

LING 1010



Language and Mind

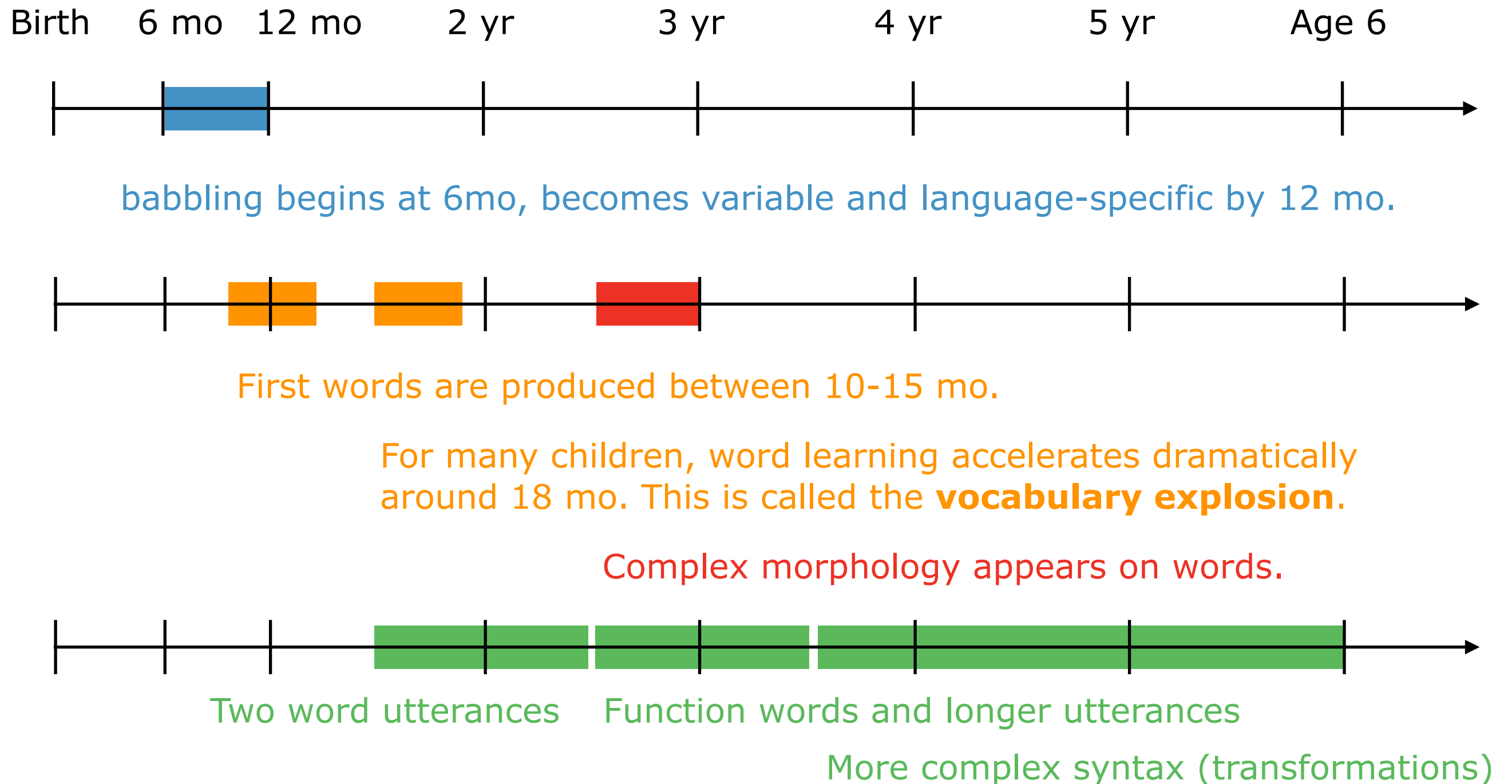
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03.15.21:

The critical period for language acquisition

What is the timeline of typical language acquisition?

