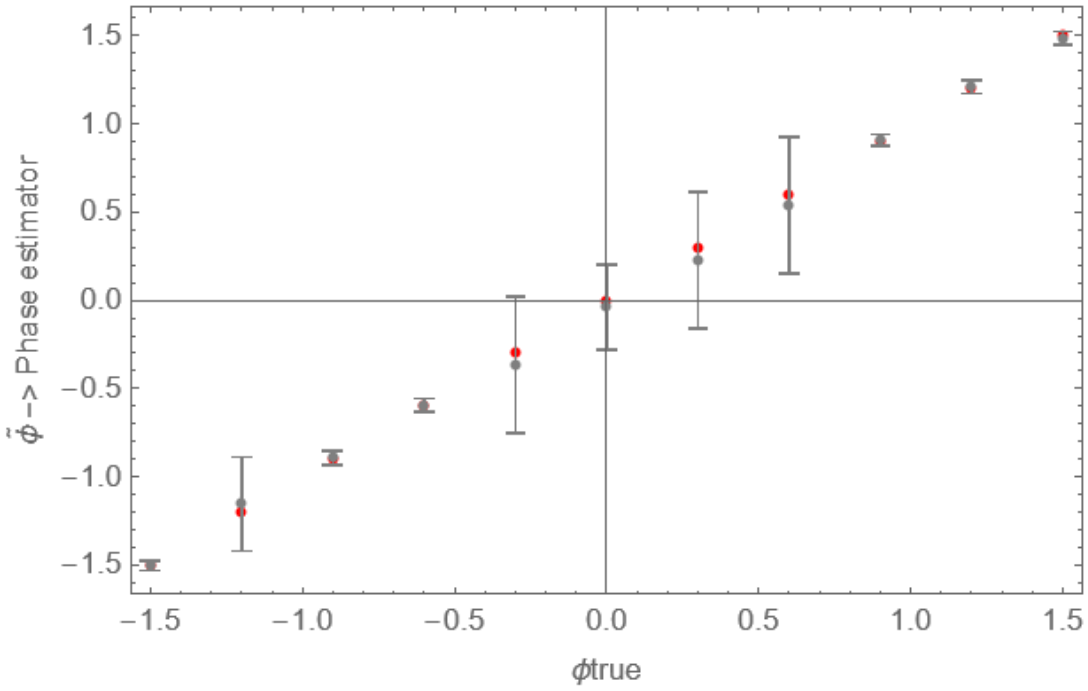
Simulations

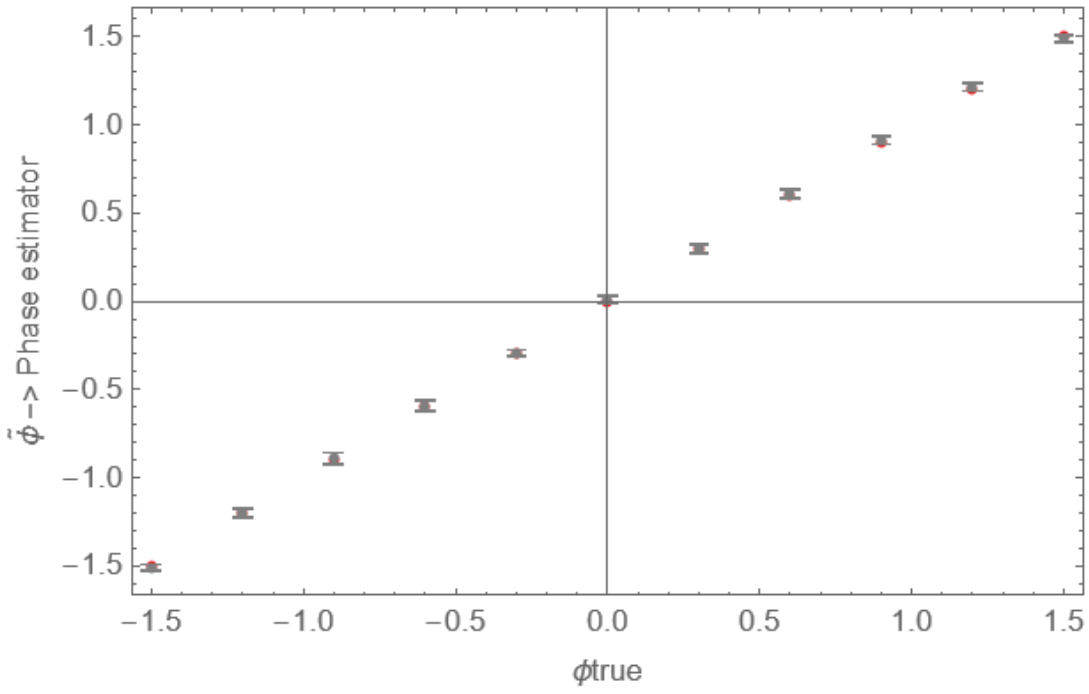
▼ Non-adaptive simulation

▼ Error analysis for 30 trials of 100 shots

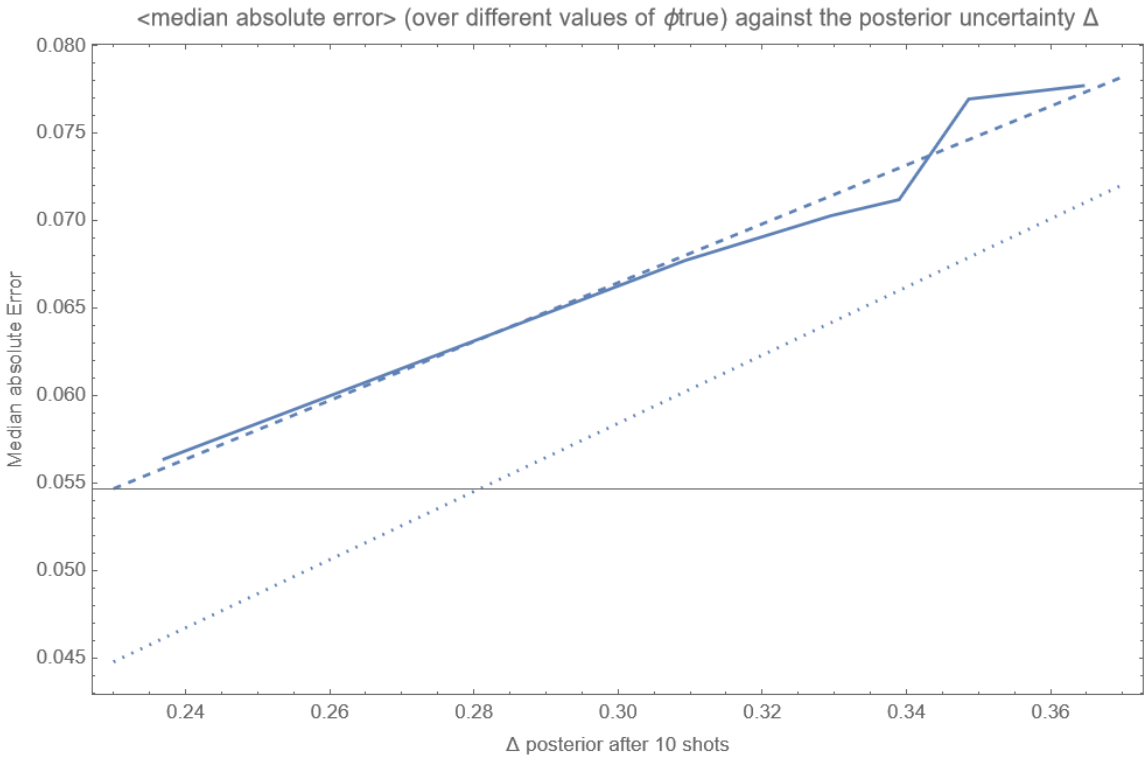
▼ $\tilde{\phi} \pm RMSE$



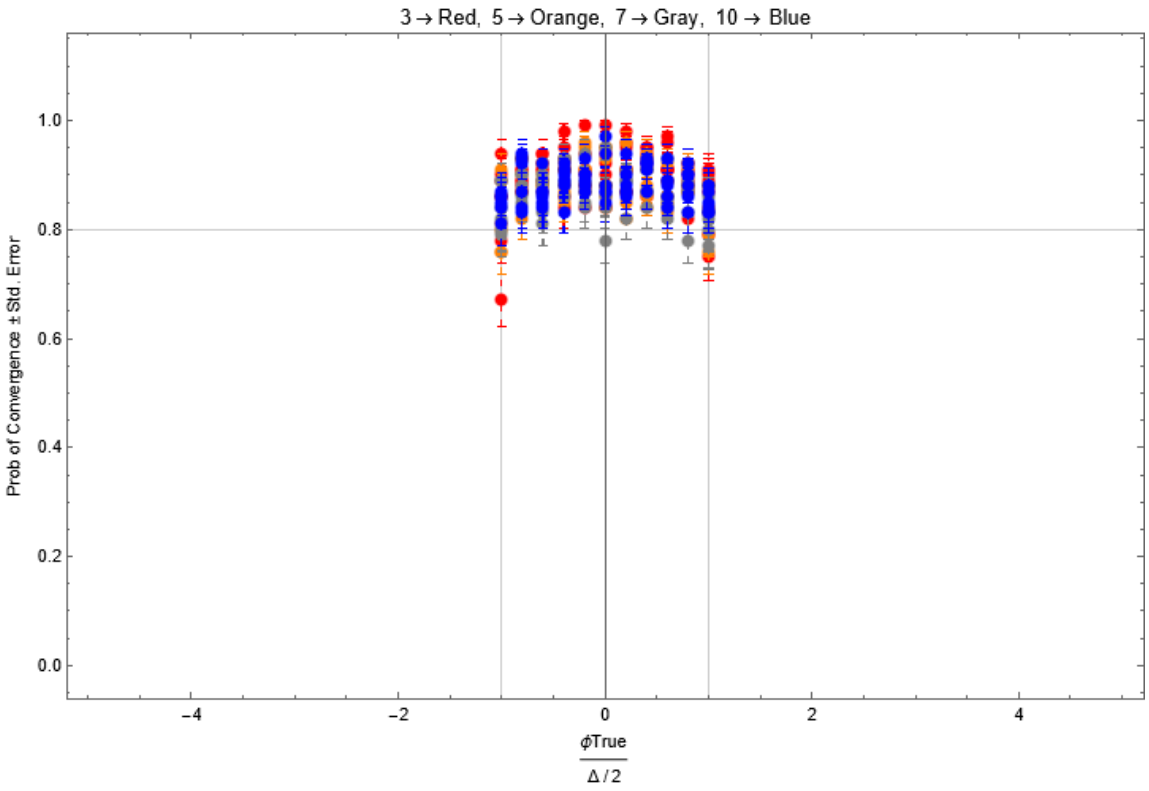
▼ $\tilde{\phi} \pm Median\ absolute\ error$



▼ Median Absolute error $\propto \Delta_{posterior}$



▼ Probability of convergence w.r.t $\frac{\phi_{true}}{\Delta/2}$



$\left|\frac{\phi_{true}}{\Delta/2}\right| \leq 1$ to get approximately 80% probability of $\tilde{\phi}$ converging to ϕ_{true}

▼ Correction strategy implemented - decide that correction strategy too expensive (low ROI). Not implemented for adaptive simulations

▼ N=3

```
In[•]:= AverageDataNoCorrection
Out[•]= {0.862 ± 0.010}

(*Gaussian only*)

In[•]:= AverageDataCorrection
Out[•]= {0.885 ± 0.010}

(*5 shots*)

In[•]:= AverageDataCorrection
Out[•]= {0.908 ± 0.009}

(*10 shots*)

In[•]:= AverageDataCorrection
Out[•]= {0.944 ± 0.007}
```

