



Appendix

Four Measurements

Assume the true proportions of evidence (Y_1, Y_2, \dots, Y_n) , where n is the number of individuals/sources in the pool, and the predicted proportions of evidence $(\hat{Y}_1, \hat{Y}_2, \dots, \hat{Y}_n)$. The expression for each measurement can be expressed as:

$$\text{Root mean square error (RMSE)}: = \sqrt{\frac{1}{n} \sum_{i=1}^n (Y_i - \hat{Y}_i)^2}$$

$$\text{Relative root mean square error (RRMSE)}: = \sqrt{\frac{1}{n} \sum_{i=1}^n \left(\frac{Y_i - \hat{Y}_i}{\max(Y_i, \hat{Y}_i)} \right)^2}$$

$$\text{Mean absolute difference (MD)}: = \frac{1}{n} \sum_{i=1}^n |Y_i - \hat{Y}_i|$$

$$\text{Mean relative difference or average residual error (AVGRE)}: = \frac{1}{n} \sum_{i=1}^n \frac{|Y_i - \hat{Y}_i|}{\max(Y_i, \hat{Y}_i)}$$

Figures

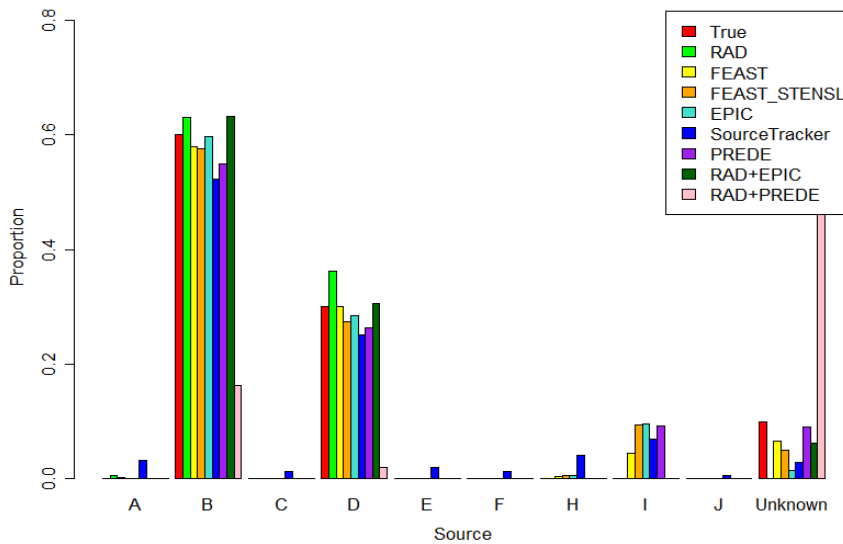


Figure S1: Barplot of the Proportion for the Case 2 Setting. The Plot Represents the Proportion of Each Source without Source G from RAD Dataset with True Setting of the Evidence (= 60%B + 30%D + 10% Missing G).

