

More Siblings Means Lower Input Quality in Early Language Development

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Background

20% of infants grow up in a household with two or more older siblings

- US Census Bureau, 2016

NO SIBLINGS

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MOT: Beneath my scarf is a (.) nose (.)

MOT: My shirt sleeves hide my (.) elbows (.)

MOT: Elbows

3 SIBLINGS

(video removed from online presentation)

MOT: **** come inside and, I dunno

BRO1: [crying] I don't wanna be with all them, I wanna
be by my self

BRO2: ***** so I'm gonna get my phone₂

MOT: Alright

Background

- 1) Later-borns 'at a slight disadvantage' (Fenson et al., 1994) than first-born infants in **productive language skills**:
 - Less rich lexicon (Berglund et al., 2005; Hoff-Ginsberg, 1998)
 - Less complex syntax (Hoff-Ginsberg, 1998)
- 2) Later-borns suffer an **input disadvantage**; first-borns' input is more tailored to language learning (Oshima-Takane & Robbins, 2003):
 - Longer MLU
 - Less speech directed at infant
 - Less metalingual maternal speech (Jones & Adamson, 1987)

Background

Gaps in literature:

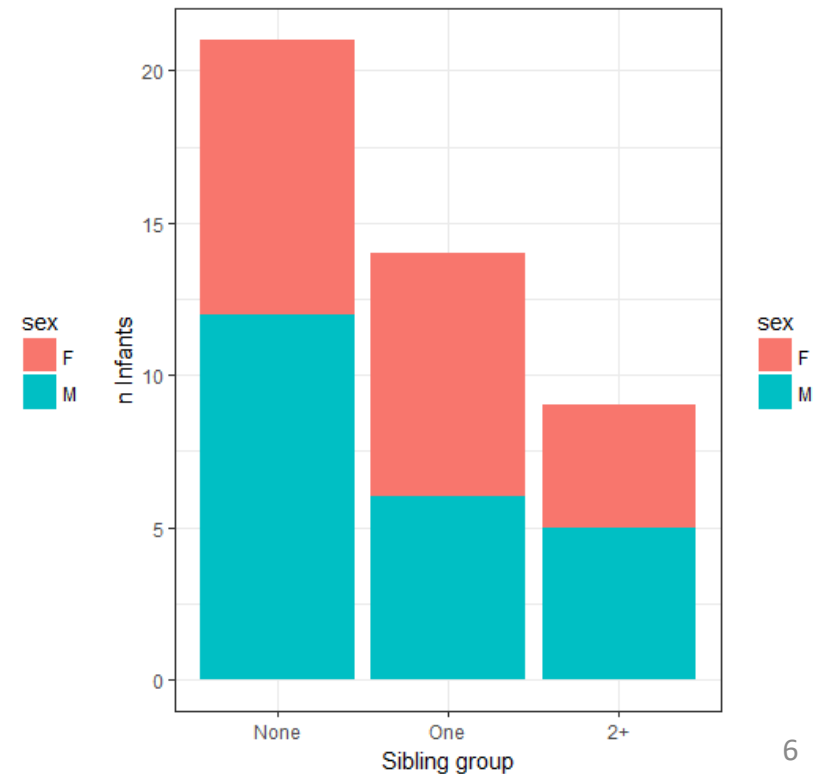
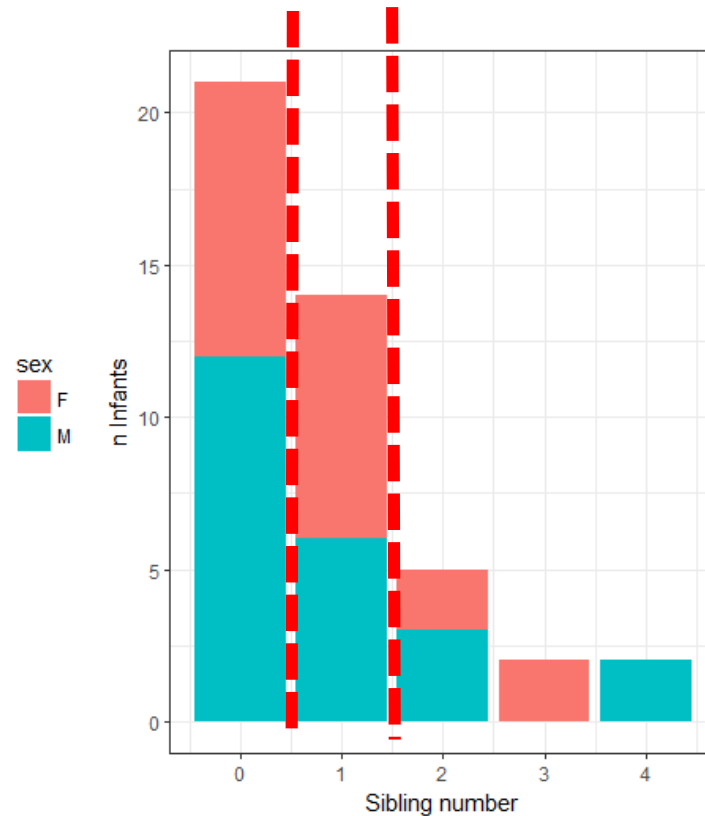
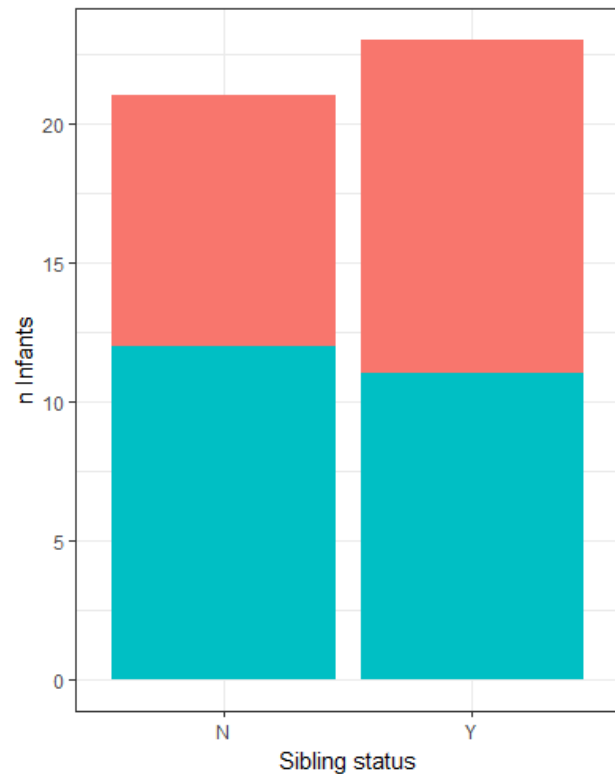
- Consideration of 'first-borns' versus 'later-borns' (or 'second-borns')
- Small-scale observations vs. large-scale questionnaires

