

Additional File 3

Performance with weighted inclusion probabilities

Figure 1: **Variation in area under the ROC curve (AUC)** across 165 simulations are shown for approaches that do not perform variable selection. Points beyond the end of the whiskers denote outliers. An AUC of 1.0 is ideal. S denotes the sparsity setting or the proportion of influential variables in the data.
a. $\beta = \pm 1$ and **b. $\beta \in \mathcal{U}$**

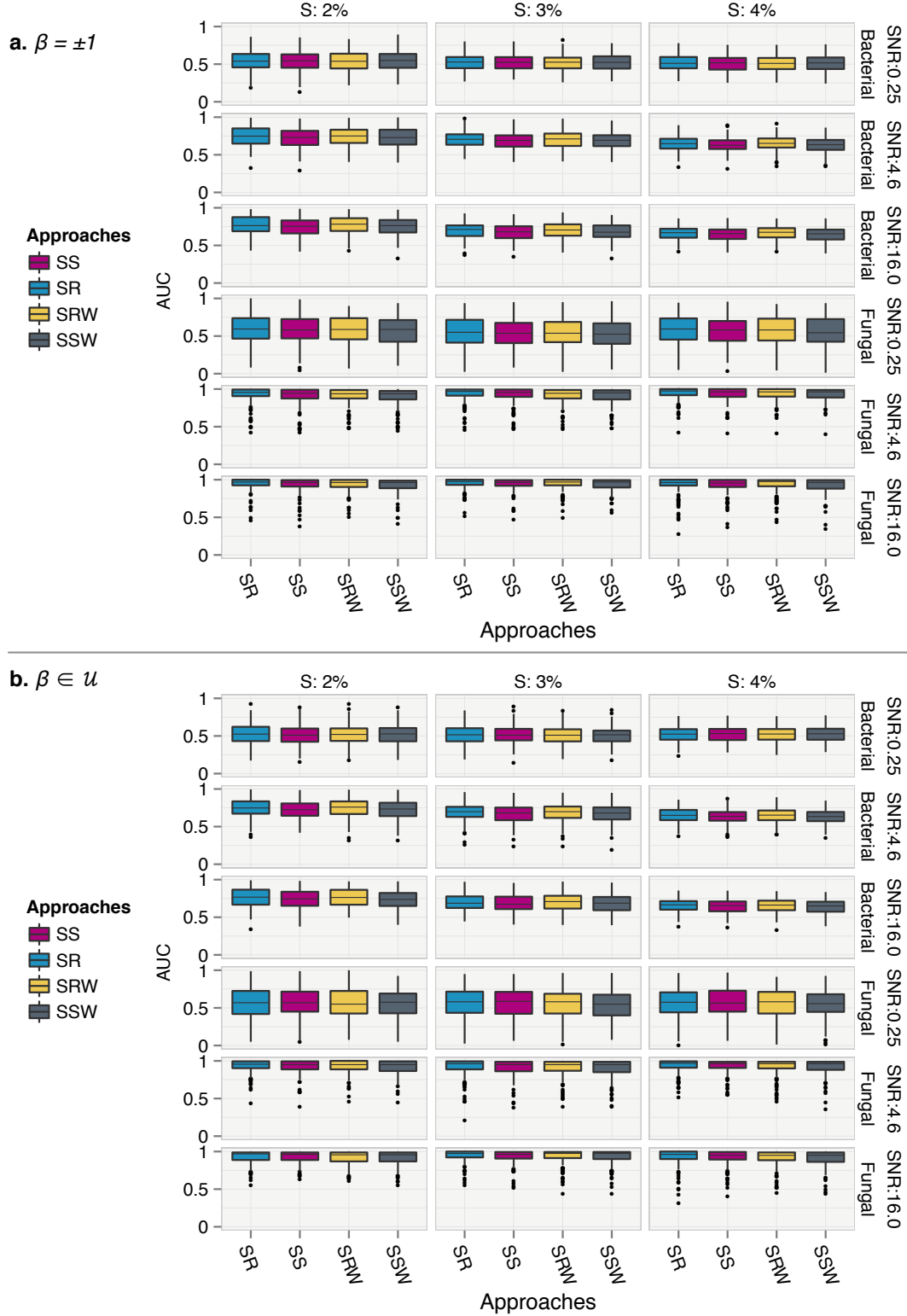


Figure 2: **Median AUC** across 165 simulations are shown for approaches that do not perform variable selection. An AUC of 1.0 is ideal. **a.** $\beta = \pm 1$ and **b.** $\beta \in \mathcal{U}$

