LING 1010

Language and Mind

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04.19.21: Endangered Languages, Language Death, and Language Genesis

What is a Language?

Recall from our last lecture that we've settled on a **scientific definition** of what it means to be a human language (this might not be an exhaustive definition, but it is a good working definition for this course).

A human language will have the following properties:

1. It will have its own phonology.

2. It will have its own morphology.

3. It will have its own syntax.

4. It will be acquired using known mechanisms of language learning.

How many languages are in the world according to the scientific definition?

It is very tricky to count languages using the **scientific definition**.

Because every human being hears slightly different input, it is logically possible that every human being will acquire a slightly different phonology, morphology, and syntax.
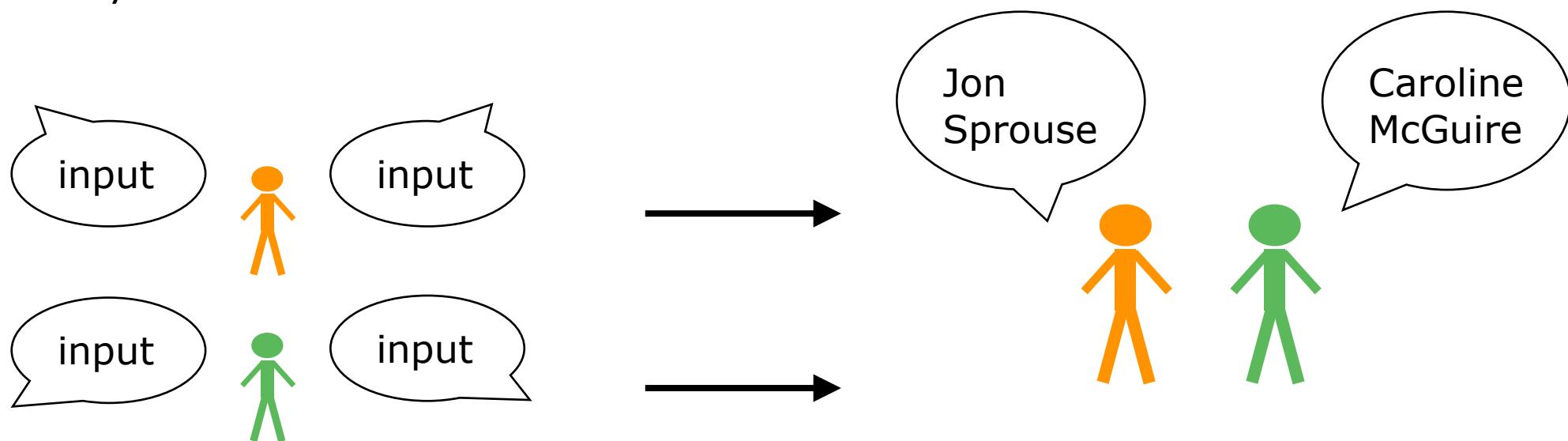
This means that, according to the scientific definition, it is possible that every human being might speak a different language! (I speak Jon Sprouse, and you speak your own language.) So there could be 7,000,000,000 languages spoken in the world today!

How many languages are in the world according to the colloquial definition?

Obviously, it doesn't make sense to count languages if every person speaks a different language. So for today's purposes, we are going to set aside the scientific definition, and instead use a **colloquial definition**.

I am not going to define this explicitly, because colloquial definitions are not intended to be precise. Instead, let's just rely on our intuitions about how normal people talk about language, and ask: How many languages are spoken in the world today?

