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Language learning in childhood: insights from artificial language experiments

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Retrieved from https://www.mybaba.com/is-my-toddler-speaking-enough/

- Rapid
- With little conscious effort
- Without explicit instruction

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Methods

Ambridge & Rowland (2013)

Spontaneous speech analyses

- data transcription
- parental report questionnaire

Production paradigms

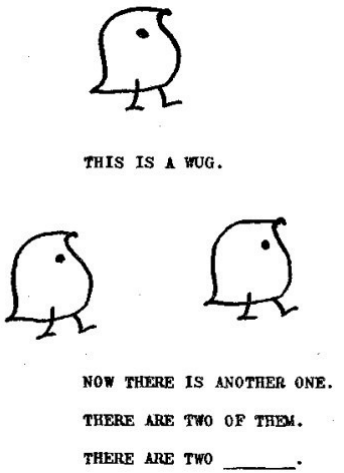
- elicited production
- repetitions methods

Judgments

- acceptability ratings
- sentence interpretations

naturalistic

responsible for



his teeth man the brushed

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Previous artificial language learning work

- Traced back to research in late 1960s (Reber, Braine)
- Established in 1990s via experimental work with preverbal infants and adults and even different species
- Very little work with primary-school children

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Challenges

- Developmental data are messy
- Extremely labour intensive
- Questions of power currently of concern in psychology

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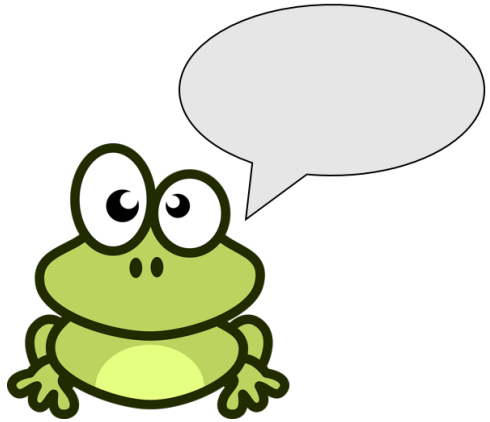
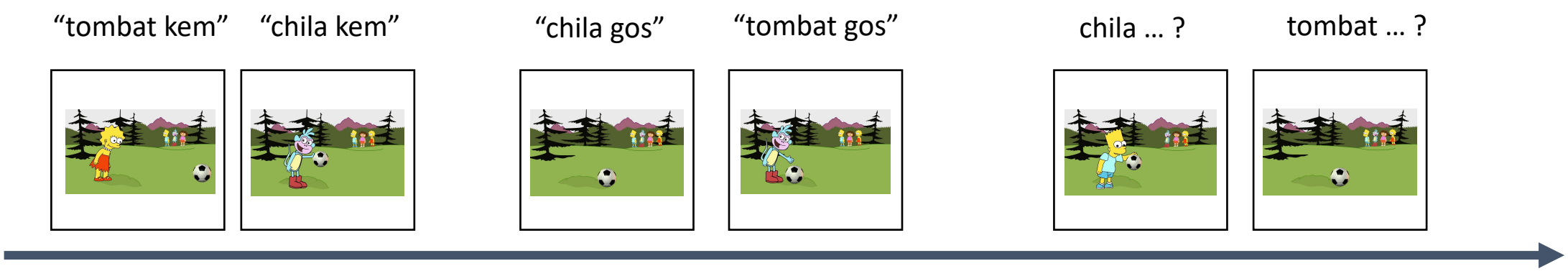
Artificial language learning: methods





