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Geographical Diversity and Language

Language variation is a well investigated topic within the linguistic world and is widespread throughout American society. This occurrence in society is heavily influenced by a number of factors including but not limited to a speaker's context, culture, age, gender, and ethnicity. Most well documented cases for why language variation exists can be derived from artificial constructs built by human society and the influence that it has on speaker's. Regionality can also contribute as a major factor in linguistic variation as humans with similar cultures and practices, including the ones mentioned above, tend to group together and live in similar regions.¹ Despite the cultural and regional differences that define linguistic variation through artificial means, the natural world, the environment, and the divergence between climates can have a profound effect on how a speaker in the United States practices language and how it applies to linguistic variation.

The natural world and environment has a profound effect on every human's lifestyles and how humans interact with each other. According to Kate Boland, professor and speaker in subjects including geography and writer for the World Atlas, the United States is home to 10 different climate zones with each climate zone being host to even more climate subzones.² One major distinction between climate zones around the United States is the temperature. Temperature is at the base of every climate environment and dictates many aspects of human life including language. In the study *Language Adapts to Environment: Sonority and Temperature*, author Ian Maddieson argues that the phonetic patterns of human languages can be molded by the temperature of the climate. Maddieson points out that higher air temperatures prevent the

¹ Sankoff, Gillian. "Dialectology"

² Boland, Kate. "What Are The Climate Zones Of The USA?"

contrast of consonants when speaking, leading to clustering of consonants.³ This similar speech pattern can be seen in states that fall under the southeast, southwest, and the Ohio Valley climate zones identified by Kate Boland where temperatures are generally higher. The lack of distinction among consonants or occasionally the omission of such results in what is determined to be a southern or midwestern accent. A strong counter argument to this claim would be that these accents would be correlated more to a lack of standard language education or a lack of intelligence regarding language, as often argued by those who support or promote Standard American English. These claims help propagate the stereotypes of “rednecks” or “hicks” and attack such communities through a linguistic lense and try and try to dismiss any other causation of accents. However, in her book *English With An Accent*, Rosina Lippi-Green argues in her chapter on accent and discriminatory pretext in the courts that “Degree of accentedness, whether from L1 interference, or a socially or geographically marked language variety, cannot predict the level of an individual’s communicative competence”.⁴ She argues here that there is no legal or formal distinction between the competence of a speaker and their accent, implying that accent does not inhibit or correlate with a speaker’s intelligence or their expressive potential. This argument aligns with Maddieson’s argument in that the speaker does not have entire control over how the temperature affects their speech and that they are bound to have an accent regardless of intelligence or other factors that lead to linguistic variation.

Along with temperature, humidity is a major factor when it comes to a climate. Humidity has a massive effect on the environment and the natural world as it determines the type of plant and animal fauna that exists in a climate as well as having a compounding effect on temperature. In terms of language and language expression, there is a correlation between humidity and

³ Maddieson, Ian. “Language Adapts to Environment: Sonority and Temperature.”

⁴ Lippi-Green, Rosina. *English with an Accent*

complex tonal languages and speech patterns, according to researchers Caleb Everett, Damian Blasi, and Sean Roberts in their study.⁵ Radboud University professor Jeremy Collins reinforces the original study by focusing on humidity alone in his study and how humidity affects the complexity of language. Collins found that worldwide there were a higher number of languages in areas of higher humidity. In the United States, Collins identified the West Coast and the Southwest as regions where the most languages were spoken per 30,000 km², with other, less humid regions in the United States having far less variation in languages spoken.⁶ Kate Boland identifies the regions that Collins describes as the Southwest and West climate zones. Boland somewhat conflicts with what Collins has found for the United States as she describes the Southwest climate zone as the most arid region in the nation. She identifies other regions in the United States such as the southeast and northeast climate zones as humid but Collins states that there is not much variation in languages in these areas. The one region where both of their arguments agree is in the Northwest climate zone, where a wet climate is present year round.⁷ While it is not the region in the United States that Collins recognizes as having the most language variation, that title going to the West Coast climate zone, he does identify an above average variation compared to the rest of the nation.

The explanation for such discrepancies in data between the two sources can not be a result of the natural climate but rather an artificial variable. According to the United States Census Bureau, the majority of the southeast, with the exception of some urban areas, the percentage of people that speak English less than “very well” is less than 3.5%. Areas where these numbers are the highest are along the borders and ports of entry, with some counties

⁵ Everett, Caleb, et al. “Climate, Vocal Folds, and Tonal Languages: Connecting the Physiological and Geographic Dots.”

⁶ Collins, Jeremy. “Commentary: The Role of Language Contact in Creating Correlations between Humidity and Tone.”

⁷ Boland, Kate. “What Are The Climate Zones Of The USA?”

reporting up to 32.5% or higher.⁸ This data indicates that neighboring nations have an impact on the language variation in the United States to some degree. The southern border sees a more profound effect because Mexico is a Spanish-speaking nation, while Canada shares French and English resulting in less variation in the United States. This effect is not seen in the humid southeast, with the exception of Florida, because this region of the United States does not border any other nations and does not contain any major port of entry, resulting in a population that has no need or reason to speak other languages since most business and government proceedings are in English in the United States.

While a large aspect of climate involves the air and temperature that surrounds an environment, another crucial aspect that is often overlooked is elevation. While seemingly unimportant for linguistics, elevation has a significant impact on the location of different languages and how those languages are spoken. The United States is home to the 8th lowest elevation point on the planet, with Death Valley being -282 feet below sea level and has an elevation range with an upper bound of 20,310 feet above sea level, the summit of Mount McKinley in Alaska^{9 10}. With such a massive fluctuation in elevation, the potential effect on linguistic variation is large and studies confirm the idea. Caleb Everett performed a detailed study on the topic and dialed in on how elevation affects provenancial location of languages that utilize ejective consonants and those that do not. The results of his study provide an abundance of information not only about the location of ejective consonant languages but also the formation of languages as a whole. To begin, Everett found that the origins of languages with ejective consonants were clustered in areas with the highest elevations, while the majority of non-ejective languages originated in areas of lower elevations. In the United States, Everett found that the

⁸ US Census Bureau. "People That Speak English Less Than 'Very Well' in the United States."