Now that we've reviewed examples of acquisition in **phonology**, **morphology**, and **syntax**, we can put it all together to look at the timeline of acquisition:



Stages, not ages

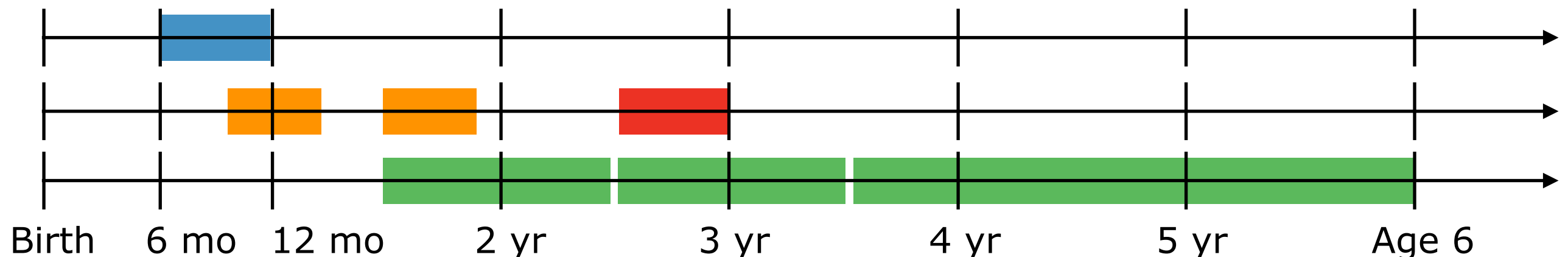
People really like to talk about milestones for babies (child development). There are entire websites dedicated to this.

Milestones serve an important role in helping parents to identify potential problems early (if the baby doesn't reach a milestone, it could be evidence of a problem).

The problem with milestones is that people tend to **link them to ages**. This is the **wrong way to do it**. There is quite a bit of variation in the ages that children hit milestones, especially for language.

Instead, for language we should look at the **stages** that children go through. What we find is that **all children go through the same stages in the same order**.

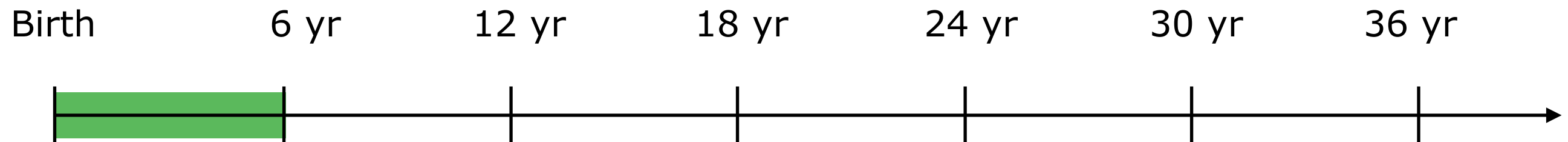
All children move from babbling, to first words, to two-word utterances, to longer utterances, **in that order**. But they may do it at **slightly different speeds**.



The Critical Period for language acquisition

When does language acquisition end?

So far we've been looking at typical first language acquisition, which tends to happen between birth and approximately age 6.



But what happens if language acquisition is delayed? Or, what happens if somebody tries to learn a language later in life?

It turns out that there appears to be a change in the way that language is acquired later in life. People appear to be less successful at language acquisition after puberty.



