MOTIVATION: Preening is a behavior performed by cattle egrets at the Oregon zoo and may play a part in typical foraging behavior of the species.

BACKGROUND:
- In **social foraging theory**, egrets play the ‘scrounger’ role
- Behavior is dependent on resources and ‘producers’ available
- Preening behavior previously called ‘oiling’, even though the oiling action infrequently accompanies ‘bill rub’ action in preening (Rowe 1983)
- Frequency of preening instances can be reinforced with **operant conditioning**, but not duration (Hogan 1964)

When behaviors are performed in ‘bouts’, there is an interval length, called the bout criterion interval, the separates within-bout intervals from without-bout intervals.

Question/Hypothesis: What is the bout criterion interval for preening for the cattle egrets at the Oregon zoo, and what does that mean biologically?
Experimental Design and Results

Bout Criterion Interval using log-transformed interval lengths and probability density

1. Intervals collected from focal observation of both individuals

2. A continuous fit using double log-normal was obtained

3. Local minimum point on curve (highlighted on graph - dark green) was used to back-calculate interval length of BCI

Intervals from beginning of non-preening behavior to beginning of next preening behavior for both individuals on both observation days were measured in seconds and log-transformed with the ln(x) function. A probability density graph of these values was created, and a smooth curve obtained with two log normals.

The preening bout criterion for cattle egrets at the Oregon zoo is **2.20s**
### Experimental Design and Results

#### JWatcher Ethogram

<table>
<thead>
<tr>
<th>JWatcher Key</th>
<th>Behavior</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>c</td>
<td>perch</td>
<td>end flight by landing</td>
</tr>
<tr>
<td>e</td>
<td>shake</td>
<td>shakes body</td>
</tr>
<tr>
<td>f</td>
<td>flap</td>
<td>flaps wings w/o flying</td>
</tr>
<tr>
<td>k</td>
<td>strike</td>
<td>extends beak to touch s/t</td>
</tr>
<tr>
<td>l</td>
<td>fly</td>
<td>changes location w/ flight</td>
</tr>
<tr>
<td>o</td>
<td>swallow</td>
<td>tilts head back and ‘gulps’</td>
</tr>
<tr>
<td>p</td>
<td>preen</td>
<td>beak to body</td>
</tr>
<tr>
<td>s</td>
<td>step</td>
<td>foot to new location</td>
</tr>
<tr>
<td>t</td>
<td>scratch</td>
<td>foot to body</td>
</tr>
<tr>
<td>v</td>
<td>survey</td>
<td>turns or extends head to look</td>
</tr>
</tbody>
</table>
Conclusions:
For a preening BCI of 2.20s, intervals shorter are within-bout, and intervals longer are without-bout, which can be used to design operant conditioning experiments where bouts can directly be counted.

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References & Acknowledgements