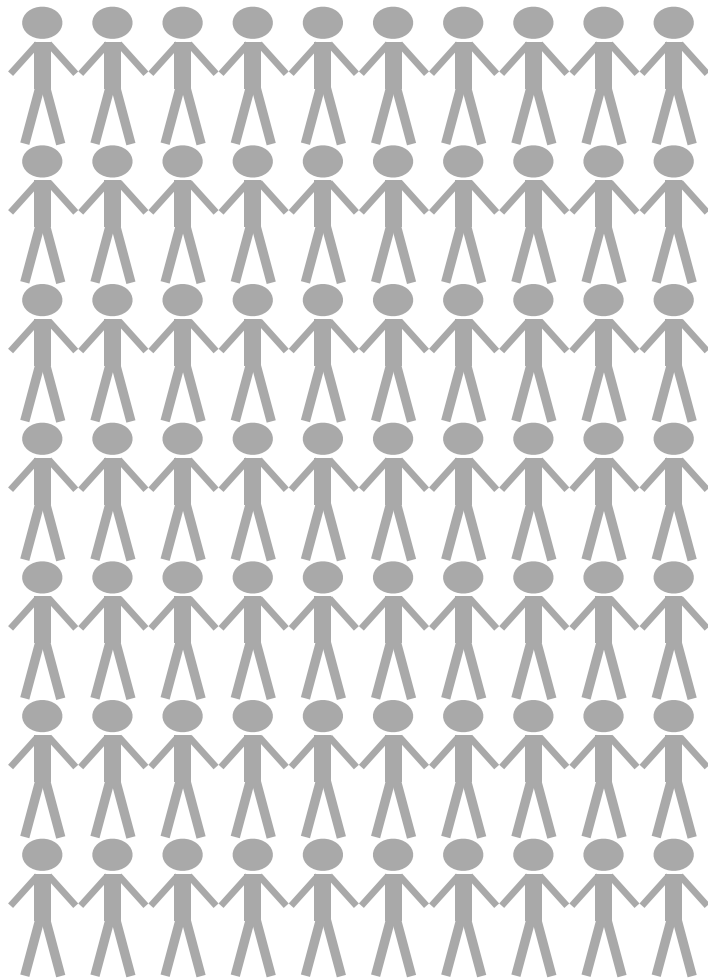# Approximately 7,000

That feels like a lot, doesn't it? If someone were to ask you if we have a lot of linguistic diversity, you would probably say yes, wouldn't you?

Endangered Languages

The distribution of languages in the world

Here is a representation of the 7,000,000,000 people in the world. Each stick-figure represents 100,000,000 people.

The top 9 most spoken languages in the world are:

1. Chinese
2. Spanish
3. English
4. Hindi
5. Arabic
6. Portuguese
7. Bangla
8. Russian
9. Japanese

The distribution of languages in the world

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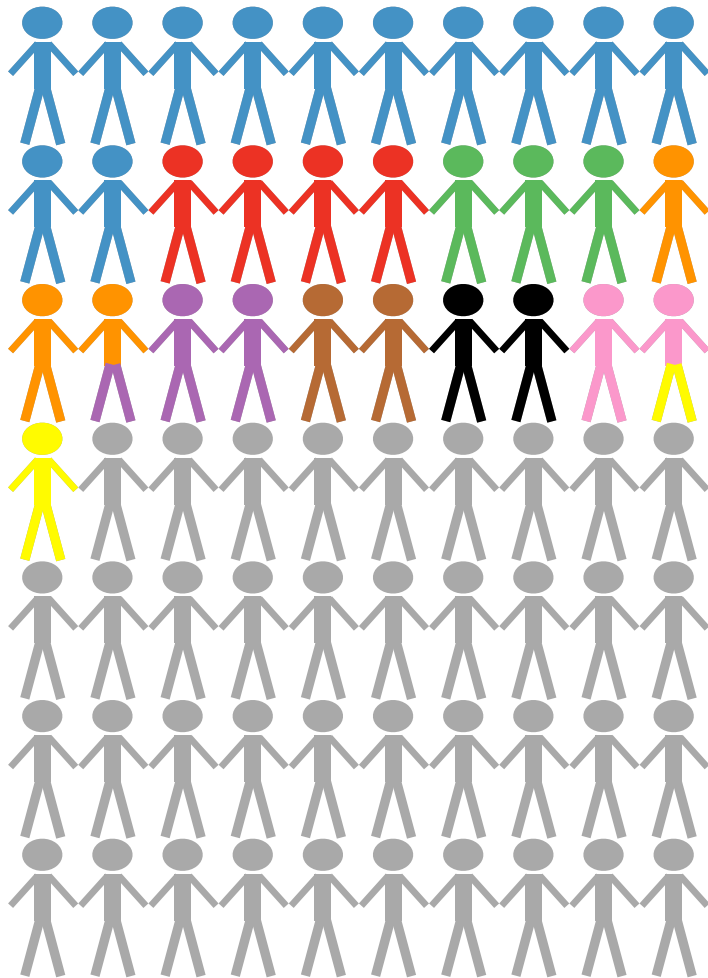
The top 9 most spoken languages in the world are:

1. Chinese	1,200,000,000
2. Spanish	400,000,000
3. English	300,000,000
4. Hindi	250,000,000
5. Arabic	250,000,000
6. Portuguese	200,000,000
7. Bangla	200,000,000
8. Russian	150,000,000
9. Japanese	150,000,000

The big 9 account for 44% of the world's population!

