### Model 0: Perfect Proportional Odds/Parallel Lines

<table>
<thead>
<tr>
<th>gender</th>
<th>SD</th>
<th>D</th>
<th>A</th>
<th>SA</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>250</td>
<td>250</td>
<td>250</td>
<td>250</td>
<td>1,000</td>
</tr>
<tr>
<td>Female</td>
<td>100</td>
<td>150</td>
<td>250</td>
<td>500</td>
<td>1,000</td>
</tr>
<tr>
<td>Total</td>
<td>350</td>
<td>400</td>
<td>500</td>
<td>750</td>
<td>2,000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>1 versus 2, 3, 4</th>
<th>1 &amp; 2 versus 3 &amp; 4</th>
<th>1, 2, 3 versus 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Odds&lt;sub&gt;M&lt;/sub&gt;</td>
<td>750/250 = 3</td>
<td>500/500 = 1</td>
<td>250/750 = 1/3</td>
</tr>
<tr>
<td>Odds&lt;sub&gt;F&lt;/sub&gt;</td>
<td>900/100 = 9</td>
<td>750/250 = 3</td>
<td>500/500 = 1</td>
</tr>
<tr>
<td>OR (Odds&lt;sub&gt;F&lt;/sub&gt; / Odds&lt;sub&gt;M&lt;/sub&gt;)</td>
<td>9/3 = 3</td>
<td>3/1 = 3</td>
<td>1/(1/3) = 3</td>
</tr>
<tr>
<td>Gologit&lt;sub&gt;2&lt;/sub&gt; Betas</td>
<td>1.098612</td>
<td>1.098612</td>
<td>1.098612</td>
</tr>
</tbody>
</table>

| Gologit<sub>2</sub> χ² (3 d.f.) | 176.63 (p = 0.0000) |
| Ologit χ² (1 d.f.) | 176.63 (p = 0.0000) |
| Ologit Beta (OR) | 1.098612 (3.00) |
| Brant Test (2 d.f.) | 0.0 (p = 1.000) |

**Comment:**
If proportional odds holds, then the odds ratios should be the same for each of the ordered dichotomizations of the dependent variable. Proportional Odds works perfectly in this model, as the odds ratios are all 3. Also, the Betas are all the same, as they should be.

### Model 1: Partial Proportional Odds I

<table>
<thead>
<tr>
<th>gender</th>
<th>SD</th>
<th>D</th>
<th>A</th>
<th>SA</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>250</td>
<td>250</td>
<td>250</td>
<td>250</td>
<td>1,000</td>
</tr>
<tr>
<td>Female</td>
<td>100</td>
<td>300</td>
<td>300</td>
<td>300</td>
<td>1,000</td>
</tr>
<tr>
<td>Total</td>
<td>350</td>
<td>550</td>
<td>550</td>
<td>550</td>
<td>2,000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>1 versus 2, 3, 4</th>
<th>1 &amp; 2 versus 3 &amp; 4</th>
<th>1, 2, 3 versus 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Odds&lt;sub&gt;M&lt;/sub&gt;</td>
<td>750/250 = 3</td>
<td>500/500 = 1</td>
<td>250/750 = 1/3</td>
</tr>
<tr>
<td>Odds&lt;sub&gt;F&lt;/sub&gt;</td>
<td>900/100 = 9</td>
<td>600/400 = 1.5</td>
<td>300/700 = 3/7</td>
</tr>
<tr>
<td>OR (Odds&lt;sub&gt;F&lt;/sub&gt; / Odds&lt;sub&gt;M&lt;/sub&gt;)</td>
<td>9/3 = 3</td>
<td>1.5/1 = 1.5</td>
<td>(3/7)/(1/3) = 1.28</td>
</tr>
<tr>
<td>Gologit&lt;sub&gt;2&lt;/sub&gt; Betas</td>
<td>1.098612</td>
<td>.4054651</td>
<td>.2513144</td>
</tr>
</tbody>
</table>

| Gologit<sub>2</sub> χ² (3 d.f.) | 80.07 (p = 0.0000) |
| Ologit χ² (1 d.f.) | 36.44 (p = 0.0000) |
| Ologit Beta (OR) | .4869136 (1.627286) |
| Brant Test (2 d.f.) | 40.29 (p = 0.000) |

**Comment:**
Gender has its greatest effect at the lowest levels of attitudes, i.e. women are much less likely to strongly disagree than men are, but other differences are smaller. The effect of gender is consistently positive, i.e. the differences involve magnitude, not sign.
Model 2: Partial Proportional Odds II

