Complex syntax and conversational turn-taking during toddler-adult picture book reading

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A characteristic of skilled adult language use is the ability to produce and comprehend complex utterances. Increasing evidence suggests that experience with these complex structures contributes ease of processing (Reali & Christiansen, 2007; Dabrowska, 2012), and such experience may disproportionately come from written language (Roland, Dick & Elman, 2007; Montag & MacDonald, 2015). What is the role of spoken ***and written*** language input at the earliest stages of language development?

Talk generated during picture book reading differs from typical child-directed speech in a number of ways. Book reading elicits rich caregiver-child conversation (Muhinyi, et al., 2020; Whitehurst et al., 1988) and more parent speech and conversational turns then free-play (Gilkerson et al., 2017; Sosa, 2016). While extra-textual talk is studied extensively, the book text has received less attention. Picture book text is more lexically diverse (Montag et al., 2015) and syntactically complex (Cameron-Faulkner et al., 2013; Montag, 2019) than typical child-directed speech. A key mechanism by which book reading may affect language outcomes is by exposing children to complex language, including complex syntax, that might otherwise be rare. To hypothesize plausible pathways for the *causal* book reading contribution to language outcomes, we need a clearer description of the talk generated during picture book reading, including the degree to which the complex syntax in book text becomes part of the language environment.

To observe consistency/variation across families and the effect of various book features on the generated talk, we provided families with 4 novel picture books that varied in length and syntactic complexity. Families recorded themselves reading the books at home as they normally would. **First**, we examine how much of the complex syntax in picture books caregivers say. **Second**, we examine how book length and syntactic complexity affects the book reading talk.

Method

12 families, children aged 24-37 months (7 girls) recorded 6-12 reading sessions (total=58). Book length and number/type of complex constructions are shown in Table 1. Target syntactic constructions are defined in Table 2. A team of research assistants transcribed adult and child speech and marked utterance boundaries using the ELAN software. The corpus will be available to other researchers upon publication of this work.

Results

Overall, families spent more time reading the longer books, but there was considerable variability between families (Figure 3). Both features of the books and family individual differences contribute to overall reading times, but time spent reading a book can vary wildly.

Crucially, we find that the complex sentence constructions in the books were indeed produced by caregivers (Figure 1). Out of 181 target constructions approximately 82% (149) were read from the book without any modification (described in Table 3). Most modifications were additions before or after the target construction, so the complex construction was produced intact 97% of the time. Picture books may be an important source of complex syntax for children because adult caregivers indeed read the complex language in the book text aloud.

Finally, the turn-taking counts were the highest for short and simple book with little variability among the others (Figure 2). The longer books and the books with the most complex syntax were *not* the books that promoted the most parent-child conversation.

Discussion and Conclusion

We demonstrate that picture books may be an important source of complex syntax for young children. As we see for adults, written and spoken language, even in early childhood, may provide different types of language input. However, we find that a different kind of rich language, caregiver-child turn-taking was more frequent in the shorter, syntactically simple books. This dissociation suggests that interventions that aim to identify the “best” books may be misguided. Books of different lengths or books with more or less complex syntax may provide *different* linguistic input for children, all of which may be important for language development.

Table 1. Book classification summary

Book Title N=**58** (≈9 hours (Reading session count)	Book Length-Syntactic Complexity (Word count)	Counts of **Syntactic Construction (SC)** Types SRC	ORC	Oblique	Passive	SC counts per book
That is not a good idea (21)	Short-Simple **SS** (125)	0	0	0	0	**0**
When dinosaurs came with everything (17)	Medium-Simple **MS** (1018)	0	1	1	0	**2**
Stellaluna (11)	Long-Simple **LS** (1211)	2	1	0	0	**3**
Oh, the places you'll go! (9)	Medium-Complex **MC** (939)	5	4	4	2	**15**

Table 2. SC summary

Syntactic Construction	Example	Count (**N=181**)
Subject Relative Clause (SRC)	More bats gathered around to see the strange young bat **who behaved like a bird** ("Stellaluna")	**45**
Object Relative Clause (ORC)	**The next thing I knew**, she had him cleaning the gutters ("When dinosaurs came with everything")	**64**
Oblique Relative Clause (Oblique)	**The places you'll go!** ("Oh the places you'll go!")	**54**
Passive Main Clause (Passive)	**You'll be left in a Lurch** ("Oh the places you'll go!")	**18**

Table 3. SC modification summary

SC modification type	Example	%(N) **100%=32**
Addition/omission **before** SC	And you may ~~not~~ find any **you'll want to go down** ORC	**12.50(4)**
Addition **after** SC	**You'll be left in a Lurch** Passive *Parent:* Oh.. his poor balloon got caught up in a tree	**65.62(21)**
Addition **within** SC	Stellaluna was terribly hungry – but not for the crawly **things that Mama Bird brought** ORC	**9.38(3)**
SC repetition	*Parent:* You can steer yourself **any direction you choose** ORC You can steer yourself **any direction you choose** ORC	**6.25(2)**
SC omission	~~**The places you'll go** Oblique;~~	**6.25(2)**

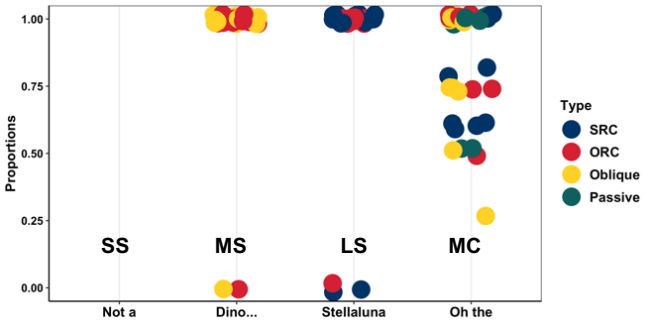

Figure 1. Proportion of SC uttered unchanged by book; 1 dot = SC of interest in one reading session

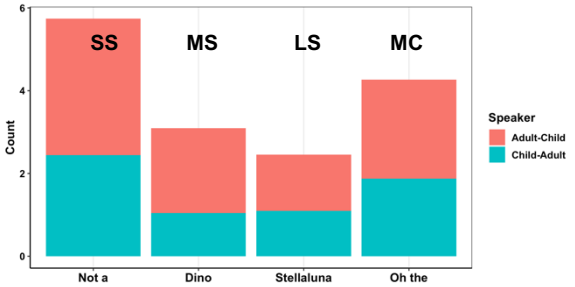

Figure 2. Turn-taking per-minute by book: Adult vs Child initiated

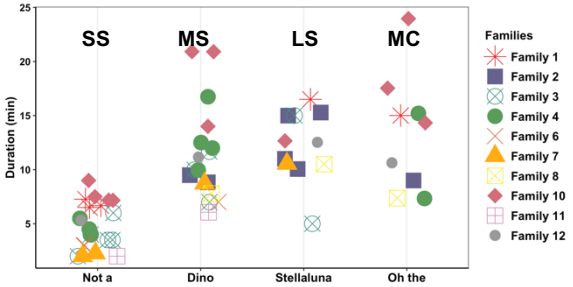

Figure 3. Reading session duration by book and family; 1 point = one reading session

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