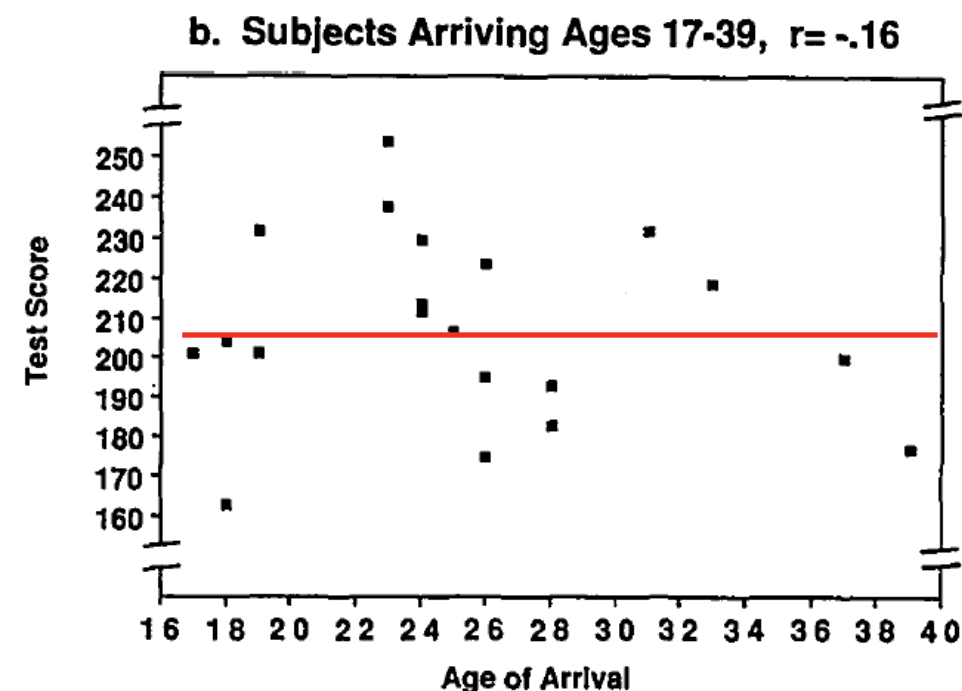
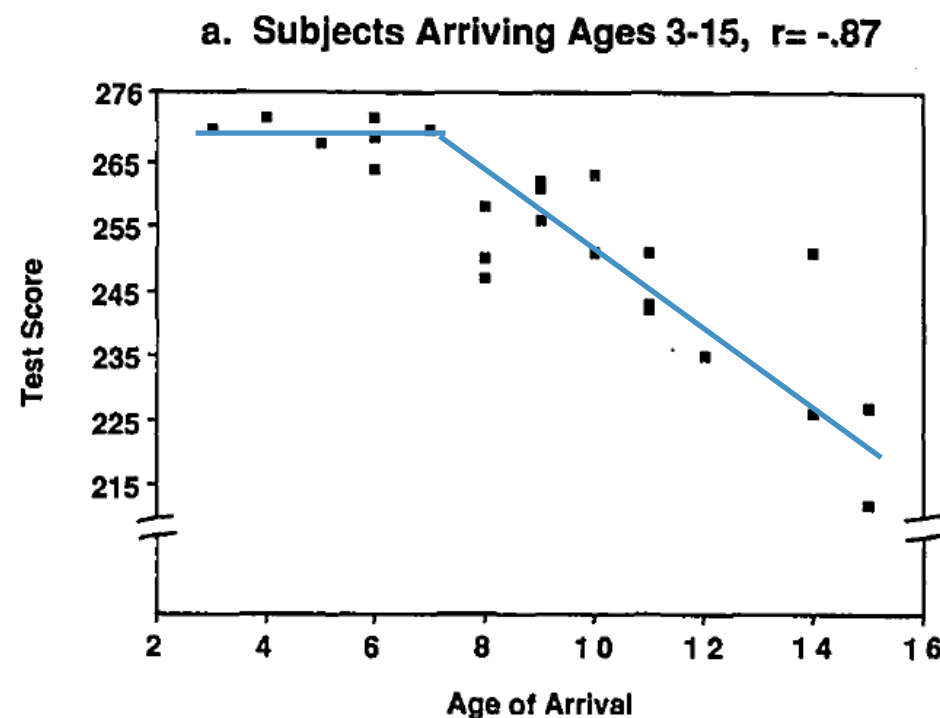
This suggests that there is a **critical period** for language acquisition (up to puberty). After the critical period is over, language acquisition changes.

Evidence from second
language acquisition

Evidence from second language acquisition

One major piece of evidence for the critical period comes from studies of language acquisition later in life, such as the language acquisition of immigrants.

Johnson and Newport (1989) studied the English ability of US immigrants that arrived in the country at different ages. They made sure that every person in the study had the **same amount of exposure to English**, the **same motivation to learn English**, and the **same amount of instruction in English**. So the only thing that varied was **how old they were when they first started** learning English.



They found a steady decrease in success starting just before puberty, followed by no effect of age after age 16. This looks like a **critical period**!

Evidence from language
deprivation
(Warning: This is child abuse.)

Evidence from language deprivation

Another major piece of evidence for the critical period comes from individuals who have been (tragically) deprived of language input.

Genie - discovered in LA in 1970 at **age 13**.

TLC documentary about her (it is an hour long):

<https://www.youtube.com/watch?v=DD-pZ7LwL4A>

She was kept in isolation until she was discovered at age 13. She had absolutely no language input.

After being discovered, various psychologists and linguists (and other doctors) worked with her to try to help her learn everything she missed.

By age 17 (four years later), she had a 5 year old's vocabulary, and could combine words to form (ungrammatical) sentences. But she never progressed past this. She never acquired language normally:

Mama wash hair in sink.
Like go ride yellow school bus.

Man motorcycle have.
Father hit Genie cry long time.



Evidence from language deprivation

We can compare cases like **Genie**, where the child was discovered **after the critical period began to close**, to cases where the child was discovered **in the middle of the critical period**.

Isabelle - discovered in Ohio in 1938 at **age 6**.

Isabelle's mother was deaf, and because her parents (and society) did not understand deafness, her mother was uneducated, and generally hidden from society.

When Isabelle was born, her grandparents locked both her and her mother in a darkened room with no interaction with anyone else. Isabelle lived like this for 6.5 years. Finally her mother managed to escape, taking Isabelle with her. When they were discovered, Isabelle had no language.

