

Dense Recordings of Naturalistic Interactions Reveal both Typical and Atypical Speech in One Child with ASD

Iris Chin, Devin Rubin, Andrea Tovar, Soroush Vosoughi, Michelle Cheng, Emily Potrzeba, Mathew Goodwin, Deb Roy, Letitia Naigles

Background: Children with autism spectrum disorders (ASDs) usually demonstrate impairments in language. In particular, children with ASD seem to have difficulty using linguistic rules in speech production (Minshew et al., 2002); for example, they may frequently repeat frozen, unanalyzed phrases rather than produce new utterances (Tager-Flusberg & Calkins, 1990). However, comprehension data do implicate grammatical rule use in this population (Naigles et al., in press). We suggest that dense and daily recordings of speech will provide data that might indicate creative language use in speech production. The Speechome Recorder (Roy, 2011), which was developed to enable continuous audio and video recording in family homes over a period of months, allows us to test this hypothesis.

Objective: We analyzed the verb usage, particularly present and past tense, of one child with ASD whose speech was recorded daily for about 4 months.

Method: The Speechome recorded family activities in one room of Audrey's home for four months. Audrey (age= 33 months, MLU = 2.80) was diagnosed with ASD prior to beginning the study. Recordings ranged from 20 to 160 minutes. For the first 3 months, sessions occurred an average of 3.45 times/week. Transcripts of the sessions were coded for present and past tense verbs, including a) marked and unmarked present tense b) unmarked, correct, and over-generalized irregular past tense, and c) marked and unmarked regular past tense. Preliminary findings involve the first month, with 13 total sessions (11.63 hours); four involved one-on-one therapy and 9 included free play.

Results: Of the 1,260 verb tokens produced, about 90% referred to present events. Of unmarked present tense verbs, 94% were used correctly as the imperative. Errors of omission included 3rd person singular agreement (*She go*), auxiliaries (*Where __ he go*), progressive (*I'm stay_*), and "to" (*I want __ play*). Of the 128 references to past events, 64% involved correctly marked irregular verbs (*broke*), 14.8% were correctly marked regular past (*played*) and 12.5% were unmarked. Audrey also produced one over-generalized past tense verb (*I throwed*). Like typically developing children, then, Audrey talked more about the here and now, made more errors of omission than commission, and produced more irregular than regular past tense verbs (Hoff, 2008). Unlike typical children, Audrey produced an atypical "I am a verb" frame (*I am a get*). Uses with multiple verbs (12 verbs, 21 tokens) across the 13 sessions suggest that this frame was productive.

Conclusion: With dense, daily recordings of Audrey's speech, a better comparison of the development of verb use of a child with ASD to a typical child can be made. Audrey

seems to be developing tense and agreement similarly to typical children in many ways; moreover, her use of an overgeneralization and the “I am a verb” frame shows that she can both use and create grammatical rules. Further analyses will search for additional overgeneralizations, as well as when/if her novel frame use decreases. The Speechome Recorder allows us to track how children with ASD might both follow and diverge from the typical language development trajectory.