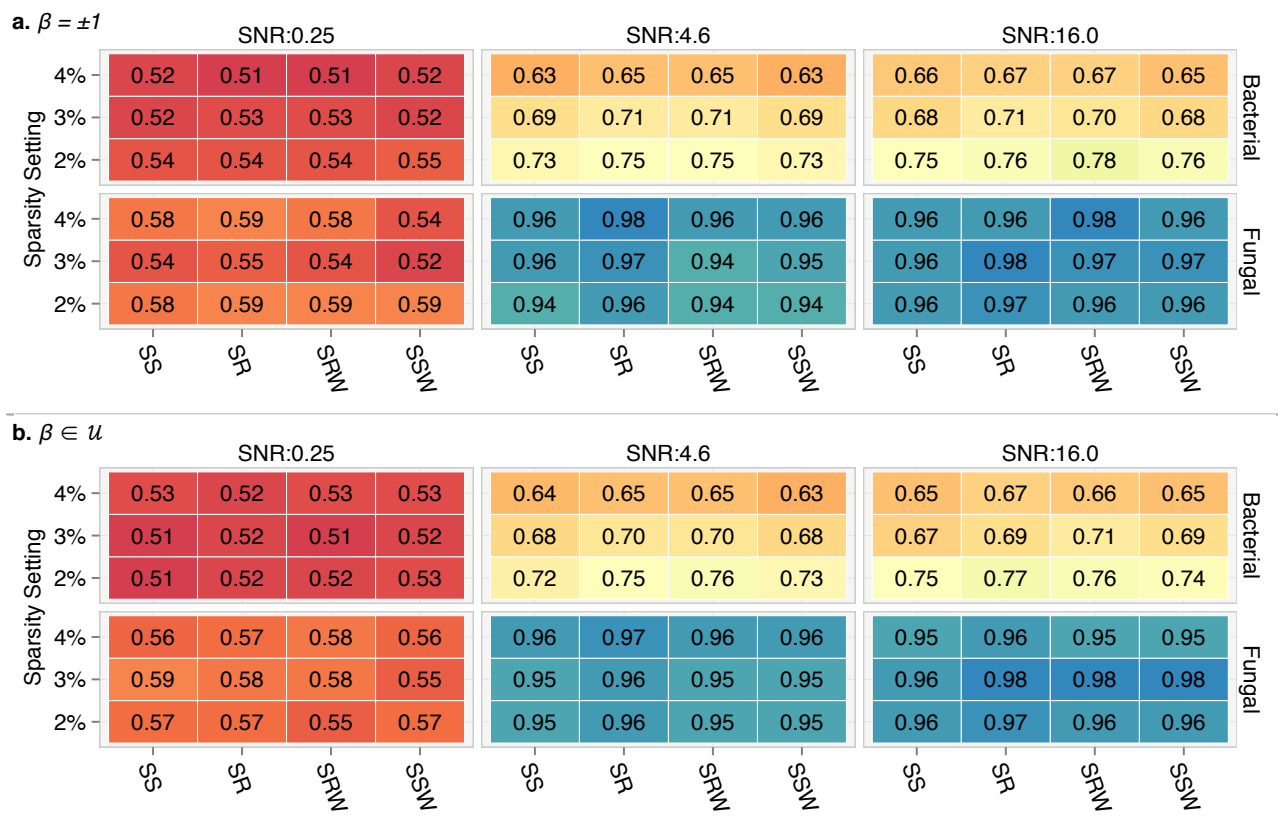


Figure 3: **Variation in F-score** across 165 simulations. Points beyond the end of the whiskers denote outliers. An F-score of 1.0 is ideal. The LD algorithm was used to select variables for approaches that do not perform variable selection. SNR=0.25 is not shown. S denotes the sparsity setting or the proportion of influential variables in the data. *a.* $\beta = \pm 1$ and *b.* $\beta \in \mathcal{U}$

