

# ***SOGA*: Inference of Probabilistic Programs by Second-order Gaussian Approximation Reproducibility Report**

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Table 6: Comparing ground truth and *SOGA* with varying pruning factors  $K$ , calculated using PSI. Rows display absolute percentage errors ( $|\%e|$ ) for different  $K$ , with  $C$  denoting components without pruning.

|                      |                     | SOGA        |         |          |                         |         |                           |         |                            |         |  |
|----------------------|---------------------|-------------|---------|----------|-------------------------|---------|---------------------------|---------|----------------------------|---------|--|
|                      |                     | $K=\infty$  |         |          | $K=\lceil .015C \rceil$ |         | $K=\lceil .00725C \rceil$ |         | $K=\lceil .003625C \rceil$ |         |  |
| <i>Model</i>         | <i>Ground Truth</i> | <i>time</i> | $ \%e $ | <i>C</i> | <i>time</i>             | $ \%e $ | <i>time</i>               | $ \%e $ | <i>time</i>                | $ \%e $ |  |
| <i>Bernoulli</i>     | 0.250               | 7.42        | 2.76    | 1954     | 0.83                    | 2.76    | 0.47                      | 2.73    | 0.31                       | 2.98    |  |
| <i>ClickGraph</i>    | 0.614               | to          |         |          | 4600                    | 9.92    | 0.02                      | 3.36    | 0.02                       | 1.45    |  |
| <i>ClinicalTrial</i> | 0.755               | 22.24       | 0.21    | 5795     | 3.78                    | 0.21    | 1.53                      | 0.21    | 0.74                       | 0.20    |  |
| <i>RadarQuery</i>    | 6.333               | 6.40        | 5.99    | 2042     | 9.06                    | 8.89    | 6.01                      | 6.31    | 2.85                       | 7.48    |  |
| <i>Coinbias</i>      | 0.421               | 32.85       | 1.40    | 7687     | 5.51                    | 1.40    | 2.10                      | 1.40    | 0.97                       | 1.40    |  |
| <i>Surveyunbias</i>  | 0.625               | 28.18       | 0.77    | 6902     | 4.36                    | 0.77    | 1.86                      | 0.78    | 0.83                       | 0.77    |  |