. This is perhaps one reason why the cross-cultural diversity of human cognition,

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like the diversity of languages, has been underestimated. As cognitive scientists have begun to seriously take up the call for studying human cognition via representative samples of populations with diverse histories, ecologies, and subsistence types, the extent of human cognitive heterogeneity has become more visible. That visibility continues to grow today, just like awareness of linguistic diversity. Yet the awareness of profound linguistic and cognitive diversity has not been disseminated sufficiently into the public consciousness, nor even into the consciousness of many scholars outside the fields of linguistics and cognitive science more broadly. This book highlights major insights that studies of many diverse languages worldwide, not just those of WEIRD people, have offered to cognitive science, linguistics, and other key fields of research on humanity.[6]

I should probably mention here that I spent much of my childhood in the jungles of Amazonia. It was that childhood experience that ultimately led me into the fields of anthropology and linguistics, fascinated as I am by the range of human linguistic and cognitive diversity. This pursuit has led me down research paths that rely on a variety of methods. Some of those paths have led me back to indigenous peoples in Amazonia, and that regional focus will be evident at times. Still, this book is concerned with discoveries about linguistic and cognitive diversity that have been made worldwide, primarily with non-WEIRD cultures but also with WEIRD ones. Some of the discoveries come from experiments in laboratory settings or from computational research on new databases filled with linguistic data from hundreds and even thousands of cultures worldwide. My own research utilizing such methods, along with more traditional linguistic fieldwork, will be mentioned at various points in the book when relevant. Unsurprisingly, there is some personal bias in terms of the themes covered in this book because I do research on several of the topics discussed. That said, I have tried to avoid focusing too

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much on the work of any one scholar (including myself), in order to show the array of fascinating types of research on the world's linguistic diversity being conducted by many scholars, often with novel methods. These researchers are changing our understanding not just of how language works, but of how people think and behave while they speak. It is also worth noting that the researchers themselves represent an increasingly diverse group of scholars, which no doubt contributes to the growing breadth and quality of the work surveyed in this book.[7]

In contrast to the bulk of linguistics research conducted in the twentieth century, contemporary research on language is also becoming increasingly collaborative and geared toward replicability when possible. Instead of the introspections of individual linguists and philosophers at famous universities, data and methods are now taking their rightful places at the center of discussions of language research. This is another reason why the book avoids a focus on any particular scholar or set of scholars, though the research of some will make multiple appearances. The book partakes in a general shift toward collaborative and reproducible efforts, which has resulted at least partially from the greater integration of language research with other fields. The growing integration of the study of linguistic behavior with the study of other forms of human behavior is not, however, simply due to a clearer focus on methods and data. Many language researchers have come to recognize that we simply must rely on insights into other aspects of human behavior to truly understand language and associated thought. For an intense period in the late twentieth century, linguistics aimed to divorce language from nonlinguistic aspects of culture and from other cognitive processes, but linguists increasingly recognize that these phenomena cannot be separated. For example, in Chapter 1 we will see how we cannot make sense of how people in some cultures talk and think about time without also understanding how they gesture about

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time. In Chapter 6 we will see how the structure of languages can be influenced by the social environments in which they develop. Because of this increasingly integrated view of linguistic behavior, the book will often veer outside the strictly linguistic because, well, not much is strictly linguistic. For example, we will see in Chapter 4 how the interaction of some lifestyles with certain environments helps foster distinct terms for colors and smells that can in turn affect how people remember visual and olfactory stimuli. The growing recognition of the integration of linguistic and nonlinguistic thought and behavior means that those of us concerned with linguistic behavior have had to familiarize ourselves with other fields. My own work has become increasingly reliant on findings from fields such as cognitive psychology, data science, and respiratory medicine, and it has veered into such fields at times. My collaborators now include biologists, chemists, political scientists, and engineers. I am not unique in this respect: a growing number of language researchers are migrating toward cross-disciplinary methods and collaborations as we see that language cannot properly be understood in a silo. The more careful engagement and collaboration with such disciplines by numerous language researchers represent another undercurrent flowing through this book. Three examples of cross-disciplinarity in my own research may serve as helpful illustrations of this trend. My research on number words relies on experimental research as well as computational analyses of number words in thousands of languages. In other work, I am collaborating with medical researchers and chemists to better understand how people produce tiny aerosol particles when speaking, and how such particles can transmit airborne pathogens during conversations. As a last example, some of my research has suggested that extreme ambient aridity impacts how languages evolve because it places subtle pressures on

