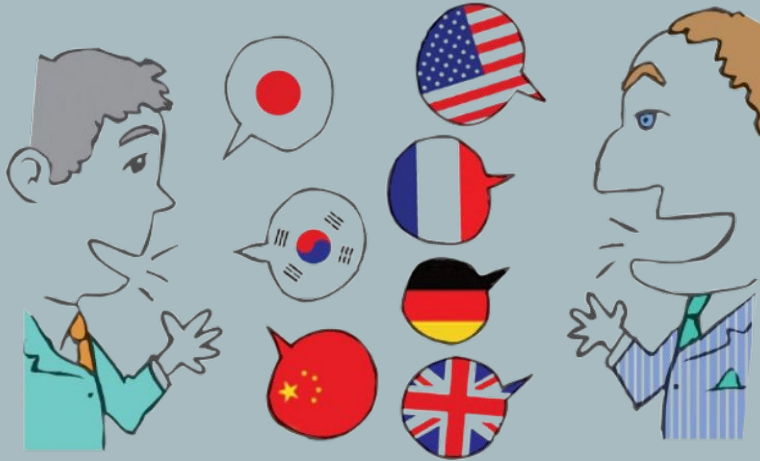


# Can't Adults Learn a New language?

- Does a critical period for second language acquisition exist?



Hartshorne, Joshua K., Joshua B. Tenenbaum, & Steven Pinker. (2018)

## Group 4

Sarah Mohammed Ali, Letao Wang,  
Seito Ito, Bouchra Benzit

01 INTRODUCTION

02 CASE STUDIES

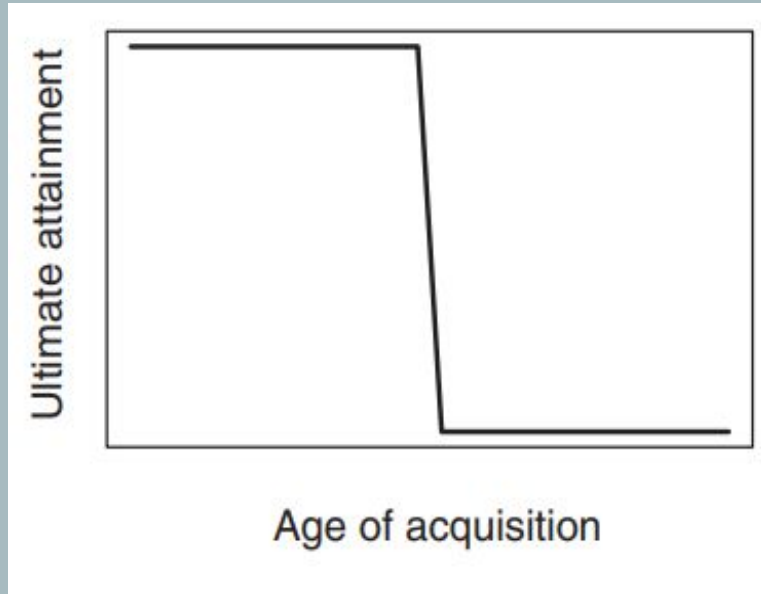
03 CONCLUSION



# INTRODUCTION

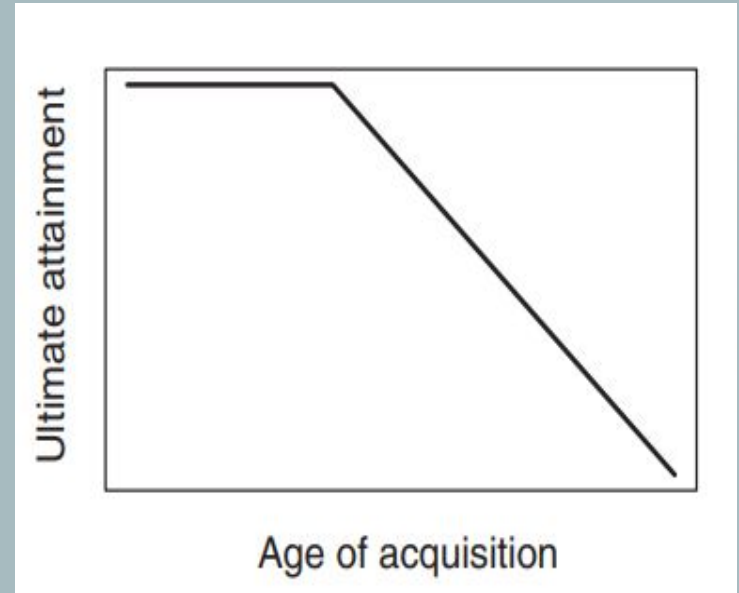
# Two models for the myth Can't Adults Learn a New language?