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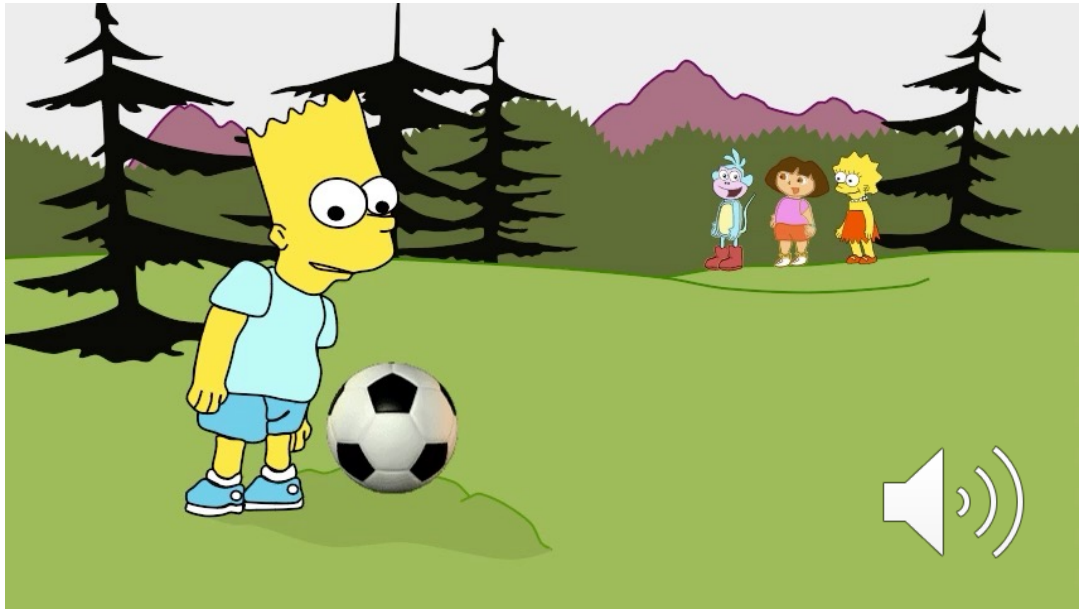
Training phase



- **Training without recast** (*copy Freddie sentence*)
- **Training with recast** (*finish Freddie's sentence + corrective feedback*)

day 1 **….** **day x**

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Post-tests: production

- See **new** video and hear (noncritical) part sentence
- **Help Freddie finish his sentence**
- **No feedback or prompting**

day 4

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Post-tests: judgments

- See **new** video and hear full sentence
- Tell Freddie's friend, Ellie, whether she said the right thing

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Today's talk

- **Statistical learning:** Children's ability to extract probabilistic ***patterns*** from language (i.e., keeping track of how often two things co-occur)
- Two case studies
  - Learning sociolinguistic patterns
  - Learning spelling patterns

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Learning sociolinguistic patterns

nappy	diaper	**geographic origin**
walking /ɪŋ/	walkin’ /ɪn/	**SES, gender**

Language is variant but this variability can be predicted

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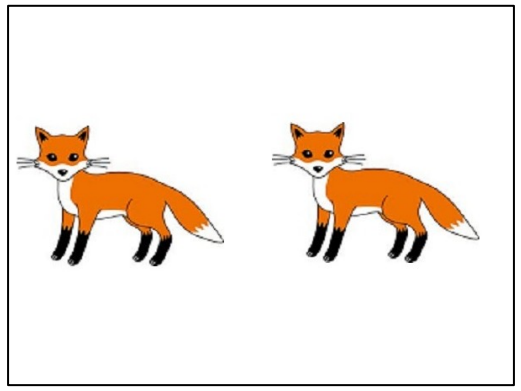
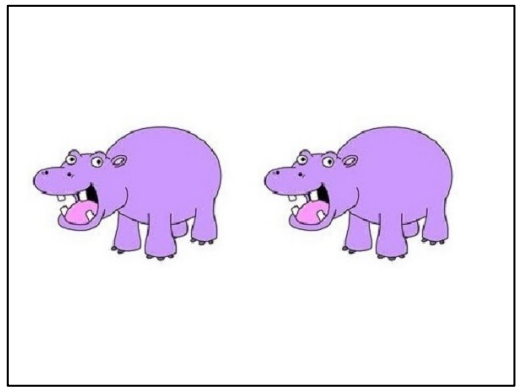
Samara et al. (2017). *Cognitive Psychology*



