Child-Caregiver
Face-to-face Conversation

Abdellah Fourtassi
TALEP JTT
27/01/2021

Language Acquisition

Form (e.g., phonology, morphology, syntax)

Content (e.g., word meaning, sentence meaning)

Use (e.g., express intent in context, turn-taking, grounding)

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Data about children's language use are scarce

- Should be studied in its natural social context (e.g., child-caregiver interaction)

- Language use is **multimodal** (e.g., face-to-face)

Language Use Acquisition

Available multimodal data of (semi-) spontaneous child-caregiver interaction

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Third person's view

CHILDES database

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The child's view

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SAYcam project

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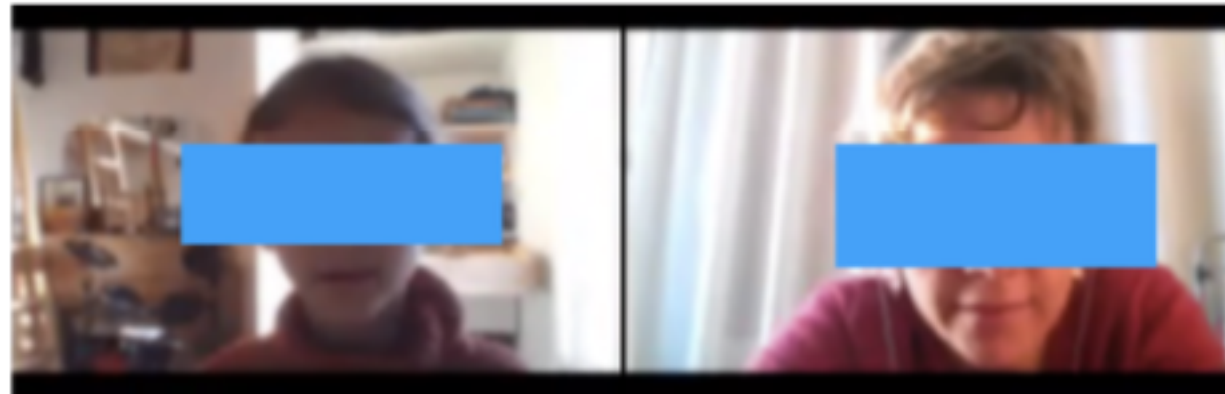
CHILDES database

The child's view

SAYcam project

Neither provides an adequate view for the study of non-verbal use in children

Face-to-Face

Child   Caregiver

In person   **Online**

Kubra Bodur

PhD at CoCoDev

Aix-Marseille

Pros

- More and more frequent context of interaction
- Have not been studied much
- Easier to annotate automatically (OpenFace)
- Easier to collect at a large scale
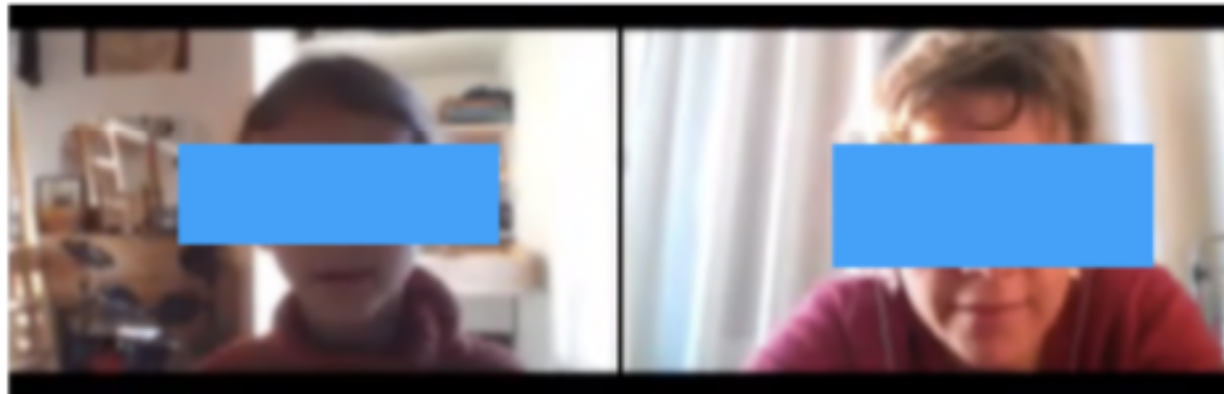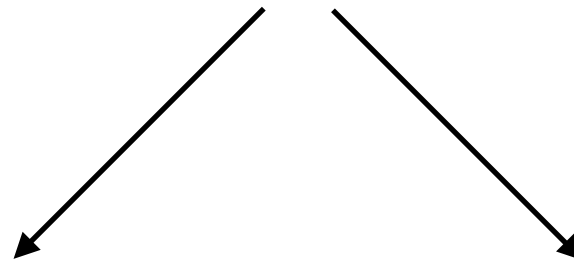- Easier to collect across cultures

Face-to-Face

Child   Caregiver

In person   **Online**

Cons

- Delays

- Asynchronies

- Jittering

- Variation in the above

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PhD at CoCoDev

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Zoom chat !

Child   Caregiver

Semi-structured task

Word-guessing game (~ 10 min) + free discussion (~ 5 min)

Child and caregiver alternate their roles in the guessing game
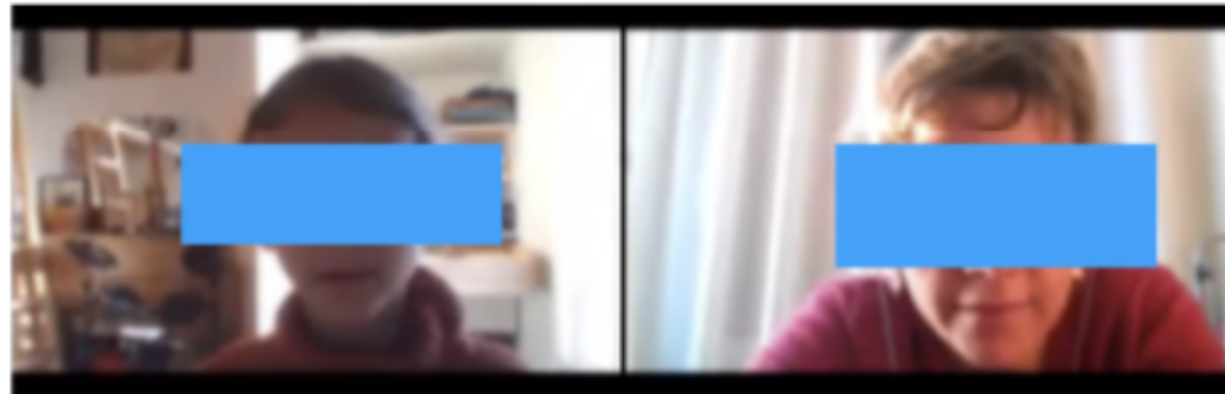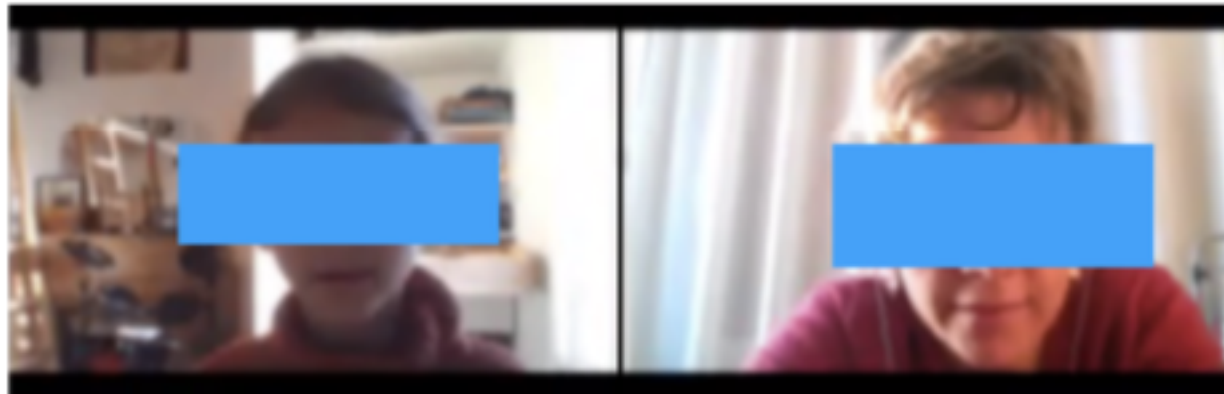
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Child and caregiver alternate their roles in the guessing game

Participants

Children in middle childhood aged 6 to 12 years old (M=8.5, SD=1.37)

  10 dyads of child-caregiver
  10 dyads of caregiver-adult (what is the end-state of development?)

~ 6 hours of video recording in total

Comparing Children vs. Adults' use of verbal and non-verbal communication

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- Gaze direction (looking at the interlocutor / looking away)

- Head movements (nods / head-shakes)

- Eyebrow displays (raised eyebrows / frowns)

- Mouth displays (smile / laugh)

- Posture (forward / backward)

- Who is talking ? (IPU)

- Short vocalization ("yeah", "uhum", etc.)

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Can be involved in turn-taking management and conversational grounding mechanisms

Kendon (1967), Morency e al. (2010), Paggio and Navarretta (2013), Brunner (1979), Allwood et al. (2005)

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Part 1 : Quantify the use of non-verbal behaviour in children regardless of function

Part 2 : Case study of communicative function: backchannel behavior

Annotation of non-verbal behaviour

1) Categorization

2) Segmentation

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Inter-rater reliability (using ɣ-score, Mathet et al., 2015)

Features	Children		Adults	
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Mouth_Laugh				
Head_Shake				
Head_Nod				
Posture_Forward				
Posture_Backward				
Eyebrow_Raised				
Eyebrow_Frown				

Bodur, Nikolaus, Kassim, Prévot, Fourtassi (2021)

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Mouth_Laugh	0.81 [0.58, 1.00]		0.99 [0.94, 1.00]	
Head_Shake	0.99 [0.94, 1.00]		0.94 [0.87, 1.00]	
Head_Nod	0.86 [0.65, 1.00]		1.00 [1.10, 1.00]	
Posture_Forward	0.81 [0.67, 1.00]		0.90 [0.79, 1.00]	
Posture_Backward	0.86 [0.74, 0.94]		0.94 [0.83, 1.00]	
Eyebrow_Raised	0.82 [0.77, 0.94]		0.92 [0.88, 0.97]	
Eyebrow_Frown	0.79 [0.71, 0.86]		0.66 [0.47, 0.77]	