Model A :Sharp Drop Critical Period



Cited: Kaplan(2016), p116

Model B: Gradual Decrease

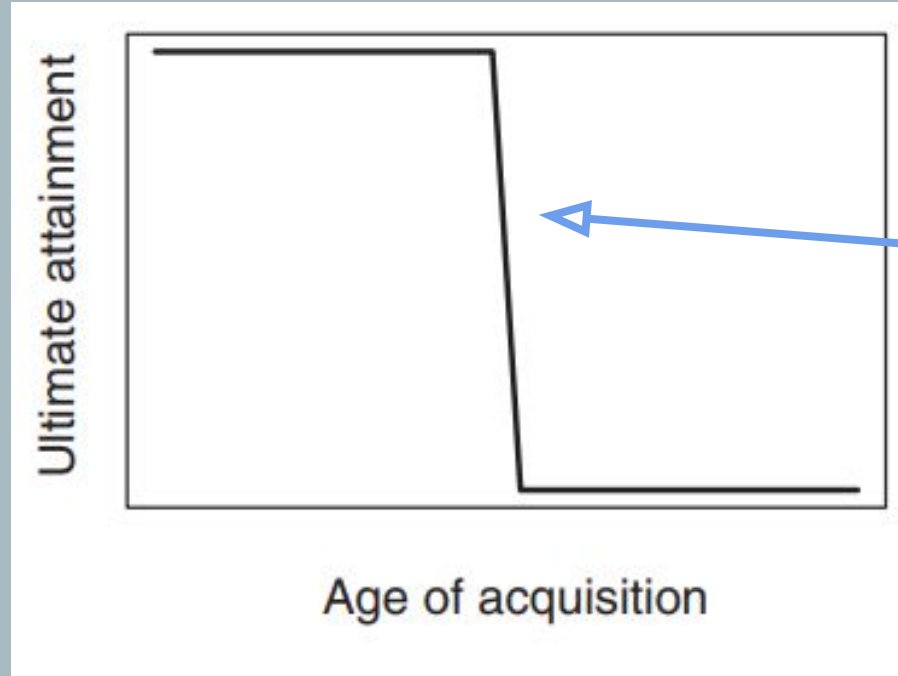


Cited: Kaplan(2016), p116

OR

# Can't Adults Learn a New language?

## In Chap. 6

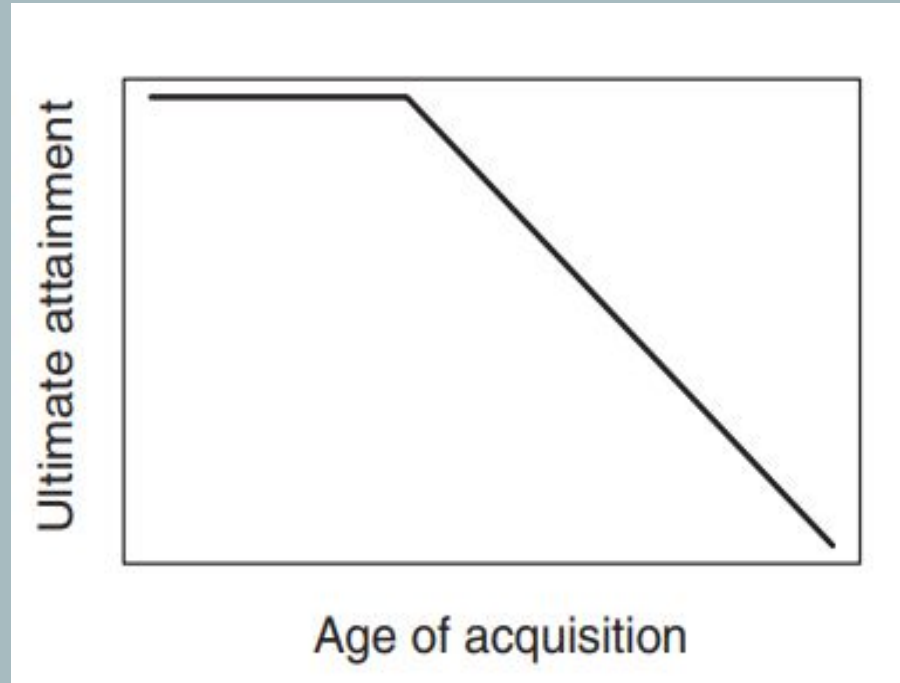


### Critical Period Hypothesis

A limited window of time for second language acquisition efficiently and to a near-native level

