

## Tallying Proportional Approval Voting (PAV)

|                          | B1                         | U1               | B1*U1     | B2                          | U2               | B2*U2       | B1*U1 +<br>B2*U2 |
|--------------------------|----------------------------|------------------|-----------|-----------------------------|------------------|-------------|------------------|
| Possible Sets of Winners | # of ballots with 1 winner | 1-winner utility |           | # of ballots with 2 winners | 2-winner utility |             | Total Utility    |
| <b>BM</b>                | 10+12=22                   | 1                | <b>22</b> | 0                           | 1.5              | <b>0</b>    | <b>22</b>        |
| <b>BV</b>                | 10+5=15                    | 1                | <b>15</b> | 0                           | 1.5              | <b>0</b>    | <b>15</b>        |
| <b>BC</b>                | 6+9=15                     | 1                | <b>15</b> | 4                           | 1.5              | <b>6</b>    | <b>21</b>        |
| <b>BP</b>                | 0+1=1                      | 1                | <b>1</b>  | 10                          | 1.5              | <b>15</b>   |                  |
| <b>MV</b>                | 9+2=11                     | 1                | <b>11</b> | 3                           | 1.5              | <b>4.5</b>  |                  |
| <b>MC</b>                | 3+4=7                      | 1                | <b>7</b>  | 9                           | 1.5              | <b>13.5</b> |                  |
| <b>MP</b>                |                            | 1                |           | 0                           | 1.5              | <b>0</b>    |                  |
| <b>VC</b>                |                            | 1                |           | 0                           | 1.5              | <b>0</b>    |                  |
| <b>VP</b>                |                            | 1                |           | 0                           | 1.5              | <b>0</b>    |                  |
| <b>CP</b>                |                            | 1                |           |                             | 1.5              |             |                  |

If there could be 3 winners, then the 3-winner Jefferson weight would be  $1 + 1/2 + 1/3 = 1.83$

Some 3-winner effects: smaller #s in 1-winner column and a 3-winner column with 1.83 utility