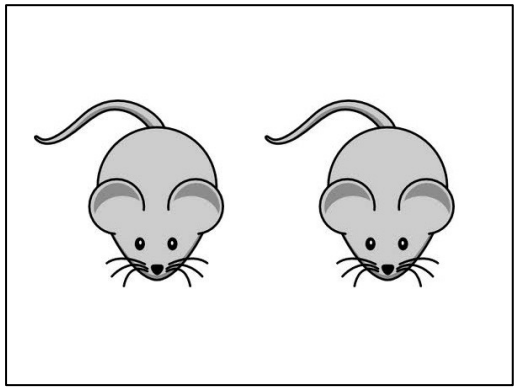
glim fox dak

glim fox kem



glim hippo dak

glim hippo kem



glim mouse dak

glim mouse kem

Glim NOUN particle = there are two [noun]

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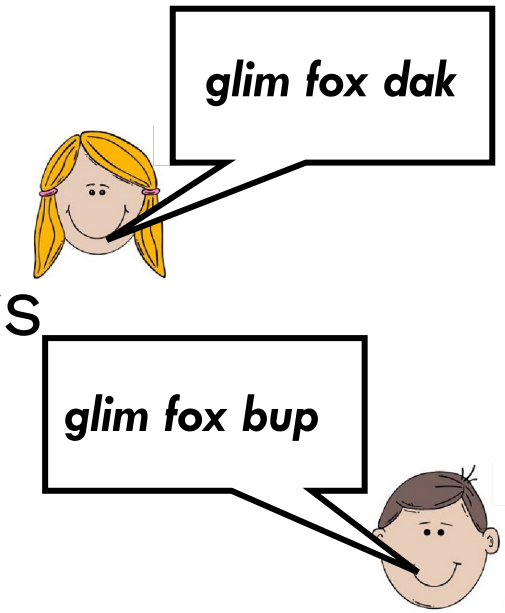
Samara et al. (2017). *Cognitive Psychology*

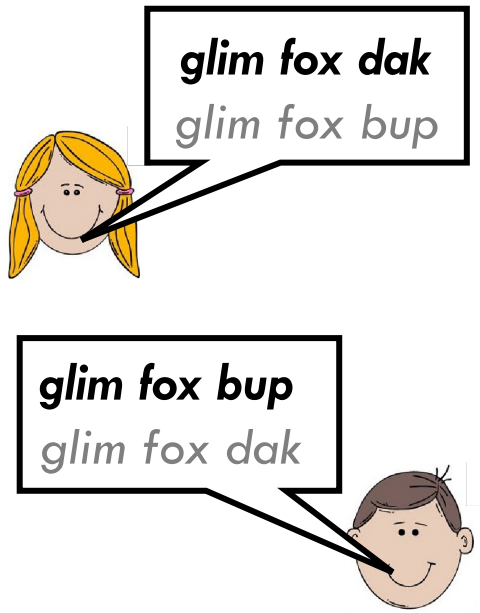
- Can children learn a gender-based pattern from 6 years of age?

- 60 Year 1 children
  (and 60 adults)
- Trained over 4 days
- Production test
- Binary judgments

Fully predictable



Partially predictable



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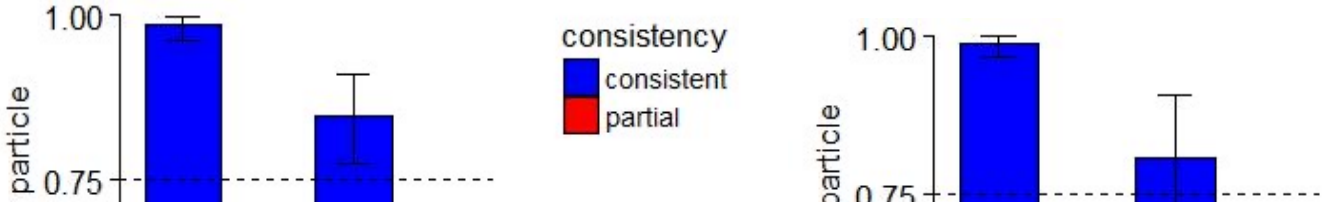

