Supplemental Material S3. Interaction coding manual.

Child Verbal Behaviors—Included in Turn Analysis

Code	Definition	Examples
(1) Label	A word or phrase to describe what something is. The physical referent must be present. If the word is difficult to understand, must be accompanied by eye gaze and/or pointing (otherwise code as Unintelligible Vocalization)	1. C: Doggie 2. C: Badeebap [pointing to picture] 3. P: What's that? C: A doggie! 4. P: What's that? C: [looking] bapa
(2) Comment	Statement about what the object/person is doing/looks like. More elaboration than a label. Includes a verb. If the utterance is difficult to understand, must be accompanied by eye gaze and/or pointing; sounds like more than one word (otherwise code as Unintelligible Vocalization	1. he's running 2. Badee see ba doo 3. P: What's he doing? C: He's running!
(3) Count	Counting using numbers only. If counting and labeling, (e.g., *One boat, two shoes)*, use "Label"	1. One 2. One, two, three
(4) Repetition	Immediate repetition (occurs within 3 seconds), phonological errors are okay, e.g., Giraffe→ raff. No intervening verbal behaviors (i.e., repetition comes right after what was said). Also includes partial repetitions that follow the same form, e.g., big blue ball → small yellow ball.	1. P: Hi doggy! C: doggy! 2. P: Hi doggy! C: Hi doggy! 3. P: big blue ball C: small yellow ball.
(5) Positive	Includes affirmatives (i.e., another way to say "yes," usually in response to a question), expressions of excitement, and praise	1. Yes, uh-huh, yeah 2. Wow! Yay! 3. You did it!
(6) Negative	To express negation (i.e., another way to say "no"), protest	1. No! 2. Ahhhh!
(7) Interrogative	A question. Includes yes/no, open ended, and close-ended questions. If difficult to understand, look for rising intonation with eye gaze and/or pointing (otherwise code as Unintelligible Vocalization	1. Do you like it? 2. Why is she running? 3. How many?
(8) Imperative	A command to say or do something (e.g., to get help, make the caregiver do/say something)	1. Help 2. Mommy say it 3. You do it
(9) Self-talk	Child talking about themselves. Needs to include own name or a personal pronoun	1. My turn 2. I can do it
(10) Acknowledgment	Used to sustain the interaction	1. P: Sit down. C: Okay 2. Mmhm 3. P: Where is it? C: there

Child Verbal Behaviors—NOT Included in Turn Analysis

Code	Definition	Examples
(1) Vocalization	A non-speech sound, (not including laughter—coded as a nonverbal), sound effect, or vegetative sound (e.g., cough, sneeze)	1. *[grunt]* 2. *Badeeba [looking away]* 3. *Swish [washing hands], mouth sounds while pretend eating*
(2) Unintelligible Vocalization	An unintelligible speech attempt with no clear communicative function	

Caregiver Verbal Behaviors—Included in Turn Analysis

Code	Definition	Examples
(1) Responsive	Related to the child's focus. Includes: 1. *Models: Goal is to show or teach* 2. *Expansions: Builds on the child's behavior* 3. *Praise: Demonstrates support for the child's behavior* 4. *Corrections: Aims to fix something the child said/did (see Behavioral Directive for exceptions)* 5. *Repetition: Reiterate something that was said (by self or child; full or partial repetitions are acceptable)*	1. *P: Doggie, P: That's a doggie, P: Grandma has a doggie just like that one, P: one, two, three, P: A dog has a tail* 2. *C: Da! P: A big dog!* 3. *Good job* 4. *C: Da! P: No, that's a kitty* 5. *C: Doggy P: Doggy*
(2) Constructive Directive	Includes interrogatives (yes/no, open-ended, and close-ended) and imperatives to speak/act. See exceptions under Behavioral Directive	1. *Look at the doggie* 2. *Where's the doggie?* 3. *Show me how you [x]*
(3) Acknowledgement	Used to sustain the social interaction	1. *Mmhm* 2. *C: Where is it? P: there* 3. *Ohhh [typically used when they don't understand the child but want to show engagement]*