The SEEDLingS Corpus (Bergelson, 2016)

- 44 infants recorded at home (+lab experiments), age 6-17 months
- Largely homogenous sample
- Hour-long video and day-long audio recordings
- Monthly CDI questionnaires (Fenson et al., 1994) from 6-18 months
- Recordings coded for:
 - Object word
 - Speaker
 - Utterance type
 - Object presence

Siblings

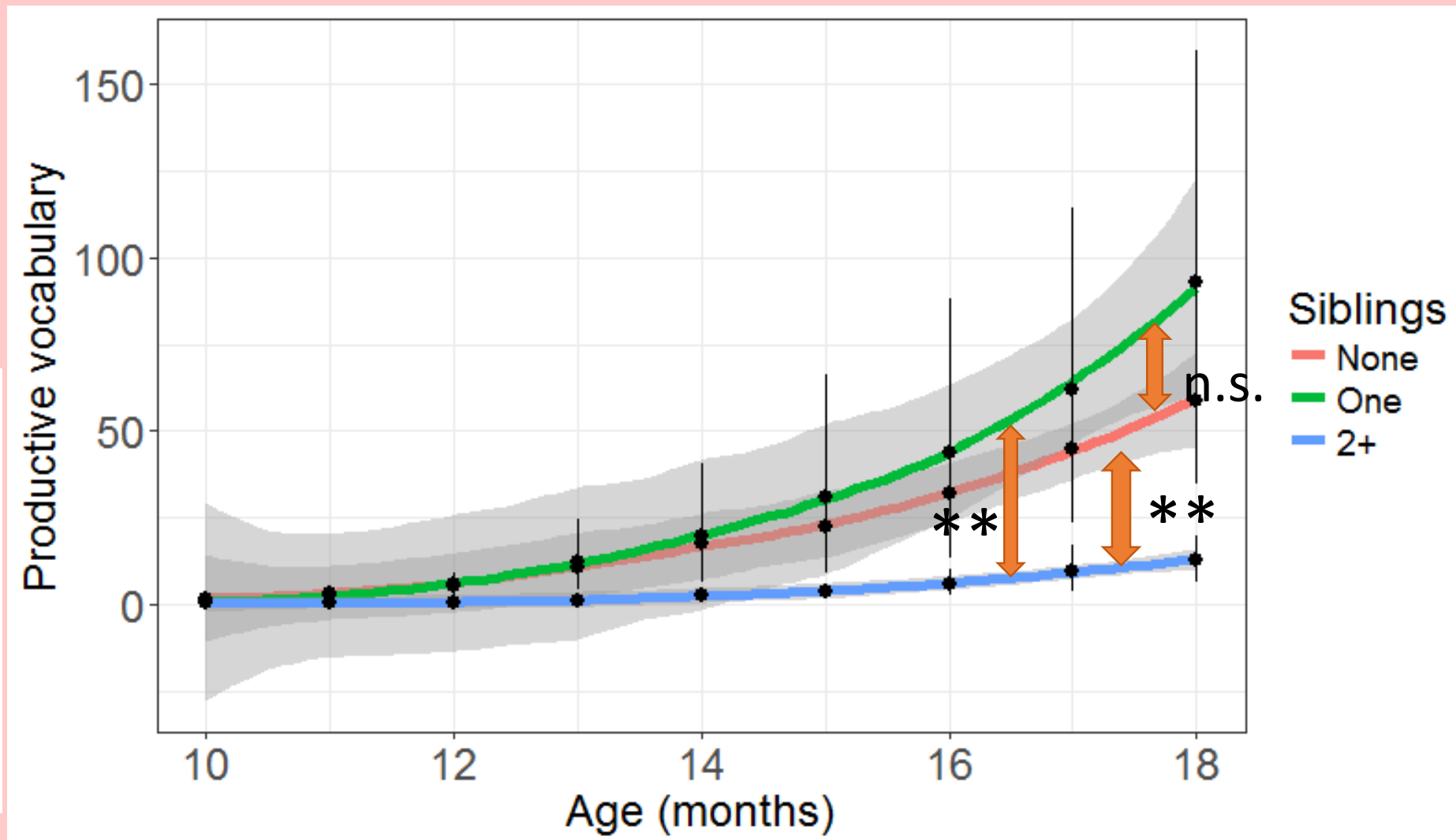
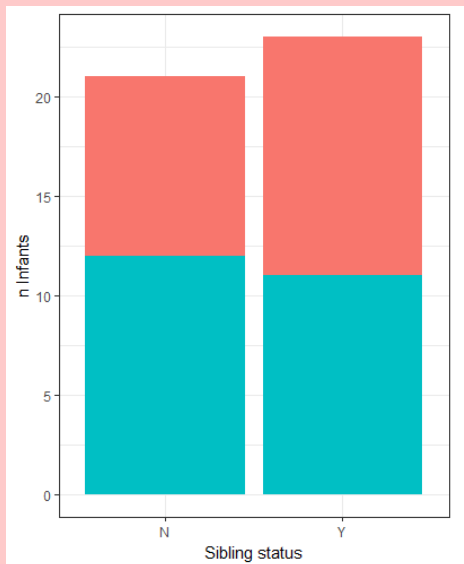
- Median siblings = 1, Range = 0-4 (Mean = .86, SD = 1.09)
- No younger siblings (yet?) (Mean = 5.04 years, range = 0-18 years)



Results

- Reported productive vocabulary (CDI reports), 10-18 months
- **Household input**, 10-17 months
- **Early-acquired words** in input, 10-17 months
- **Object presence** in input, 10-17 months