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how humans use certain sounds. This research, which is controversial and will be discussed a bit in Chapter 5, is reliant on previous experimental research in biomedicine. These examples from my own research are simply illustrative of how language research is potentially relevant to and impacted by findings in a wide variety of disciplines. Thus, while the findings discussed in the book are related directly or indirectly to language, most of them are noteworthy because they also relate to other aspects of how humans think and behave. In that sense, this is very much not a linguistics book per se. It is a book about how research on myriad languages is reshaping our understanding of how people think when they are speaking, and in some cases how they think when they are not speaking.

While this book examines findings from a number of academic disciplines, most of the work it discusses is nevertheless based in one way or another on the research of linguistic fieldworkers who have documented countless unrelated languages during the past few decades. In many cases linguistic fieldworkers have drawn attention to interesting cognitive phenomena, including nonlinguistic phenomena, simply because field linguists have spent a lot of time living with very diverse populations around the world. To study a particular language, one often needs to invest countless hours listening to and recording that language. The increased focus of linguists on studying unrelated languages has meant they have spent time with distinct peoples who, besides speaking disparate languages, often have varied lifestyles in diverse ecologies. In short, all the linguistic documentation of the last few decades has also yielded a broader awareness of human cultural and cognitive diversity. Many linguists have brought back accounts of such diversity, encountered while doing fieldwork. These accounts, sometimes only anecdotal, have often served to entice others to

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return with them to remote settings to investigate, with the linguists' help, the behavioral diversity in question. In this and other ways, linguistic documentation has ultimately yielded a large crop of findings on humans' cognitive and cultural diversity that extend beyond linguistic diversity.

This book focuses on a variety of findings that stem directly or indirectly from the documentation of non-WEIRD cultures, but some studies on English and other well-documented languages are also discussed. In fact, some new work on English has been informed by work on unrelated languages, and this work has led to new discoveries on English and other languages spoken by WEIRD cultures. The book highlights recent key discoveries from a variety of cultures, discoveries that are in one way or another tied to the growing realization that the ways people think and talk are more varied than we once thought. I use the word "recent" in a relative sense. Some of the work discussed in this book is already decades old, but keep in mind that people have been studying languages for millennia. And much of the research discussed in the book has only appeared in the last decade or so. As previously noted, this book does not aim to exhaustively catalog key discoveries on speech, which would require volumes. Instead I offer a survey of some particularly interesting findings that are meant to be indicative of the larger trends at work in language research, with an emphasis on the themes mentioned above. In Chapters 1, 2, and 3, we will look at how discoveries related to talking are changing our understanding of human thought associated with time, space, and relationships. In Chapters 4, 5 and 6, we will examine research that points to the interconnectedness of speech, thought, and the environments in which languages are spoken. Finally, in Chapters 7 and 8, we will examine findings that are changing our understanding of how we think in order to create words and sentences.

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Somewhat paradoxically, the language-based discoveries I will discuss have surfaced during an ongoing decline in the world's cultural and linguistic diversity. By some estimates, as few as six hundred of the world's languages, less than 10 percent, will survive this century. The median number of native speakers of a language is only around ten thousand, and hundreds of the world's languages are spoken by one hundred or fewer speakers. Such figures hint at the ongoing extinction of languages, which is happening as younger speakers in less populous cultures migrate to hegemonic, more economically useful languages like English. Awareness of this ongoing extinction has motivated many scholars to investigate dying languages while they still exist. Many of these languages are unwritten and unrecorded, hence the urgency of the task of field linguists. The mass extinction continues largely unabated, due to a host of socioeconomic factors outside the influence of any language-conservation efforts, however well intentioned such efforts may be. We therefore stand at a captivating stage of our species' life span, an ephemeral nexus that is unrecognized by most. We stand at the intersection of two trajectories: the growth of the recognition of cognitive and linguistic diversity across human populations, and the unrelenting decline of the linguistic diversity that enabled that recognition. Unfortunately, the ineluctable disappearance of most languages is, by all measurements, a onetime receding tide that is much stronger than any efforts at fighting it. While the work of linguistic fieldworkers is certainly not holding the receding waters in place, it has served to pull incredible specimens out of those waters, holding them up for others to appreciate. In this book we will take a look at some of these data specimens, showing how they are essential to our understanding of how humans actually talk and think.[8]

