result 05252023

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Bias for 500 simulations with magnitude adjustment

The adjustment is based on the estimate from the last step.

```
## [1] "Estimated value"
```

```
##        BA1        CA1        BC1        BA2        CA2        BC2
## -0.5896171 -2.0120437  1.4224266  1.6039235  2.6619408 -1.0580172
```

```
## [1] "Bias"
```

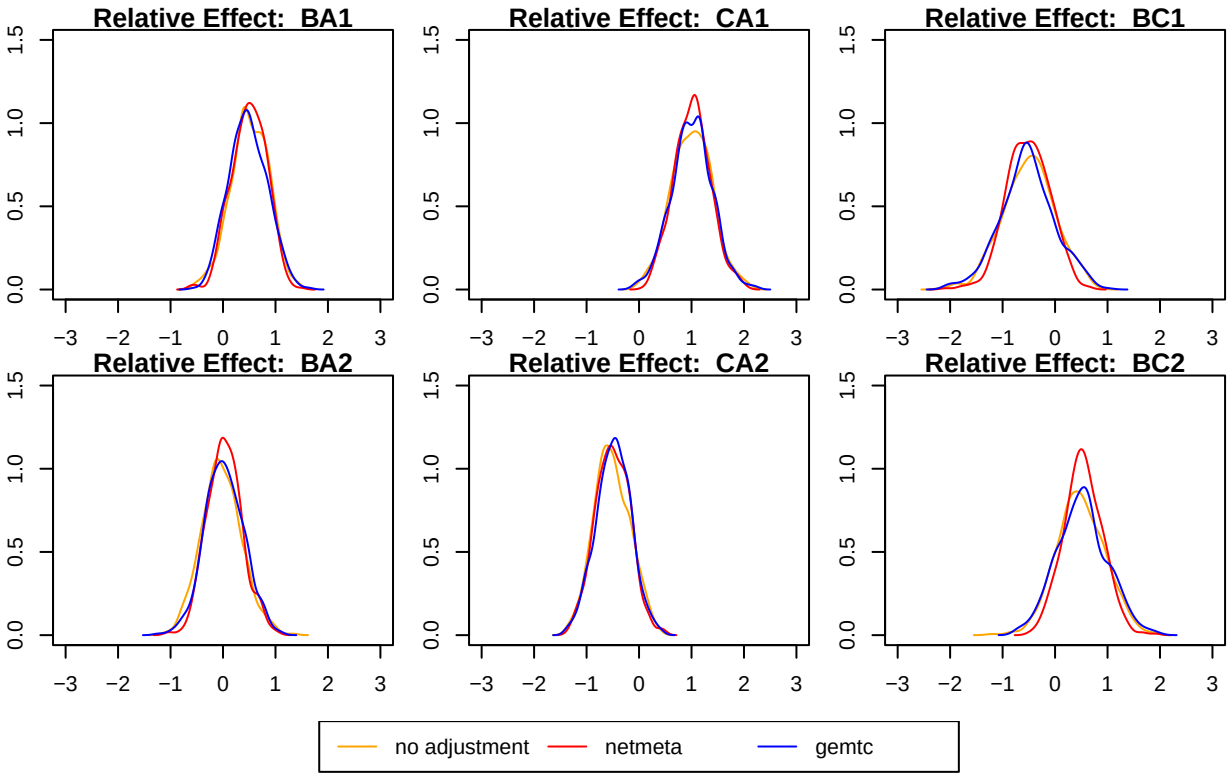
```
##    BA1    CA1    BC1    BA2    CA2    BC2
## 1.0896 3.0120 1.9224 1.6039 3.1619 1.5580
```

Large bias may cause from two perspectives:

1. We reduce the length of markov chain due to the computation burden.
   - Gibbs Sampler: 5000 to 1000
   - MH algorithm: 500 to 100

   The markov chain is too short to reach the stable distribution.
2. In the matrix $H(\cdot)$ and the matrix $J(\cdot)$, we used the estimate from the last step instead of MLE.

Density Plot for 500 simulations



Bias for 500 simulations

```
##             BA1   CA1   BC1   BA2   CA2   BC2
## no adjust 0.009 0.005 0.004 0.025 0.016 0.010
## gemtc     0.022 0.004 0.027 0.025 0.012 0.013
## netmeta   0.002 0.012 0.014 0.030 0.004 0.034
```

Variance for 500 simulations

```
##             BA1   CA1   BC1   BA2   CA2   BC2
## no adjust 0.129 0.151 0.250 0.147 0.115 0.214
## gemtc     0.130 0.148 0.268 0.138 0.107 0.232
## netmeta   0.110 0.118 0.168 0.111 0.104 0.135
```