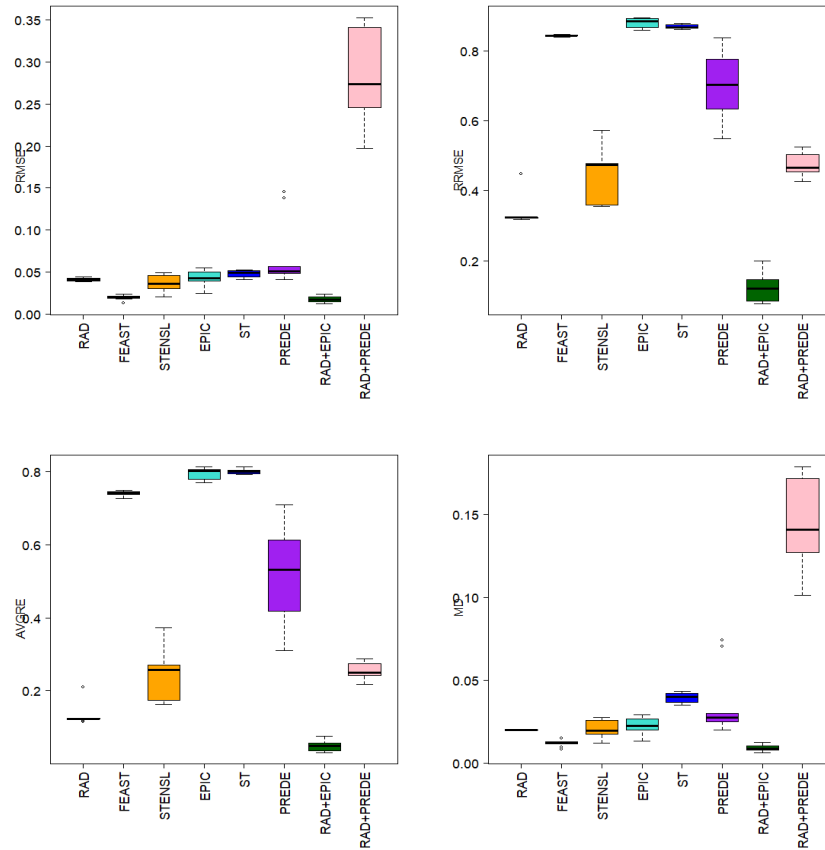


Figure S2: Boxplot of Metrics for Case 2 Setting. There are Four Metrics of Different Methods to Show the Accuracy of Them.

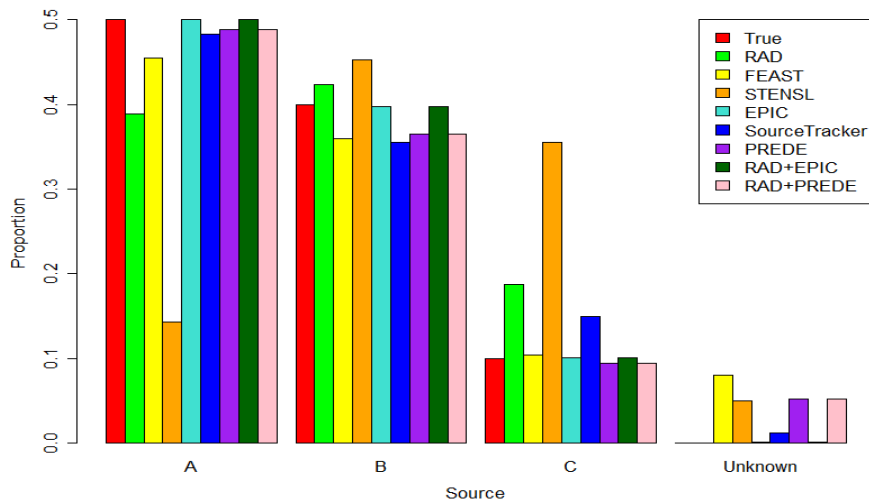


Figure S3: Barplot of Case 3 Setting. The Plot Shows the Proportion of Each Source from FEAST Simulation with the True Setting of the Evidence (= 50%A + 40%B + 10%C).

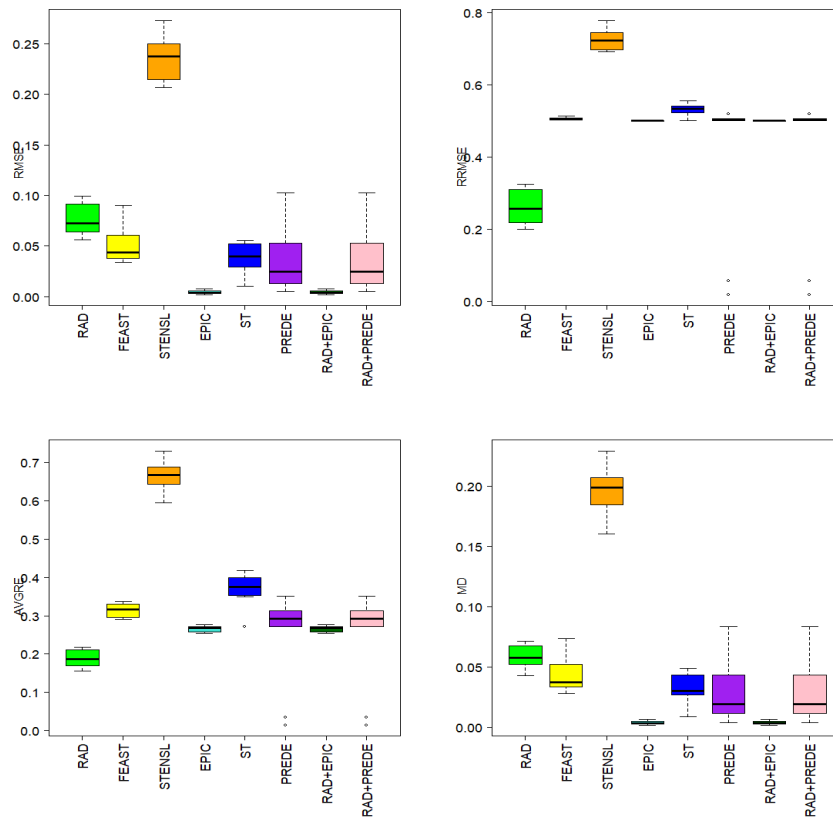


Figure S4: Boxplot of Metrics for Case 3 Setting. Four Metrics of Eight Methods are Presented to Compare the Accuracy of Different Methods.