It is even worse than that

Here is a representation of the 7,000,000,000 people in the world. Each stick-figure represents 100,000,000 people.
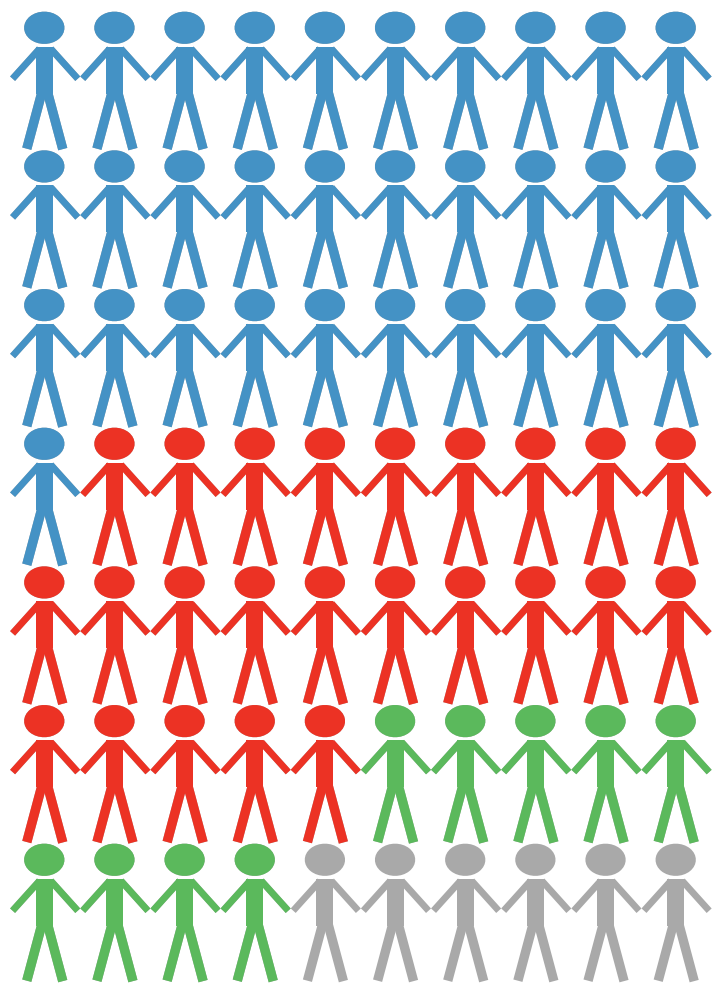
And if we look at a few hundred more languages:

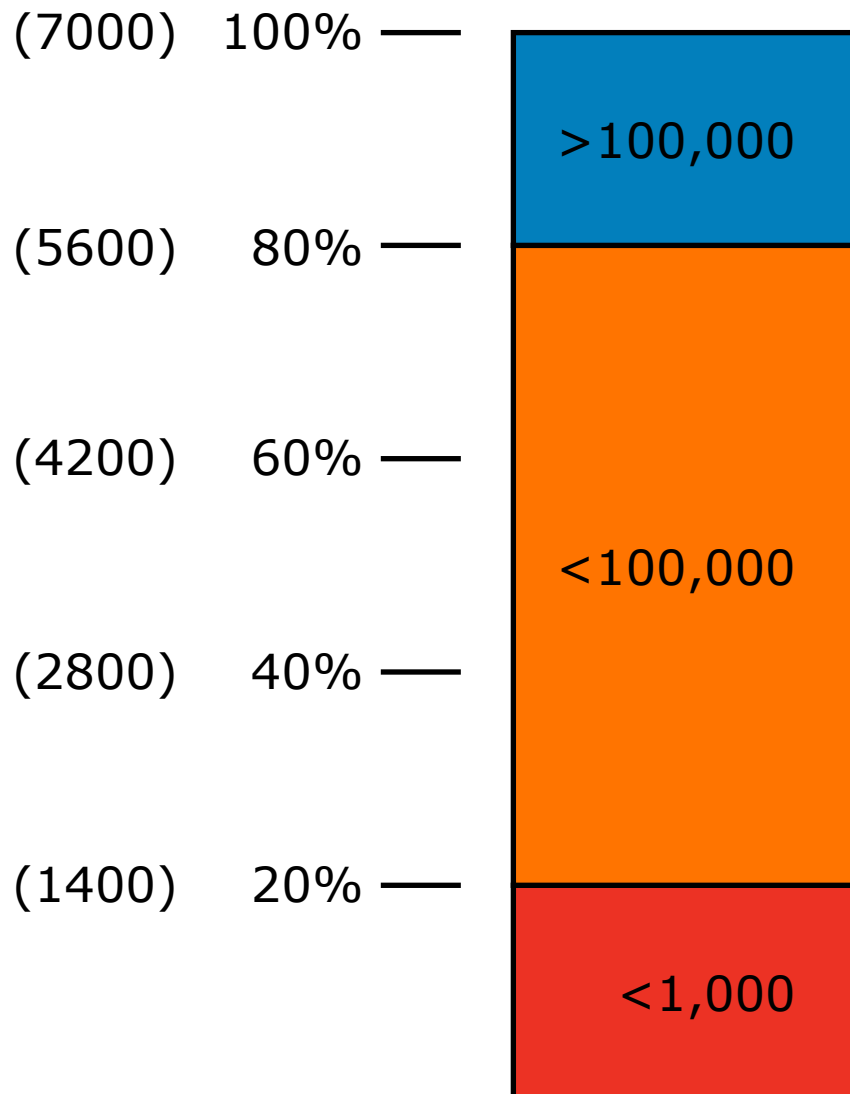|	
The big 9	3,100,000,000
The next 80	2,400,000,000
The next 300	900,000,000

With just 400 languages, we cover over 90% of the world's population. 6% of the world's languages take up 90% of the population!

http://www.ethnologue.com/statistics/size

Many languages have **very** few speakers

(7000) 100% —

(5600) 80% —

(4200) 60% —

(2800) 40% —

(1400) 20% —

>100,000

<100,000

<1,000

20% of the world's languages have robust populations (100,000 speakers or more).