Unlike Genie, Isabelle made **remarkable progress**. By age 9, she had learned an extensive vocabulary, had acquired **complex syntactic constructions**, and was scoring in the normal range on IQ tests.

The difference between **Genie** and **Isabelle** appears to be a difference in age of first exposure to language: Genie was **after the critical period began to end**, and Isabelle was **in the middle of the critical period**.

Evidence from Pidgins and Creoles

What happens when two adults who don't speak the same language try to communicate?

From 1850 until 1946, thousands of laborers immigrated to Hawai'i to work on the sugarcane plantations.

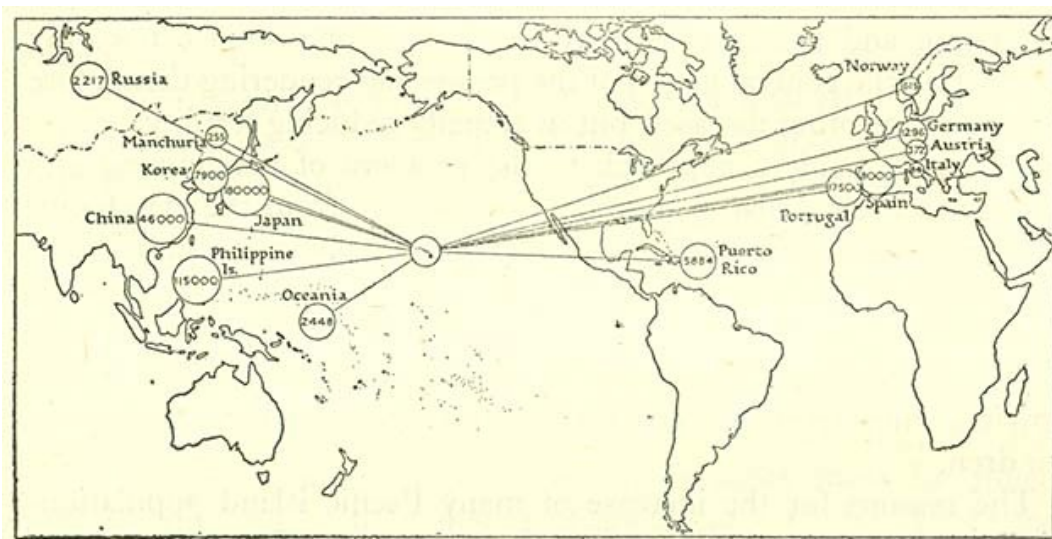


Fig. 98. Sources of immigrants into the Hawaiian islands, 1853–1933
Immigration from the U.S.A. and from the U.K. are not shown. The polyglot character of the population is clearly brought out. Based on A. W. Lind, *An Island Community: Ecological Succession in Hawaii*, p. 194 (Chicago, 1938).

These immigrants came from China, Japan, the Philippines, Korea, Germany, Norway, and Portugal (among many others).

The map on the left is from 1938, showing the relative sizes of the immigration waves.

These immigrants not only needed to find a way to communicate with each other, but they also needed to communicate with the English-speaking plantation owners and bosses, and the Hawai'ian-speaking native population.



c. 1900, Japanese immigrants

What happens when two adults who don't speak the same language try to communicate?

The immigrants that came to work on the plantations were adults. They were well past the critical period for language acquisition. So they were NOT able to learn each other's languages easily.

What they did instead was come up with a system for communication. This system had the following properties:

1. One dominate language contributed most of the words, although the other languages also contributed some words. We can call this language the **lexifier**. In Hawai'i, the lexifier was English.
2. The grammar of the communication system was a compromise mix of grammatical properties of the contributing languages. The result is a system that is grammatically simpler than any of the contributing languages.
3. The system had a lot of variation from speaker to speaker in terms of both word choice and grammar. Over time, the system becomes more and more rigid, but maintains some amount of individual variation.

This system was called **Hawai'ian Pidgin English**.

What is a Pidgin?

