Multi-party talk in US homes: Developmental shifts in interaction structure

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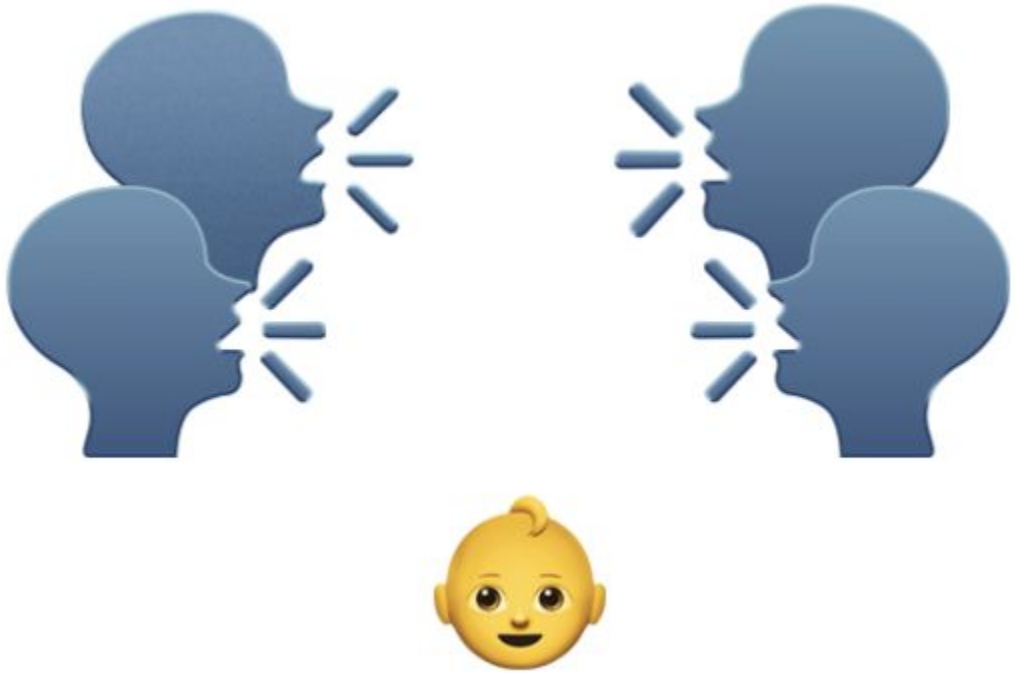
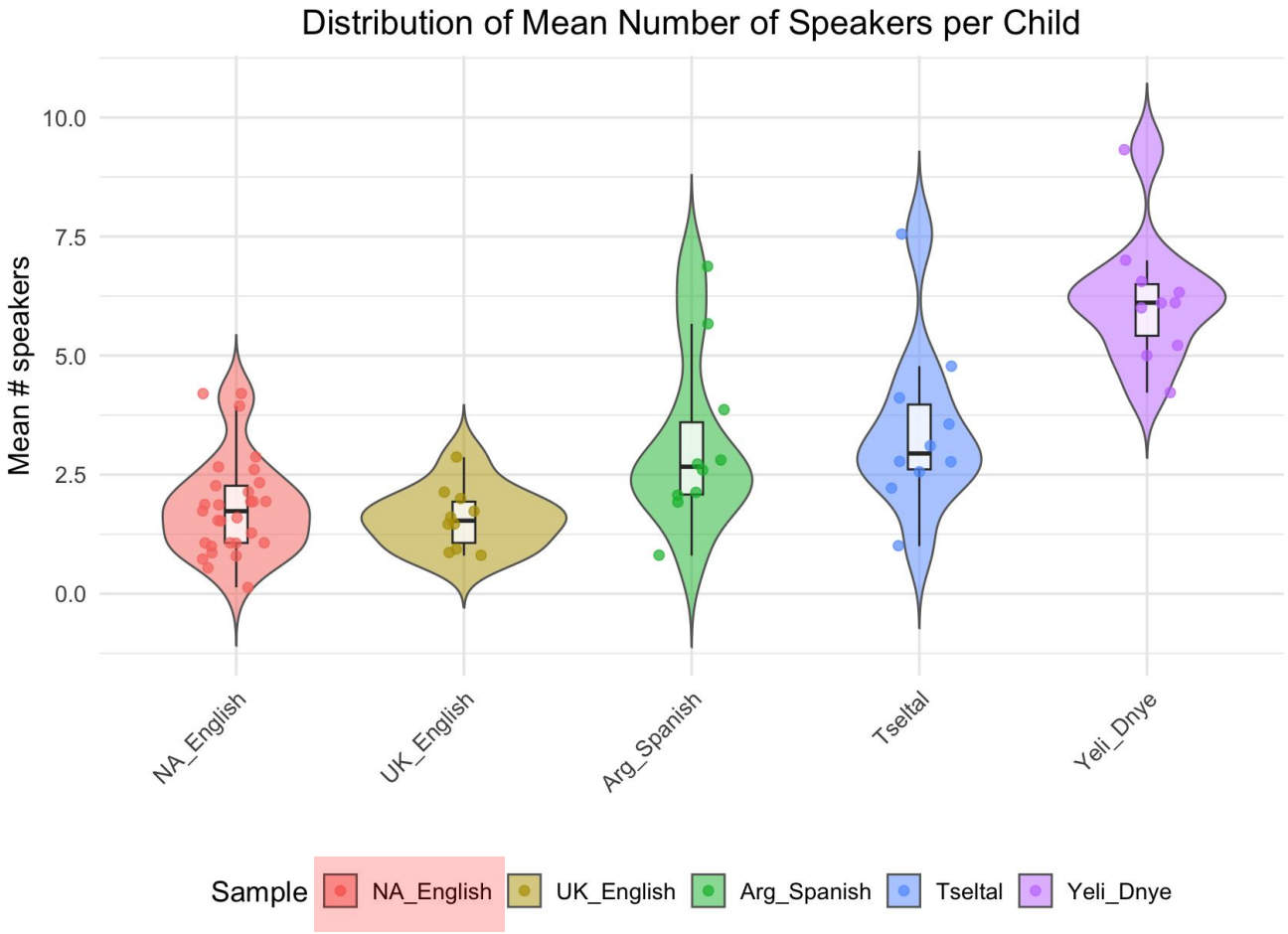




Target-child-directed speech (TCDS)

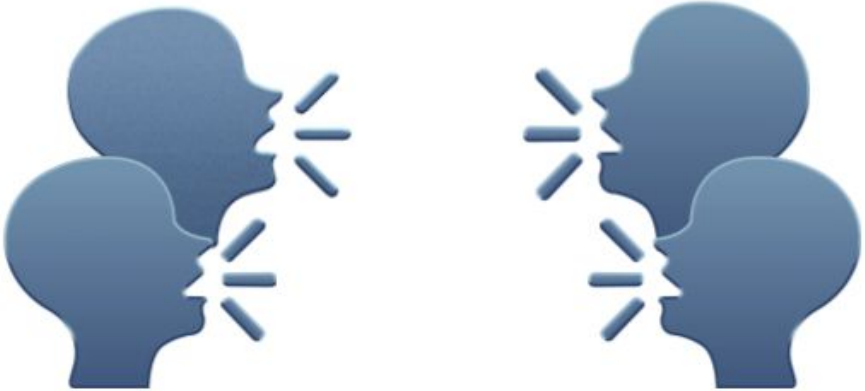
(*N* = 69; 0;2-3;0)