<table>
<thead>
<tr>
<th>gender</th>
<th>attitude</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>SD</td>
<td>D</td>
<td>A</td>
<td>SA</td>
</tr>
<tr>
<td>Male</td>
<td></td>
<td>250</td>
<td>250</td>
<td>250</td>
<td>250</td>
</tr>
<tr>
<td>Female</td>
<td></td>
<td>100</td>
<td>400</td>
<td>250</td>
<td>250</td>
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<tr>
<td>Total</td>
<td></td>
<td>350</td>
<td>650</td>
<td>500</td>
<td>500</td>
</tr>
</tbody>
</table>

1 versus 2, 3, 4
1 & 2 versus 3 & 4
1, 2 3 versus 4

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>OddsM</td>
<td>750/250 = 3</td>
<td>500/500 = 1</td>
<td>250/750 = 1/3</td>
<td></td>
</tr>
<tr>
<td>OddsF</td>
<td>900/100 = 9</td>
<td>500/500 = 1</td>
<td>250/750 = 1/3</td>
<td></td>
</tr>
<tr>
<td>OR (OddsF / OddsM)</td>
<td>9/3 = 3</td>
<td>1/1 = 1</td>
<td>(1/3)/(1/3) = 1</td>
<td></td>
</tr>
<tr>
<td>Gologit2 Betas</td>
<td>1.098612</td>
<td>0</td>
<td>-1.098612</td>
<td></td>
</tr>
<tr>
<td>Gologit2 $\chi^2$ (3 d.f.)</td>
<td>101.34 (p = 0.0000)</td>
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<tr>
<td>Ologit $\chi^2$ (1 d.f.)</td>
<td>9.13 (p = 0.0025)</td>
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<tr>
<td>Ologit Beta (OR)</td>
<td>0.243576 (1.275803)</td>
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<tr>
<td>Brant Test (2 d.f.)</td>
<td>83.05 (p = 0.000)</td>
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<tr>
<td>Comment</td>
<td>Gender has its greatest – and only – effect at the lowest levels of attitudes, i.e. women are much less likely to strongly disagree than men are. But, this occurs entirely because they are much more likely to disagree rather than strongly disagree. Other than that, there is no gender effect; men and women are equally likely to agree and to strongly agree. The ologit estimate underestimates the effect of gender on the lower levels of attitudes and overestimates its effect at the higher levels.</td>
<td></td>
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</table>

Model 3: Partial Proportional Odds III

<table>
<thead>
<tr>
<th>gender</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>SD</td>
<td>D</td>
<td>A</td>
<td>SA</td>
</tr>
<tr>
<td>Male</td>
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<td>250</td>
<td>250</td>
<td>250</td>
<td>250</td>
</tr>
<tr>
<td>Female</td>
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<td>100</td>
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</tr>
<tr>
<td>Total</td>
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<td>350</td>
<td>650</td>
<td>650</td>
<td>350</td>
</tr>
</tbody>
</table>

1 versus 2, 3, 4
1 & 2 versus 3 & 4
1, 2 3 versus 4

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>OddsM</td>
<td>750/250 = 3</td>
<td>500/500 = 1</td>
<td>250/750 = 1/3</td>
<td></td>
</tr>
<tr>
<td>OddsF</td>
<td>900/100 = 9</td>
<td>500/500 = 1</td>
<td>100/900 = 1/9</td>
<td></td>
</tr>
<tr>
<td>OR (OddsF / OddsM)</td>
<td>9/3 = 3</td>
<td>1/1 = 1</td>
<td>(1/9)/(1/3) = 1/3</td>
<td></td>
</tr>
<tr>
<td>Gologit2 Betas</td>
<td>1.098612</td>
<td>0</td>
<td>-1.098612</td>
<td></td>
</tr>
<tr>
<td>Gologit2 $\chi^2$ (3 d.f.)</td>
<td>202.69 (p = 0.0000)</td>
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</tr>
<tr>
<td>Ologit $\chi^2$ (1 d.f.)</td>
<td>0.00 (p = 1.0000)</td>
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</tr>
<tr>
<td>Ologit Beta (OR)</td>
<td>0 (1.00)</td>
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</tr>
<tr>
<td>Brant Test (2 d.f.)</td>
<td>179.71 (p = 0.000)</td>
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</table>