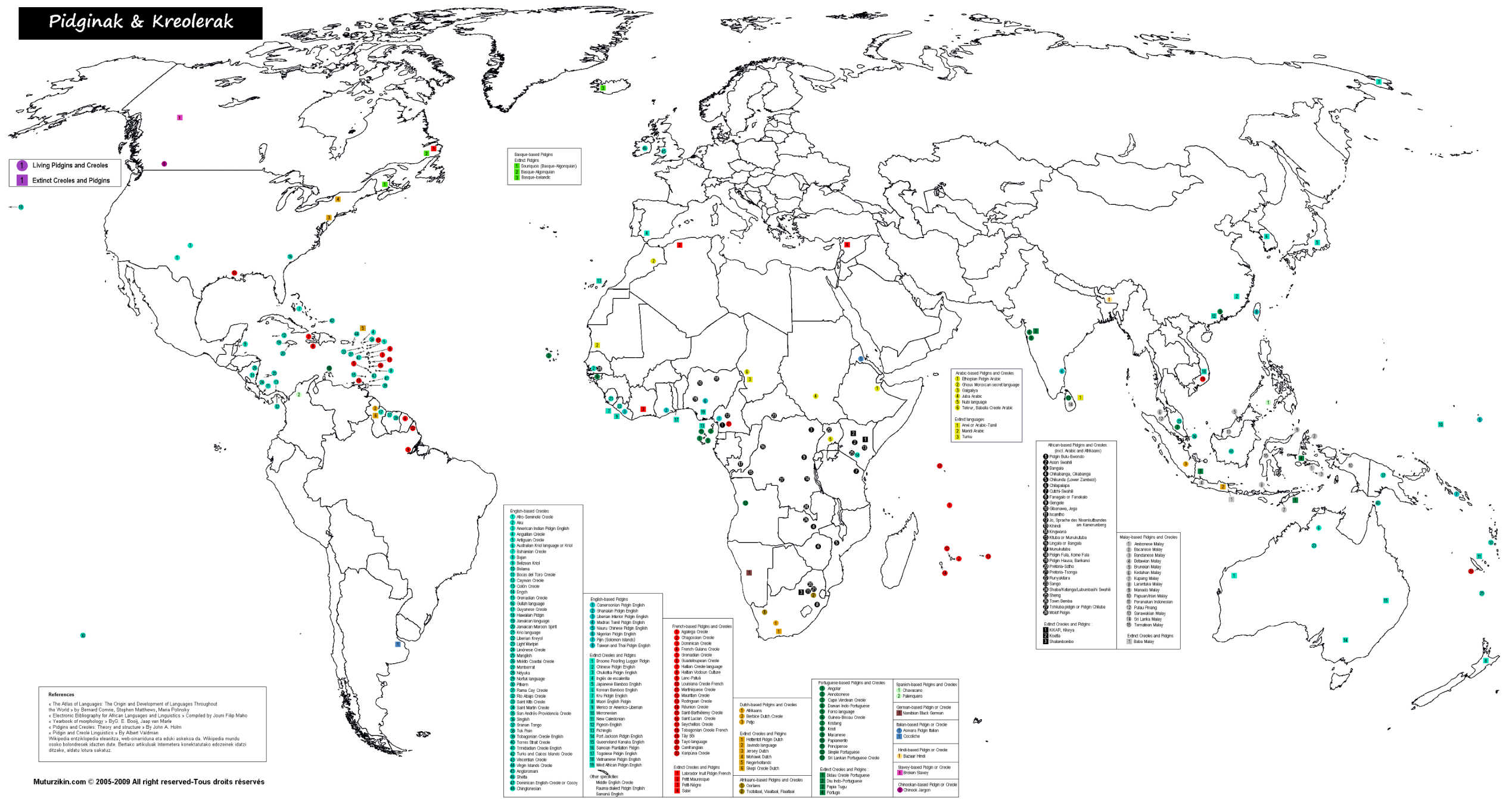
The system that the Hawai'ian immigrants created is just one specific example of a very general process that happens whenever large communities of adults who speak different languages are put into close contact.

Linguists call these communication systems **pidgins**. All pidgins share the same properties as Hawai'ian Pidgin English:

1. The **lexifier** is the language that contributes most of the vocabulary.
2. The **grammar** of the pidgin is **a simplified compromise mix** of grammatical properties of the contributing languages.
3. The pidgin shows **variation from speaker to speaker** in terms of both word choice and grammar. Over time, the pidgin becomes more and more rigid, but maintains some amount of individual variation.
4. There are **no native speakers of pidgins**. Pidgins are only spoken by adults who speak other languages natively. Pidgins are learned by adults who are too old to learn a new language natively.

Pidgins are very common

Pidgins arise anytime two communities of adult speakers need to communicate. This map (<http://www.muturzikin.com/cartepidgin.htm>) documents both living and dead pidgins across the world.