Caregiver Verbal Behaviors—Not Included in Turn Analysis

Code	Definition	Examples
(1) Behavioral Directive	Aims to change the child's behavior (i.e., with the goal of "being good" or "acting right"). This does not include imperatives and interrogatives related to the task, e.g., "what is this?" "show me the [x]"	1. *Sit down* 2. *Come here* 3. *Stop that*
(2) Unrelated	Behaviors directed at someone else (e.g., another child, experimenter) or something not immediately present/relevant to the interaction	1. *Sit down [other child name]* 2. *He always does that [to examiner]* 3. *Shoot, I forgot to set my alarm [not directed to child or relevant to interaction]*

Nonverbal Behaviors (Child and Caregiver)—Included in Turn Analysis

Code	Definition	Examples
(1) Declarative/ Show/Tell	Directs attention to identify or comment on something – the function is something other than getting the object. If the behavior is in response to a caregiver directive, code as *Answer*	1. *Pointing to a picture in a book* 2. *Child extends object for caregiver to see* 3. *Turning pages in book*
(2) Protest/Reject	The person abandons interaction with an object, or demonstrates refusal or resistance to caregiver's actions/attempts/ directions. Requests within an interaction that cause a slight detour but not derailment should be considered Requests, not Protests	1. *Child hits caregiver when they try to regulate behavior* 2. *Shaking head "no" (if in response to a question, code as Answer)* 3. *Caregiver moves bin away so the child can't get it (i.e., rejects the child's request)* 4. *Throwing a book aside before grabbing a different book (if throwing is a play behavior (i.e., throwing the book in the air over and over), code as Non-Symbolic play)* 5. *Includes routine play (e.g., Putting objects in a bag or box)* 6. *Turning head away from an interaction*
(3) Request/ Imperative	Expresses the desire to get/engage something or someone. Requires something beyond identifying/showing interest ("something plus" = reach + gaze, point + head tilt, point + tapping child, extending object + shaking it)	1. *Child reaches for an object while looking at the caregiver* 2. *Child holds up hands to be picked up by the caregiver* 3. *Child extends an object to the caregiver to get help*
(4) Answer	The behavior is in response to a directive or interrogative	1. *P: Get the tomato, C: [picks up and hands caregiver the tomato]* 2. *Caregiver says child's name, child looks up in response (as if to say, "yes?")*
(5) Acknowledge	Necessary for social rapport. Sustains the interaction.	1. *Nodding when someone is speaking (As if to say "uh-huh," not in response to question)* 2. *Hugging to demonstrate comfort or an apology*

		3. Laughter 4. Shifts in joint attention
(6) Repetition	An immediate imitation (i.e., within 3 seconds) of the partner's or own behavior	
(7) Praise / Correction	*Caregiver only code Used to say "good job," "not like that, like this," or "bad." Does not include simple behavioral corrections (i.e., sit down)	*Caregiver only code 1. *High five* 2. *Thumbs up* 3. *Clapping* 4. *Swatting the child's hand away* 5. *Caregiver takes toy away to demonstrate the "right way"*

Nonverbal Behaviors (Child and Caregiver)—Not Included in Turn Analysis		
Code	*Definition*	*Examples*
(1) Solo Play	Caregiver engagement is required for coding a child's verbal behavior as having a communicative function. If the caregiver is not engaged, use this code. Otherwise, select appropriate code based on communicative function from options above.	*Examples of caregiver engagement (i.e., only use this code if <u>none of these</u> are present.)* • *Verbal responses (e.g., commenting on what the child is doing)* • *Eye contact that the child is aware of (i.e., cannot be sitting with the child's back to them watching the kid play)* • *Shared routines (e.g., child "drinks" from cup while parent "eats" from plate)*
Other NVB	Nonverbal behaviors without clear communicative function should not be coded (i.e., leave blank)	1. *Shifts in body position* 2. *Change in eye gaze <u>that does not serve a communicative function listed above</u>)*