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Head_Nod	0.86 [0.65, 1.00]	0.57 [0.47, 0.78]	1.00 [1.10, 1.00]	0.57 [0.46, 0.68]
Posture_Forward	0.81 [0.67, 1.00]	0.50 [0.33, 0.80]	0.90 [0.79, 1.00]	0.63 [0.49, 0.88]
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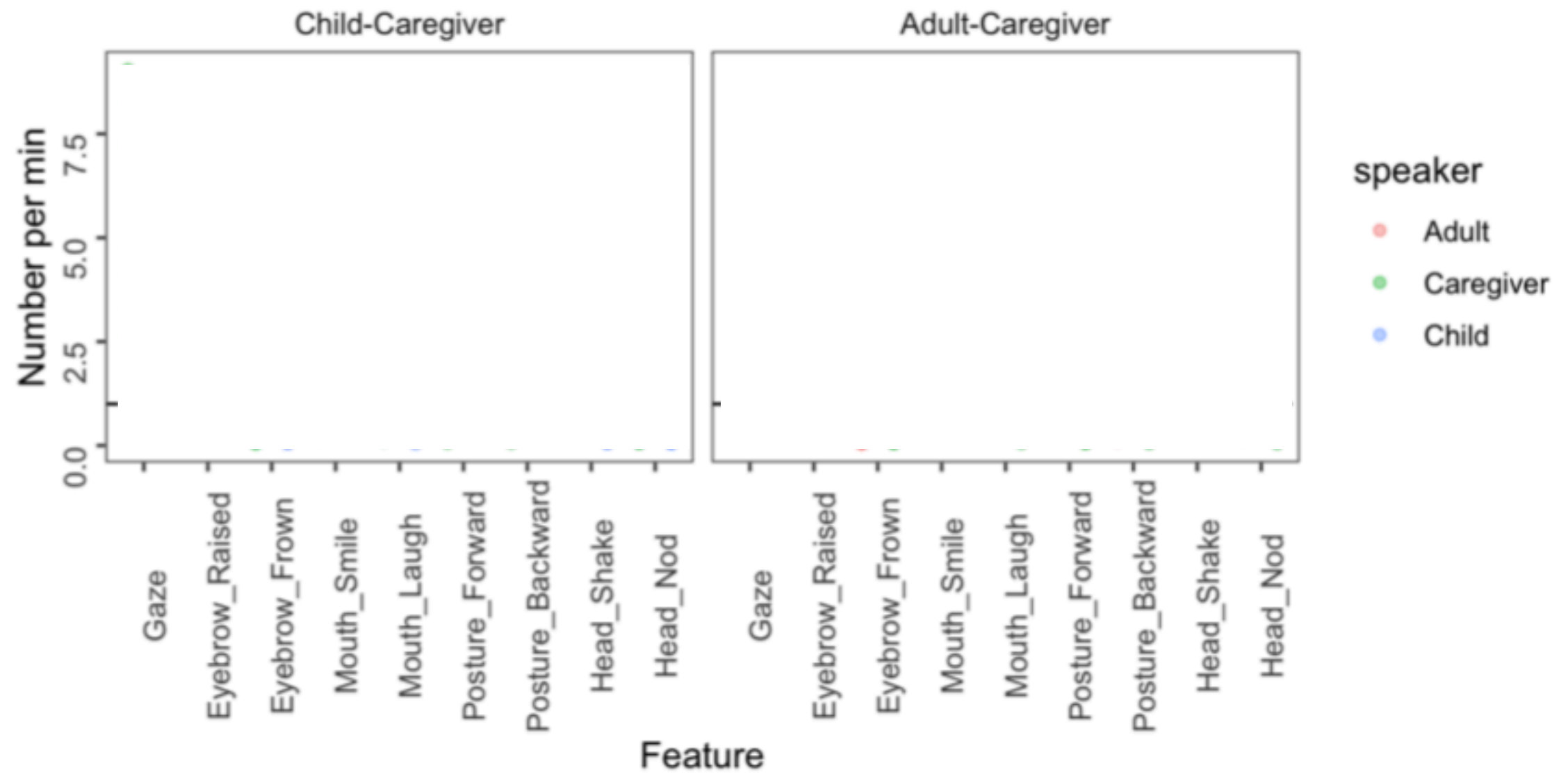# Annotation of non-verbal behaviour

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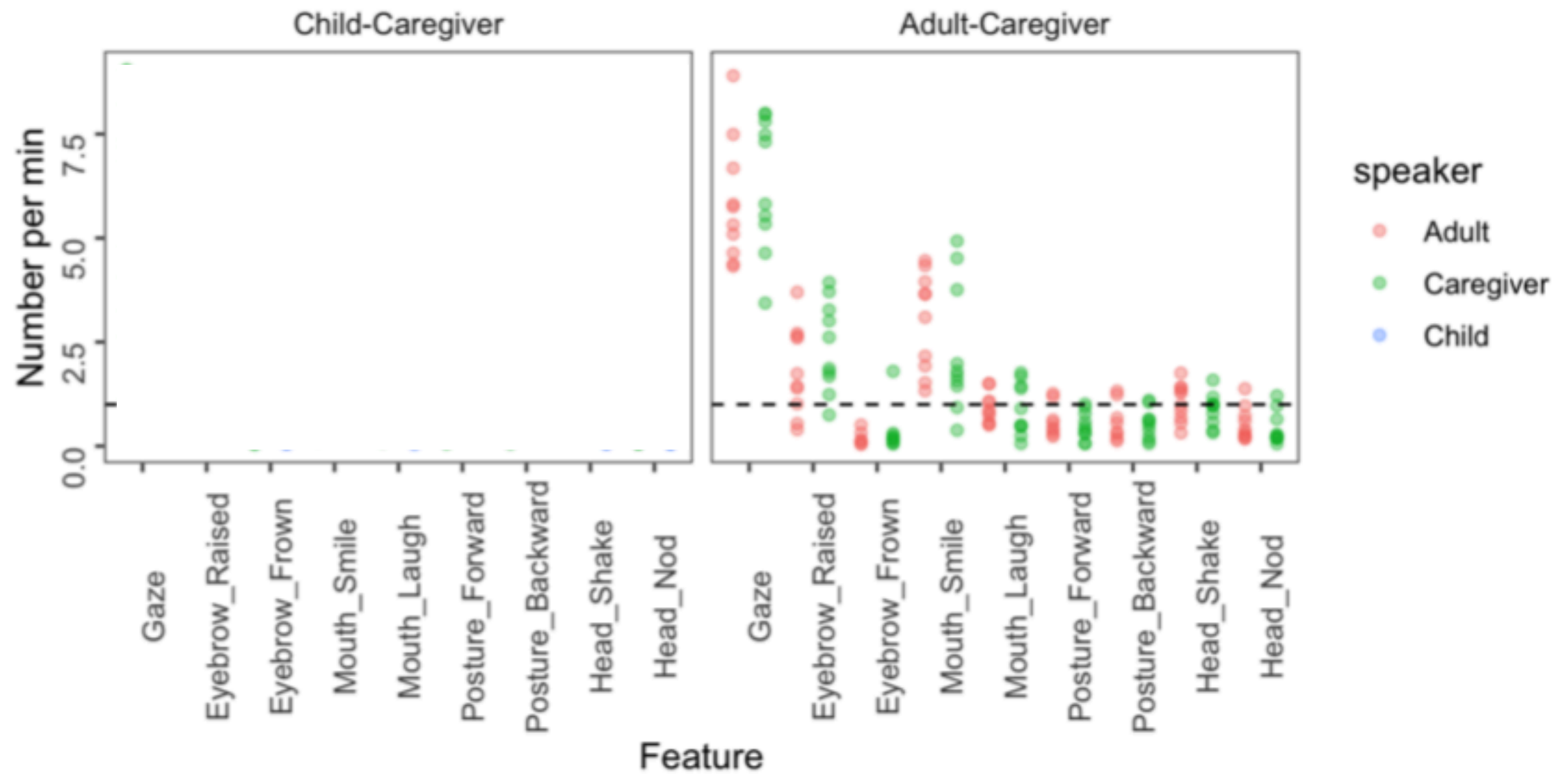## Inter-rater reliability (using ɣ-score, Mathet et al., 2015)