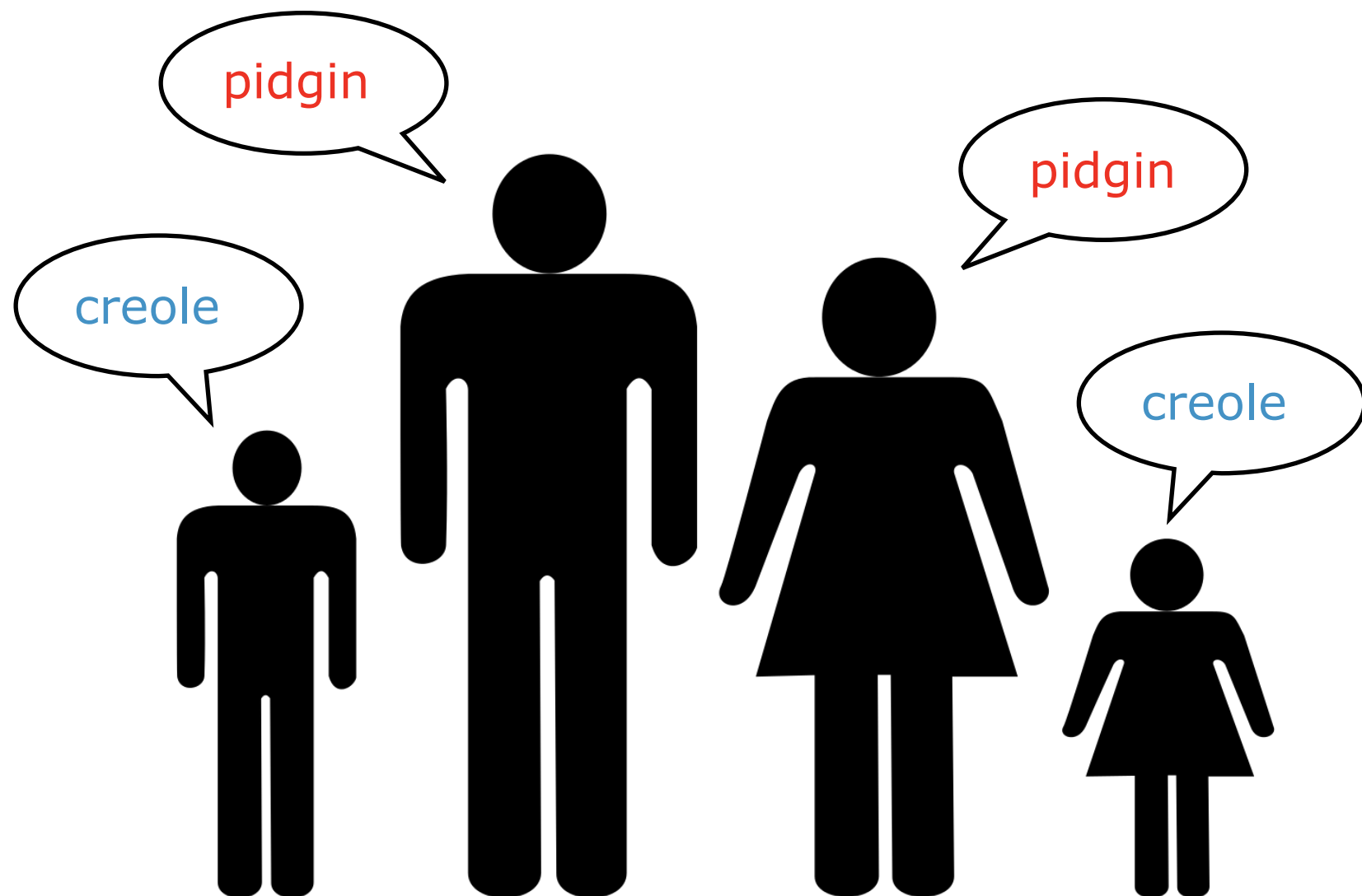
What happens when children are exposed to a pidgin as their first language?

Remember, one of the critical properties of a pidgin is that **there are no native speakers of pidgins**. Pidgins are created and spoken by adults, who are past the critical period for language acquisition.

So what happens when children are exposed to a pidgin during their critical period for language acquisition? They acquire, and in fact create, a **creole**!

Properties of **creoles**:

1. **Larger** vocabulary
2. **Regular rules** for phonology, morphology and syntax.
3. **Very little variation** between speakers of the creole.
4. Is the **native language** of the speakers.



Hawai'ian Creole English

By the early 1900s, the large immigrant communities in Hawai'i had raised a generation of children who were exposed to Hawai'ian Pidgin during their critical period for language acquisition. Those children created Hawai'ian Creole English.