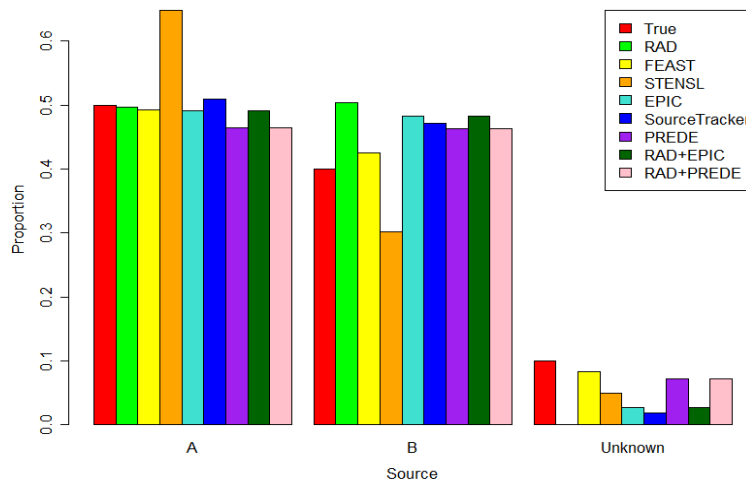


Figure S5. Barplot of Case 4 Setting, FEAST Data Set with Missing Source C. The Plot Illustrates the Proportion of Each Source from FEAST Simulation with True Setting of the Evidence (= 50%A + 40%B + 10% Missing Source C).

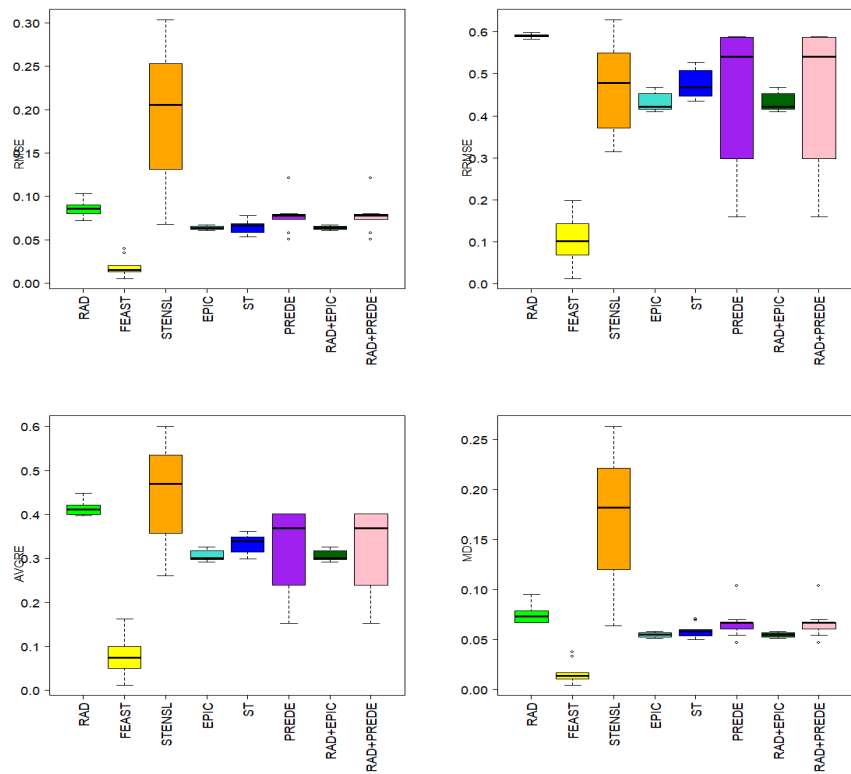


Figure S6: Boxplot of Metrics for Case 4 Setting, FEAST Data Set with Missing Source C.

