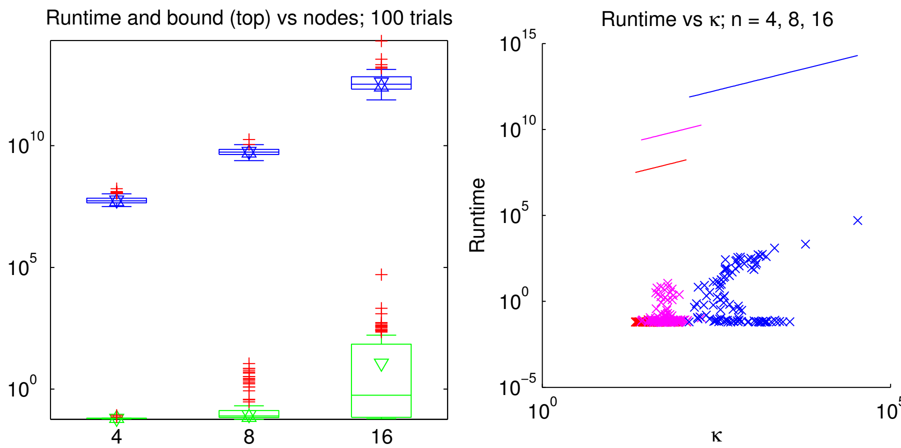

Figure 1: Actual runtime and theoretical bound *Left:* Scaling with respect to problem size. Each box plot represents 100 trials; top (blue) are theoretical bounds and bottom (green) are actual runtimes. *Right:* Scaling with respect to instance parameter κ (see text). Solid line is theoretical bound, and scatter points are actual runtimes. Red, magenta, blue and 4, 8, 16 nodes respectively.

1 Experiments

We generated 100 complete graphs for $N = 4, 8, 16$ nodes, drawing each θ_i uniformly from $[-2, 2]$, W_{ij} uniformly from $[0, 1]$ and applying the de-biasing procedure in Section . We set $\varepsilon = 0.01$. To investigate the empirical tightness of the theoretical bound, we note that the instance-specific parameters, i.e. the the density of the Hessian and the size of the bound interval can be written as $\kappa = \Sigma^{3/4}\Omega^{3/2}$. We then plot the theoretical bound $O(n^6\varepsilon^{-3/2}\kappa)$ as a function of both n and *kappa* in Figure 1. Our empirical worst-case results do indeed follow the shape of our theoretical bound. This suggests that the bound is in practice tight. In addition, as shown in Figure 2 the total 1-norm error of the singleton marginals remain low, even with our relatively course tolerance on the free energy term.

FiXme Warning: Reference!

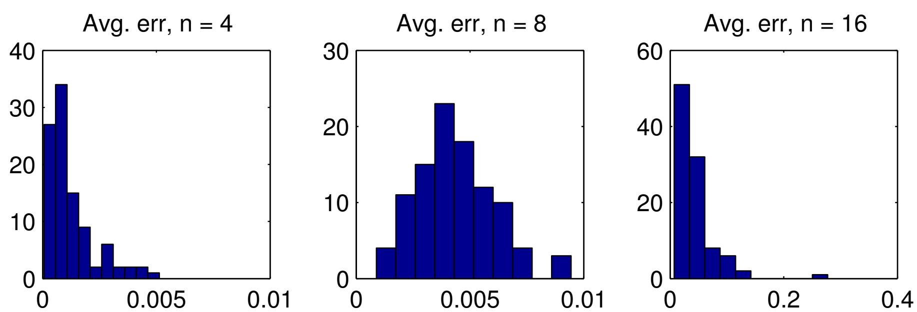

Figure 2: Average 1-norm deviations from truth (according to Junction Tree) in singleton marginals. Plot of 100 trials per size.