Results: Vocabulary growth over time



Binary factor: $\chi^2(1)=4.06$, $p=.04$

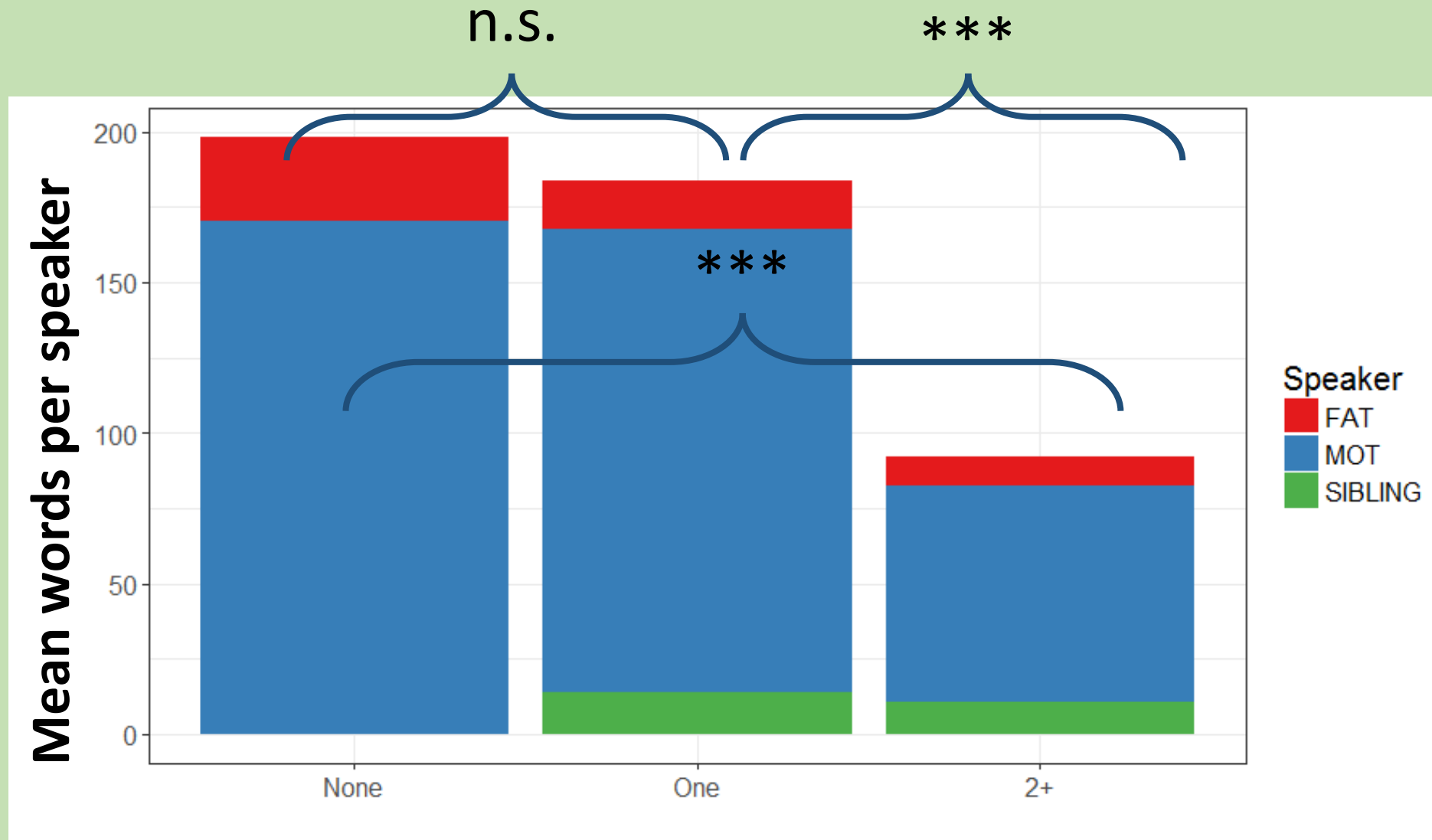
Overall model: $\chi^2(1)=9.05$, $p=.01$