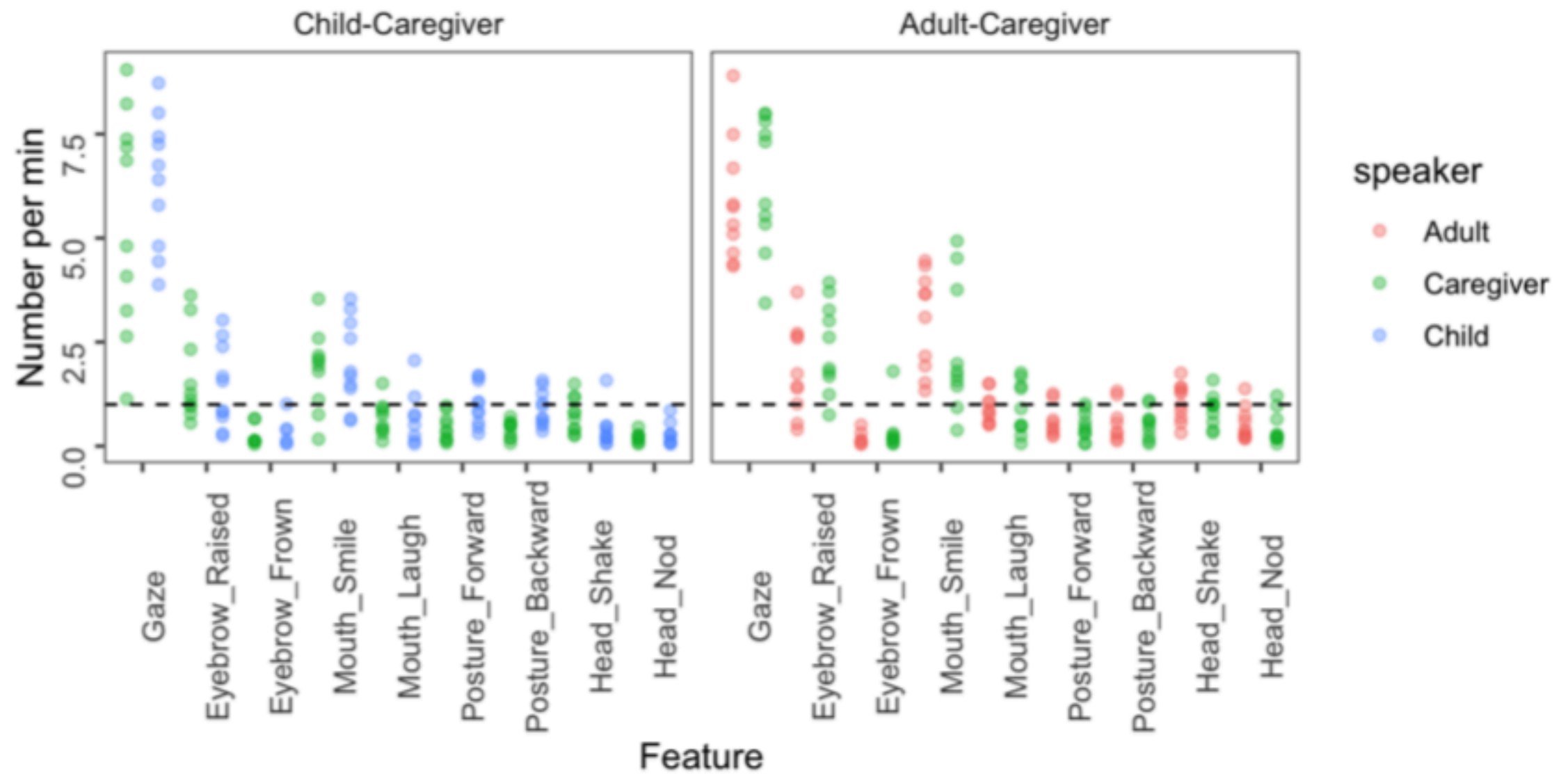| Features	Children		Adults	
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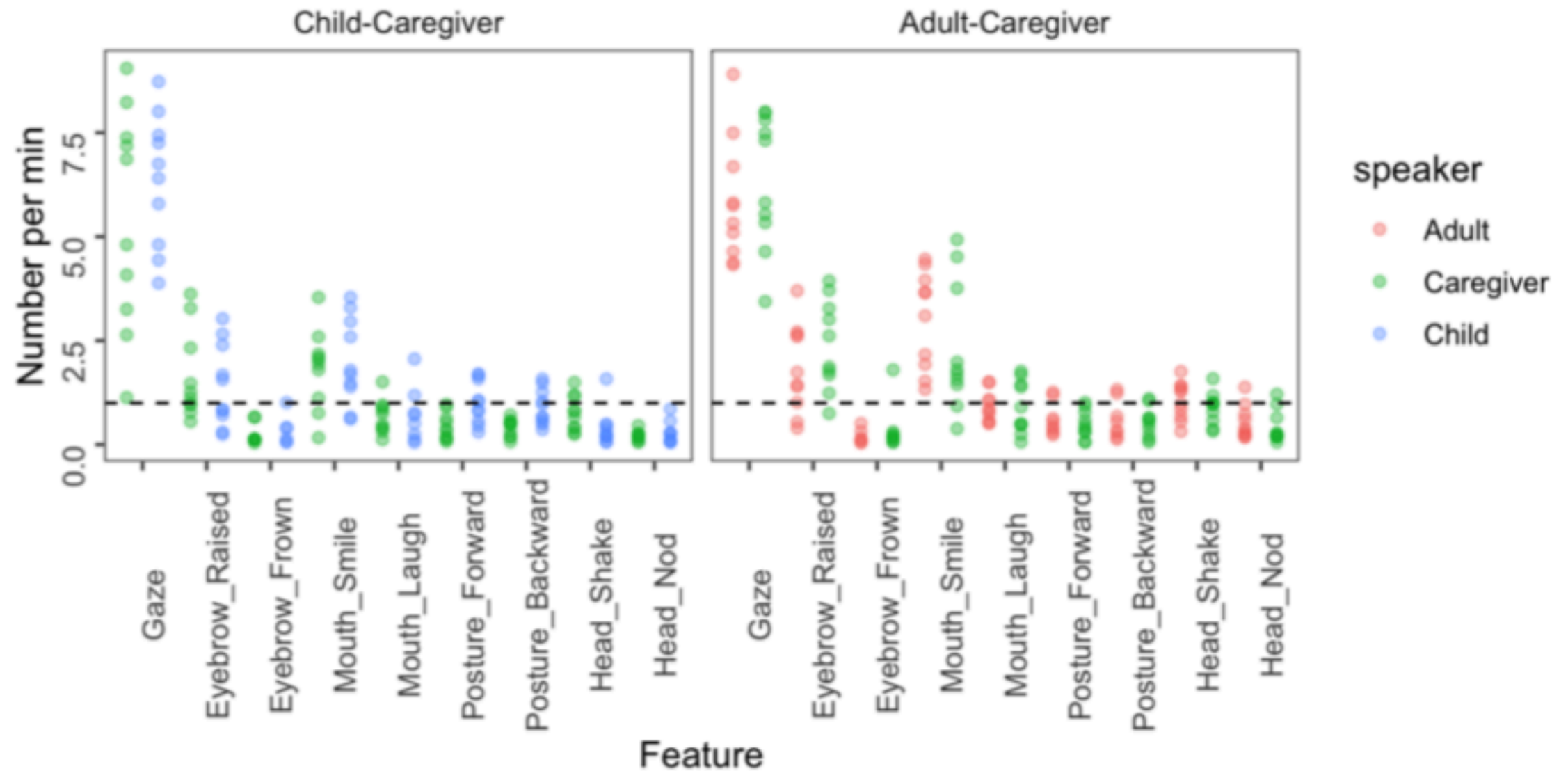# The frequency distribution of non-verbal use in children vs. adults

Bodur, Nikolaus, Kassim, Prévot, Fourtassi (2021)

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The frequency distribution of non-verbal use in children vs. adults

Very similar frequency of use

Good because because we can compare mechanisms of use with equal data sizes
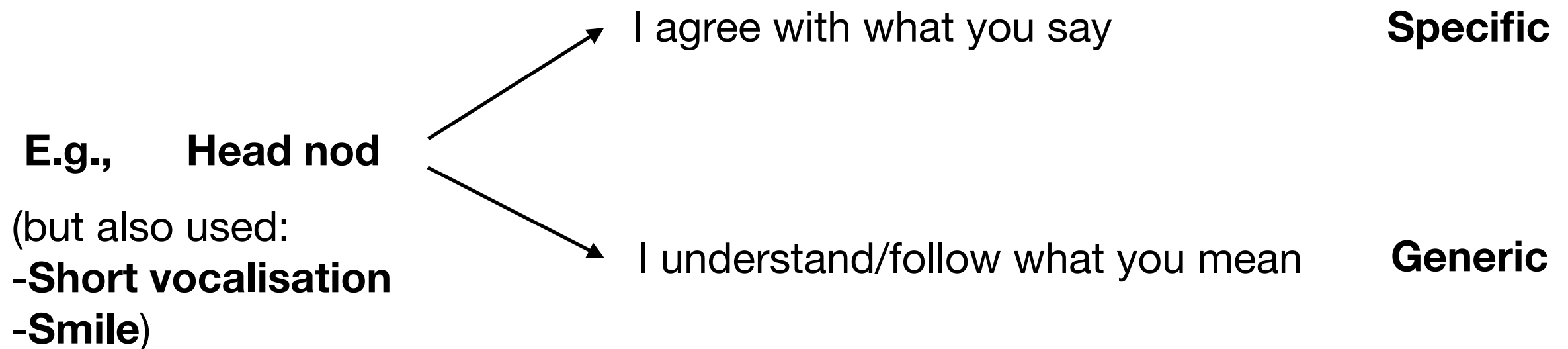
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Case study: Backchannel (BC) behavior in child-caregiver behavior

Backchanneling during a conversation occurs when one participant is speaking and another participant interjects responses to the speaker. A backchannel response can be verbal, non-verbal, or both. Backchannel responses are often phatic expressions, primarily serving a social or meta-conversational purpose, such as signifying the listener's attention, understanding, or agreement, rather than conveying significant information
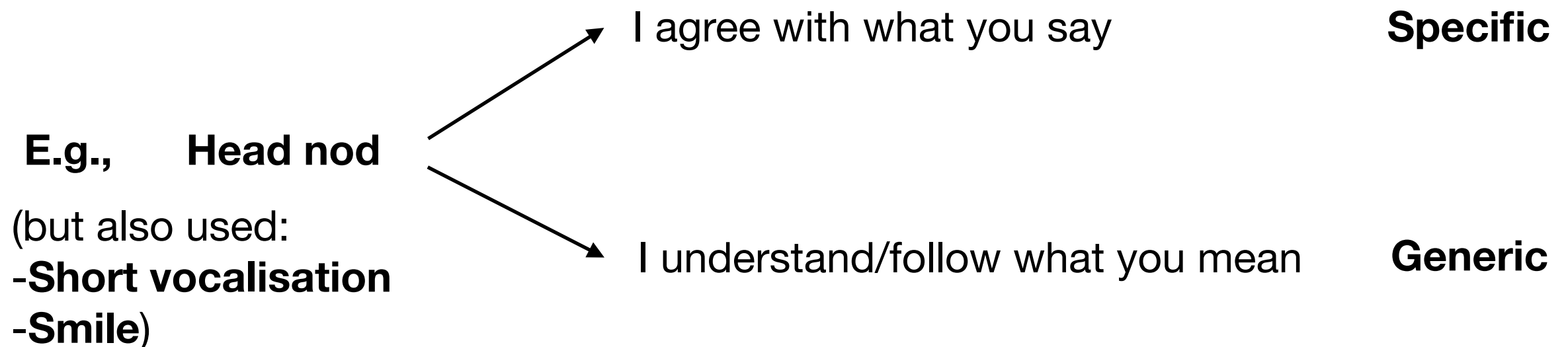
<u>Wikipedia</u>

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Two types of backchannel

E.g.,   Head nod

(but also used:
-**Short vocalisation**
-**Smile**)

I agree with what you say   **Specific**

I understand/follow what you mean   **Generic**

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Questions/hypotheses

Children at middle childhood have an immature BC behavior compared to adult (Dittman, 1972, Hess and Johnson, 1988) — but not in similar conversational context as ours

+

Does Generic BC develop later than Specific BC?