Bunce et al., 2024

interactional pragmatic skills

executive function

🧠



linguistic skills

🐶 = “dog”

👶

must develop a bundle of skills!

executive function 🧠

- Behavior checklists (Achenbach, 1999; Gioia et al., 2000; Gioia et al., 2000)
- Formal assessments:
  - Ability to inhibit responses (Llinàs-Reglà et al., 2017)
  - Working memory (Wechsler, 2003)
  - Attention (Conners CPT 3)

linguistic skills 🐶 = “dog”

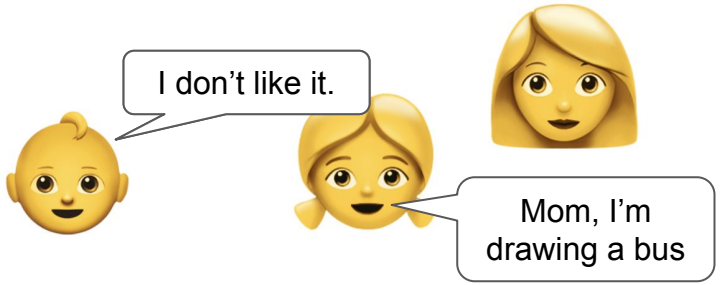
- Vocabulary checklists (MacArthur-Bates CDI)
- Looking-while-listening word recognition (e.g., Bergelson & Swingley, 2012)
- Mean length utterance (MLU)

Children's interactional pragmatic development

third-party turn anticipation

Lammertink et al., 2015

impact of siblings and peers on interactional language experiences

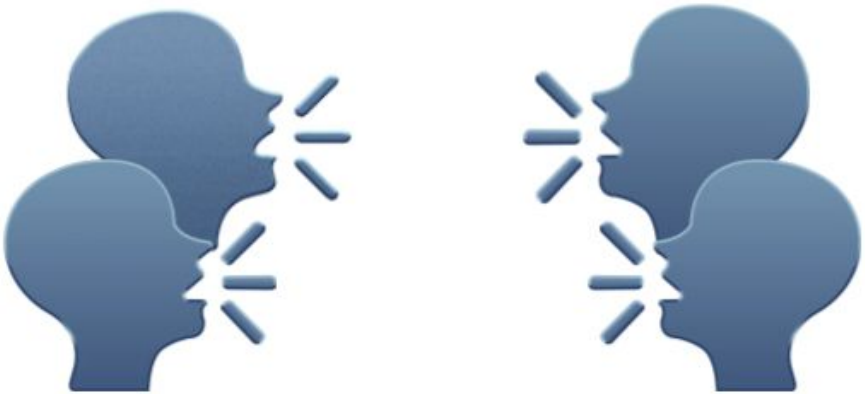


e.g., intrusions *(Dunn & Shatz, 1989)*

interactional pragmatic skills

executive function

🧠



linguistic skills

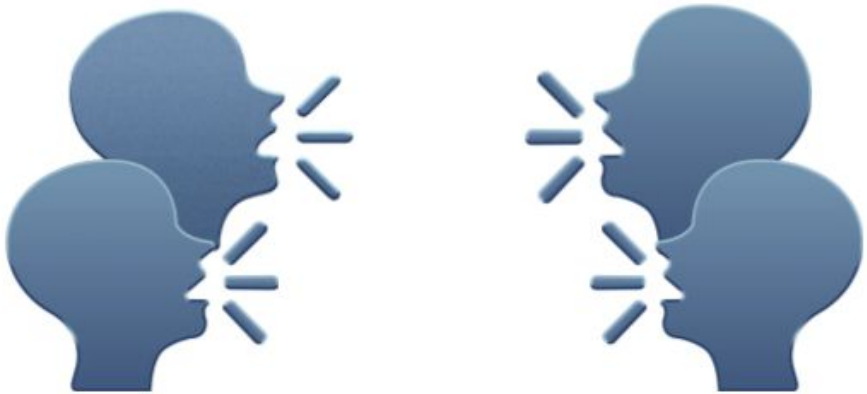
🐶 = “dog”

How do these bundle of skills shape multi-party talk?

interactional pragmatic skills

executive function

🧠

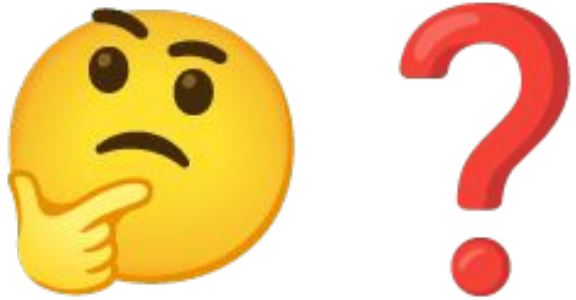


linguistic skills

🐶 = “dog”

👶

How are they shaped by multi-party talk?



Interactions between multi-party interactions and component skill development?

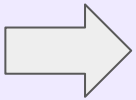
Empirical descriptions of it in the input!

Methods

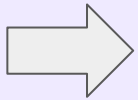
Main outcomes

1. Method for identifying clips with multi-party interactions
2. Analysis of multi-party interactions across developmental landscape

Annotation of daylong recordings



Identification of clips with multi-party interactions



Analysis of age-related changes in interactional structure

Daylong home recordings

e.g., Bergelson et al., 2019; Bunce et al., 2024; Casillas & Casey, 2024; Casillas & Cristia, 2019; Cychosz & Cristia, 2022; Gilkerson et al., 2017; Greenwood et al., 2010

Child-perspective **audio**/video

Manual transcription of audio subclips sampled across the day

or automatic diarization of audio across the whole day

- Nearby language input (input rates, sources, structure)
- Child vocal development

HomeBank

shared multi-hour, real-world recordings of children's everyday experiences

VanDam et al., 2016

48 daylong English recordings from HomeBank and ACLEW

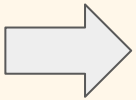
- Cougar (Mark VanDam)
- San Joaquin Valley (Anne Warlaumont)
- Seedlings (Elika Bergelson)
- Winnipeg (Melanie Soderstrom)

VanDam, 2018; Warlaumont et al., 2024; Bergelson, 2018; Soderstrom, 2016

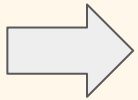
1253 randomly-sampled 5-minute clips
(> 104 cumulative hours of audio)

target child produced (TCP) speech + (exclusively) TC-directed speech (TCDS)