80% of the world's languages have less than 100,000 speakers (we are including the 20% with less than 1000 here). To put this in perspective, the populations of Hartford and New Haven are each around 130,000. These languages have fewer speakers than small New England cities.

20% of the world's languages have less than 1,000 speakers. To put this in perspective, each class at UConn typically has around 3000 students.

Language Death

Why do we care? Languages are dying!

A language is alive if there are living human being who speak that language natively.

A language dies when the last native speaker of that language dies.

Language death occurs when parents stop teaching their language to their children. This is an issue of power, not about science or linguistics. There is nothing about the grammatical structure of a language that causes its death.

Power comes from politics and economics. Power disparities can be helped along by widespread acts of devastation, such as war, disease, and natural disasters, that either reduce the population, or force the population to move/merge with another group.

An example close to home

Connecticut used to be home to at least 5 Native American languages.

At least 4 of the languages are extinct: Mahican, Quiripi, Mohegan-Pequot, and Nipmuc.

Munsee is only spoken by a few elders that live on a reservation in Ontario.
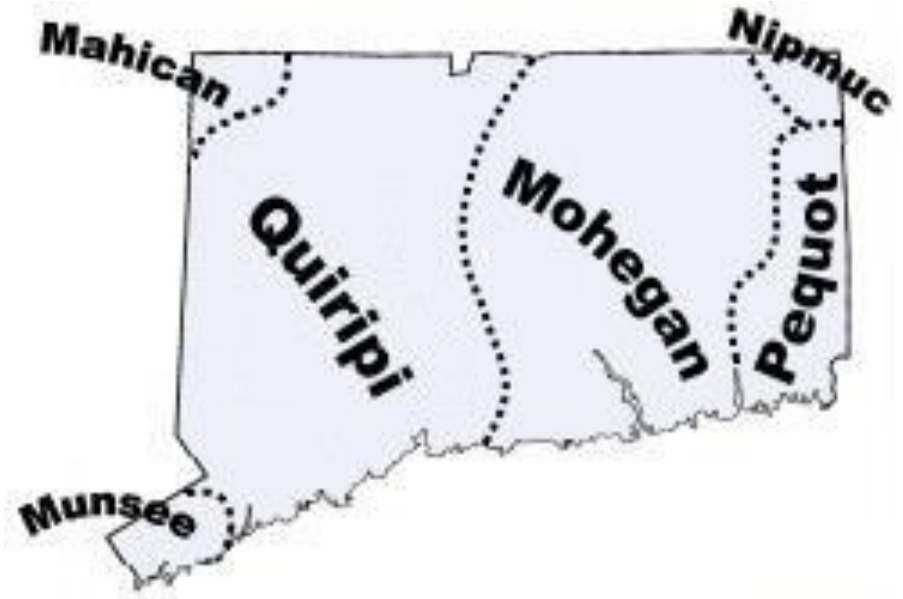
We even know the precise moment that the Mohegan-Pequot language died. It died in 1908 when the last known native speaker died. Her English name was Fidelia Fielding, and her Mohgegan-Pequot name was Dji'ts Bud dnaca.

This is not limited to CT. Most Native American Languages have died or are dying

It is estimated that there were around 500 Native American languages spoken in North America in the year 1500.