YES, although probabilistic patterns are hard to learn and children are, overall, worse than adults

production **judgments**

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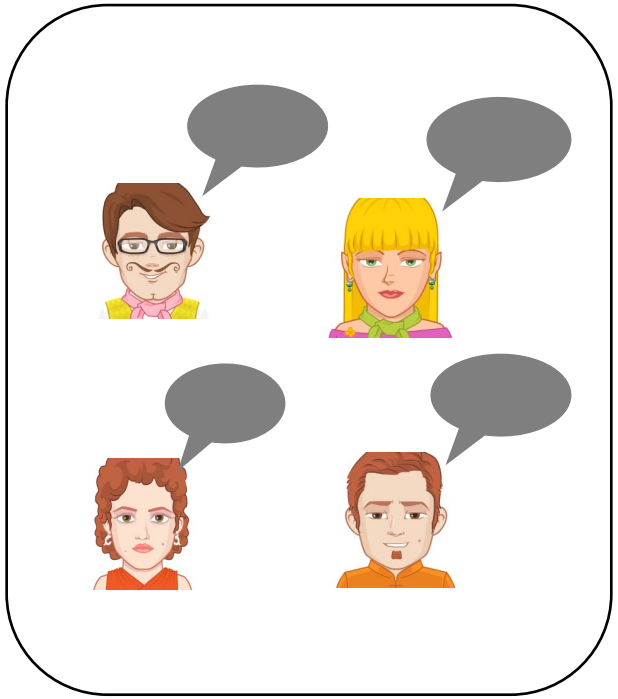
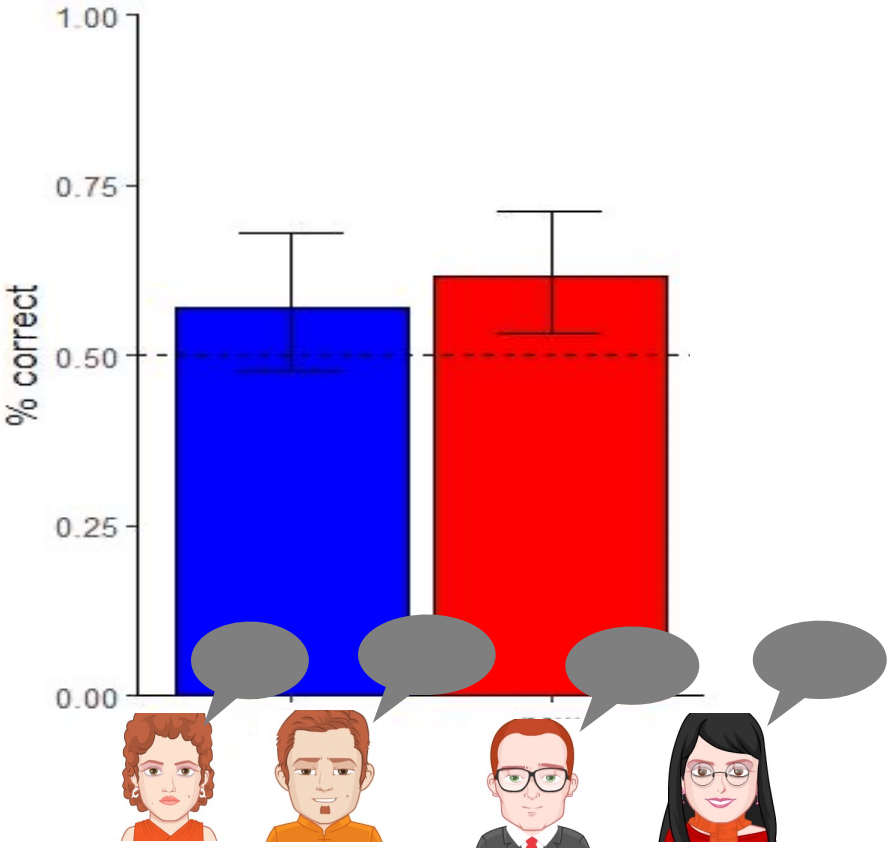
Tracking of gender conditioning *across* speakers?