Annotation of daylong recordings



Identification of clips with multi-party interactions



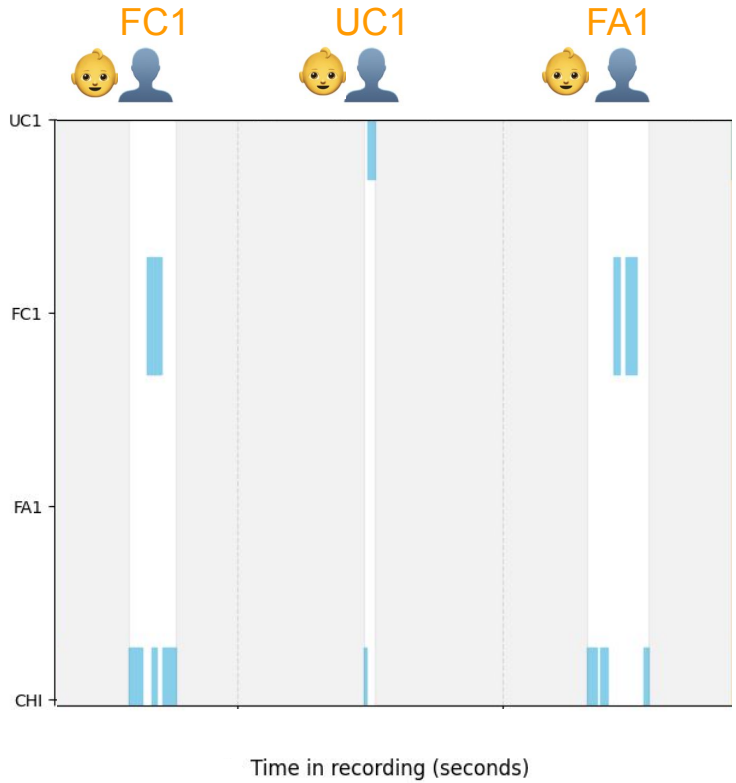
Analysis of age-related changes in interactional structure

Identify *potential* multi-party clips

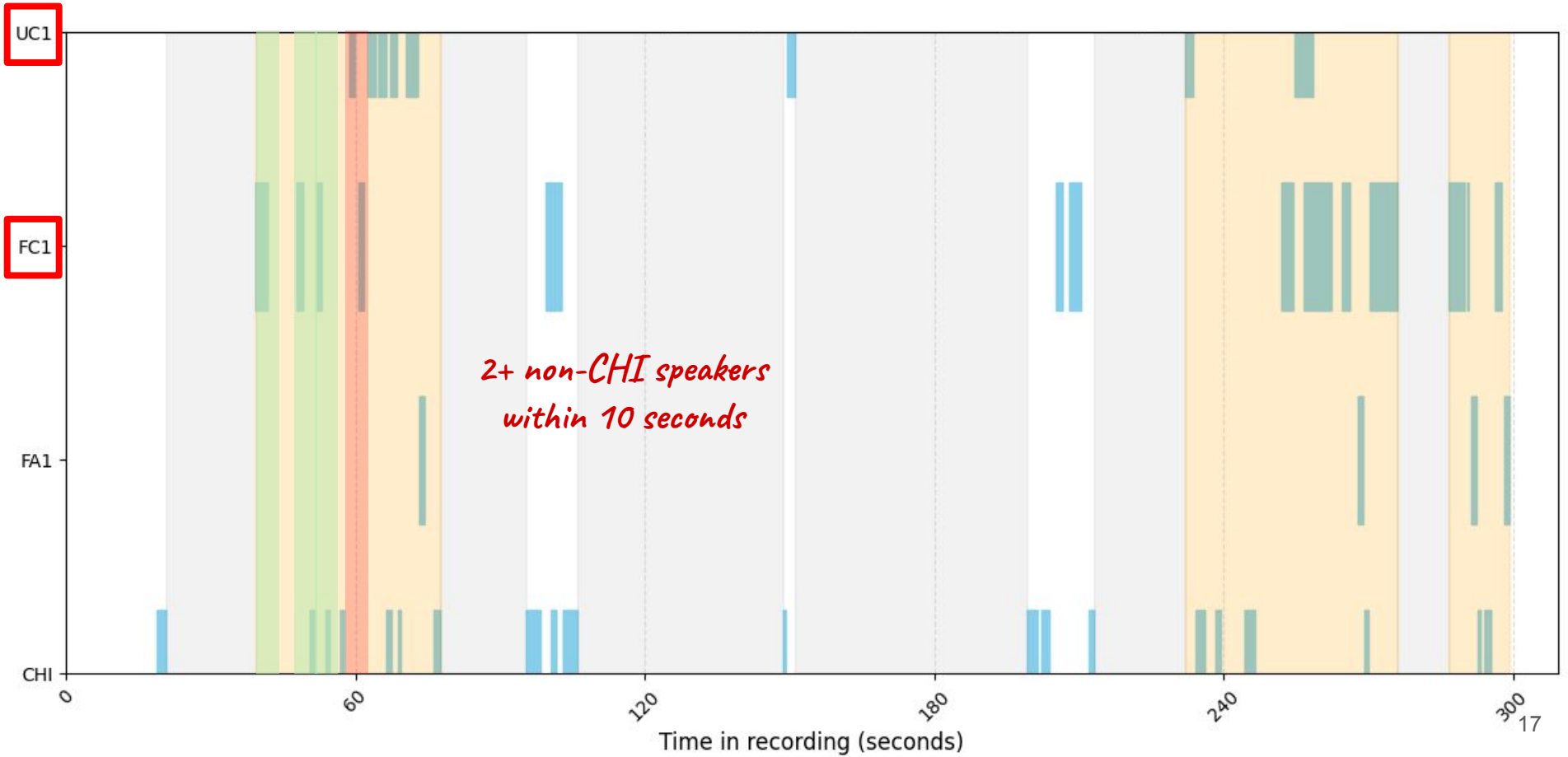
>= 3 speakers

Time/speaker/utterance tracking
5mins, 0spkrs, 0utts
70mins, 2spkrs, 84utts
15mins, 1spkrs, 9utts
20mins, 2spkrs, 8utts
60mins, 3spkrs. 79utts
90mins, 5spkrs, 96utts
5mins, 0spkrs, 0utts
5mins, 0spkrs, 0utts
60mins, 4spkrs, 35utts
30mins, 2spkrs, 10utts