# Can't Adults Learn a New language?

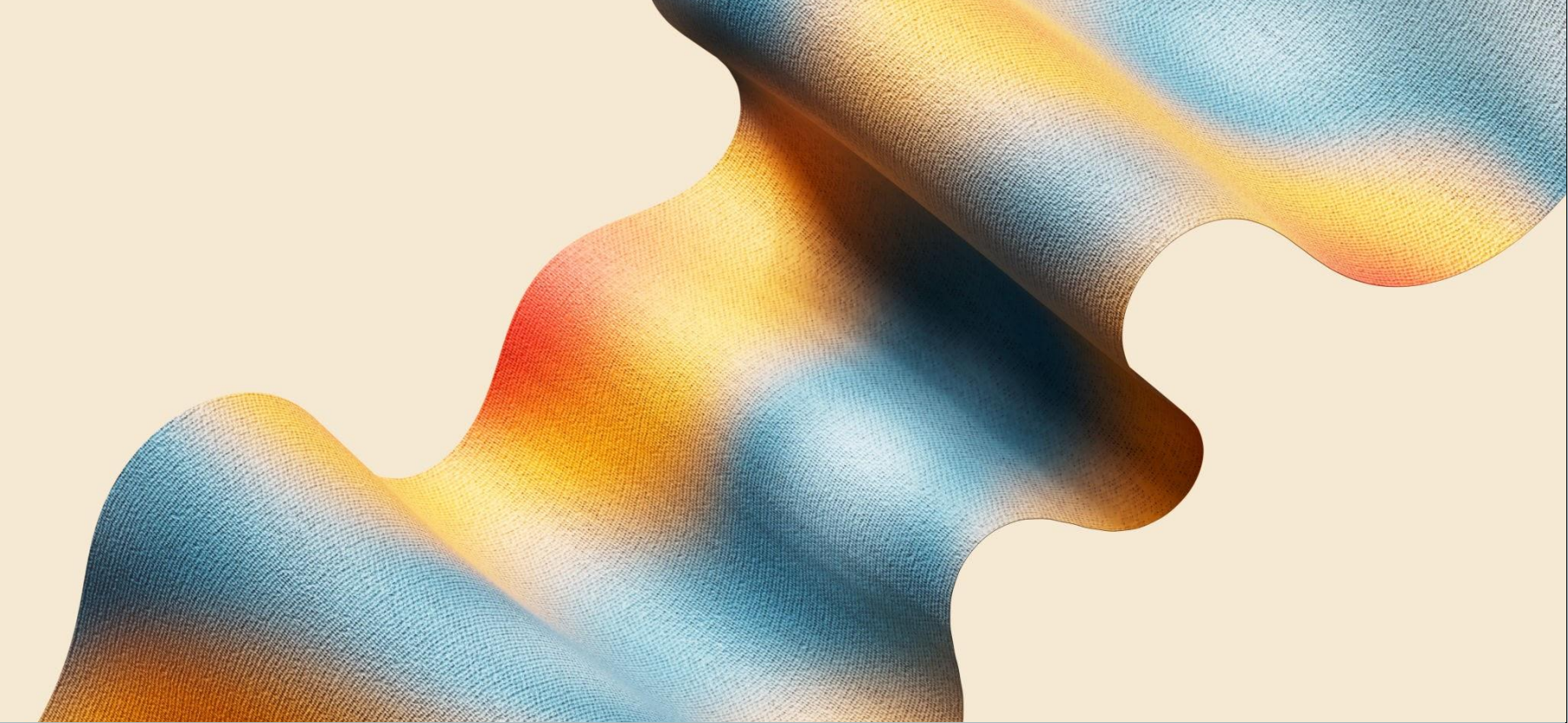
## In Chap. 6 Tentative Conclusion



### Critical Period Hypothesis

A limited window of time for second language acquisition efficiently and to a near-native level

→ Gradual decrease  
→ **Overstated**



# CASE STUDY



Hartshorne et al(2018), A critical period for second language acquisition

- Based on a massive dataset

- (2/3 million English speakers)

- whether language learning ability shows a sharp decline or a gradual decrease

- **Evidence about the validity of the *Critical Period Hypothesis*.**



Hartshorne et al(2018), A critical period for second language acquisition

## Big Question

1. How does learning ability change with age?
2. How proficient can someone become if they begin learning at a particular age?  
→We can understand whether a critical period for second language acquisition exists.

# Measurable Research Question

- Is there a measurable (higher or lower values) difference in accuracy performances related to age of exposure?