This picture shows language families, not individual languages. Each family consists of several languages (the same way that French, Spanish, and Italian are in the Romance language family):
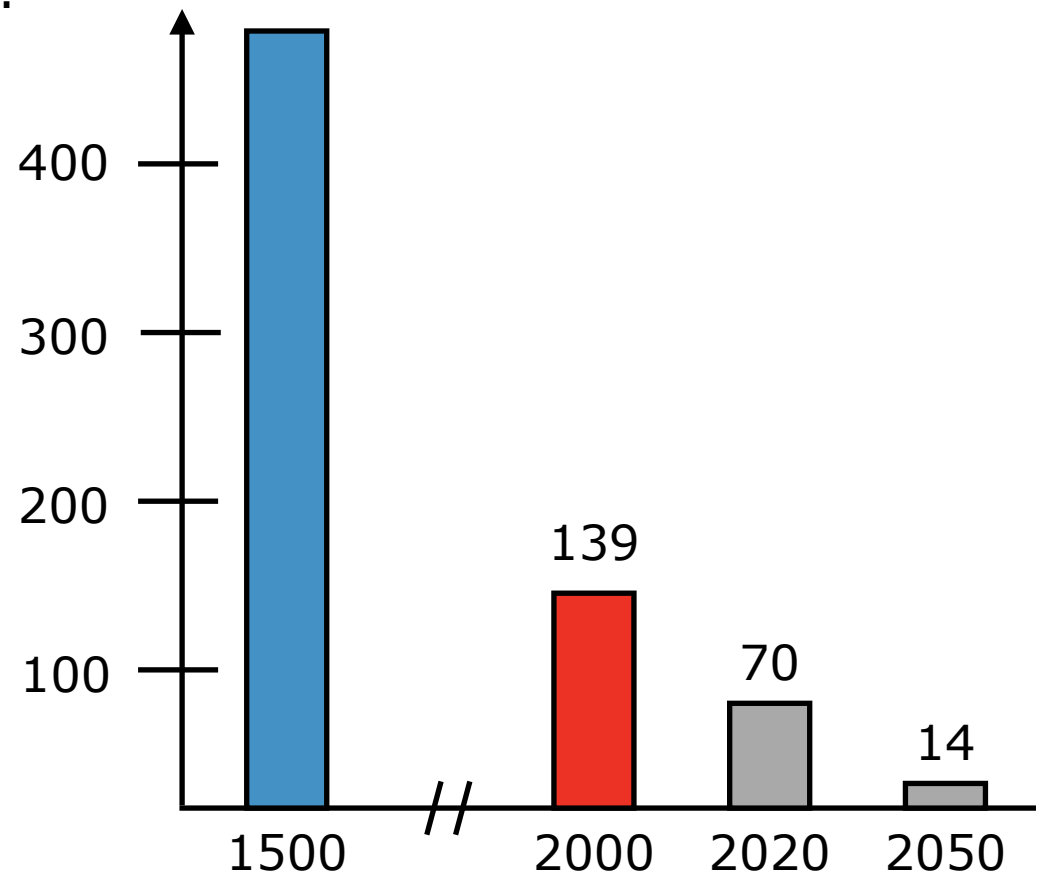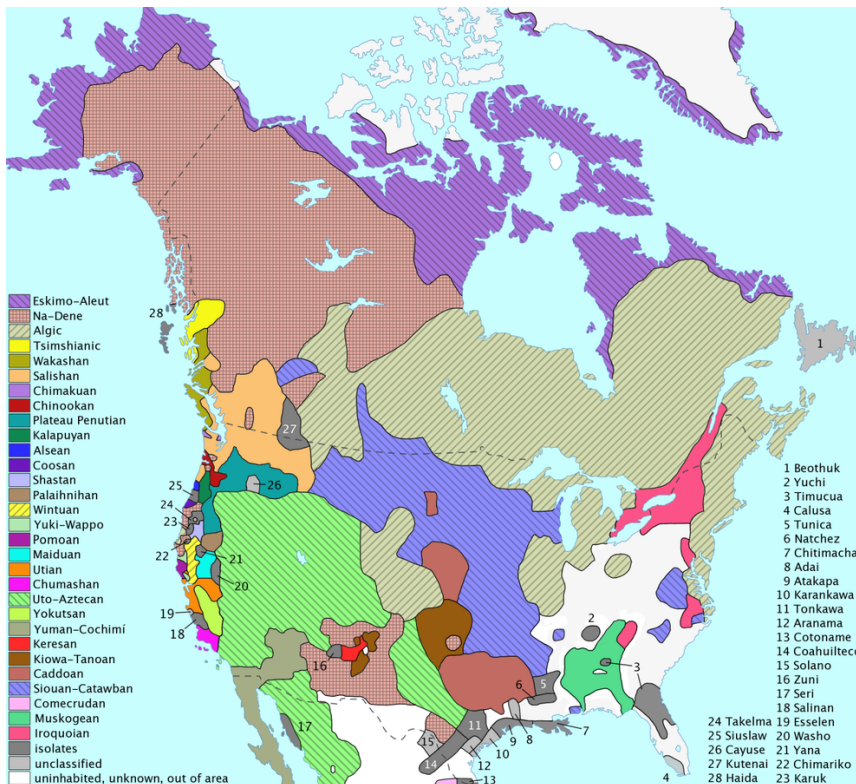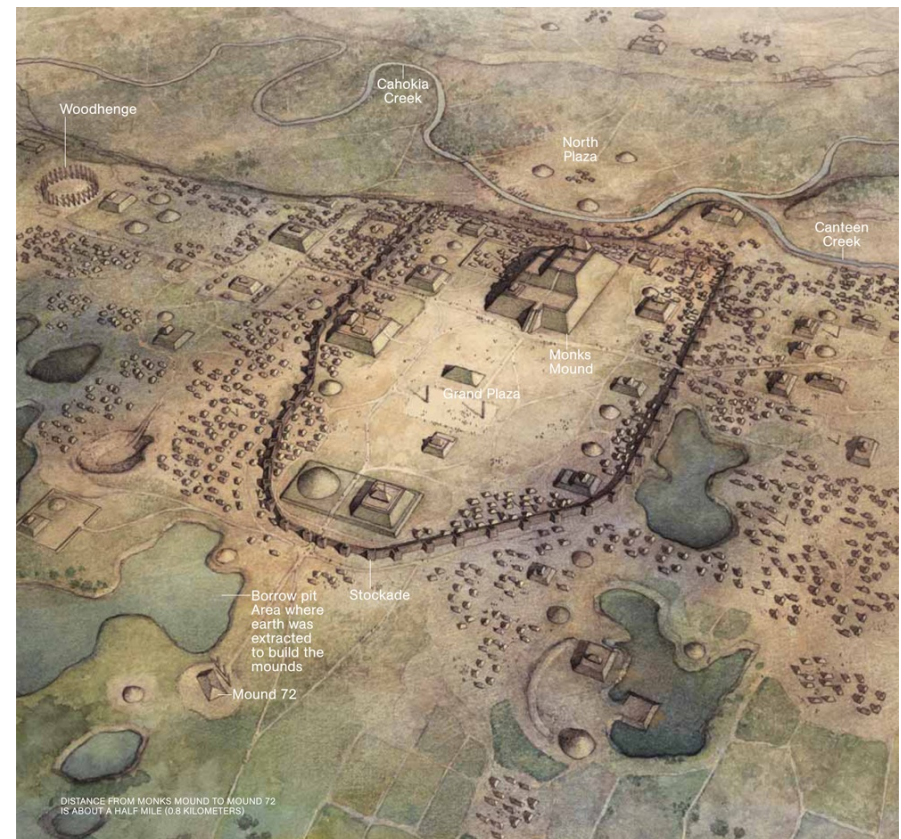
What happened?