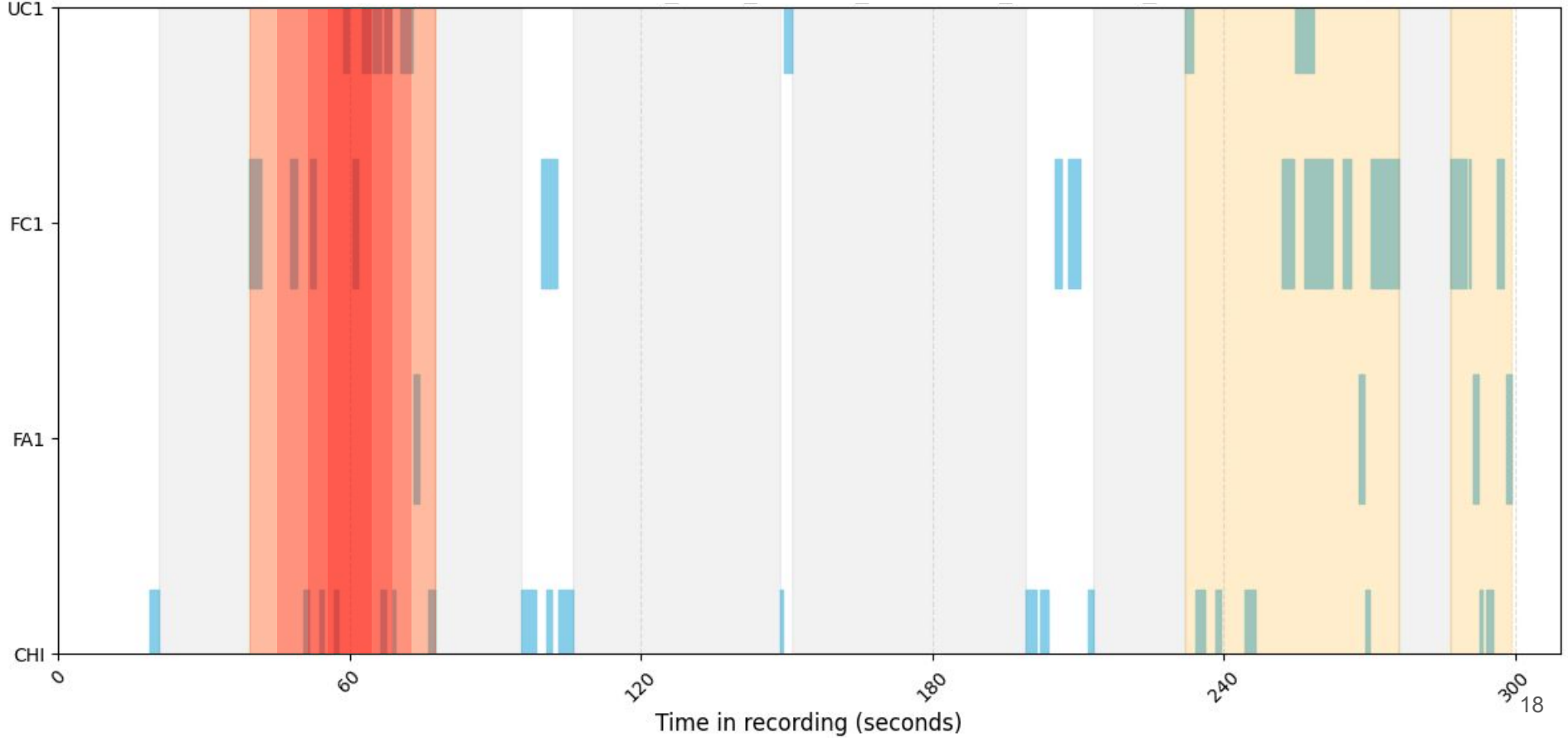
Confirm multi-party interaction bouts



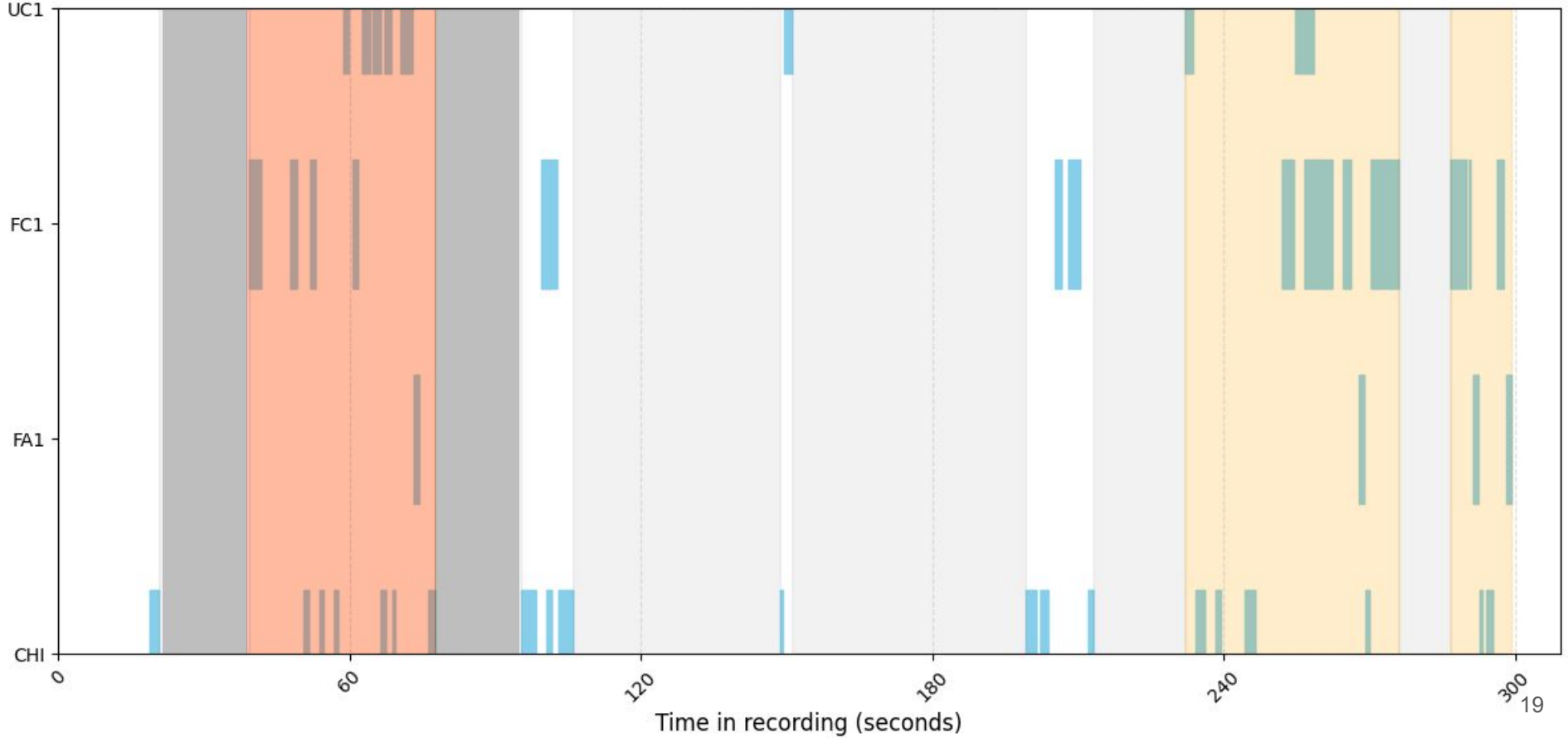
Identify center of interaction burst

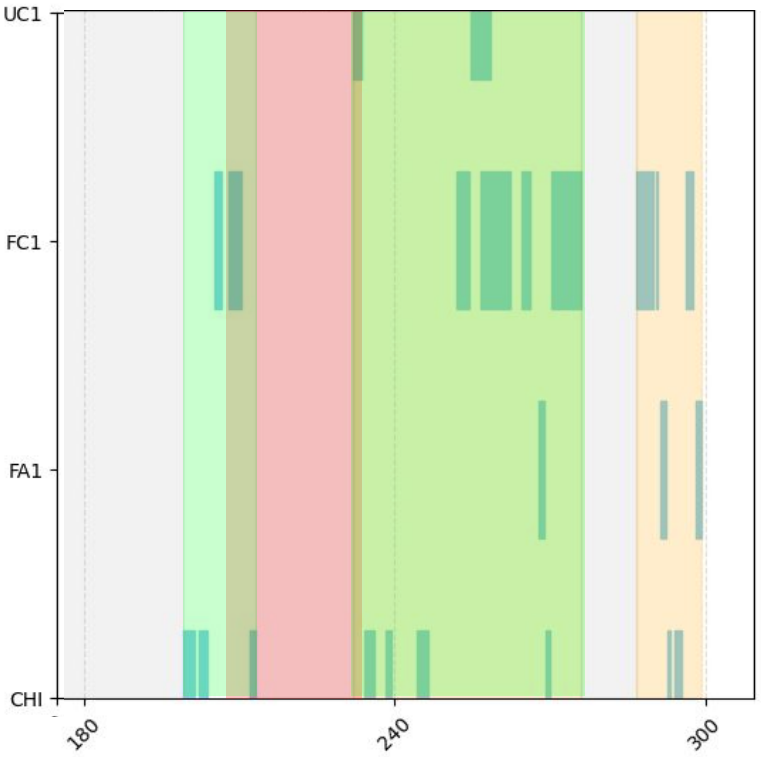


Expand outwards in steps of 10 seconds…



…until a silence of > 10 seconds



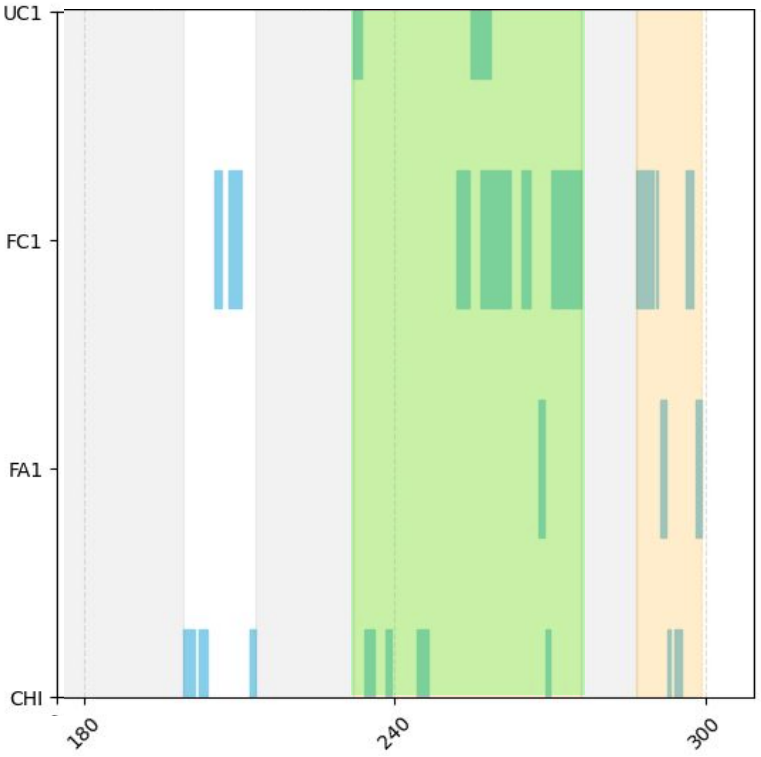


CHI: you kiki!

CHI: you kiki!

FC1: you’re my kiki come back kiki.

