### Phonetic Analysis: Method & Results

- **Test words:** acting (101) and packed in (91)
- **Data collected from:** https://youglish.com automatically, 5-sec. files
- **Random sampling, independent data points**
- **Accents:** AmE: 164; BrE: 21; other: 7
- **No pause between packed and in**
- **Prepared & segmented in Praat (v. 6.1.16) manually**
- **Measured:** vowel duration, cons. (CC) duration, total duration, vowel's duration ratio to total duration (vototalrat), voicing duration in CC (voidur), voicing ratio in CC, VOT absolute (vot), VOT ratio to CC
- **Statistical test:** independent-samples t-test (Welch's), effect size: Cohen's d (all done in R)

### Vowel's Duration Ratio to Total

<table>
<thead>
<tr>
<th>Item</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>Median</th>
<th>Min</th>
<th>Max</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>acting</td>
<td>101</td>
<td>0.56</td>
<td>0.08</td>
<td>0.56</td>
<td>0.36</td>
<td>0.73</td>
<td>0.01</td>
</tr>
<tr>
<td>packedin</td>
<td>91</td>
<td>0.49</td>
<td>0.10</td>
<td>0.50</td>
<td>0.21</td>
<td>0.69</td>
<td>0.01</td>
</tr>
</tbody>
</table>

\[ \nu(175.01) = 4.82, \ p < 0.001, \ CI_{95}: [0.036–0.087], \text{effect size} = 0.70 \]

### Voicing Duration in CC

<table>
<thead>
<tr>
<th>Item</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>Median</th>
<th>Min</th>
<th>Max</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>acting</td>
<td>101</td>
<td>15.26</td>
<td>15.65</td>
<td>13</td>
<td>0</td>
<td>98</td>
<td>1.56</td>
</tr>
<tr>
<td>packedin</td>
<td>91</td>
<td>6.89</td>
<td>7.26</td>
<td>5</td>
<td>0</td>
<td>23</td>
<td>0.76</td>
</tr>
</tbody>
</table>

\[ \nu(144.33) = 4.82, \ p < 0.001, \ CI_{95}: [4.94–11.79], \text{effect size} = 0.69 \]

### Conclusions

- **Although both are assumed to contain** \( \text{kt} \), in **acting** and **packed in** there is a statistically significant difference in
  - the length of the \([a]\)
  - the voicing duration in the consonant cluster
  - the aspiration of the \(\text{t}^{'\circ}\)
- accordingly we conclude that
  - **act is** akt or agt or akt
  - **packed is** pakd
- the two clusters undergo incomplete neutralization (cf Port & Crawford 1999 and Jansen 2004 for German singleton obstruents)

### References