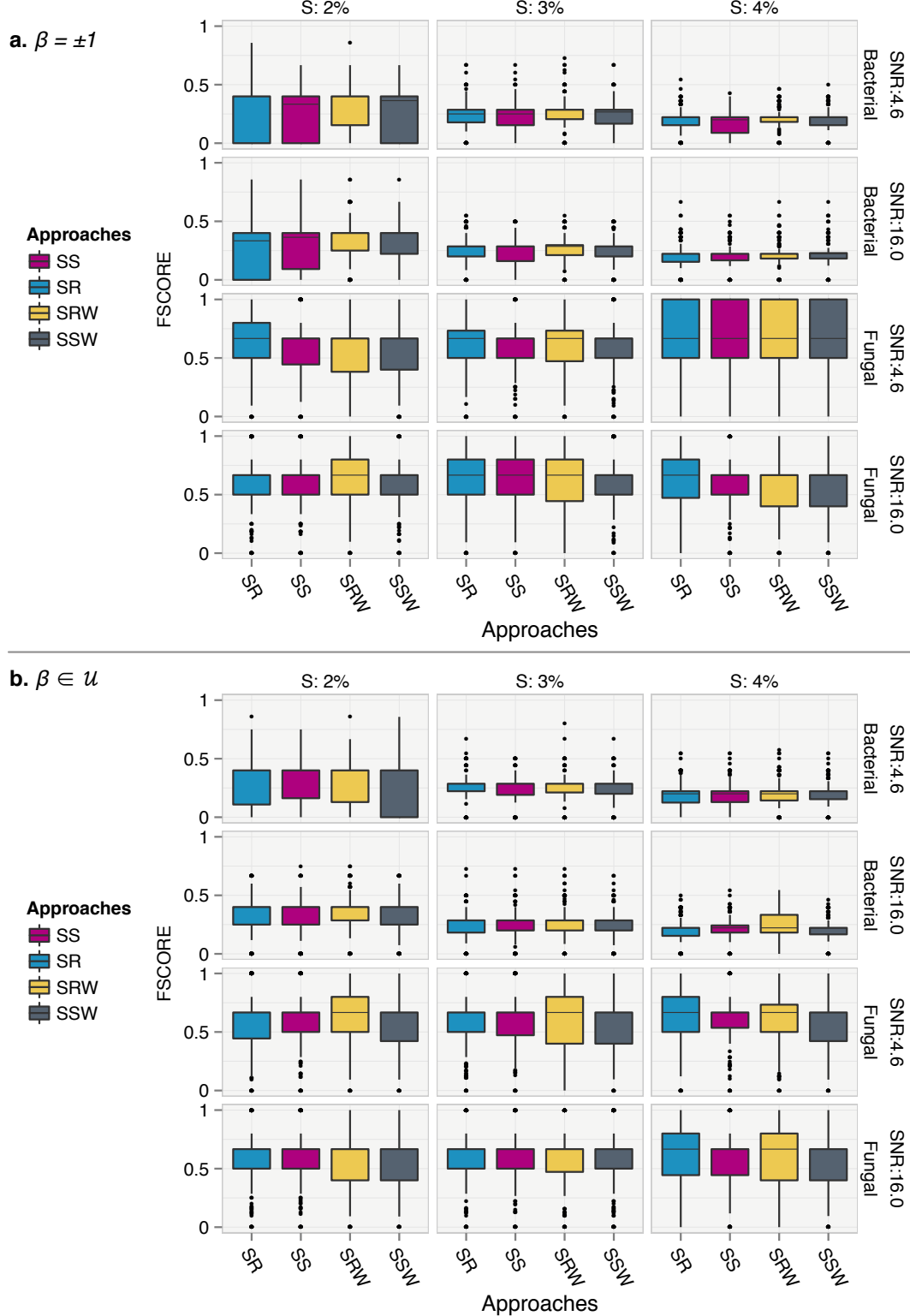


Figure 4: **Median F-score** across 165 simulations. An F-score of 1.0 is ideal. The LD algorithm was used to select variables for approaches that do not perform variable selection. SNR=0.25 is not shown. **a.** $\beta = \pm 1$ and **b.** $\beta \in \mathcal{U}$