Results

- **Reported productive vocabulary**
- **Household input, 10-17 months**
- **Early-acquired words** in input, 10-17 months
- **Object presence** in input, 10-17 months

More siblings → Smaller vocabulary ($p=.01$)

Differences in amount of household input



Overall model: $\chi^2(2)=11.16$, $p=.003$

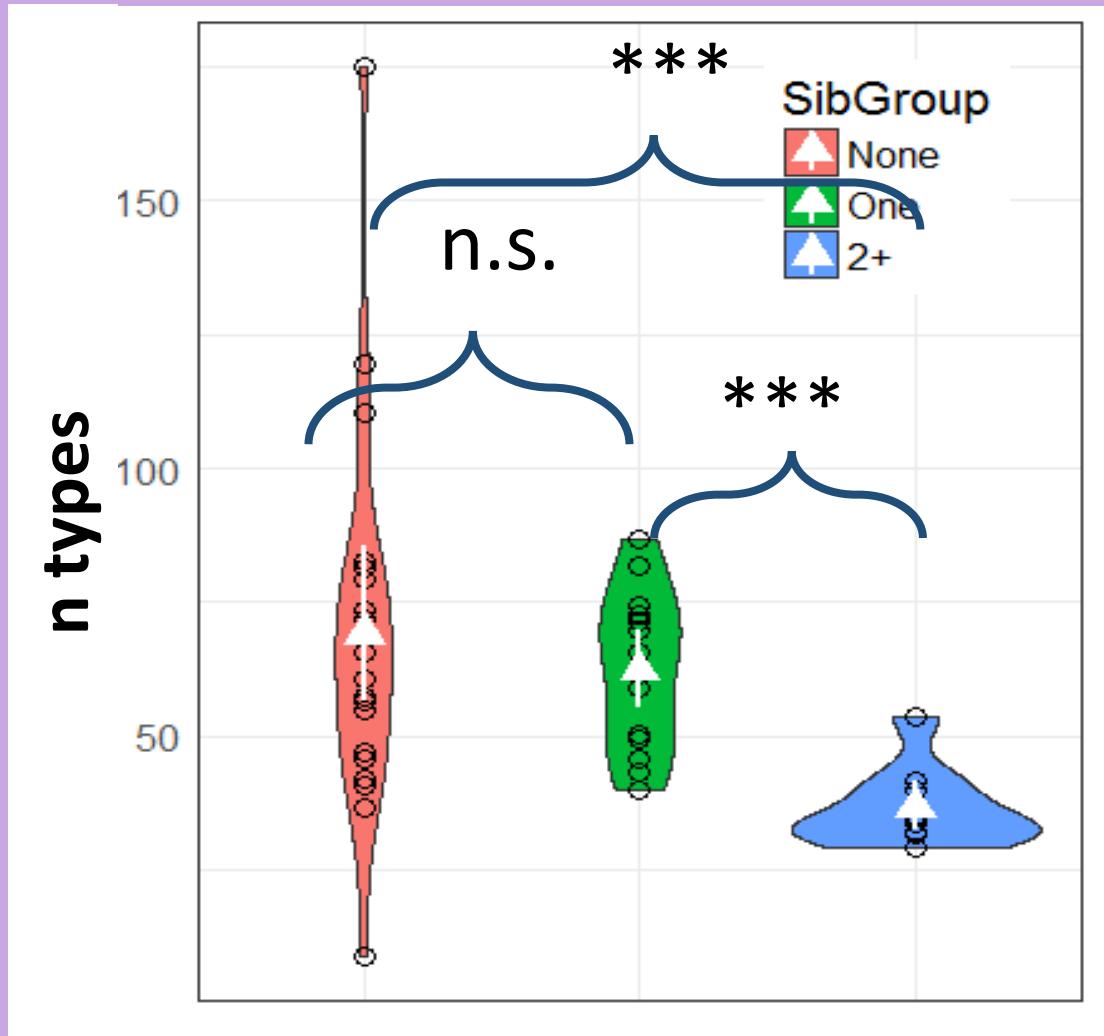
Results

- Reported productive vocabulary
- Household input
- Early-acquired words in input
- Object presence in input