HCE is still spoken by approximately 600,000 people in Hawai'i today. Speakers of the language often call it Hawai'ian Pidgin English because that was its name when it was a pidgin. But, technically, it is now a creole:

<https://www.youtube.com/watch?v=O7X9AAeDCr4>

Here are some properties of HCE:

Phonology:

The "th" sound in General American English is replaced by a "t" or "d" (depending on whether it is voiced or voiceless).

| | | |
|-------|---|------|
| think | → | tink |
| this | → | dis |

The "r" sound after vowels is deleted.

| | | |
|--------|---|------|
| better | → | beta |
|--------|---|------|

Hawai'ian Creole English

Lexical items and syntactic rules:

The past tense is indicated by adding the word 'wen' (from 'went') before the verb:

General American English:

They painted his skin.

Hawai'ian Creole English:

Dey wen pein hiz skin.

The future tense is indicated by adding the word 'go', 'gon', or 'gonna' before the verb:

GAE:

You will turn in your paper late.

HCE:

Yu gon trn in yaw pepa leit.

Where GAE would use the word 'to' after a verb, HCE uses the word 'fo':

GAE:

Everybody comes to see that house.

HCE:

Eribadi kam fo si daet haus

Hawai'ian Creole English is a full language, not a sub-standard form of English

Because HCE sounds so similar to General American English (GAE), many people, including native speakers of HCE, incorrectly believe it is a sub-standard form of English.

But as we just saw, it is a **rule-based language**, just like GAE. It has a set of phonemes that are similar but different from GAE, and it has a set of lexical items and syntactic rules that are similar to but different from GAE.

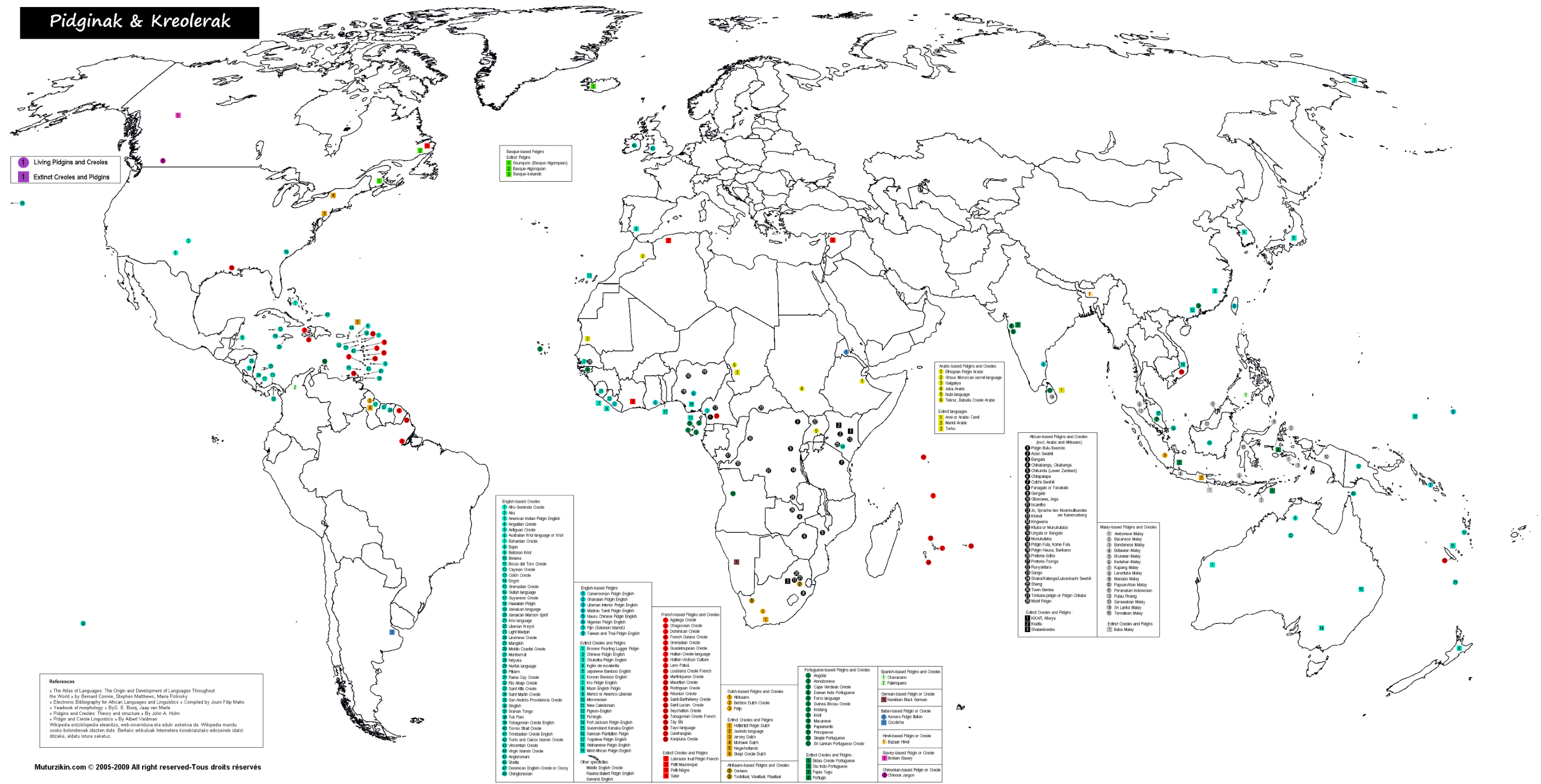
It is important for everyone (speakers of HCE, and speakers of GAE) to realize that HCE is a **full language**, just like GAE, so as not to perpetuate any negative stereotypes about the speakers. This is especially important for people who only speak HCE. Otherwise, we are telling them that the only language they speak is inferior to other languages.