This study took the the quiz results of participants ranging from around 10 to over 60 and sorted their accuracy results depending on if they are a monolingual, or age of exposure of English.

## **Big research question:**

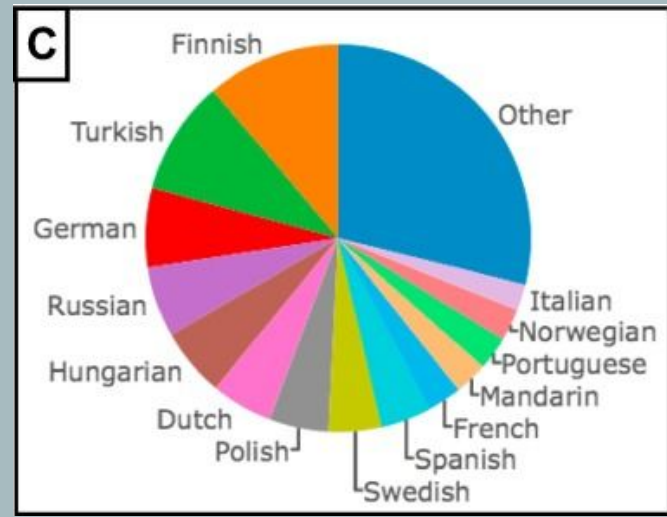
How does second language learning ability change with age?

How proficient can someone become if they begin learning at a particular age?

# Methodology

## Participants

- 680,333 participants
- 38 languages represented
- **Monolinguals** (only knew English); N=246,497 (44%)
- **Immersion learners** (simultaneous bilinguals or spent at least 90% of their life since English exposure in an English speaking country); N = 45,067 (8%)
- **Nonimmersion learners** (spent at most 10% of post-exposure in an English speaking country, but less than a year); N = 266,701 (47%)



Hartshorne, Joshua K., Joshua B. Tenenbaum, & Steven Pinker. 2018. A critical period for second language acquisition: Evidence from 2/3 million English speakers. *Cognition* 177: 263-277.