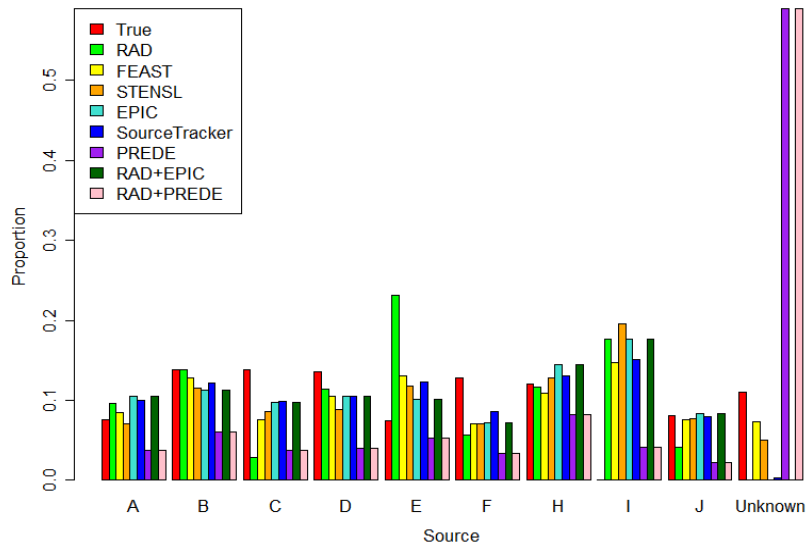


Figure S7: Barplot of Proportions of Case 6 Setting, the PREDE Data Set with Missing Source G. The Proportion of Each Source from PREDE Simulation with True Setting of the Evidence is (= 8%A+ 14%B + 2%C + 8%D + 6%E +17%F + 9%H + 17%I + 17%J + 11%Missing Source G).

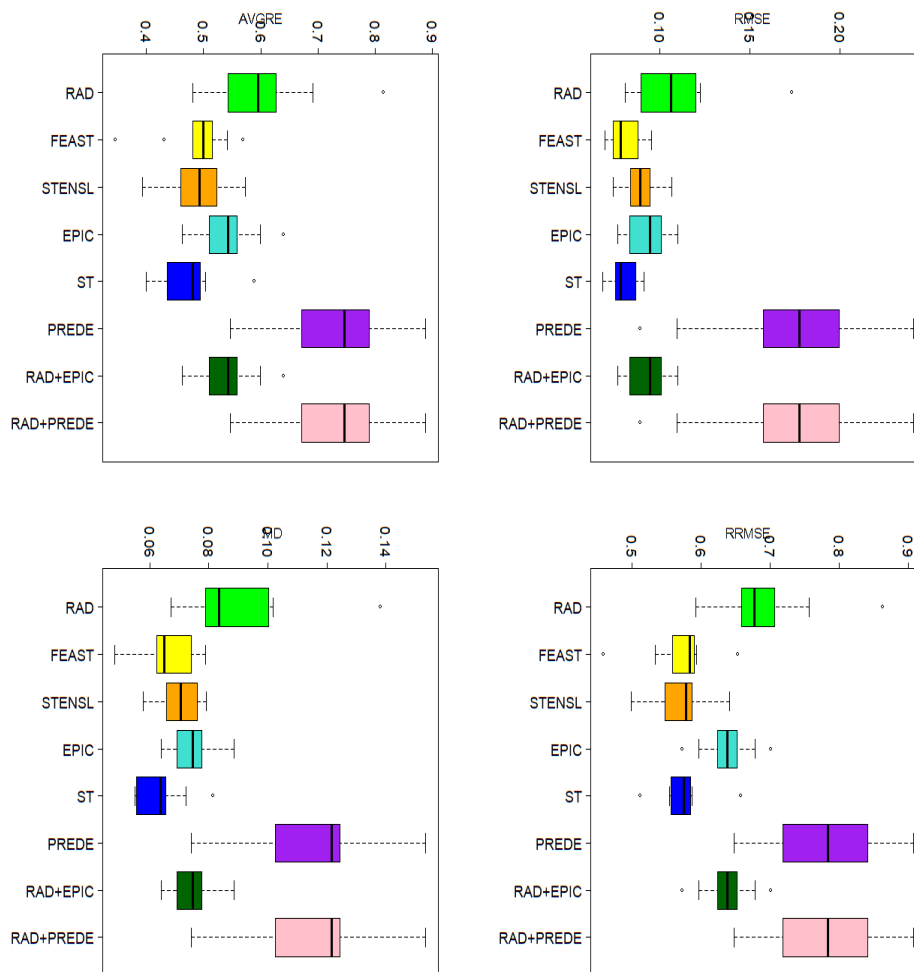


Figure S8: Boxplot of Metrics for Case 6 Setting, the PREDE Data Set with Missing Source G. The FEAST, STENSL and ST Methods are Close to Each Other.