- 2-day study
- 19 six-year-olds
- deterministic
- 4 males; females



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Written language (Learning to spell)

- One-to-many sound-letter correspondences for English vowels. E.g., b**e**d, s**ai**d, br**ea**d, fr**ie**nd, l**eo**pard
- But many (often untaught) patterns bring consistency
  - Ea spellings for /ɛ/ are somewhat common before /*d*/
  - gz and dz are illegal spellings of frequent sound combinations; *bagz, *padz
  - Letters double more often after single-letter

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Written language (Learning to spell)

- If patterns are not explicitly taught, are they learnt incidentally?
- Case study: Patterns on “where letters occur”
  - E.g., “ck” does not begin English words
  - Doublets do not occur in word beginnings
- Hard to control for what children may have been taught, how many times they have seen exemplifying words etc.
  - Artificial language learning to the save!

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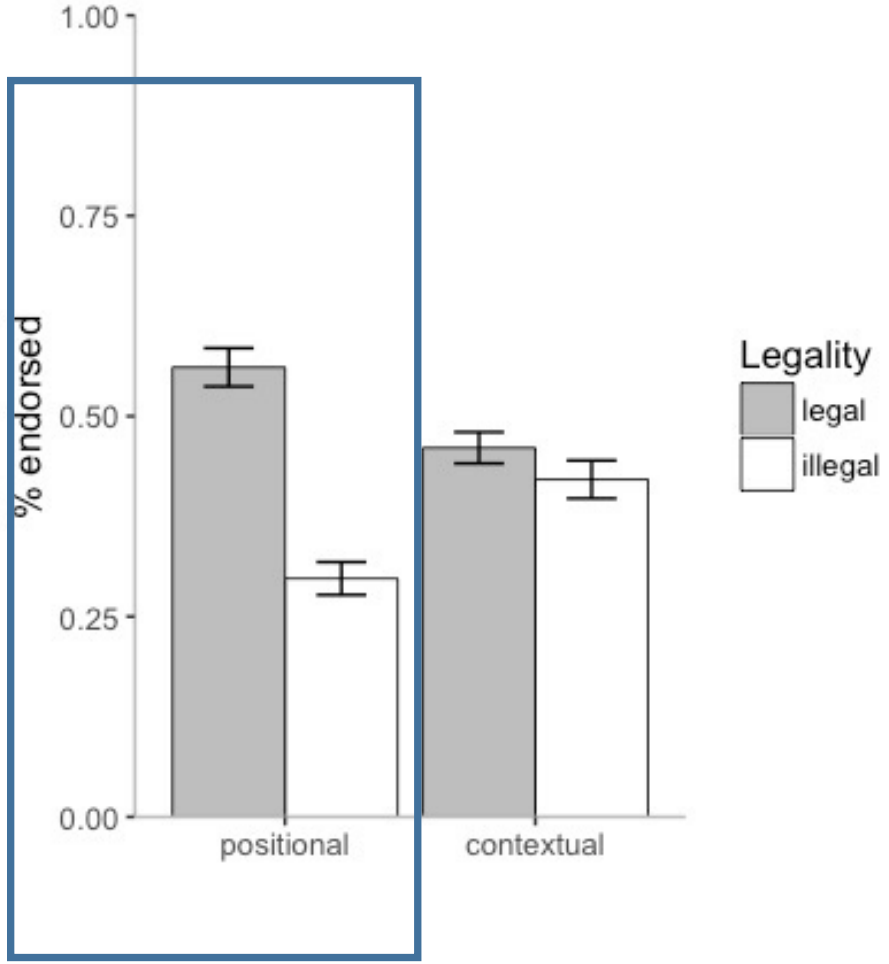
Samara et al. (2014). *JECP*

- Year 2 children (n = 67)
- Trained on pronounceable nonwords, e.g., mep
- **d, m, l, f only in beginnings**
- **t, n, p, s only in ends**
- Tested in legality judgments: e.g., is tes a “good” word?



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Samara et al. (2019; under review; in prep)

- Key results replicated with
- ✓ **non-English speakers**
- ✓ **more complex patterns**
- ✓ **shapes**

Legal

Illegal

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Bringing it together

- Artificial language learning studies can be adapted for use with primary school children
- Key findings using these methods:
  - Early sensitivity to sociolinguistic patterns of variation in spoken language
  - Elucidate learning mechanisms underlying (spelling) pattern sensitivity in written language

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