The forced choice model was fit using conditional binomials in DeCarlo (2012), however this is not the most efficient approach. Provided here are OpenBUGS and SAS programs to fit the model using the multinomial approach. This gives small differences in Table 3, shown below. The results also match those found using SDT in R.

Table 3

Parameter Estimates for Two Conditions of a 3AFC Experiment (Ennis & O’Mahony, 1995)

<table>
<thead>
<tr>
<th>Condition</th>
<th></th>
<th>(d)</th>
<th>(b_1)</th>
<th>(b_2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>WW</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Table (H&amp;R, 1975)</td>
<td></td>
<td>2.39</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Equation 5 (MLE)</td>
<td></td>
<td>2.41 (0.18)</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Equation 8 (MLE, multinomial)</td>
<td></td>
<td>2.63 (0.23)</td>
<td>0.39 (0.28)</td>
<td>0.85 (0.31)</td>
</tr>
<tr>
<td>Equation 8 (Bayesian, multinomial)</td>
<td></td>
<td>2.69 (0.24)</td>
<td>0.42 (0.28)</td>
<td>0.91 (0.32)</td>
</tr>
<tr>
<td>Equation 8 (SDT in R)</td>
<td></td>
<td>2.63 (0.23)</td>
<td>0.40 (0.28)</td>
<td>0.85 (0.31)</td>
</tr>
<tr>
<td>SS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Table (H&amp;R, 1975)</td>
<td></td>
<td>1.52</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Equation 5 (MLE)</td>
<td></td>
<td>1.52 (0.14)</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Equation 8 (MLE, multinomial)</td>
<td></td>
<td>1.54 (0.14)</td>
<td>−0.17 (0.18)</td>
<td>0.12 (0.17)</td>
</tr>
<tr>
<td>Equation 8 (Bayesian, multinomial)</td>
<td></td>
<td>1.55 (0.14)</td>
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<td>0.12 (0.17)</td>
</tr>
</tbody>
</table>

Notes: WW is water-water prior stimuli; SS is salt-salt prior stimuli. H&R refers to Hacker & Ratcliff (1975). MLE is maximum likelihood estimation, with standard errors shown in parenthesis. For Bayesian estimation, values are means and standard deviations (in parenthesis) of the posterior distributions. For SDT in R, estimates are from the mAFC function: [https://www3.unifr.ch/psycho/fr/assets/public/Forschungseinheiten/sdt/SDT.pdf](https://www3.unifr.ch/psycho/fr/assets/public/Forschungseinheiten/sdt/SDT.pdf)

I’d like to thank Matthew Johnson for his help.