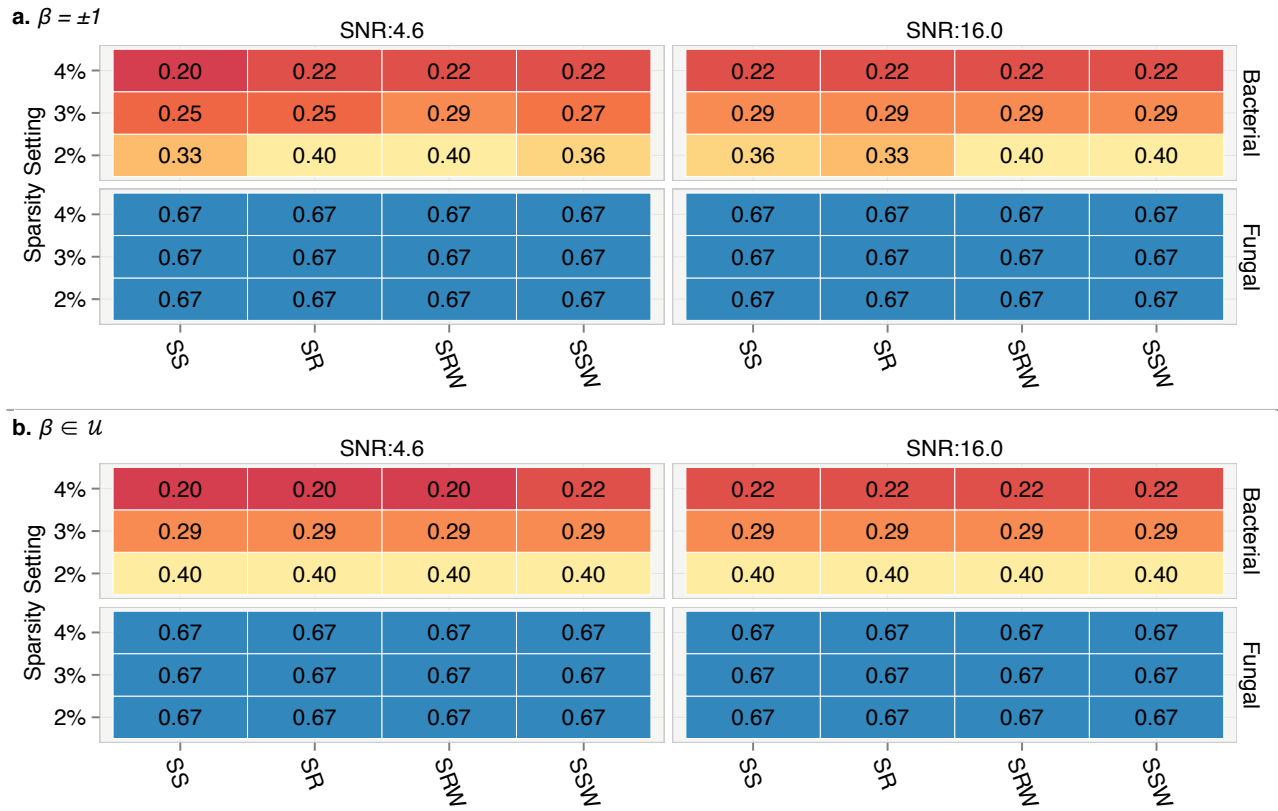


Figure 5: **Variation in Spearman's rank correlation** ($\beta \in \mathcal{U}$) across 165 simulations are shown for approaches that do not perform variable selection. Points beyond the end of the whiskers denote outliers. A correlation of 1.0 is ideal. Higher correlation indicates that the approach is able to capture the original variable rank more accurately. SNR=0.25 is not shown. S denotes the sparsity setting or the proportion of influential variables in the data.