CHI: meow meow.



UC1: go downstairs.

CHI: yeah downstairs.

CHI: yahoo!

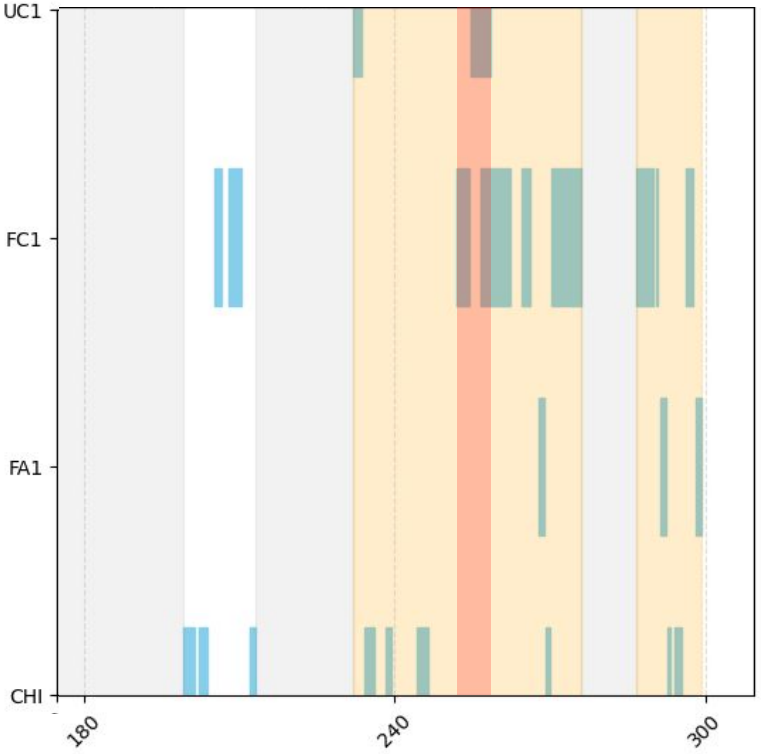
CHI: ice cream yeah.

FC1: we're not having ice cream there is no ice cream.

UC1: yeah I'm sorry I'm sorry I'm sorry.

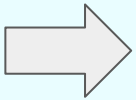
…

10 seconds

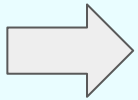


What makes an interaction bout?