Does BC behavior depend on the context of child-caregiver interaction (e.g., familiarity)

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Development

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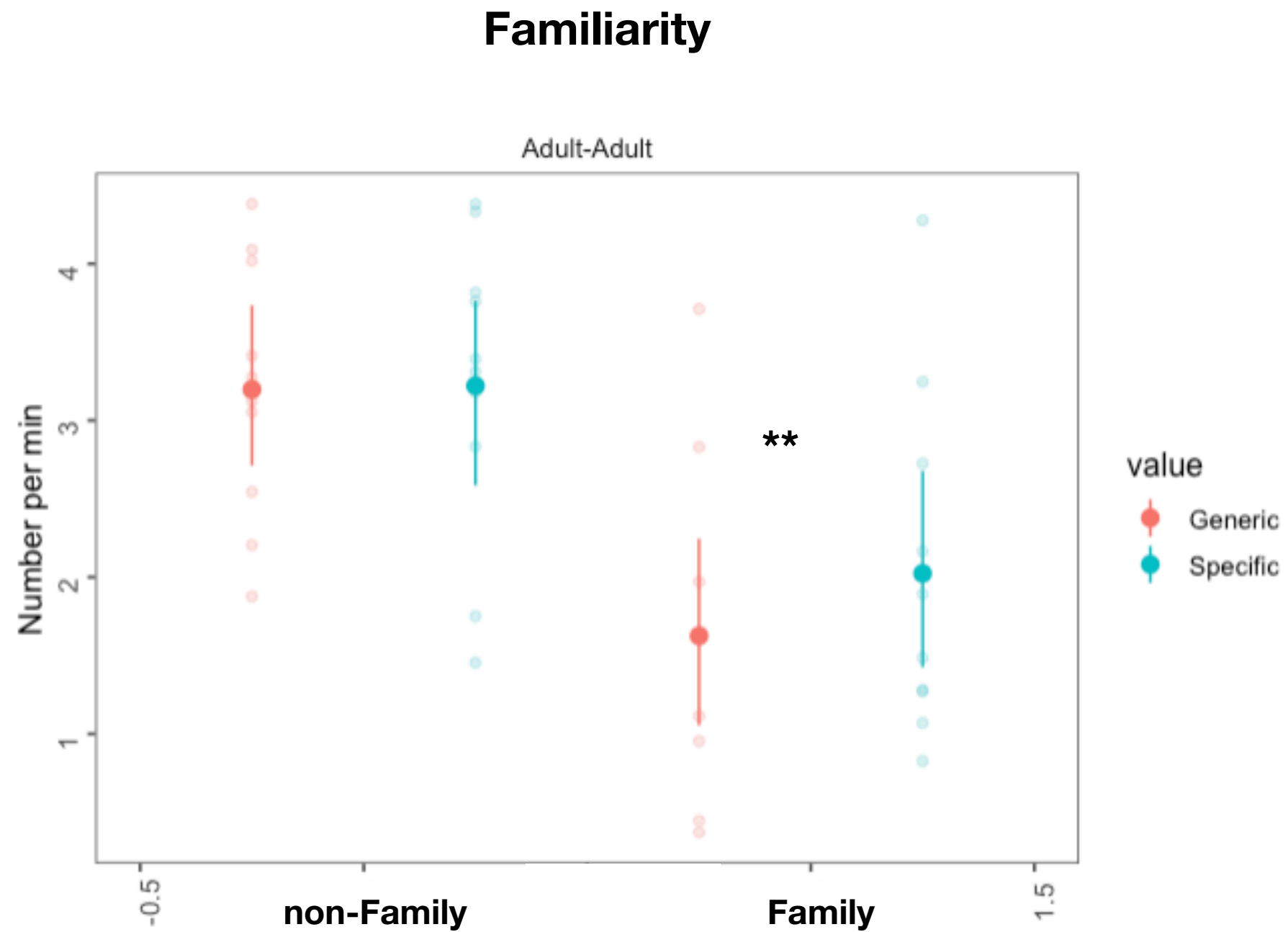