# Methodology

## Materials

- Participants took a (short) internet quiz about grammar
- Inspired by Josh Katz's Dialect Quiz for the *New York Times*
- "Fun quiz"
- Passivization, clefting, agreement, relative clauses, preposition use, verb syntactic subcategorization, pronoun gender and case, modals, determiners, subject-dropping, aspect, sequence of tenses, and wh-movement were tested

# Methodology

## Task

- “Results of which would allow a computer algorithm to guess their native language and their dialect of English”
- About 80% of people who did syntax quiz completed demographic questionnaire (this is the reported data)
- <http://archive.gameswithwords.org/WhichEnglish/>
- Multiple choice, click the best image (no free response)

# Question Types

Click on the picture that best matches the sentence.

1. The dog was chased by the cat.



9. Which of the following sentences sounds most natural?

- a. I shan't be coming to the party after all.
- b. I won't be coming to the party after all.
- c. Both
- d. Neither

Fill in the blank (Choose all that apply)

11. I \_\_\_\_\_ for 6 hours by dinner time.

- a. will have studied
- b. will have been studying
- c. will had studied
- d. will be studying

Choose all that are grammatical

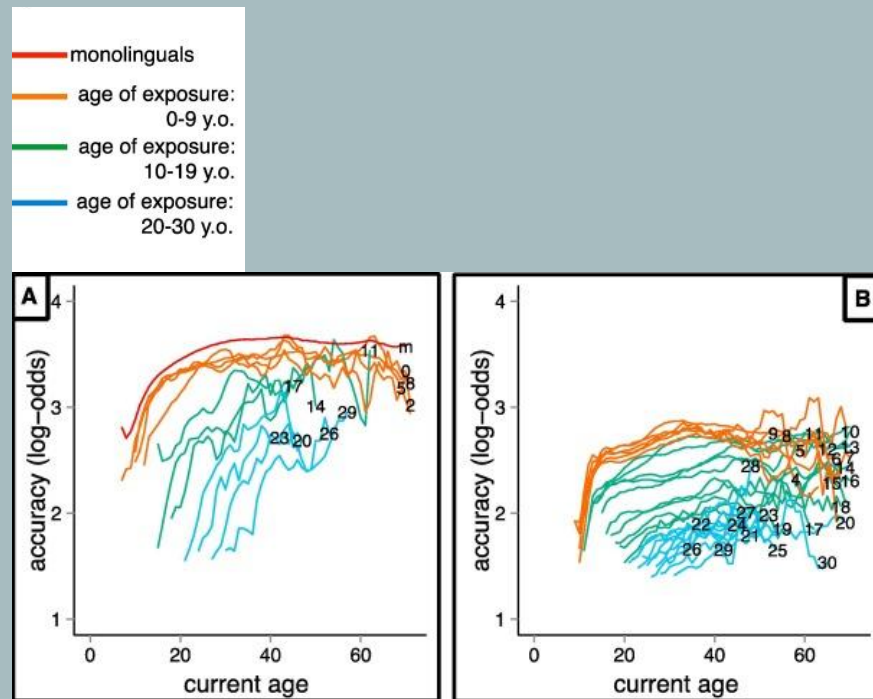
32.

- a. John agreed the contract.
- b. Sally appealed against the decision.
- c. I'll write my brother.
- d. I'm just after telling you.
- e. The government was unable to agree on the budget.
- f. I after ate dinner.
- g. Who did Sue ask why Sam was waiting?
- h. He thought he could win the game.

Hartshorne, Joshua K., Joshua B. Tenenbaum, & Steven Pinker.  
2018. *A critical period for second language acquisition: Evidence  
from 2/3 million English speakers.* Cognition 177: 263-277.

