APPENDIX (online)

J Full experimental results

We compared the accuracy of simplet counting and running time of different methods with the varying number of samples/queries $x \in \{10^2, 10^3, 10^4, 10^5\}$. For the largest `thso` dataset, we varied the number of queries for SCRW until 10^6. When comparing the running times of the methods to achieve similar counting accuracies, the relative superiority among the compared methods varies depending on the dataset, and it is largely determined by the pre-processing time required for the building step of SC3. As shown in Figure 1, SCRW tends to be faster than SC3 to obtain similar counting accuracies on 5 out of 16 datasets. On the other hand, SC3 tends to be faster than SCRW on the other 11 datasets, as shown in Figure 2. Specifically, SCRW takes up to $12.9\times$ less time to obtain similar counting accuracies in the `cD` dataset when $k = 4$, while SCRW takes up to $19.6\times$ more time in the `Nc` dataset when $k = 4$.
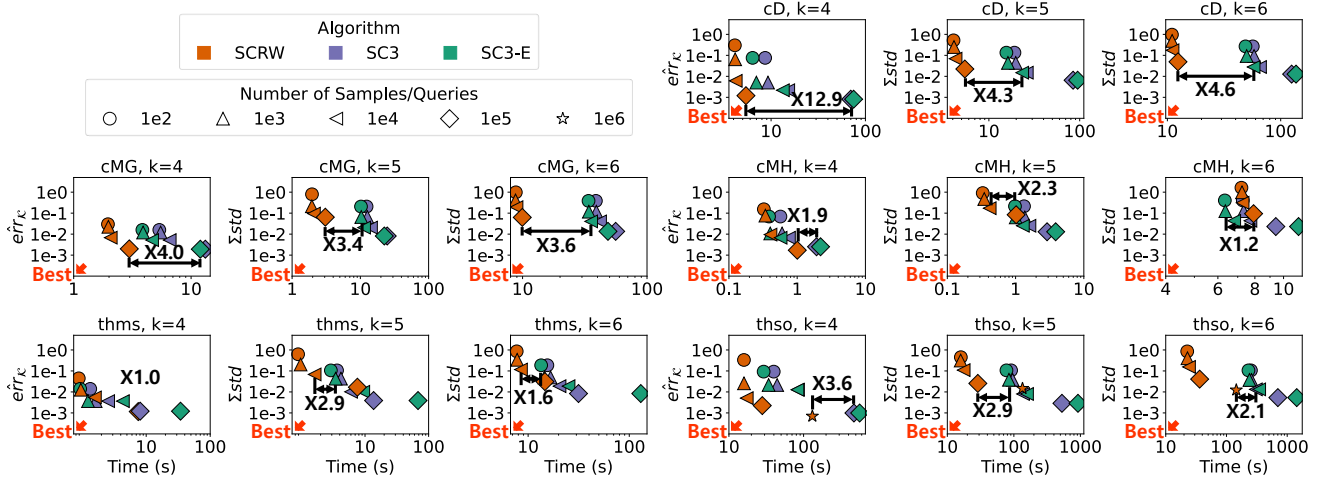
Fig. 1: <u>On 5 out of 16 datasets, SCRW tends to outerform SC3.</u> We report the trade-offs between speed and counting accuracy of each method on the 5 datasets when $k = 4$ (left), 5 (center), and 6 (right). We report the mean value of the measurement outputs and times over 20 trials on each dataset. Except for the cMH dataset with $k = 6$, on these 5 datasets, SCRW offers better trade-offs than SC3.
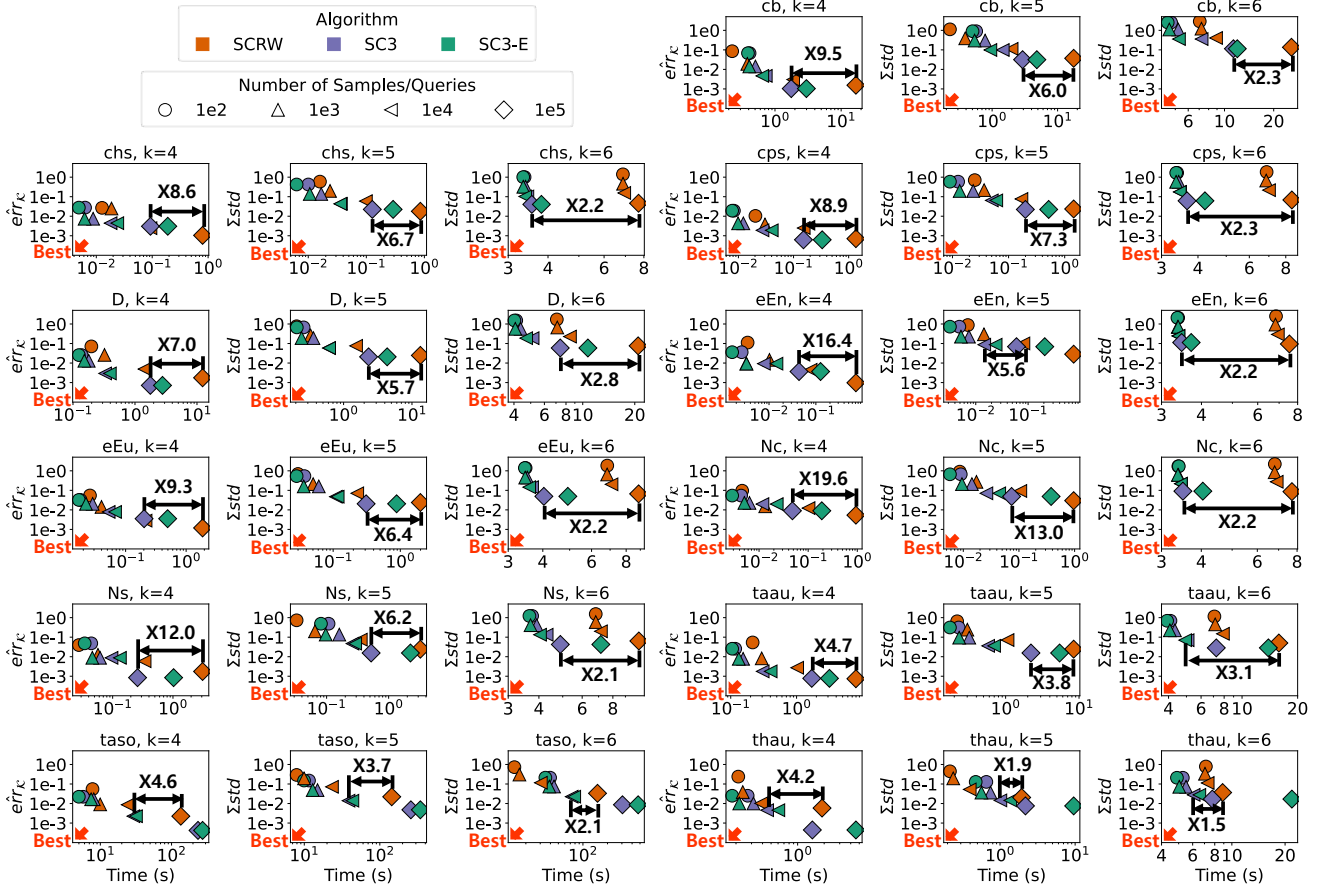

Fig. 2: <u>On 11 out of 16 datasets, SC3 tends to outerform SCRW.</u> We report the trade-offs between speed and counting accuracy of each method on the 11 datasets when $k = 4$ (1st, 4th columns), 5 (2nd, 5th columns), and 6 (3rd, 6th columns). We report the mean value of the measurement outputs and times over 20 trials on each dataset. On these 11 datasets, SCRW offers better trade-offs than SC3.