Maternal speech quantity and content predict language development in infancy and early childhood. Variables in caregivers’ speech to children, such as the amount of talking and range of vocabulary, predict young children’s receptive and productive language skills (Hart & Risley, 1995). These predictions hold true for diverse samples that cover a wide socio-economic spectrum. It is less clear whether child language outcomes depend on differences in maternal speech within more homogenous samples; for example, among middle-class, college-educated parents. Furthermore, little is known about how differences in maternal speech content influence child language outcomes. Questions, imperatives, and other repetitive sentence frames might draw infants’ attention to co-occurrences between words, objects, and actions.

Present Study
As part of a longitudinal study of infant social and language development (Deák et al., 2013), we investigated maternal speech during in-home play interactions between 41 college-educated mothers and their infants at 9 and 12 months of age. In addition, preliminary results taken from a subset of the infants (n = 28) at 6 months of age are reported.

Maternal input was analyzed for lexical quantity and diversity, and for distribution of utterance-types (e.g., question, imperative). Stability of individual mothers’ speech patterns across a 6-month interval was examined.

Research Questions
• Are quantity and content of maternal speech consistent from 9 to 12 months?
• Are differences in maternal speech quantity and diversity associated with differences in content?
• Is the relationship between maternal speech and early language ability mediated by the content of maternal utterances at the level of frames or speech act type?

Participants: Mother-infant dyads (N = 41)
• Gender: M = 19, F = 21
• Maternal Education: 16.1 years, SD = 1.8
• Sessions taken 6, 9 and 12 months. To date, n = 28 6-month sessions have been transcribed.

RESULTS

Maternal Speech Measures are Stable From 9 to 12 Months

<table>
<thead>
<tr>
<th>Pearson’s Correlations</th>
<th>9 mth D</th>
<th>9 mth Tok/ min</th>
<th>12 mth D</th>
<th>12 mth Tok/ min</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 mth D</td>
<td>.552 **</td>
<td>.266</td>
<td>.356</td>
<td>-</td>
</tr>
<tr>
<td>12 mth Tok/ min</td>
<td>.340 *</td>
<td>.570 **</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>9 mth Tok/ min</td>
<td>.301</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

* p < 0.05, ** p < 0.001. D = Lexical Diversity, Tok/min = Individual word tokens per minute.

Utterance Types at 9 and 12 Months

High Lexical Diversity is Associated With More Declaratives but Fewer Isolated Verbs, Conversation Placeholders & Child’s Name

<table>
<thead>
<tr>
<th>Pearson’s Correlations</th>
<th>Declarative</th>
<th>Isolated Verb</th>
<th>Conversation Placeholder</th>
<th>Child’s Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>9 and 12 month averaged D</td>
<td>.39 *</td>
<td>-.33</td>
<td>-.32</td>
<td>-.36 *</td>
</tr>
</tbody>
</table>

* p < 0.05. Examples of placeholders: “yeah”, “uhh”. All other speech types were not significantly related to lexical diversity.

Relations of 9-12 Maternal Speech to 18-Month Language Skills

<table>
<thead>
<tr>
<th>Pearson’s Correlations</th>
<th>9-12 month Avg. D</th>
<th>9-12 month Avg Tok/min</th>
</tr>
</thead>
<tbody>
<tr>
<td>22 months MCDI</td>
<td>293</td>
<td>127</td>
</tr>
<tr>
<td>18 months BSID Language</td>
<td>270</td>
<td>.034</td>
</tr>
</tbody>
</table>

ACKNOWLEDGEMENTS

Funding was provided by the National Science Foundation (Human Social Dynamics grant BCS-0327040 to G. Deák, and an SLC award to the Temporal Dynamics Learning Center)

REFERENCES

CONCLUSIONS
• Quantity and quality of maternal speech to infants are consistent from 9 to 12 months despite some variation in context.
• Maternal speech contains a variety of different discourse types, which are associated with differences in lexical diversity, a numerical measure of speech quality.
• Lexical diversity of maternal speech predicts language development independently of discourse types and general infant intelligence.

FUTURE QUESTIONS
• Future studies will investigate temporal relations among maternal speech, infant and maternal gaze, and infant and maternal manual actions (de Barbaro, 2013, PhD Thesis).
• Is contingent verbal responding conditioned on joint attention?
• Do mothers use different utterance types contingent on specific infant behaviors?

XIX Biennial International Conference on Infant Studies July 3-5, 2014