From 'Um' to Words: The Role of Disfluency Interactions in Shaping Early Language Development

Background. Disfluencies (fillers, pauses, retracing, and repetition; see Table 1) are common in speech and signal increased cognitive load during language production (e.g., Arnold et al., 2007; Nafissi & Ramezanee, 2017). Prior research suggests that disfluencies may support language learning by affording extra planning time and focusing listener attention. For example, disfluencies in child-directed speech can highlight upcoming information and aid word learning (Kidd et al., 2011). In children, disfluencies often coincide with periods of rapid lexical growth and grammatical development, suggesting a developmental role in language acquisition, which may provide children with additional processing time to plan and execute more sophisticated linguistic constructions (e.g., Fichman & Altman, 2024). In adults, disfluencies occur before complex structures, pointing to a role in managing cognitive resources during language production (e.g., Tree, 1995). Yet little is known about how child and parental disfluencies interact during natural play.

Research Questions. This study investigates two primary hypotheses: (1) The rate of disfluencies has a positive effect on measures of vocabulary growth, (2) There is a difference between the production of different types of disfluency among adult and children.

Methodology. Spontaneous speech data were drawn from 40 monolingual English-speaking children (ages 1;9–3;0) and their caregivers (Hadley et al., 2014). Utterances with sentence-final or single-word pragmatic disfluencies (e.g. "um?") were excluded. Eight linear mixed-effects models tested the three-way interaction of child disfluency, parent disfluency, and children's age on various linguistics measurements (e.g., lexical diversity such as different word types, and grammatical complexity such as MLU) by the children, with random intercepts and slopes by subject.

Results. The verbs-per-utterance model showed significant effects of child disfluency ($\beta=0.16$, $p<0.05$), parent disfluency ($\beta=0.17$, $p<0.05$), and their interaction ($\beta=0.06$, $p<0.01$), suggesting that disfluencies from both partners are associated with greater verb use in children's speech, with age moderating this relationship. The word-types model revealed a significant effect of parent disfluency ($\beta = 33.76$, $p < 0.05$), a marginal effect of child disfluency ($\beta = 32.18$, $p = 0.06$), and a significant interaction ($\beta = 11.49$, $p < 0.05$), indicating that greater parental disfluency is linked to higher lexical diversity in children's speech (Figure 1). Across development, fillers were the most frequent disfluency, while repetitions were least common. Fillers, pauses, and repetitions increased with age, aligning with growing linguistic complexity (Rispoli, 2003). Retracing followed a U-shaped pattern, with higher rates at ages 1;9 and 2;9–3;0 and a dip at 2;3–2;6. This may reflect shifting communicative needs: younger children may use retracing to hold the floor or repair incomplete utterances.

Conclusion. These findings highlight the dynamic role of disfluencies in early language development. Rather than mere markers of difficulty, disfluencies co-occur with more advanced lexical use and may reflect underlying developmental processes. Interactions between parent and child disfluency suggest that children's language production is shaped not only by their own planning demands but also by caregiver input. This study reveals how disfluencies in naturalistic interactions shape children's evolving language system as both markers and facilitators of development.

(497 words)

Different Types of Disfluencies in Natural Discourse

Type	Example from Corpus	Purpose
Filler	That's a soda uh pops. (1;9 Child Production)	Reformulation Speech
Pause	I sit down (pause) here! (1;9 Child Production)	Planning
Retracing	Cake cupcake. (2;6 Child Production)	Self-Correction
Repetition	Not sit right no sit right here. (2;9 Child Production)	Emphasize

Table 1: Different Types of Disfluencies in Natural Discourse

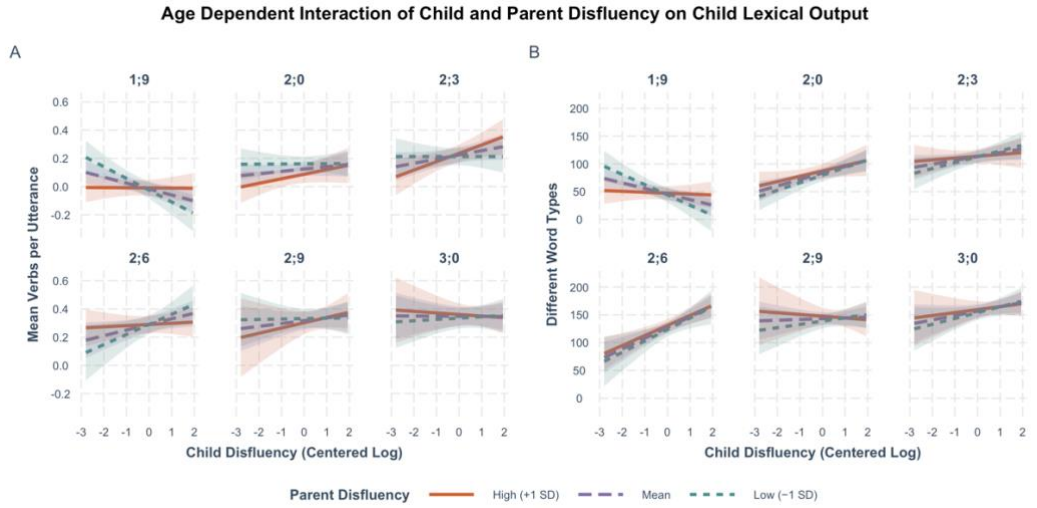

Figure 1: Age Dependent Interaction of Child and Parent Disfluency on Child Lexical Output

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