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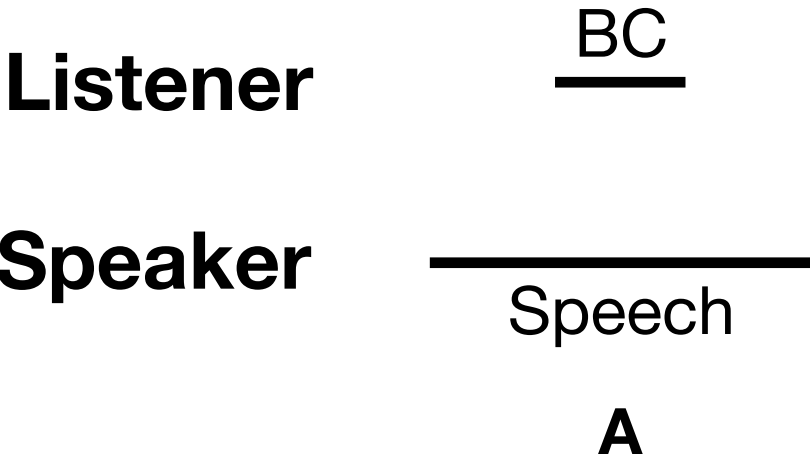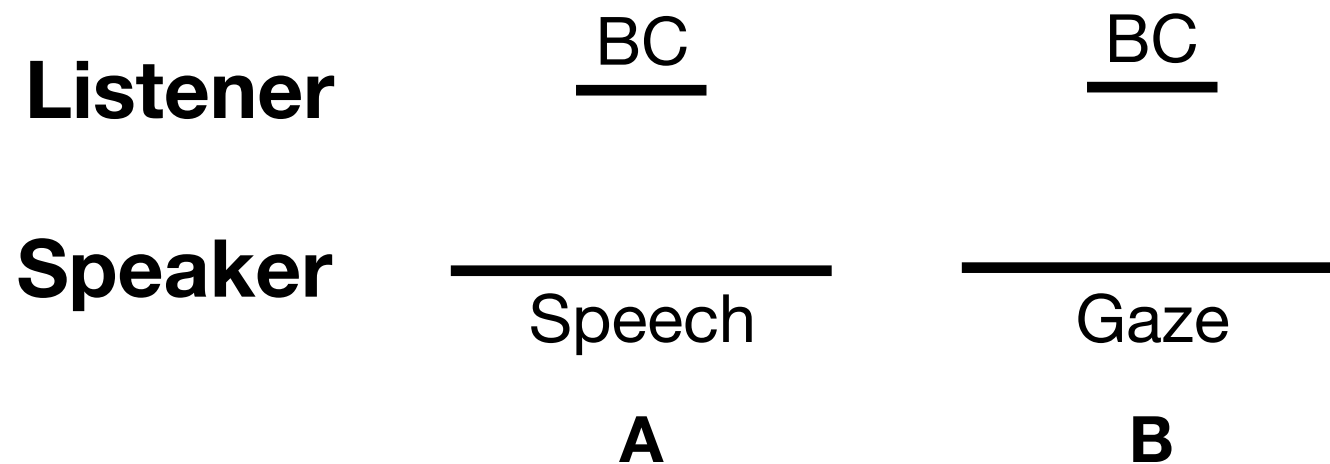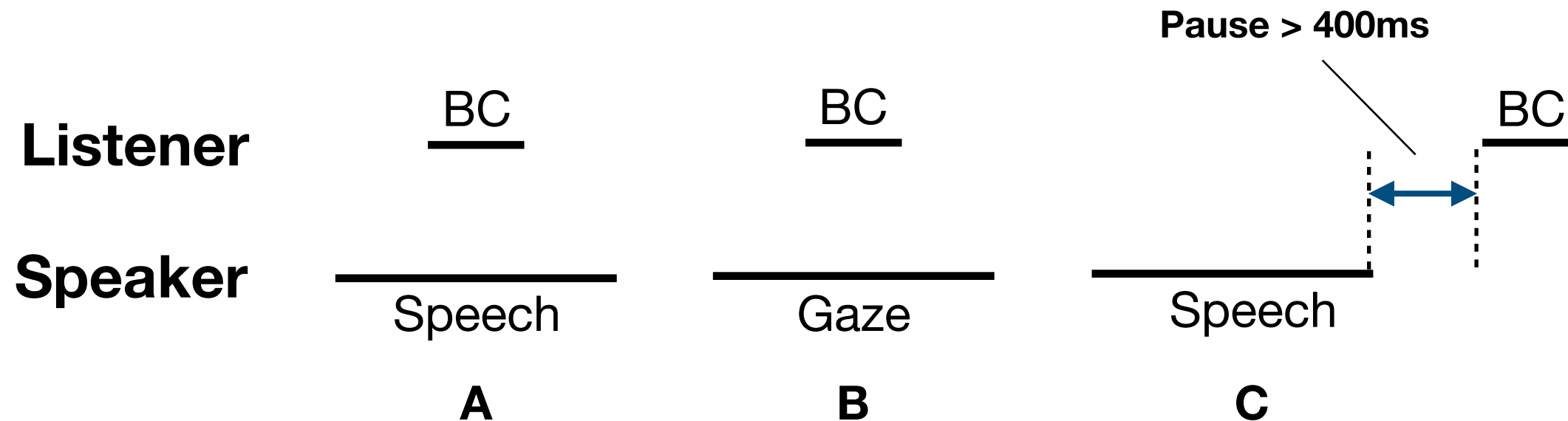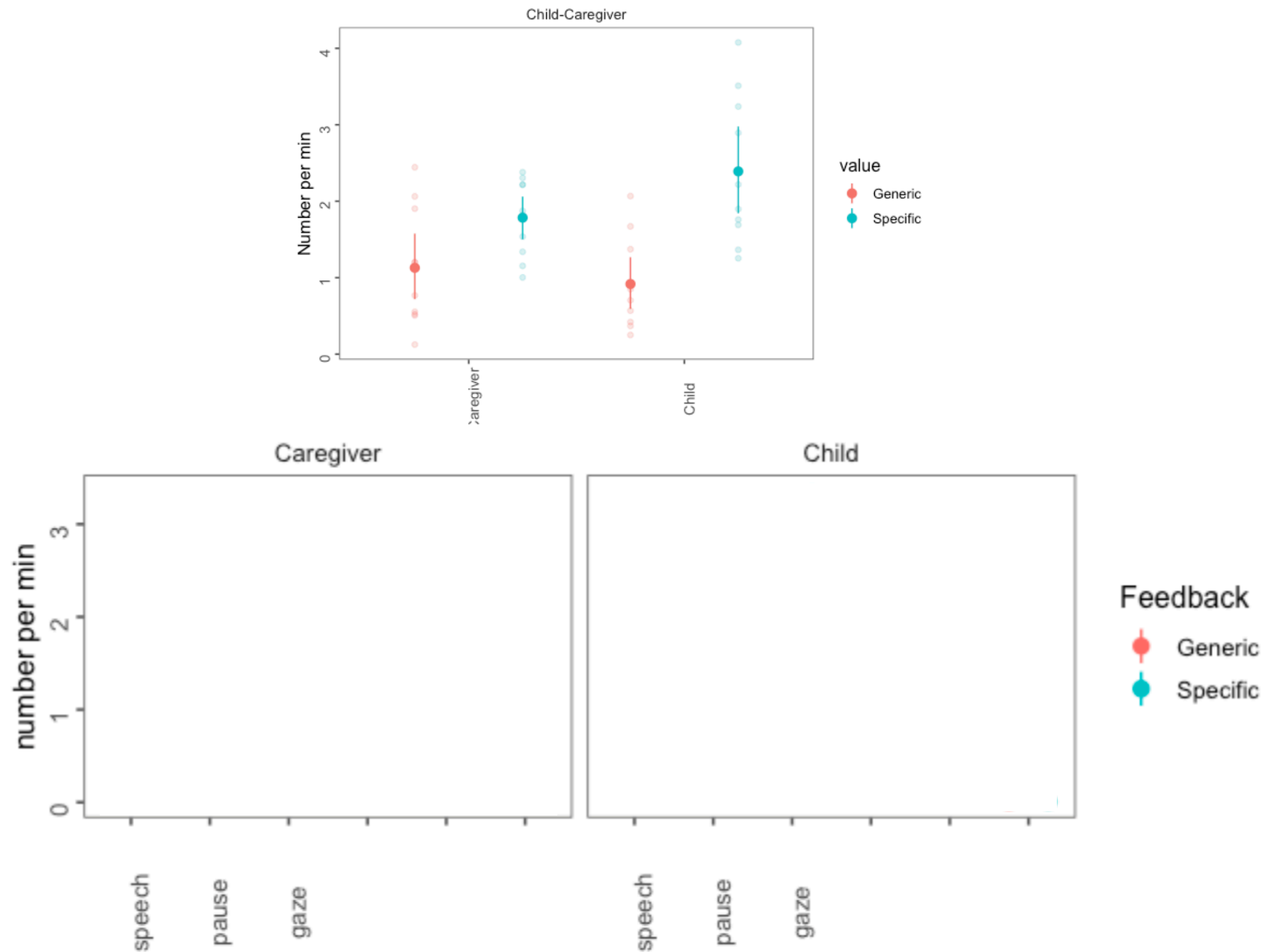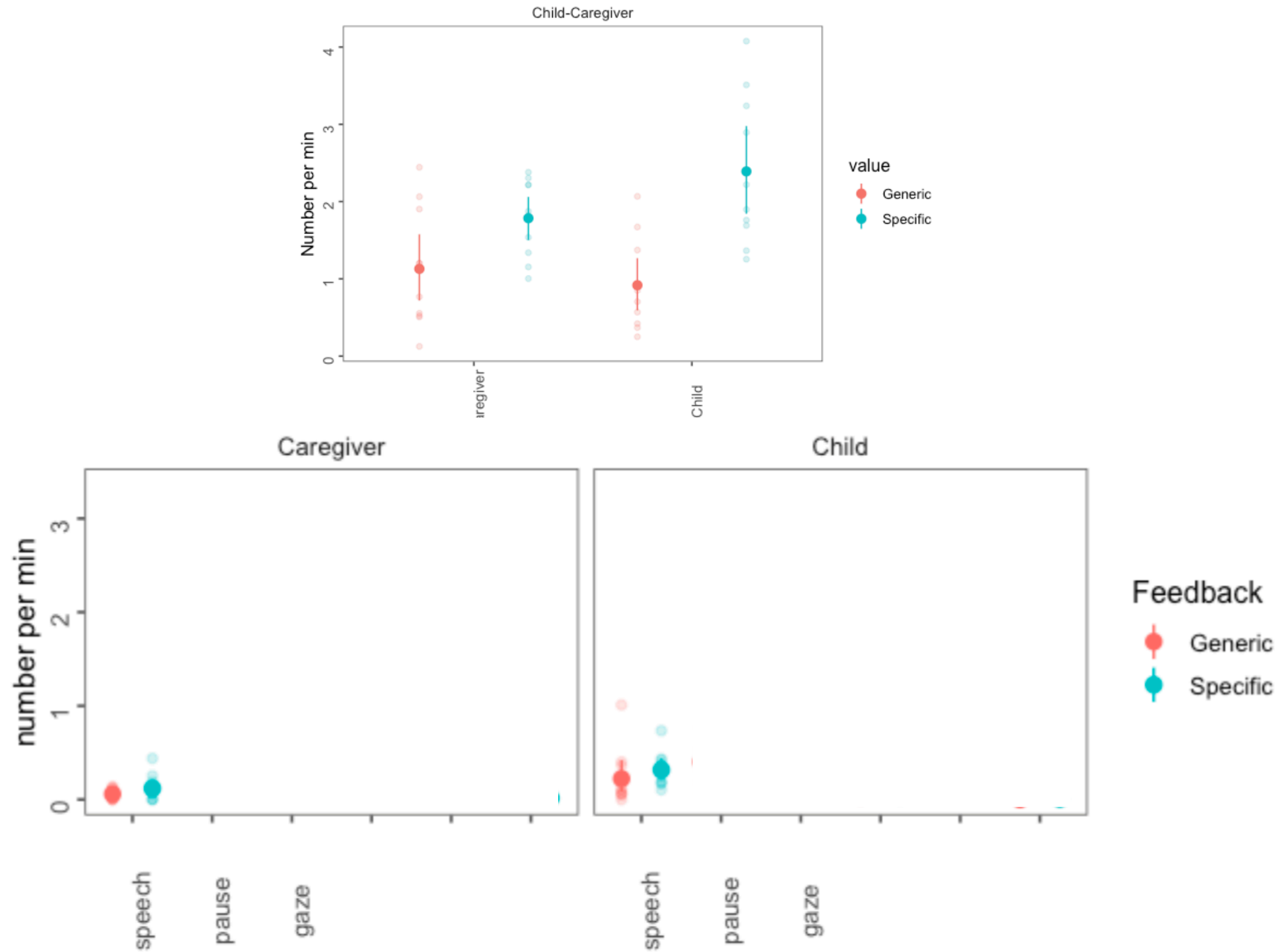
Familiarity

