Pausing and phrase length in two Australian languages

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Abstract
Pausing in speech allows a speaker to plan for the upcoming utterance, as well as to indicate to the listener finality of utterance. In this paper I examine pause patterning and IPU length in two typologically distinct Australian languages; Dalabon and Kayardild. Results show that Dalabon prefers considerably longer stretches of continuous speech than Kayardild. Preliminary findings reveal that the length of an IPU does not correlate to pause durations.

Index Terms: pause, phrase length, Australian Languages

1. Introduction
Pausing in speech has been found to serve two basic functions in addition to breathing; the planning function, where a speaker pauses to plan the following utterance, and the marking function, where a speaker pauses to signal to the listener the end of a unit. The former function serves the speaker, the latter function serves the listener, and both functions may interact or overlap. Studies have found a correlation between pause duration and length of the upcoming utterance in syllables [1], [2], as well as pause duration and syntactic complexity of the upcoming utterance [3], [4]. These findings highlight that pausing may to an extent be caused by the need to plan an upcoming utterance. Such findings motivate the current study, which aims to investigate pause durations and inter-pausal unit (IPU) length for two languages with vastly different grammatical structures. Dalabon is a head-marking polysynthetic language, while Kayardild is a dependent-marking suffixing language.

2. Method
The data comprise monologues recounted by five different speakers totaling approximately 47 minutes in duration. Labelling was completed using The EMU Speech Database System (version 2). The data comprises two narratives in Dalabon, four in Kayardild, with recording dates from 1984 to 2005. Special thanks to speakers Maggie, Pat, Roma, Alison and Alice, as well as Nick Evans, Erich Round and Sarah Cutfield for the use of their data.

3. Results
Figure 1 gives an overview of pause and IPU measurements.

Figure 1. Overview of pause and IPU mean durations

![Figure 1](image)

Table 1. Correlations of IPU length to pause duration

<table>
<thead>
<tr>
<th>IPU</th>
<th>Pre-IPU pause</th>
<th>Post-IPU pause</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dalabon 1</td>
<td>0.1507</td>
<td>0.08666</td>
</tr>
<tr>
<td>Dalabon 2</td>
<td>0.6041</td>
<td>0.9253</td>
</tr>
<tr>
<td>Kayardild 1</td>
<td>0.5124</td>
<td>0.4475</td>
</tr>
<tr>
<td>Kayardild 2</td>
<td>0.5969</td>
<td>0.8792</td>
</tr>
<tr>
<td>Kayardild 3</td>
<td>0.9753</td>
<td>0.96967</td>
</tr>
<tr>
<td>Kayardild 4</td>
<td>0.2611</td>
<td>0.984</td>
</tr>
</tbody>
</table>

The correlations of IPU length and preceding pause duration do not show any pattern with just a single strong correlation found. Of the correlations for the IPU and its following pause, there are just three strong correlations. These poor correlations indicate that IPU length has no or very little significance on the preceding or following pause durations.

4. Conclusion
Findings presented here reveal significant differences between IPU lengths between the two languages. These differences may be caused by differences in grammatical structure between the languages: Dalabon is a polysynthetic language with potentially very long words. The preliminary results indicate however that pause duration does not correspond to IPU length in either language. Instead it is predicted that grammatical information, such as morphological complexity and/or boundary strength, will influence pause durations. Future work will examine the relationship between pause durations and a range of factors including syllable counts and morphological complexity of an IPU, as well as the relationship between pause and grammatical units, such as the clause.

5. References