Annotation of daylong recordings

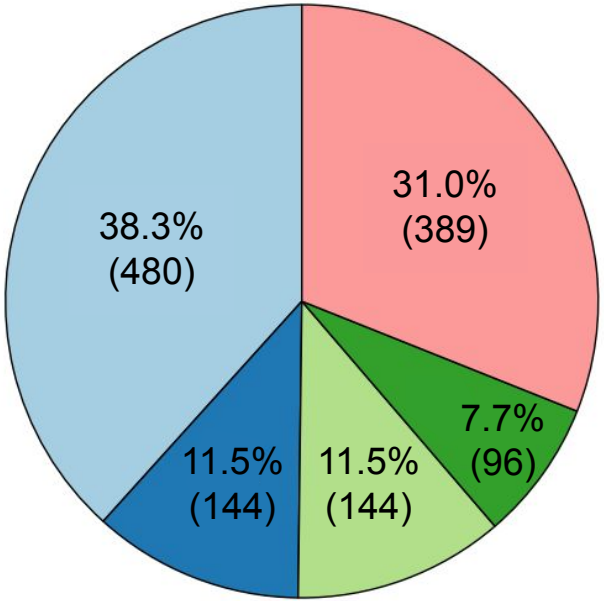


Identification of clips with multi-party interactions

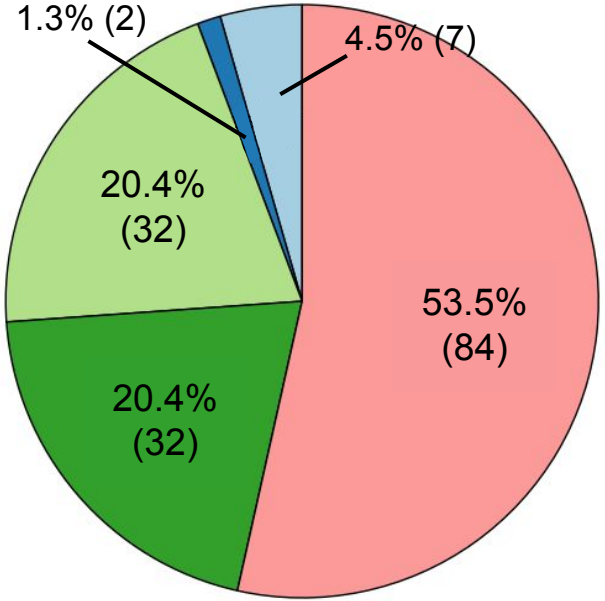


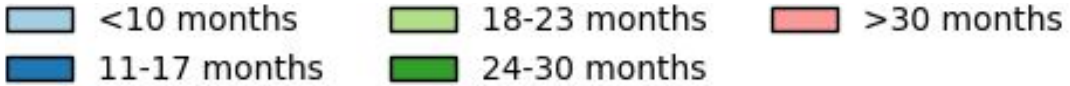
Analysis of age-related changes in interactional structure

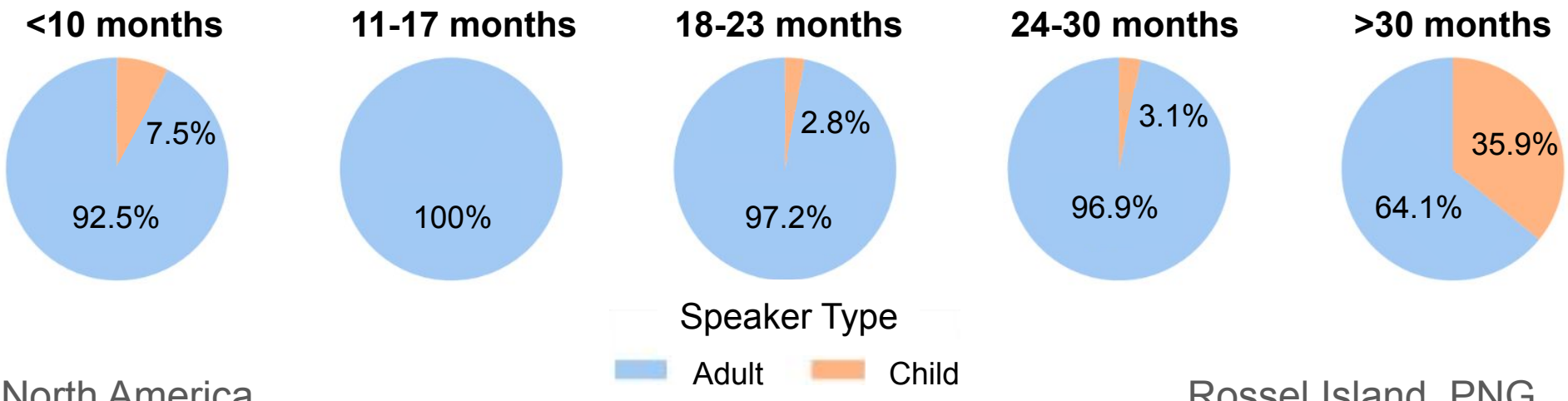
All annotated clips
(N clips = 1253)



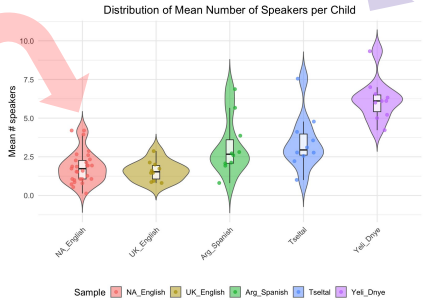
Multi-party clips
(N clips = 157)