Adult-Adult

Number per min

value
● Generic
● Specific
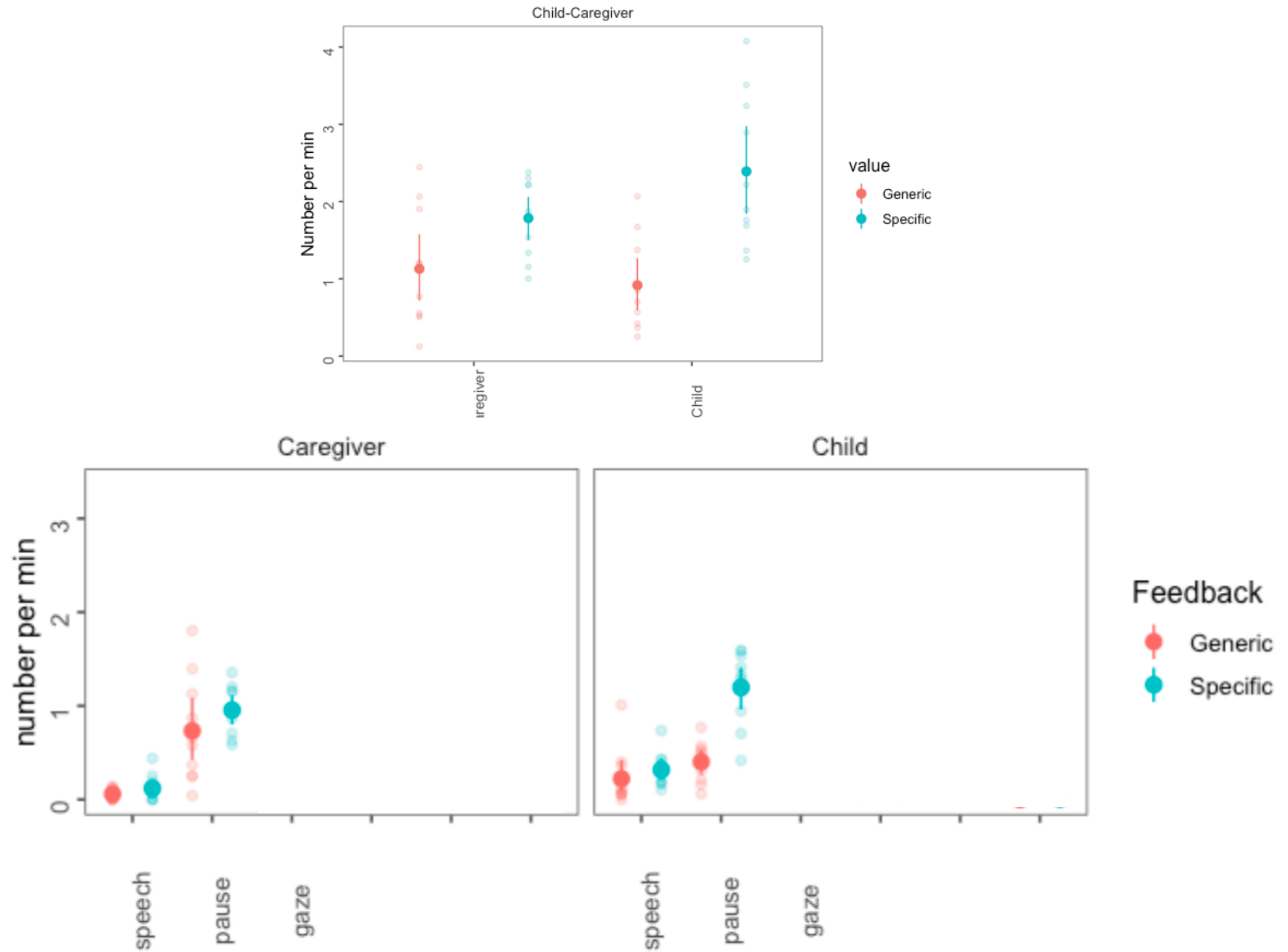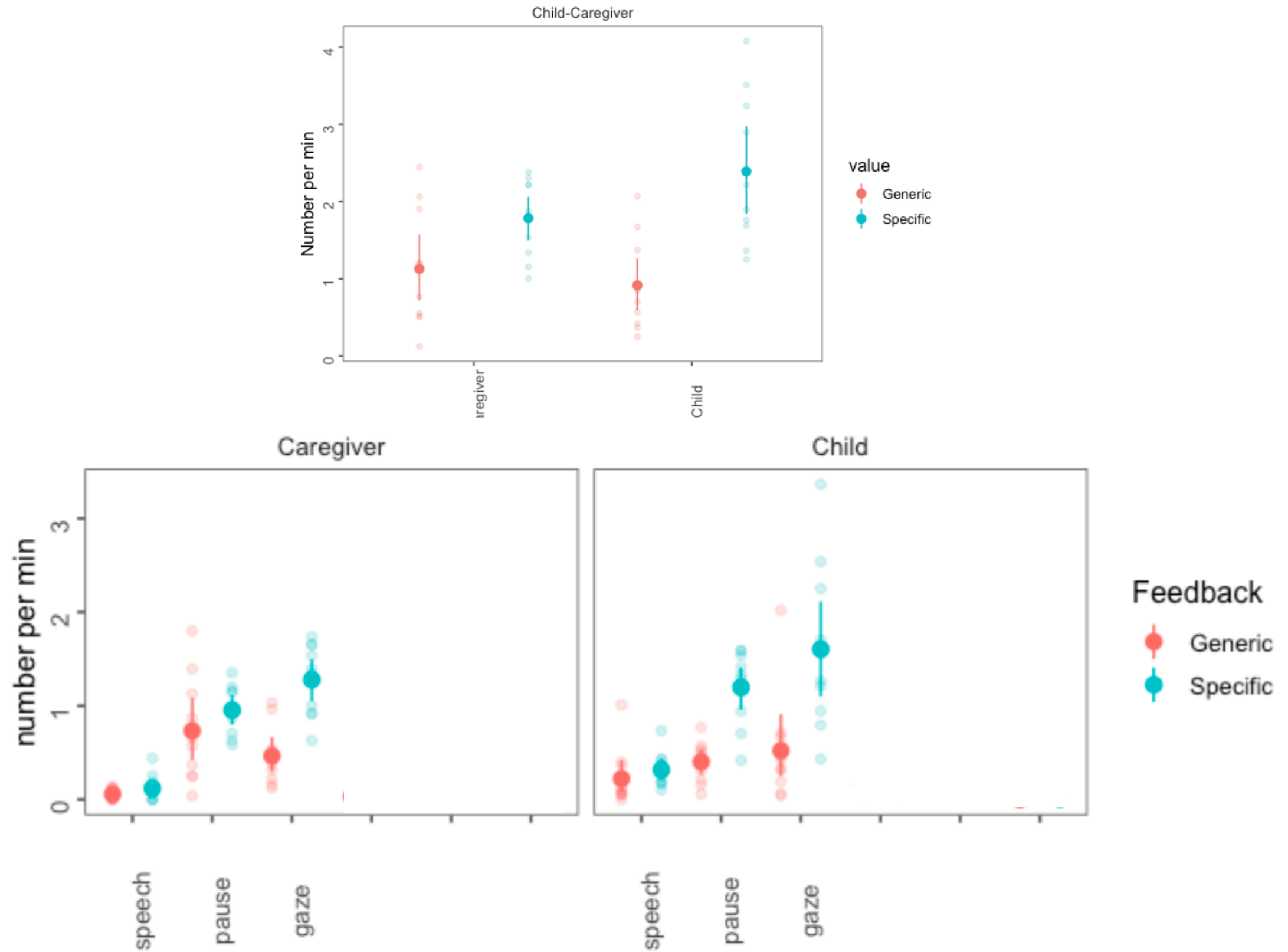
non-Family   Family
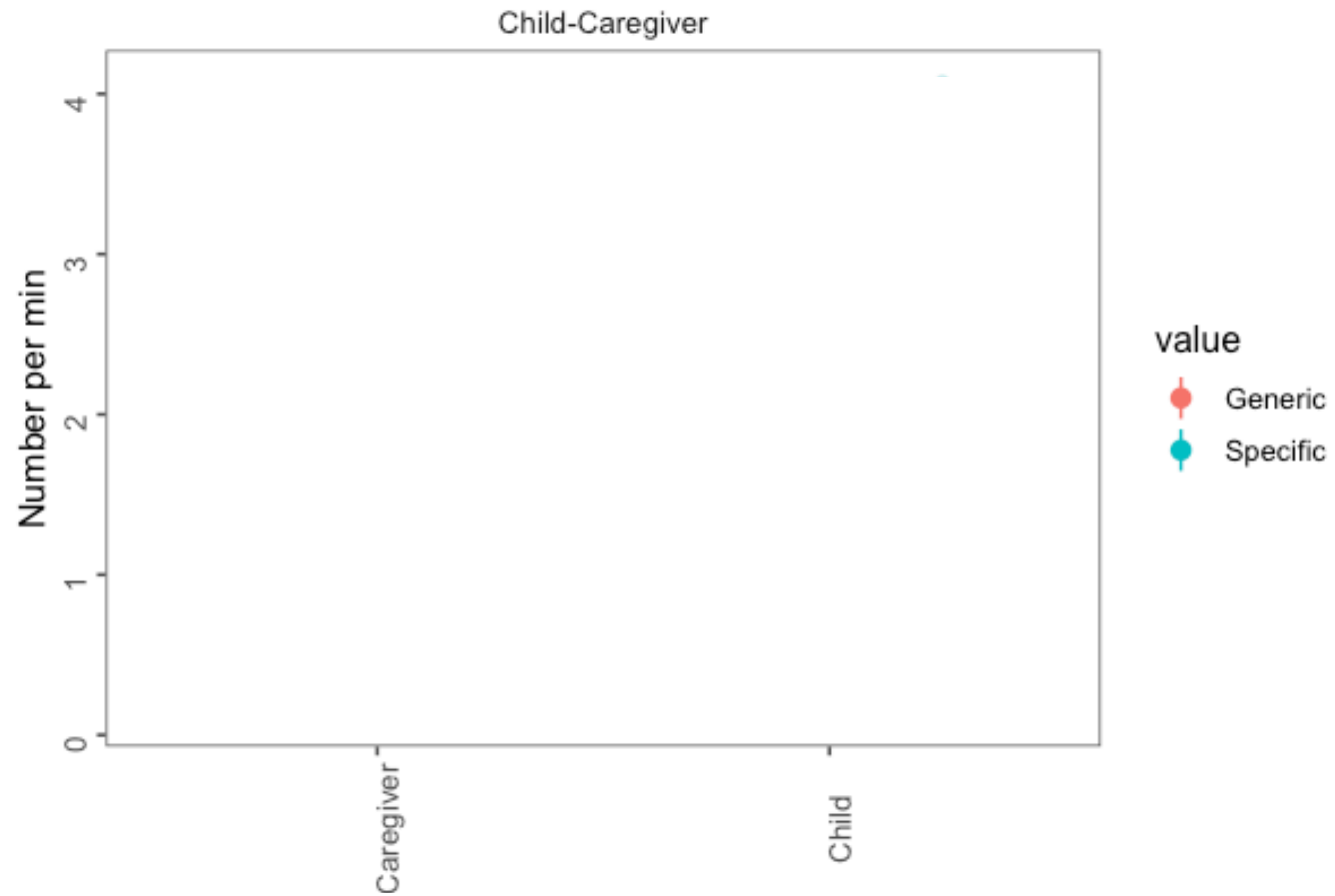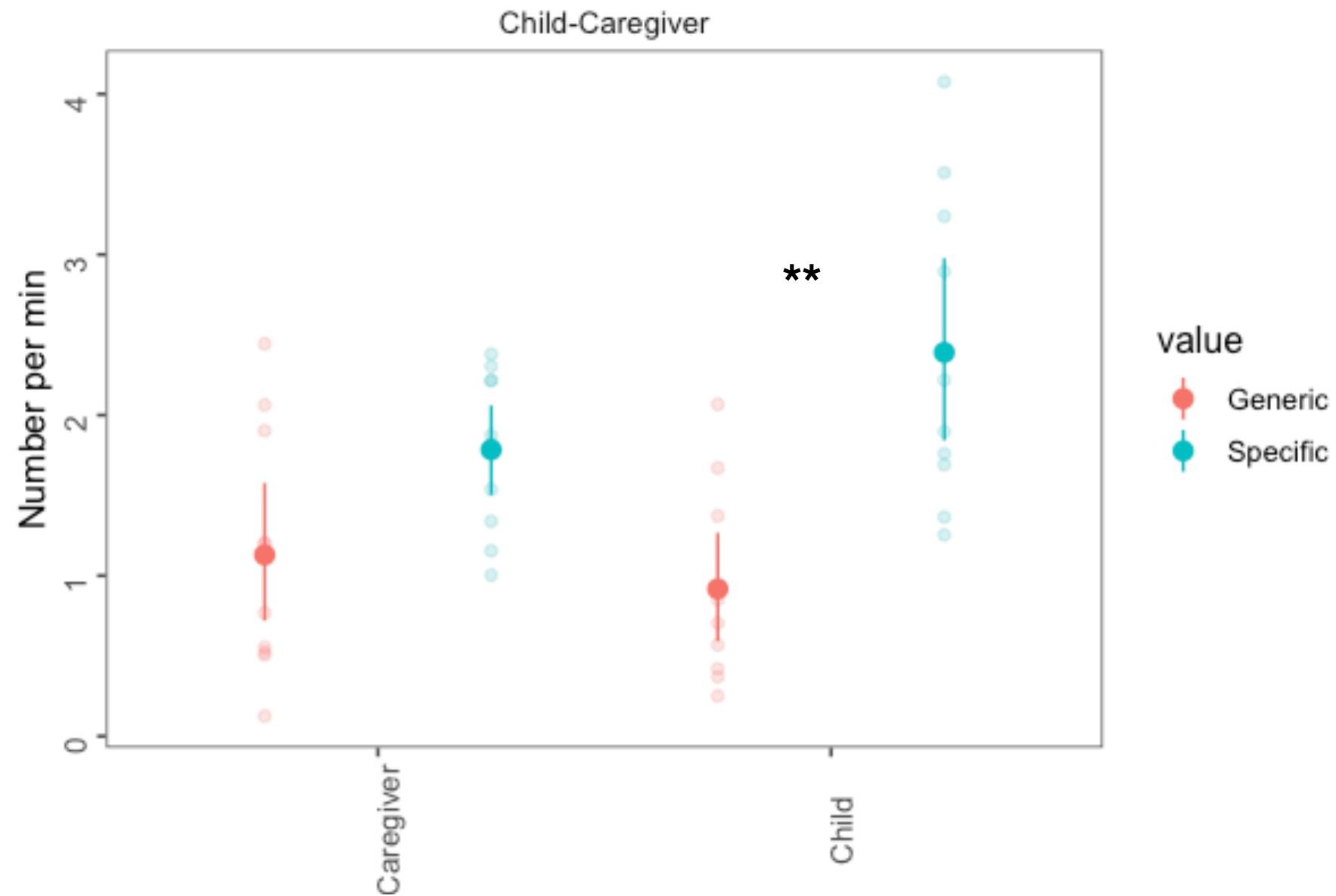
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Familiarity

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3 typical contexts of BC occurrence