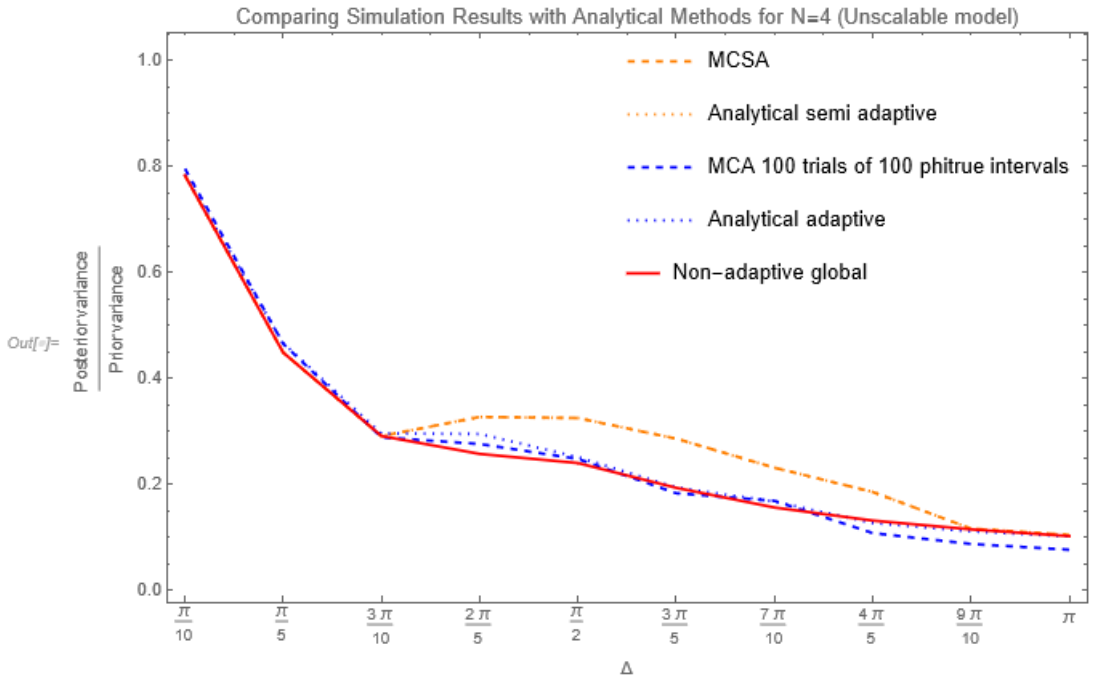
▼ N=10

```
In[•]:= AverageDataNoCorrection
Out[•]= {0.867 ± 0.010}

(*Gaussian only*)

In[•]:= AverageDataCorrection
Out[•]= {0.944 ± 0.007}

(*5 shots*)

In[•]:= AverageDataCorrection
Out[•]= {0.875 ± 0.010}

(*10 shots*)

In[•]:= AverageDataCorrection
Out[•]= {0.915 ± 0.008}
```

▼ Adaptive simulation

▼ $\frac{Posteriorvariance}{PriorVariance}$ for MCSA and MCA

▼ Compare Semi-Adaptive and Adaptive Theoretical and Simulation results for 2 shots and Nph=4 (Unscalable model - Where we plug appropriate states into global variance - this version is properly normalized, earlier version wasn't)

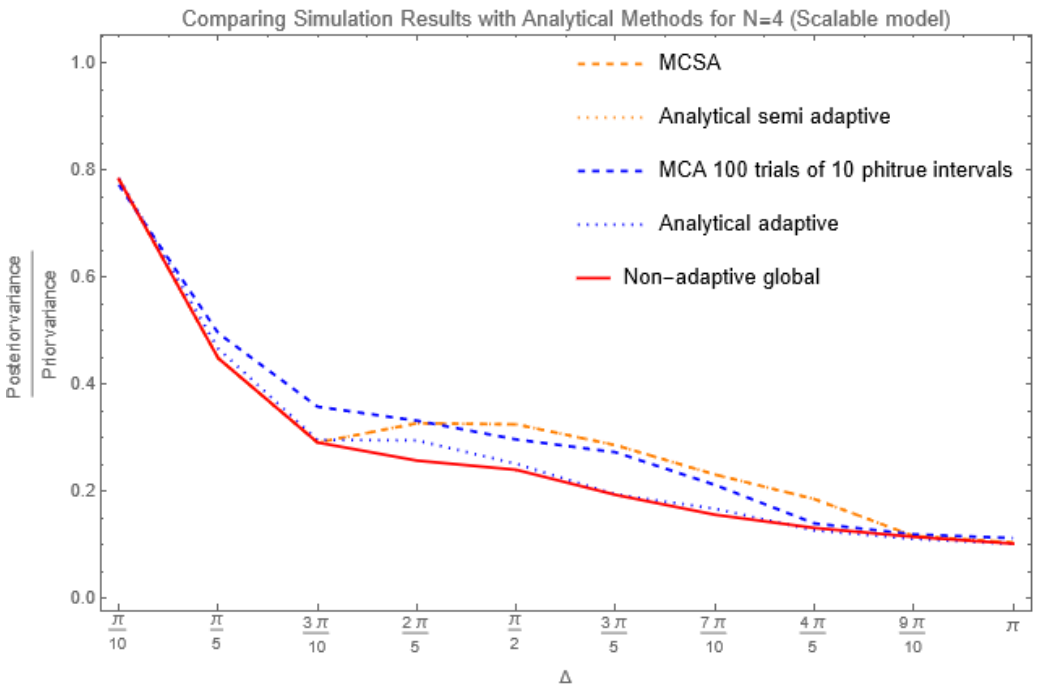


▼ Scalable model

Not plugging in appropriate states into global variance, but doing it on a shot-by-shot basis