Reports from early European explorers indicate that Native American societies were impressive.

They report impressive cities housing thousands (and even tens of thousands) of residents.

They report advanced forrest clearing techniques (usually with fire) that allowed native societies to create lands that allowed them to cultivate both crops, and large (roaming) bison herds.

They even built giant ceremonial structures, like the earthen pyramid in Cahokia, IL, which covers 14 acres and reaches 100 feet high (surrounded by a city of 40,000 people!)

It is estimated that there were between 20 million and 100 million Native Americans in the US prior to colonization.

Cahokia, IL

What happened?

At least when I was in school, we didn't talk much about the death of 20 million to 100 million Native Americans. I think we were left with the impression that some died in wars, some died of disease, and the rest intermarried with Europeans… it was all very vague.

But the first answer is **disease**. The earliest explorer/conquerors brought Old World diseases like small pox and the bubonic plague with them. This decimated the native population, because they had no natural immunity to these new diseases (this is a National Geographic film based on Guns, Germs, and Steel; we won't watch it here):

https://www.youtube.com/watch?v=iR8OaVDB3_E&index=2&list=PLhzqSO983AmHwWvGwccC46gs0SNObwnZX

By the time colonists began arriving in earnest, the damage had already been done. A number of early colonists remarked at how cities already existed, ready for the colonists to move in (Plymouth rock was a previous Native American town). They remarked at how the forests in the US were open, allowing their carts to pass right through (the Native Americans cleared it!). And how fields were arranged in square shapes, ready for crops to be planted.

The colonists could walk right in and start using the Native American towns and fields because most Native Americans had died from diseases years earlier.
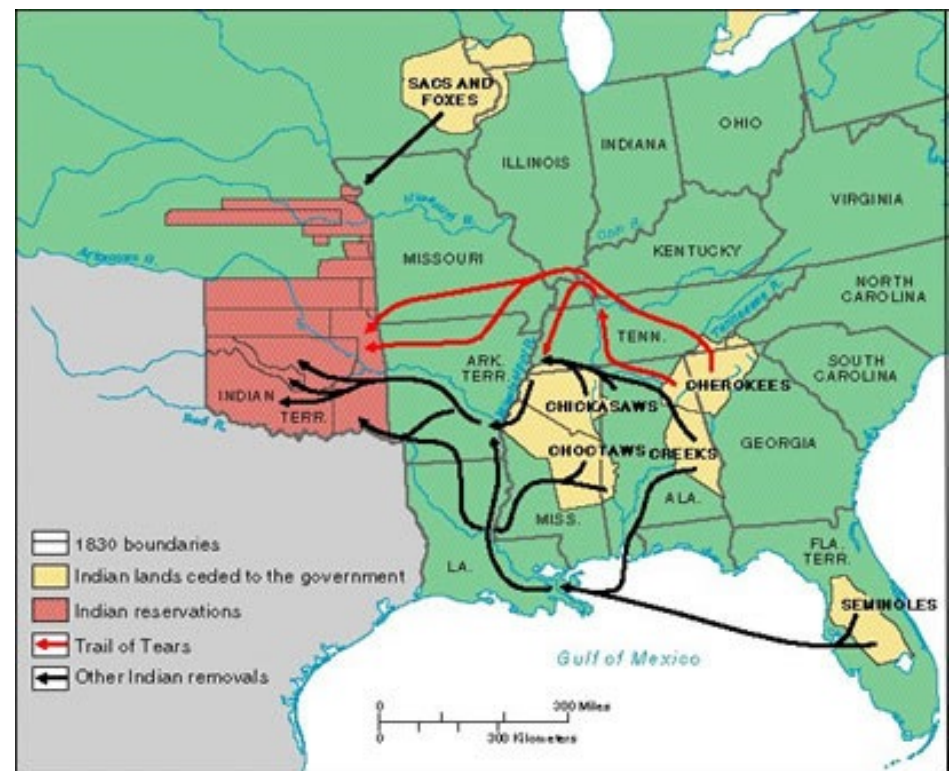
And what happened after that?