Here is a link to an an online article about a poet who writes in HCE:

<http://jamarattigan.com/2012/05/25/friday-feast-hawaiis-pidgin-guerrilla/>

Creoles are also very common!

Creoles arise anytime children are exposed to pidgins during their critical period for language acquisition. This map (<http://www.muturzikin.com/cartepidgin.htm>) also documents both living and dead creoles across the world.



Where do the properties of creole grammar come from?

One big question for us is this:

Where does the **complexity** and **regularity** of creole grammars come from?

Remember, all the children are hearing around them is the **pidgin**. The pidgin has **less complexity than a full-fledged language**, and also shows **much more variation**.

This means that the **complexity** and **regularity** of the creole cannot come from the pidgin itself. In other words, it can't come from the input!

Modern Nativism



Substantial innate knowledge

It looks like these properties are brought by the children. If nativism is correct, they have substantial innate knowledge about how languages should work. They appear to take the simple and variable input from the pidgin, and turn it into a complex, regular, full-fledged language!

And why is it only children who can create a creole (not adults, who instead create pidgins)?

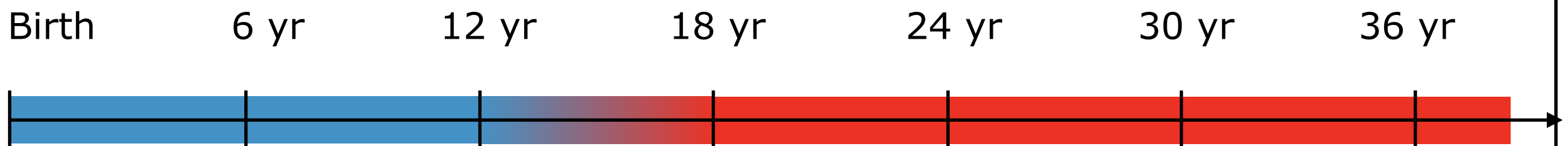
A second big question for us is this:

Why is it that adults can't use their **innate knowledge** to create a creole out of a pidgin?

Remember, the adults that speak the pidgin are unable to create a creole. They are also unable to learn the native languages of the other immigrants.

It seems like these two facts might be related: the reason that adults can't learn other native languages is the same reason that they cannot turn a pidgin into a full language (a creole):

The Critical Period: Humans only have access to their innate language learning mechanisms for a short period after birth (approximately from birth until puberty). After that critical period is over, language acquisition no longer proceeds the same way.



Some conclusions

Children do not acquire language at precisely the same ages. But what we find is that **all children go through the same stages in the same order.**

The Critical Period: Humans only have access to their innate language learning mechanisms for a short period after birth (from birth until puberty). After that critical period is over, language acquisition no longer proceeds the same way. We saw three pieces of evidence for the critical period:

Second language learning shows a steady decrease in success starting at age 8 until age 16, followed by no effect of age after age 16.

Language deprivation until after the critical period (**Genie**) results in severe language difficulty, whereas deprivation that is corrected during the critical period (**Isabelle**) still leads to successful language learning.

When adults that speak different languages come together, they create a **pidgin**. Pidgins have **relatively simple grammars with high variability between speakers**. There are no native speakers of pidgins.

When children are exposed to a pidgin during their critical period, they create a **creole**. Creoles are **full-fledged languages with complex grammars and little variation between speakers**. It appears as though children create this complexity and regularity from their **innate linguistic knowledge**.