Why are children more successful at learning new languages?

2. General cognitive decline? (Mullen, Aridia, Gil, Windover, & Cline, 2011)
3. Less is more? (Newport, 1988)

Primary analyses: How does learning rate change with age?

- monolinguals
  - age of exposure: 0-9
  - age of exposure: 10-19
  - age of exposure: 20-30

analytic model (ELSD)

\[ g(t) = 1 - e^{-\frac{t}{\tau}} \]
\[ r(t) = \frac{t_0}{t_0 + e^{-\left(\frac{t-t_0}{\delta}\right)}} \]

No diff. in trajectories for:
- immersion learners starting before 10yo.
- non-immersion learners starting before 13yo.

To compare theories:
- measure developmental change in learning rate
- compare with other processes

Previous attempts unsuccessful

Strategy #1: Measure learning rate in real time
- Problem: Adults always learn faster
  - superior attention
  - explicit strategies

Strategy #2: Compare learners’ ultimate attainment
- Problem: Mapping from ultimate attainment curves to learning ability curves is many-to-many

Ultimate Attainment Curves

Inconsistent prior findings:
- last chance for native-like prof: 0-17yo
- Floor in curve by puberty or never

Probably due to low power
- Confirmed by bootstrap simulation (ask me)

Conclusions

- Learning rate falls at 17-18 yo
- Calls for new theories (old theories focused on much earlier ages)

Method: Internet Quiz

items: 95 critical items (+37 filler)
- grammaticality judgment
- sentence-picture matching
- Chronbach’s alpha: 0.86

Subjects: 244,840 monolinguals
- 44,412 immersion
- 257,998 non-immersion

Note: Quantitative predictions based on ELSD model, but the basic point is model-independent.

Future Directions

- Other L2s
- Phonology & semantics
- Production