Some researchers estimate that 95% of Native Americans died from the diseases that early explorers/conquerors/colonists brought with them.

But that means that anywhere from 1M to 5M survived. What happened to them?

Forced relocation:

Native Americans east of the Mississippi were forced to "trade" their lands for (less valuable) lands west of the Mississipi (e.g., the Indian Removal Act of 1830).

I put trade in quotes because it was not a trade. Their lands were stolen from them by the government (which used the army to do it).

And what happened after that?

Boarding schools:

From the 1860s - 1960s, Native Americans were coerced into sending their children to special boarding schools. These schools attempted to "assimilate" the children into European culture by eliminating their language, appearance, dress, and customs. They were taught only English, Christianity, and European-centric history.

Carlisle PA c.1900

Carson City, NV 1949

It is not just history. It is today.

There are nearly 5 million people in the US who identify as Native American or Alaskan Native.

There are 574 federally recognized tribes, and 326 federally recognized reservations. (https://www.bia.gov/frequently-asked-questions)

Indian Lands of Federally Recognized Tribes of the United States

This is a map of recognized land from https://www.data.gov/climate/tribal-nations/tribal-nations-maps

You may notice that there are just a few very small dots in the east. That is the Indian Removal Act (1830) at work. Here is a map of the states (in pink) in the US around 1830.

States and Territories of the United States of America
June 30 1834 to March 2 1836
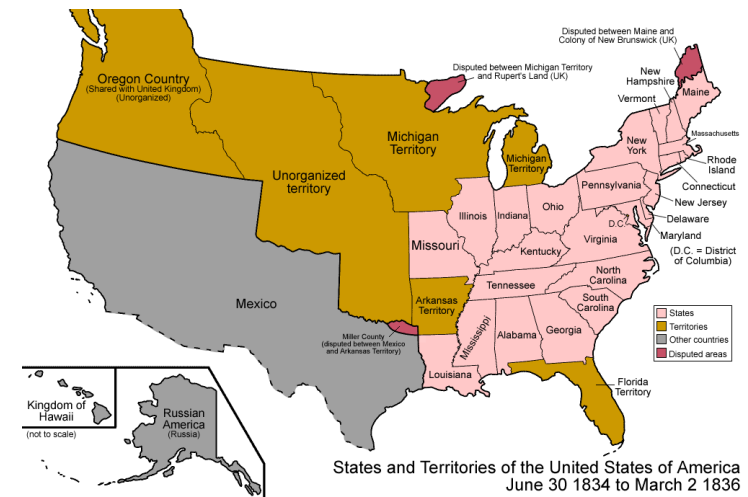
Language death is still going on, perhaps even faster than ever

We like to think that these periods of our history are over, but they are happening right now, both here in the US, and in other places in the world:

https://kaltura.uconn.edu/media/Uncontracted+Tribes/1_zwtcmzmd

Languages are dying at an unprecedented rate:

Some linguists estimate that by the year 2100, over 3000 languages will die. That is nearly 50% of the world's languages.

Some linguists estimate that a language dies, on average, every two weeks.

And COVID-19 likely increased the danger to many languages because it disproportionately kills older people, and for many endangered languages, the only speakers left are the elders of the tribes.

What do we lose?

Socio-cultural history:

Culture, customs, oral histories, etc.

These are examples of what humanity can do. They are part of what it means to be human. Once they are gone, they are lost forever.

Cognitive scientific knowledge:

Linguistic diversity is a window into the human mind (and brain). Each language is an example of what the human mind can do. Once we lose those examples, they are gone forever.

Language Genesis (Birth)

Language Genesis:
Nicaraguan Sign Language

Sign languages provide a unique opportunity for us to watch languages being born. We call this **language genesis**.

Linguists were able to watch language genesis happen in real time recently in Nicaragua.

pre-1970::   Before the 1970s, there were no schools for the deaf in Nicaragua. Deaf children were simply raised by their hearing parents, with no real interaction with other deaf children (or adults).