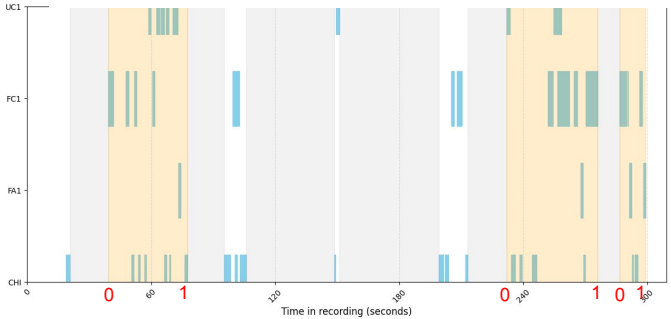
North America

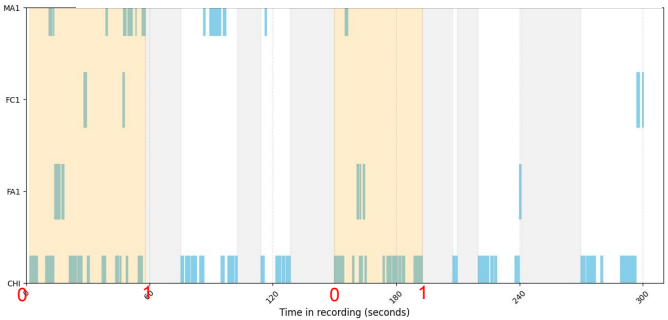


Bunce et al., 2024

Rossel Island, PNG

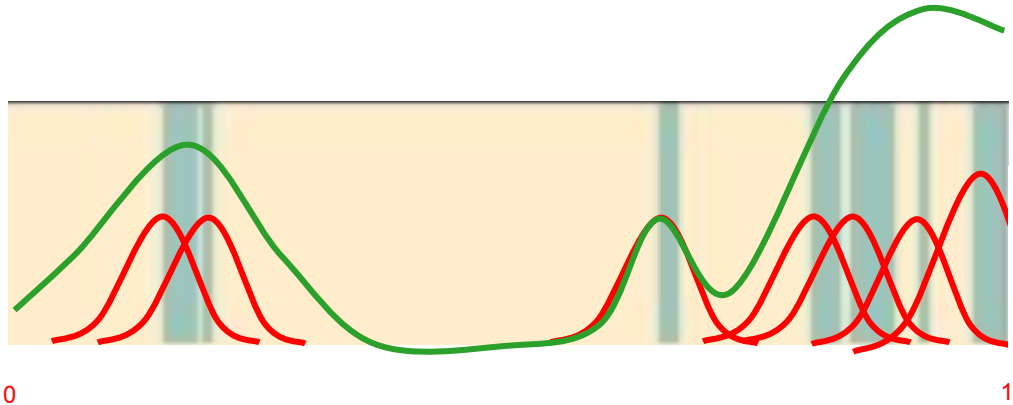
For each clip within age group…

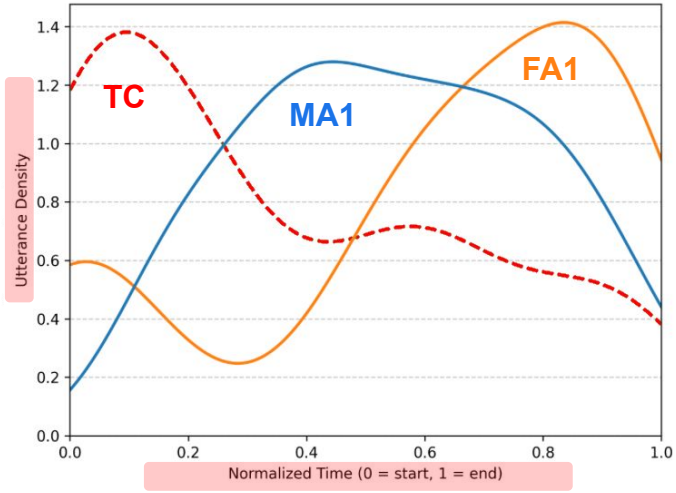




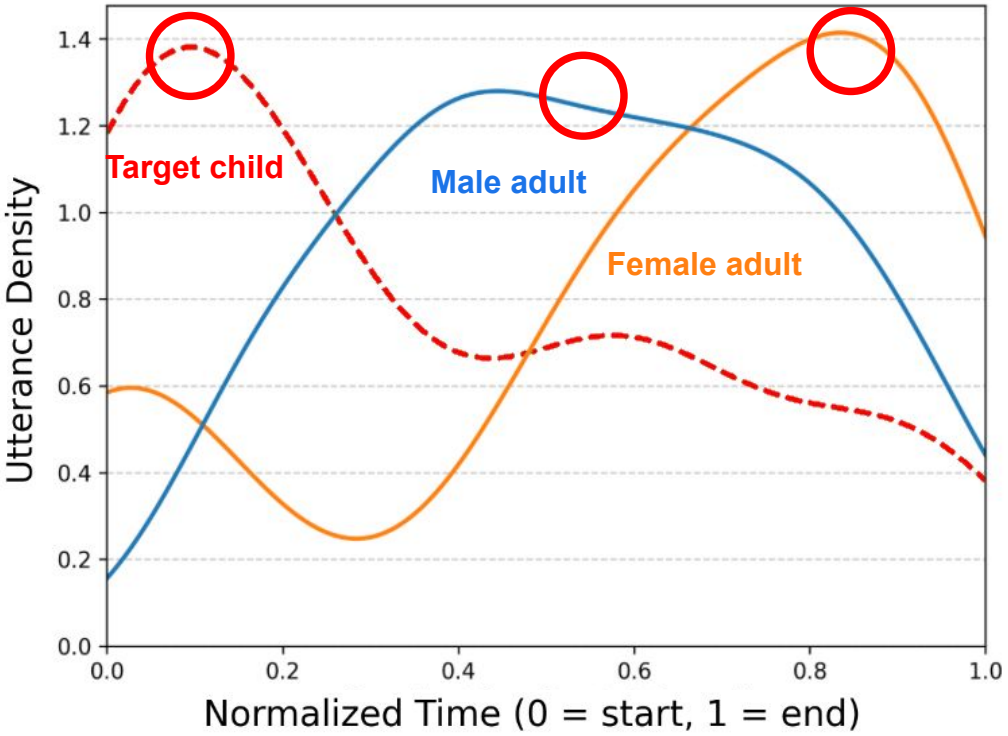
…

For each speaker within age group…





Infants under 10 months

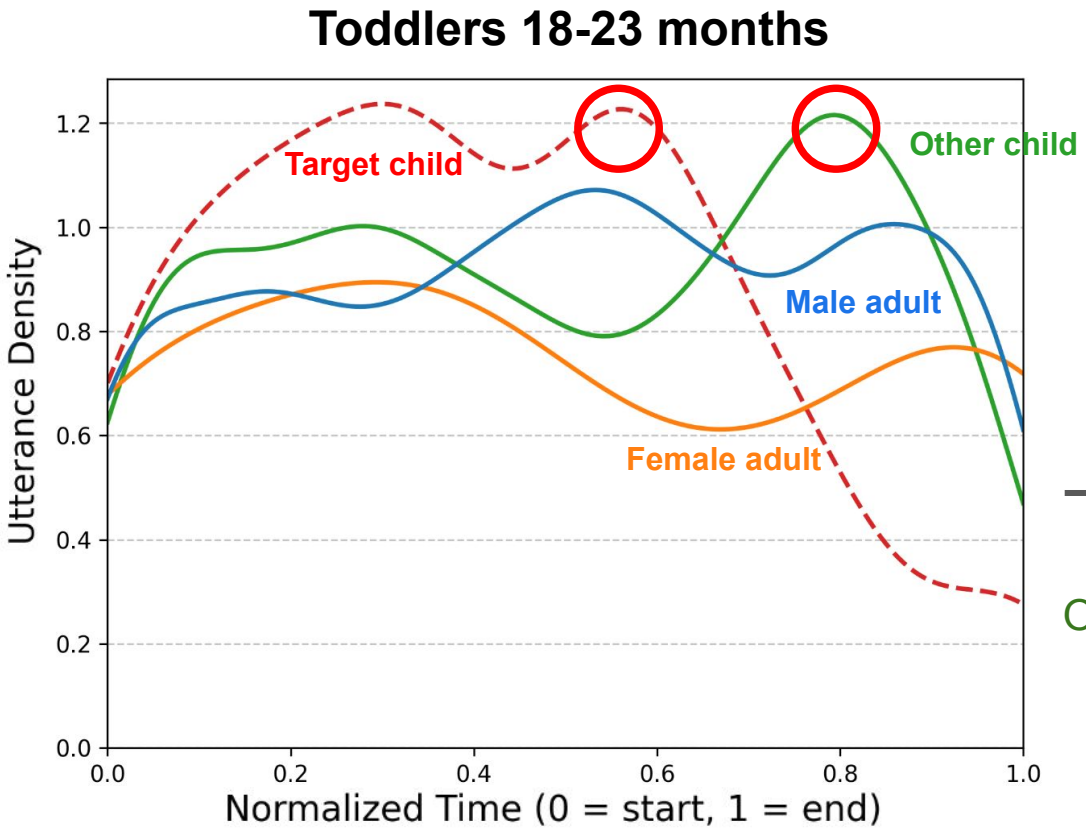


CHI: 0.
MA1: didn't we give you banana for all that gnawing?
MA1: where's your banana Kiddo?
FA3: oh there it is.