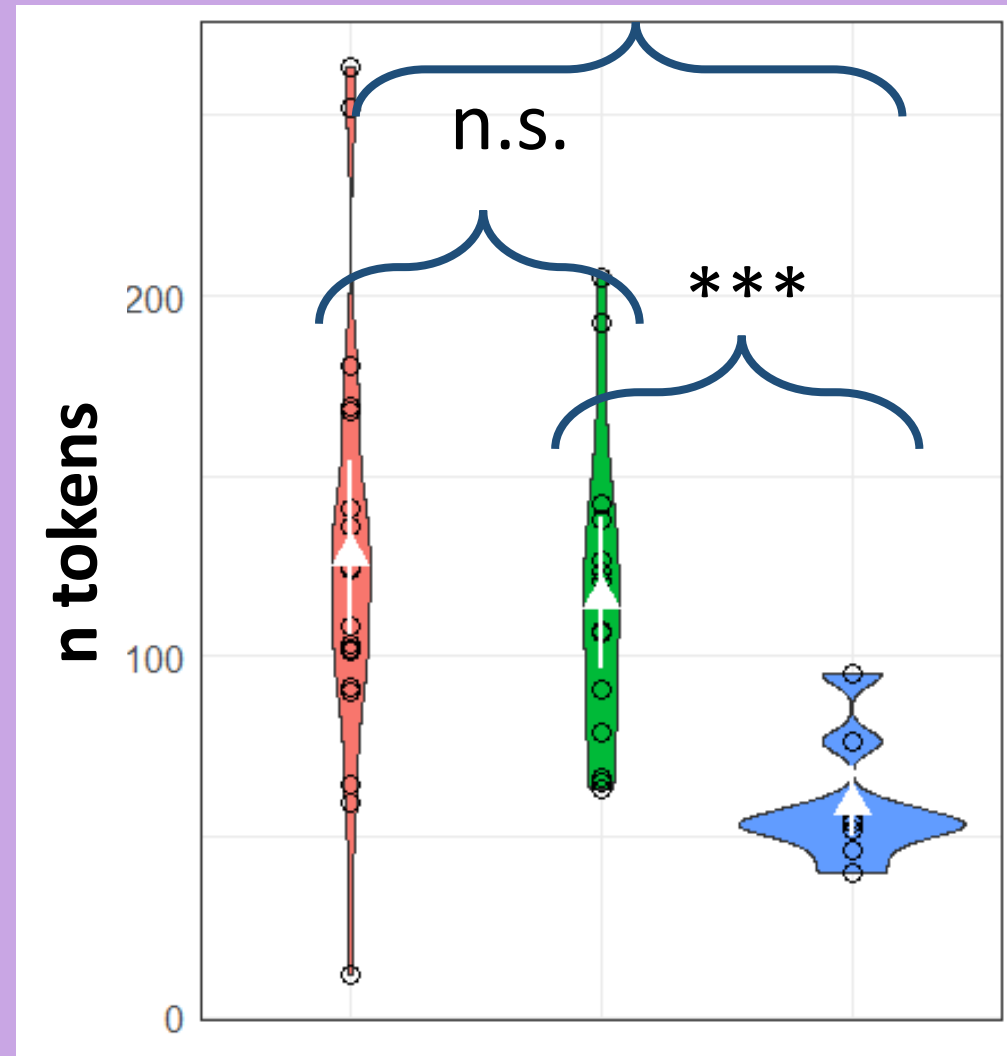
More siblings → Smaller vocabulary ($p=.01$)

More siblings → Less input ($p<.01$)