Whether or not Eskimos really have that many words for snow, it becomes clear to me this snowy morning that I do not have many at the

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ready. I leave the coffee shop, walking quickly to my next refuge, a subterranean one where I will hop on a crosstown subway. The freshly fallen snowflakes crunch audibly underfoot. But "snowflakes" doesn't really seem quite right, not now that the snow has accumulated on the sidewalk. As I take another step against the prevailing wind of the blizzard, I conclude that the snow I am walking on is probably no longer *qana*. I guess now it is *aput*.

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1

Your Future Is behind You

PAST, PRESENT, FUTURE. These domains of time seem so fundamental to life, almost tangible, at least once we are adults. Early in life, we begin learning that these three core components of temporal progression are reflected in the language we speak, and that verbs take different forms depending on when the actions occur. We learn that we say things like "I jumped" when the action happened in the past. That is, we learn that an "-ed" suffix gets added to many verbs to inform the listener that something already happened. An English-speaking child must also learn that when referring to a future jumping event, they should say something like "I will jump" or, more commonly, "I'll jump" or "Ima jump." These conventions represent a key challenge for a child or an adult acquiring English; it is not easy to learn how to convey with regularity the past,

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present, and future status of events. To further complicate matters, English learners must learn that the tense markings on verbs often vary in irregular ways. They must memorize, for example, that they "*ate* lunch earlier," but that they "will *eat* dinner later." As with much of the language-learning experience, these idiosyncrasies can be maddening at times.

Such word-level particularities perhaps obscure the more fundamental thing that we are learning about tense as we become language speakers. We are learning that there is precisely a past, a present, and a future. When we acquire English as kids, we are also meant to learn that these particular temporal categories exist in the first place, that they are almost tangible, or at least that they are the basic categories to which we should refer by default because that is how time works. Our language helps to reify these abstract categories of time. After all, *past, present,* and *future* are nebulous notions that are not perceived in the concrete manner in which, for instance, you perceive the physical space around your body. You cannot revisit the past or prove its existence by reaching out and touching it as you might an object in your physical surroundings. And we never actually reach the future. Meanwhile, the present is not capturable since any moment we recognize is gone by the time we recognize it. It is in large part through language that the categories of past, present, and future are made to seem natural to us. In this chapter we will see that some aspects of time that seem so "natural" to us English speakers may seem unnatural to speakers of many other languages. This does not mean that we actually experience time in unique ways. Yet the linguistic evidence suggests that we conceptually segment time in particular ways because of the language we speak, and that speakers of other languages, while they may experience temporal progression in similar ways, must come to think of other temporal categories—not necessarily past, present, or future—as basic if they are to become fluent

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in those languages. In this chapter, I will discuss a few ways in which, according to various strands of research, languages reflect and potentially affect the diverse ways in which people think about time.

Time and Tense

The place to start is with tense. When asked why English has three tenses, some of my college students seem flummoxed. It seems a bizarre question. To them, English has three tenses because there are three tenses in time. English grammar refers to the past, the present, and the future because, well, that is how the universe works. In actuality, though, there are other ways to demarcate time grammatically, and one could argue that the past, present, and future seem to be natural domains of our lives precisely because we speak a language that demarcates time according to these parameters. So the true causal association may be the reverse of that typically assumed—it may be that our language constrains our default way of referring to and perhaps even conceptualizing time, and not that time's inherent qualities constrain how we talk about it. Again, I am not suggesting that people around the world physically experience time in markedly different ways. The claim I am making, and that others have made before me, is less radical but still potentially counterintuitive: how we talk about time, as English speakers, impacts our default mental description of how time works. If this claim is true—that is, if a grammatical characteristic of English impacts how we conceptualize temporal progression, or at least dictates how we refer to time—we would expect that not all languages should break up time into past, present, and future. In fact, many of the world's languages do not require speakers to refer to these categories. Past, present, and future are not actually temporal categories in many grammars of the

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