Temporally segregated peak densities

“Proto-conversations”

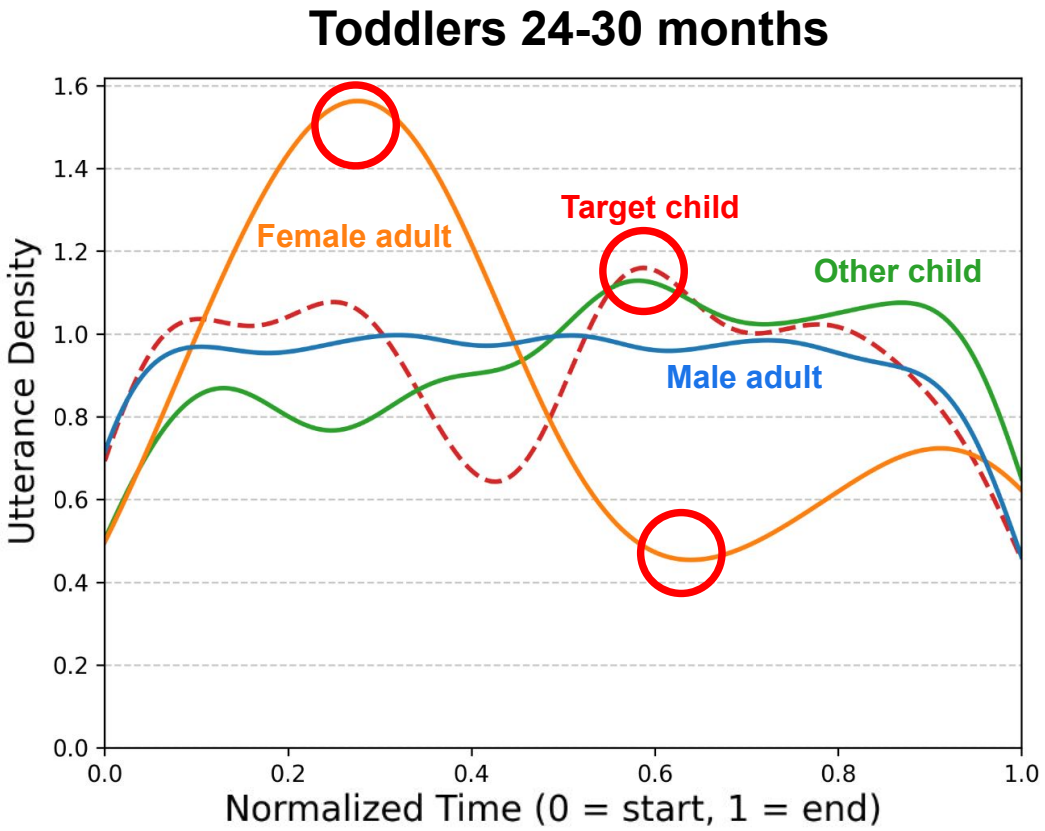
Snow, 1977



FA3: ready go!
MA1: tickle tickle tickle tickle tickle tickle.
CHI: ow.
MA1: ow that doesn't hu-.
CHI: ah ah ah ah ah ah ah ah ah ah ah ah.
UC1: <ah ah ah ah ah ah ah> [=! imitates].

Other children in interactional environment

…but temporally distinct peaks



FA1: put it back on the table.
CHI: ah!
FA1: back up!
CHI: uh! ow.
MC1: say ah.
MC1: swallow the drink.

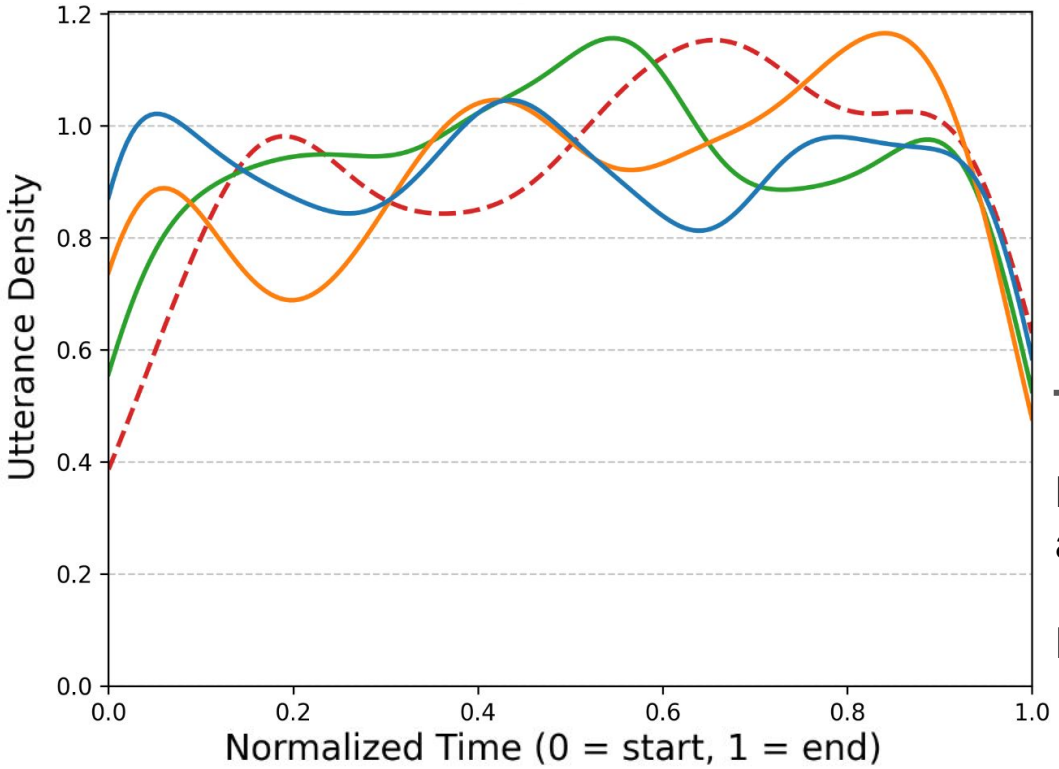
Strong early-middle female adults (FA) density

Behavior management

Caregiver shifts to scaffolding children to initiate

Terwilliger & Rossano, 2025

Preschoolers older than 30 months



FA3: good job Buddy!

CHI: I wanna open the other door.

FC1: we're not going yet.

CHI: why?

CHI: Dad we're ready.

MA1: alright let's go out to the car.

More uniformly distributed temporal peaks across all participants

Resembles mature multi-party talk!

👥 How are children are progressively integrated 👥 into multi-party talk?

proto-conversations (<10 months) ➡️ “interactions” with other children (18-23 months) ➡️ caregiver behavior management (24-30 months) ➡️ mature turn-taking (>30 months)

dynamic interplay between **children’s**

🗣️ **emerging interactional abilities** 👩 👩‍🏫

and **caregiver scaffolding**

Annotation of
> 104 cumulative
hours of daylong
recordings

Pipeline for identifying
multi-party interactions
within clips

Sketch developmental
landscape of children's
multi-party interactions

Sketch developmental landscape of children's multi-party interactions

🌎 How do children's multi-party environments vary across diverse developmental contexts?

➡️ How does environment shape the development of pragmatic sub-skills for multi-party talk?

🏠👧 How does variance in pragmatic development come about through everyday experiences at home?

first step to understanding pragmatic development in context!

data and scripts

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ACLEW

Thank you!