Differences in number of early-acquired words



Overall model: $\chi^2(2)=11.43$, $p=.003$



Overall model: $\chi^2(2)=9.6$, $p=.008$

Results

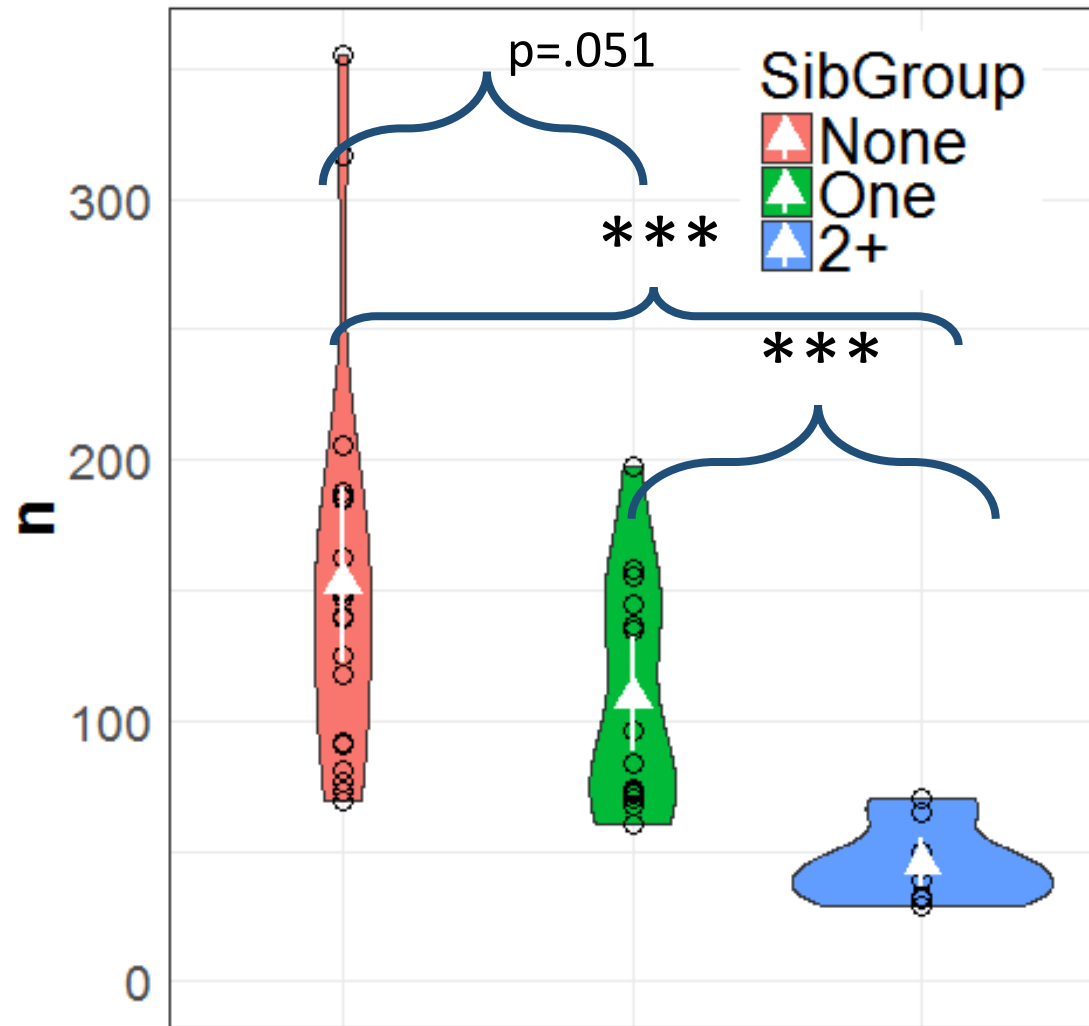
- Reported productive vocabulary
- Household input
- Early-acquired words in input
- Object presence in input

More siblings → Smaller vocabulary ($p=.01$)