Listener
$$\overline{\text{BC}}$$

Speaker
$$\underline{\text{Speech}}$$

A

Case study: Backchannel (BC) behavior in child-caregiver behavior

3 typical contexts of BC occurrence

Listener

BC
___

BC
___

Speaker

_____
Speech

_____
Gaze

A

B
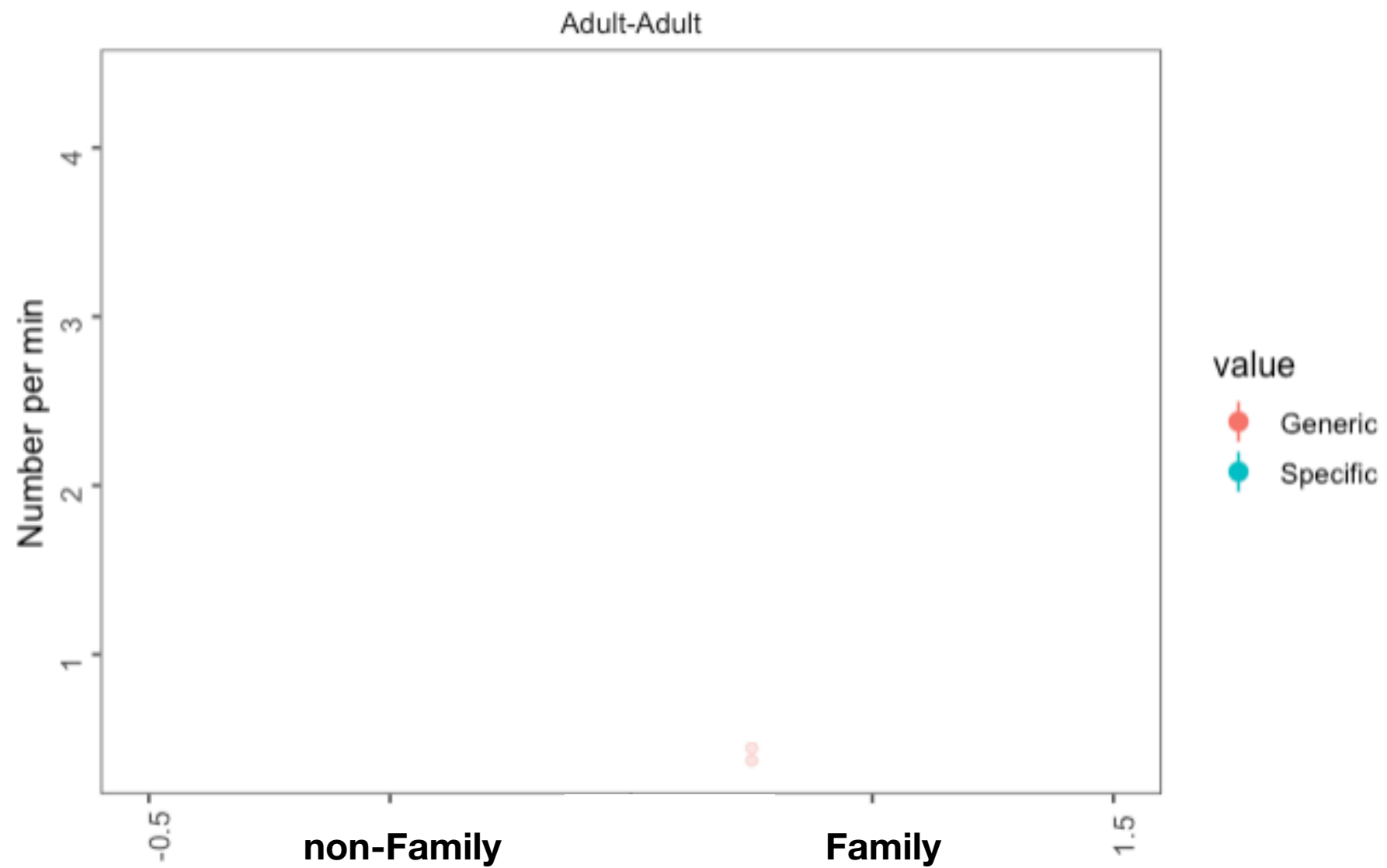
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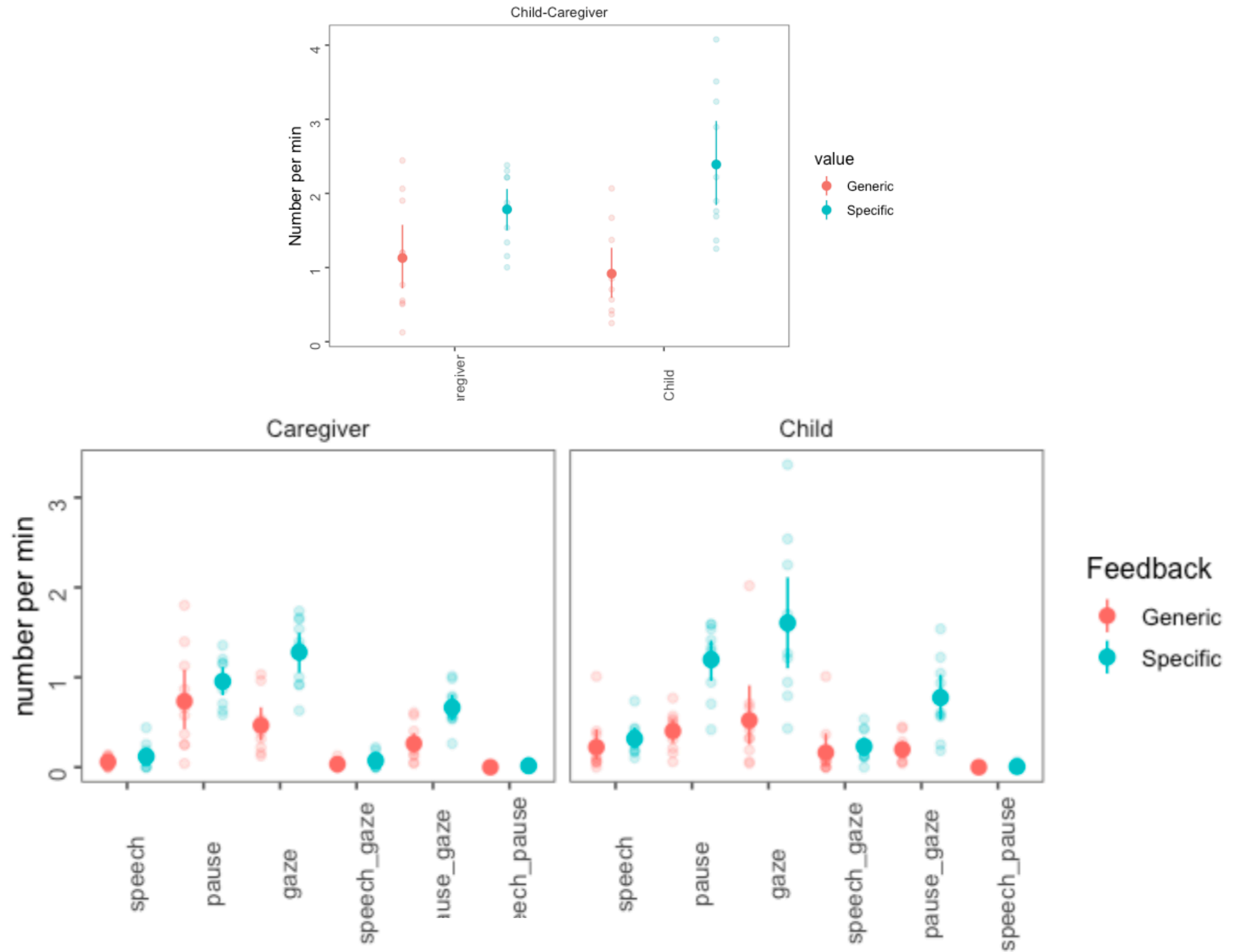
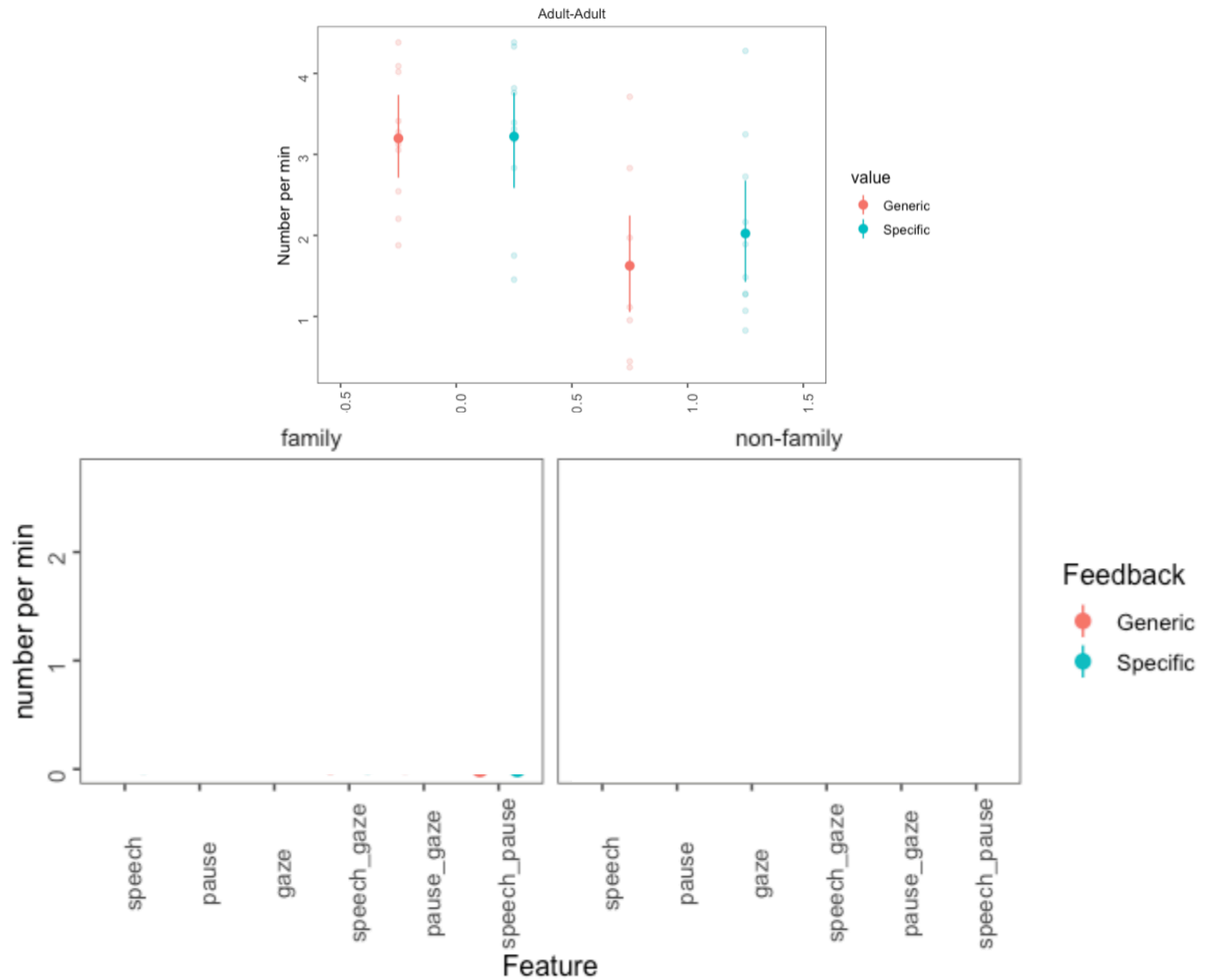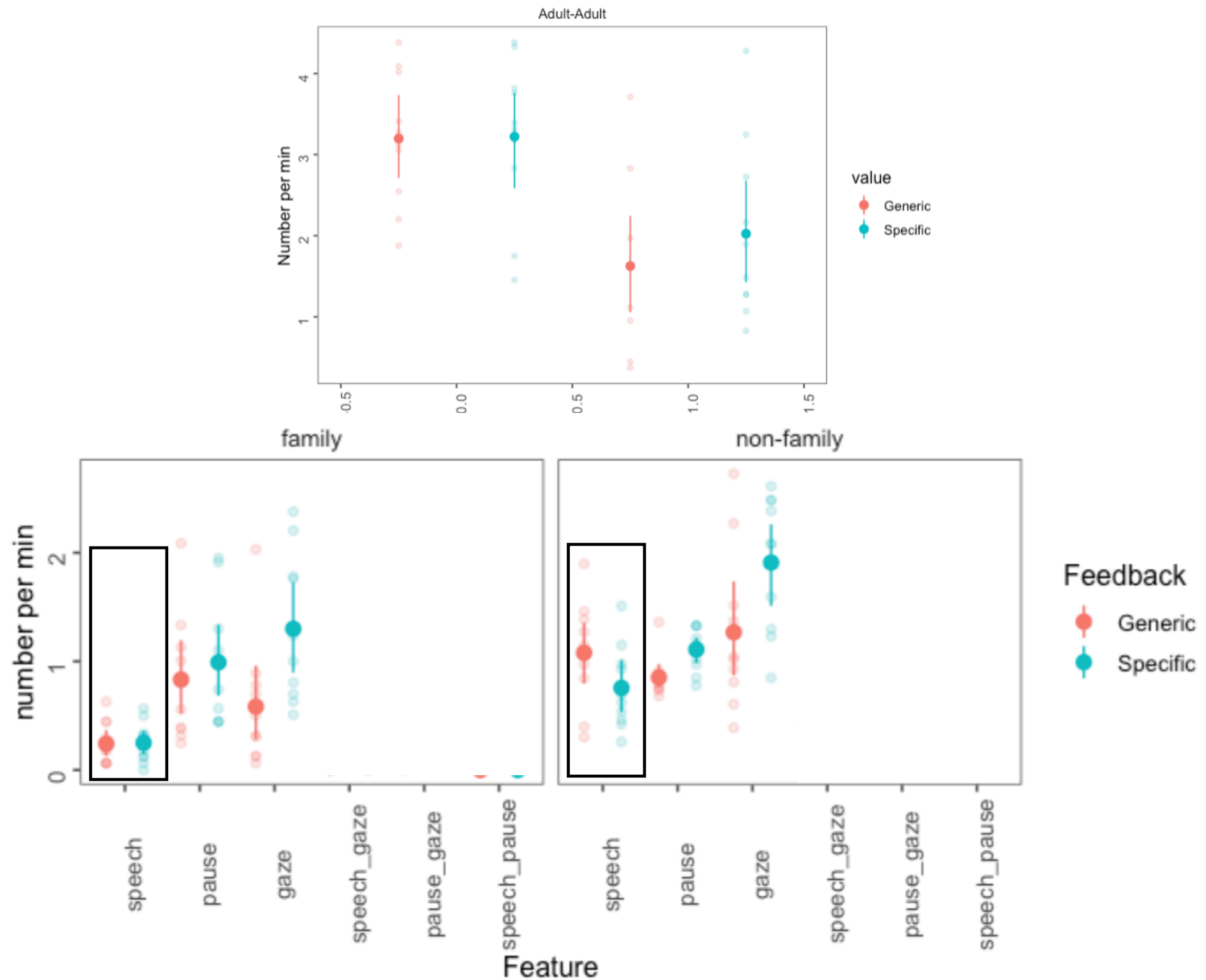## 3 typical contexts of BC occurrence