When deaf children are not exposed to an existing sign language, they tend to create something called **home sign** in an attempt to communicate with their parents and family.

Home sign systems do not have complex phonology, morphology, or syntax. Typically the children develop a hundred or so signs (mostly nouns and concrete actions) to help them communicate their needs to their parents.

Language Genesis:
Nicaraguan Sign Language

In the 1970s, the Nicaraguan government created a special school for deaf children. This brought together all of the deaf children (and their home sign systems) for the first time!

This schools attempted to teach the students **spoken Spanish**. As you can imagine, this wasn't successful. But it is a typical approach of institutions back then (and even in some places to this day).

Outside of the classroom (on buses and in playgrounds), the children taught each other their home signs. As a group they were able to create a more complex system of communication. We call this group **cohort 1**.
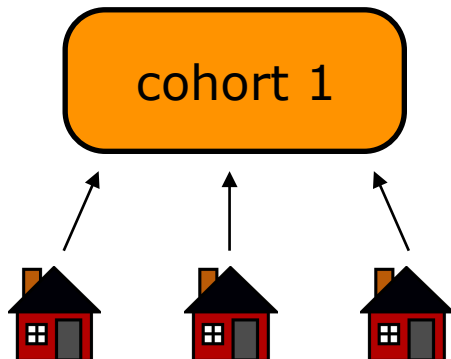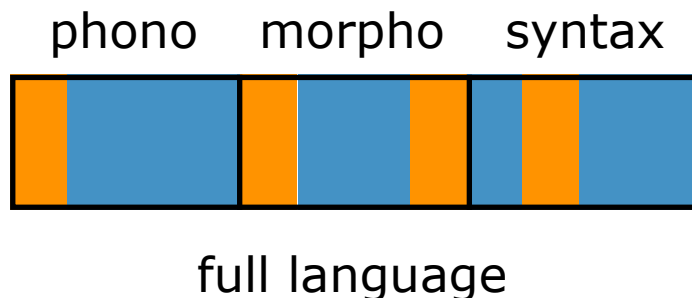
cohort 1

The communication system developed by cohort 1 was more complicated than home sign, but it was not yet a fully fledged language.

Language Genesis: Nicaraguan Sign Language

By the early 1980s, cohort 1 was joined by a new group of deaf children. We call this group **cohort 2**.

1970   1980   1990

cohort 1

cohort 2

Cohort 2 was made up of very young children (e.g., 5 years old). These children were exposed to the complex sign system of cohort 1 during their critical period… and something amazing happened. They turned the cohort 1 system into a fully fledged sign language with complex phonology, morphology, and syntax!

phono   morpho   syntax

full language

One way to think about it is that cohort 2 took the cohort 1 system, and filled in the blanks to turn it into a full language!

How did they fill in the blanks?

The mystery here is how the children were able to fill in those blanks!

phono   morpho   syntax
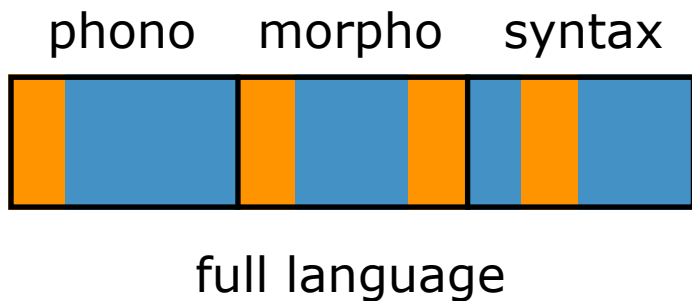
full language

Remember, the new children in cohort 2 did not have any exposure to full sign languages either. Somehow they were able to fill in the blanks with knowledge that they were never taught!

This is a very compelling argument for innate knowledge. Those children were able to fill in the blanks because they had some innate knowledge of how language works. Now, we don't know whether this knowledge is domain-specific or domain-general… but scientists are working on that (right here at UConn!).

This is also another example of the critical period. Cohort 2 was able to do this because they were exposed to the cohort 1 system during their critical period. But why couldn't cohort 1 continue to turn their system into a full language? Cohort 1 signers were not able to take their system any further because they aged out of the critical period!

Conclusion

According to the scientific definition, it is possible that every human being might speak a different language!

According to the colloquial definition, there are about 7,000 human languages. But many of those languages are spoken by very few people. The 9 largest languages account for 44% of the population. Over 1500 languages have fewer than 1000 speakers.

A language is alive if there are living human being who speak that language natively. A language dies when the last native speaker of that language dies.

Language death occurs when parents stop teaching their language to their children. This is an issue of power, not about science or linguistics.

Languages are dying at an unprecedented rate. Some linguists estimate that by the year 2100, over 3000 languages will die. That is nearly 50% of the world's languages.

Language genesis occurs when a group of young children use their innate knowledge to create a new language. This has happened recently with Nicaraguan Sign language.

Language genesis is another great argument for innate knowledge and the critical period.