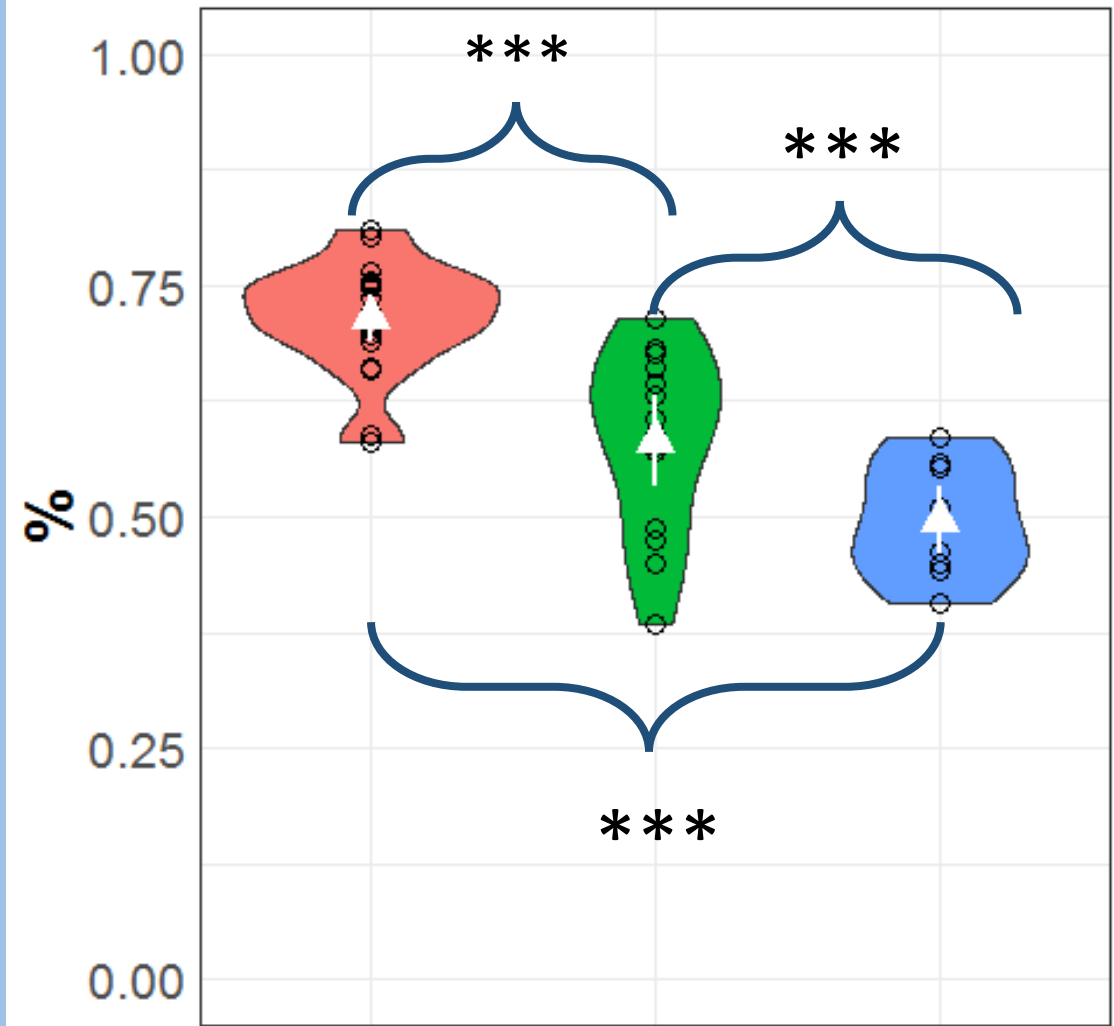
More siblings → Less input ($p<.01$)

More siblings → Fewer CDI words ($p<.01$)

Differences in object presence



Overall model: $\chi^2(2)=16.48$, $p<.001$



Overall model: $\chi^2(2)=24.33$, $p<.001$

Results

- Reported productive vocabulary
- Household input
- Early-acquired words in input
- Object presence in input

More siblings → Smaller vocabulary ($p=.01$)

More siblings → Less input ($p<.01$)

More siblings → Fewer CDI words ($p<.01$)

More siblings → Less object presence ($p<.001$)

Summary

- ‘Sibling effect’ consistent with reports from the literature (e.g. Berglund et al., 2005; Fenson et al., 1994)
- BUT only when infant has 2 or more siblings
- Effects can be traced to differences in input
- All factors known to aid in language learning (see Bergelson & Swingley, 2012; Hart & Risley, 1995; Laing, 2017; Gleitman et al., 2005)

Discussion

- Long term effects?
- Some advantages for later-borns:
 - Overheard speech (Floor & Akhtar, 2006)
 - Syntactic complexity (Oshima-Takane et al., 1996)
 - Conversational turn-taking (Barton & Tomasello, 1991)
 - Also: variability (Rost & McMurray, 2009, 2010)

Future directions

- Follow up at age 3;0
- Analysis of day-long audio data

Thank you!



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