# Parsing the Graphic

- Performance curves
  - Monolinguals and immersion learners (A)
  - Non-immersion learners (B).
- **X-axis: current age of participants**
- **Y-axis: accuracy (log-odds)**
- Age of first exposure: color
- Total years of exposure: left-to-right position



Hartshorne, Joshua K., Joshua B. Tenenbaum, & Steven Pinker. 2018



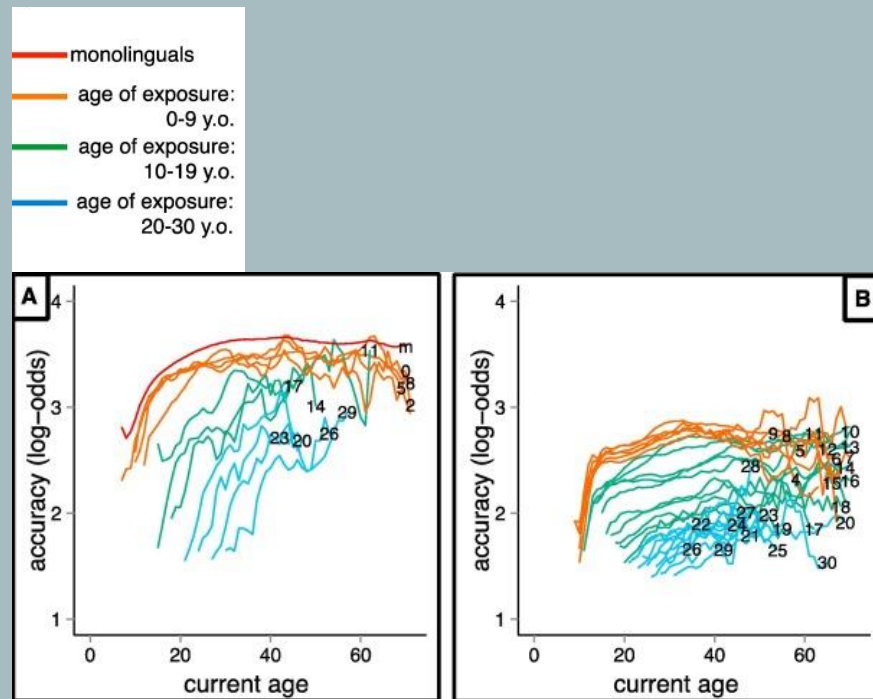
# Interpreting the Graphic

- **Correlation?**

- Yes!
- Lower accuracy in:
  1. Non-immersion learners
  2. Greater age of first exposure

- **Slope of the graph...**

- Rate of learning
  - Declined at some point
  - Can be either gradually or dramatically



Hartshorne, Joshua K., Joshua B. Tenenbaum, & Steven Pinker. 2018



# CONCLUSION

## Ans. for Questions

A measurable difference in accuracy performances related to age of exposure?

1. How does learning ability change with age?

2. How proficient can someone become if they begin learning at a particular age?

‘Adults cannot learn a new language.’

## Ans. for Questions

→ A correlation  
b/w accuracy & age of first exposure

1. How does learning ability  
change with age?

2. How proficient can someone  
become if they begin learning at a  
particular age?

‘Adults cannot learn a new language.’

## Ans. for Questions

→ A correlation  
b/w accuracy & age of first exposure

→ Influences the rate of  
learning > possibility

2. How proficient can someone  
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‘Adults cannot learn a new language.’

## Ans. for Questions

→ A correlation  
b/w accuracy & age of first exposure

→ Influences the rate of  
learning > possibility

→ Starting earlier increases the  
likelihood of native-like  
proficiency

‘Adults cannot learn a new language.’

## Ans. for Questions

→ A correlation  
b/w accuracy & age of first exposure

→ Influences the rate of  
learning > possibility

→ Starting earlier increases the  
likelihood of native-like  
proficiency

Of course. Partially contradicts Kaplan's myth that only  
children can attain native-like proficiency.

# Bibliography

Hartshorne, Joshua K., Joshua B. Tenenbaum, & Steven Pinker. 2018. *A critical period for second language acquisition: Evidence from 2/3 million English speakers*. *Cognition* 177: 263–277.

Kaplan A. *Women Talk More Than Men: ... And Other Myths about Language Explained*. Cambridge University Press; 2016. pp111–131



# Thank You

-Group 4