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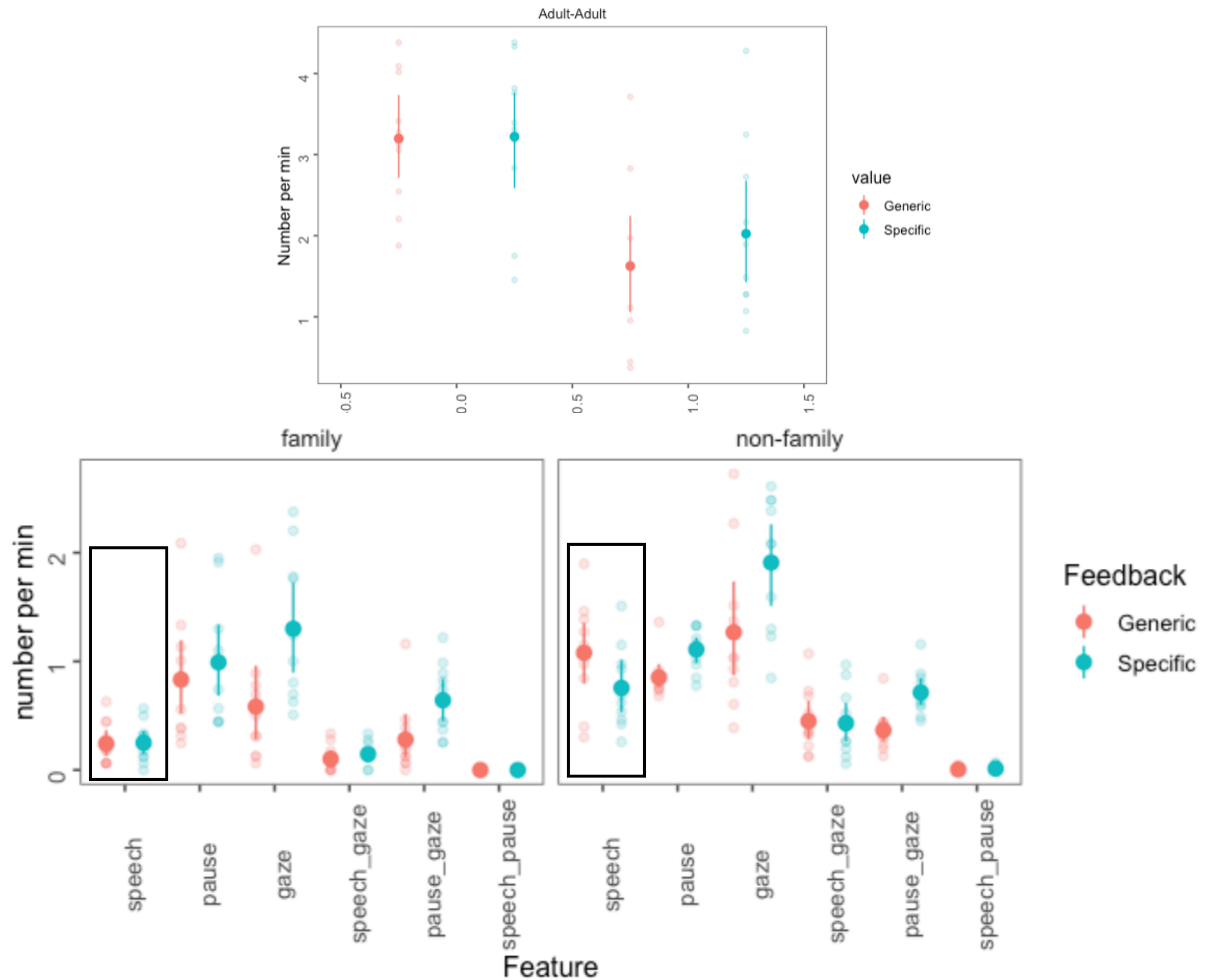# Case study: Backchannel (BC) behavior in child-caregiver behavior

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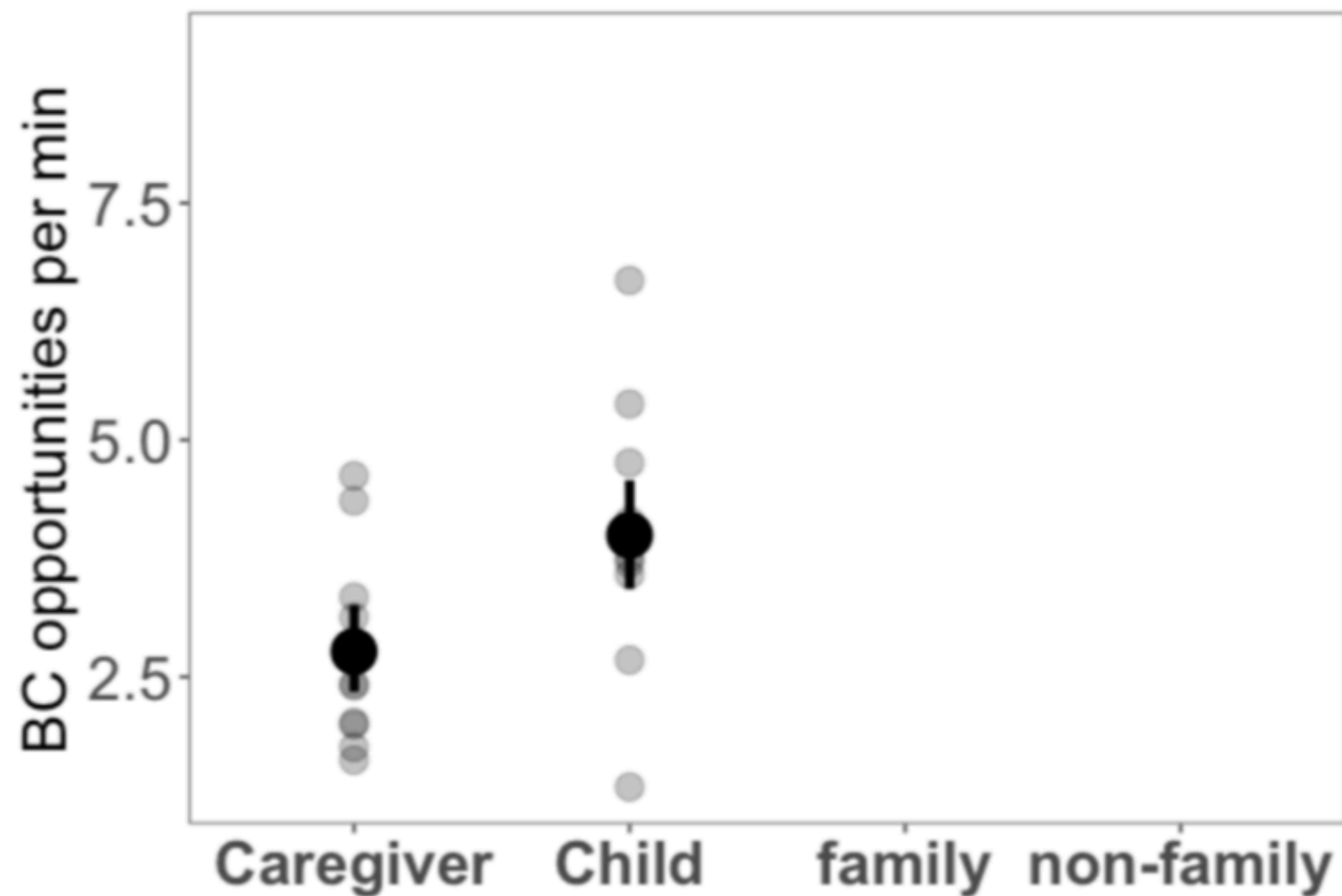Children's behavior is similar to that of adults!

Contra previous work (Dittman, 1972, Hess and Johnson, 1988)

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