⁹ US Department of the Interior, "Death Valley National Park (U.S. National Park Service)."

¹⁰ U.S. Department of the Interior, "Denali National Park & Preserve (U.S. National Park Service)."

origins of ejective languages were largely clustered in the Rocky Mountains, the Pacific Northwest, and Alaska: all regions with relatively high elevation. Some ejective languages did emerge in places such as the midwest with still considerable elevations, but not at the frequency seen in the upper-elevation regions. These findings prove a direct correlation between elevation and variation among languages. Everett's study also does show that in regions with higher elevations and where ejective languages are present, there is a much higher density of languages as opposed to lower elevations where the language origins are much more spread out.¹¹ The argument of the presence of ejective consonants in a language being based on elevation is sound. Areas with higher elevations have lower air density, meaning that there is less breathable air in the atmosphere in these areas. Humans adapted to that struggle in higher elevations by using ejective consonants, which are consonants that can be articulated after the glottis is closed, meaning no active airflow is needed. By using ejective consonants, humans were able to communicate through spoken language without needing as much airflow and not making the process exhausting. The context in which these languages were developed and used for also provide a useful insight into why the speakers developed their languages with ejective consonants. Most of these languages were developed out of necessity and used as a utility in order for speakers to effectively communicate with their community to increase chances of survival against the dangers of high-elevation environments, meaning that the language has to be efficient and cannot take a lot of effort from the speaker in order to speak it.

The reasoning as to why these ejective languages are found in clusters in higher elevations is likely due to the ability for humans to traverse the terrain of their surrounding environment and the ability for languages to come into contact with one another. All of these areas of high elevation in the United States are mountainous regions that are often hard to

¹¹ Everett, Caleb. "Evidence for Direct Geographic Influences on Linguistic Sounds: The Case of Ejectives."

traverse. Areas with hindered abilities to traverse will result in high amounts of regionality, resulting in communities creating their own cultures and languages and are able to preserve them for longer due to the lack of contact with other cultures and languages. So while the distribution of these ejective consonant languages is not fully dependent upon the climate, it can be concluded that the elevation climate does have an impact on the characteristics of the language while the natural environment itself is the causation for the distribution of these languages.

Along with language variation, the variation of language development is a very important topic in the world of linguistics and helps linguists understand how languages developed and why languages that developed in similar regions are unique from each other. According to Rosina Lippi-Green in the chapter on the linguistic facts of life in her book, *English With An Accent*, she states that “all spoken language changes over time.”¹² The evolution of language is inevitable according to Lippi-Green and Caleb Everett backs her claim in addition to building upon her argument and studying how the natural environment that surrounds a speaker or a group of speakers impacts language evolution. In his study, Everett found that the climate is one of the sole reasons for language evolution and is a fundamental reason as to why language variation exists. He compares the climate’s effect on language evolution to the climate being the sole reason for biological evolution: it is a matter of survival. Everett links the ecology of a speaker’s environment to have a direct impact on the communicative needs of the speaker, resulting in a unique requirement for language in an area. He also claims that natural parts in the world, including birth rates as a result of population potential in a region, disease, and contact between differing languages all result in language evolution.¹³ The discussion of how elevation impacts the creation of languages in the United States discussed above would seem to agree with

¹² Lippi-Green, Rosina. *English with an Accent*

¹³ Everett, Caleb, et al. “Language Evolution and Climate”

Everett's claim in this study (granted the study on elevation was also his). While Everett determines language evolution to be a result of natural processes, Lippi-Green prefers the idea that the top echelons of human society with control over the spread of information are the result of language change.¹⁴ The idea of media being able to control the flow of information in the United States, a very hot topic in modern times, would back her claims up as many terms in the media are popularized into society, resulting in an increased use and a change in how the language is spoken. Historically, Everett's claims likely have more substance as most of ancient human history was defined by the climate and the human adaptation to it. Humans have adapted every part of their lifestyles to fit their environment. This is a trend that is still seen in the United States today, as architecture, culture, and spoken language accents in the Southeast are vastly different to the accents seen in the Northern parts of the nation or in Alaska. Despite the historical evidence favoring Everett, Lippi-Green's argument does have merit, especially in modern times with the emergence of social media and the prominence of media in US society. The way humans use language in the modern day varies based on the context of the situation. People on social media are more likely to use a more relaxed speech pattern with words like "swag" and "yolo" becoming commonplace in these areas, while a professional context is still maintained in society in the areas where it is required. It could be argued that social media and media in general creates a social climate of its own and that humans are adapting to the changes in these internet climates. While both Everett and Lippi-Green agree that language evolution is a fact of life, their arguments for why it happens come from fundamental differences in linguistic philosophy.

Language variation is a deep topic within the world of linguistics and it comes in many forms ranging from the differences between dialects of a language, to the fundamental

¹⁴ Lippi-Green, Rosina. *English with an Accent*

differences of unique languages. Climate has a profound effect on the lives of everyone and there is no doubt that the climate changes the way humans speak. The United States is home to a number of different climates and the people that inhabit these regions have tweaked and altered their way of spoken communication to cater to their specific needs and abilities. The study of linguistic variation in climates is a very important and interesting topic and helps provide insight to help answer the questions involving regionality and the development of society.

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