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Literature Review
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My project aims to tie together two previously disparate strands within the broader literature on child development. One strand concerns a longstanding question about differential development outcomes across socioeconomic strata. For decades, sociologists and psychologists noted effects of socioeconomic status (SES) on various developmental outcome measures, such as lexical maturity, grammatical maturity, and school achievement (Hoff-Ginsberg, 1998; McLoyd, 1998; Walker, Greenwood, Hart, & Carta, 1994). Researchers pointed to various candidate drivers of outcome disparity (e.g., access to academic resources, cognitive stimulation at home, exposure to lead), with little consensus on the main causal difference(s) and how outcome disparity could be alleviated. However, over time, a growing focus on the linguistic environment of developing children has yielded surprising insights into why this disparity exists.

Some early research into this question of SES-based disparities probed into how caregiver speech differs between families of different socioeconomic strata. For instance, Walker et al. (1994) finds that caregivers from high SES families tend to converse more (in terms of time, attention, and word count) with their children (aged 7 to 36 months) than their lower SES counterparts, and these increases are associated with better development outcomes such as vocabulary size and school performance. Further, Hoff-Ginsberg (1991; 1998) demonstrates substantial differences in the actual *content* of mothers' child-directed speech along the SES dimension. Specifically, mothers of high SES typically produced more speech (in raw word count), speech that was more lexically diverse (based on the number of unique word roots used), and speech that consisted of longer utterances (using the mean utterance length [MLU] measure.) These initial findings represented an early concerted effort to determine low-level differences in early linguistic input that could (begin to) explain the

substantial and long-reaching discrepancies in language development across socioeconomic strata; however, since these studies were purely observational and concerned relatively small sample sizes, they lacked the power to convincingly rank caregiver speech differences among the litany of potential explanations for the impact of SES on child development.

Later, Hoff (2003) demonstrates through a similar procedure that SES affects early vocabulary development primarily *through* aspects of maternal speech. In this study, families from two categories of SES allowed the researchers to record conversations between the mother and infant child at regular intervals. (The speech was then transcribed and analyzed in a manner similar to previous studies.) Using hierarchical statistical analyses, the researchers find that the difference in productive vocabulary growth between high-SES and mid-SES children was fully explained by differences in mothers' speech, specifically differences in number of word tokens, number of word types, and sentence complexity (via MLU.) While these findings do not explicitly uncover the main mechanism underlying the effects of SES, they do serve as a beginning for that project by identifying the mediating variable. Rowe (2008) corroborates these findings with a new set of parents and further speech analysis. From this line of research, it is clear that SES-based differences in early linguistic development are in large part explicable via aspects of caregiver speech.

In a different line of research, a small area of the developmental psychology literature has investigated the role of picture books (specifically 'story time') in shaping a child's early linguistic environment. Around this time, several research teams (Ninio, 1980; Snow & Goldfield, 1983) studied story time as a unique form of linguistic interaction between children and caregivers, finding that reading aloud often prompts instructive behaviors (such as question-asking and explicit labeling), which, in turn, correlate positively with development outcomes. Whitehurst et al. (1988) serves as one of the first prominent experiments concerning the particular content and effects of picture books on early linguistic development through parental read-alouds. In their study, they find

that parents who read books according to an experimenter-prescribed strategy involving increased rates of open-ended questions, expansions upon the story, and conversational responses to their children's interactions with the story, prompted better vocabulary development in their children when compared to the children of parents who read with a 'straight reading' approach. These findings are interesting in that they begin to uncover the positive effects of reading on linguistic development; but, in large part, they ignore the actual content of children's books and how it might differ from speech in a way that uniquely supplements a child's early linguistic environment.

Recently, Montag, Jones, & Smith (2015; 2018) have aimed to answer this question by constructing their own corpus of popular children's books and conducting content analyses in conjunction with a prominent corpus of child-directed speech (CHILDES). They focus particularly on lexical diversity, using type-token ratio (a common metric in natural language processing) to assess the content of length-matched samples from each corpus. In doing so, they find that, for all sample sizes tested, text content from picture books tended to have markedly higher lexical diversity than child-directed speech. Drawing upon work discussed above, the researchers then argue that picture books, as a medium of linguistic input that tends to be more lexically diverse, may serve to uniquely benefit linguistic development through exactly this property. Moreover, as lexical diversity of mothers' speech serves as a mediating variable for the effect of SES on children's language development (Hoff 2003), picture books may aid in relieving the challenges faced by low-SES children by expanding and enriching the dataset upon which early language learning depends.

My proposed research closely follows the path forged by Montag, Jones, & Smith (2015; 2018) in both expanding their content analysis to include other dimensions highlighted by Hoff (2003) as mediators of SES effects (e.g., MLU), and replicating their findings with another prominent speech dataset (Goldin-Meadow et al., 2014). In doing so, I hope to strengthen the

argument that picture books provide a unique source of linguistic input to young learners in a way that potentially mitigates the deleterious effects of low SES.

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