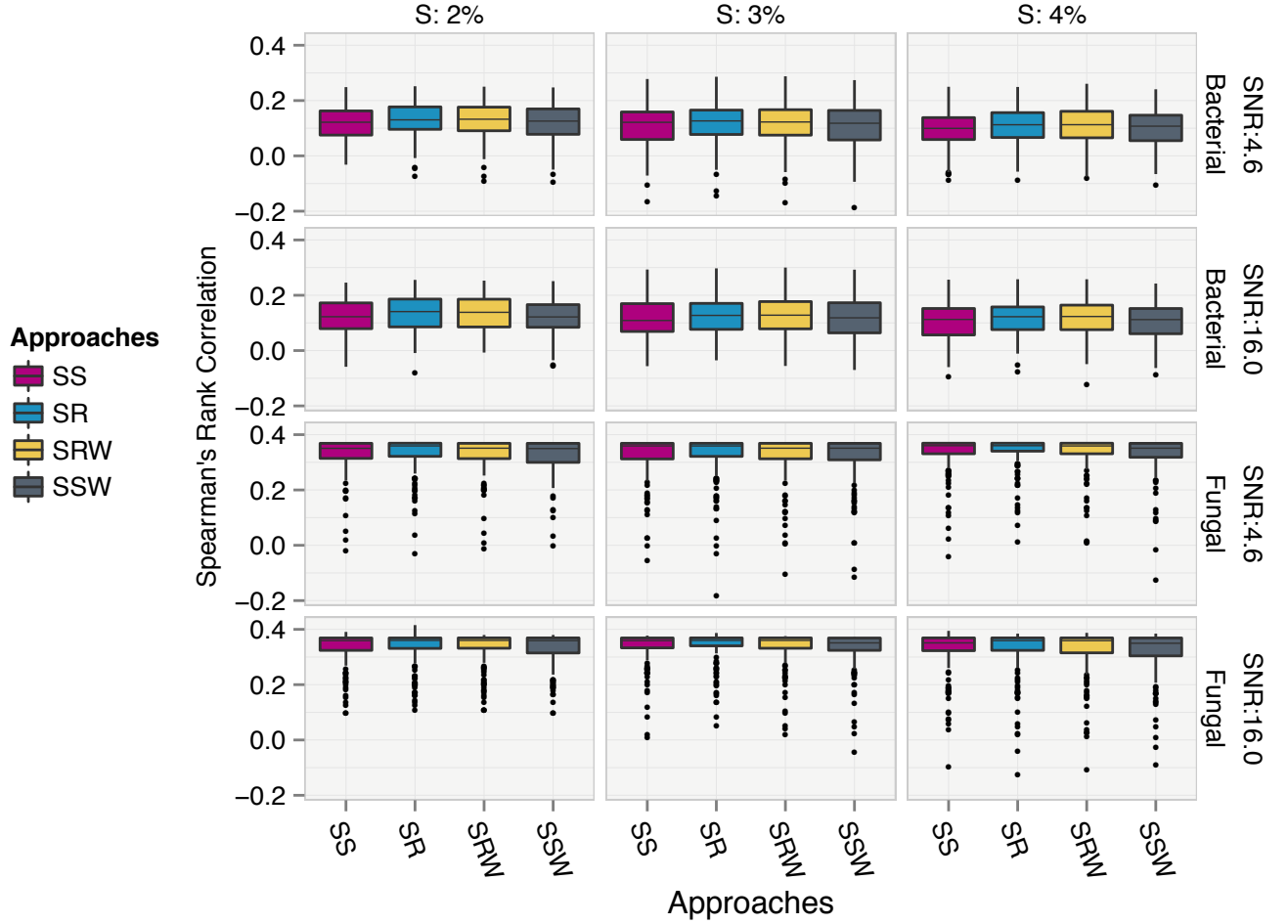


Figure 6: **Median Spearman's rank correlation** ($\beta \in \mathcal{U}$) across 165 simulations are shown for approaches that do not perform variable selection. A correlation of 1.0 is ideal. Higher correlation indicates that the approach is able to capture the original variable rank more accurately. SNR=0.25 is not shown.