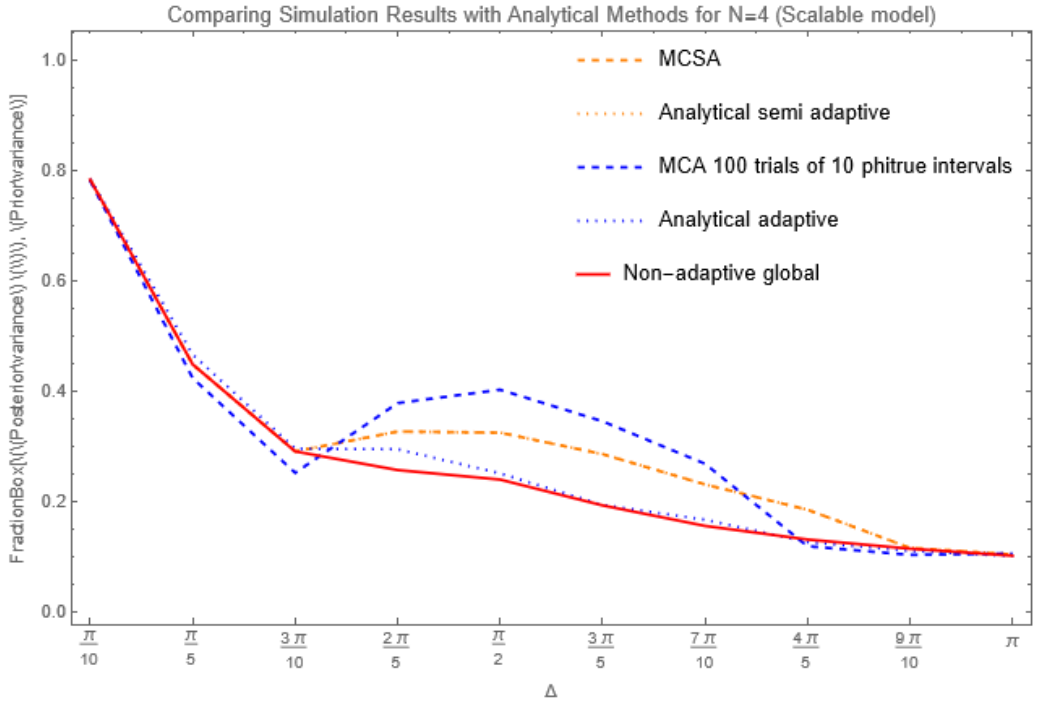
▼ Shifted:

Optimal input state is shifted by $\tilde{\phi}$ then is shifted back, input state used to compute variance and phitilde is also shifted - with proper normalization, earlier version wasn't



▼ Unshifted:

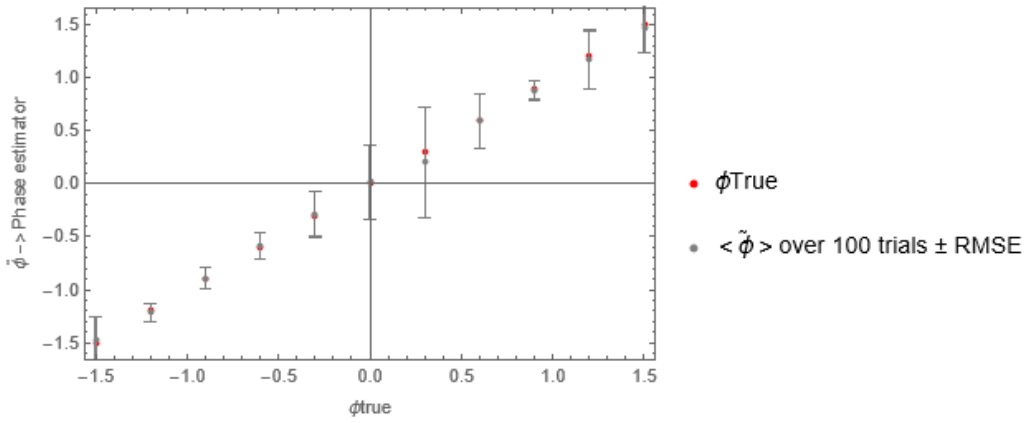
Optimal input state isn't shifted (but is properly normalized)



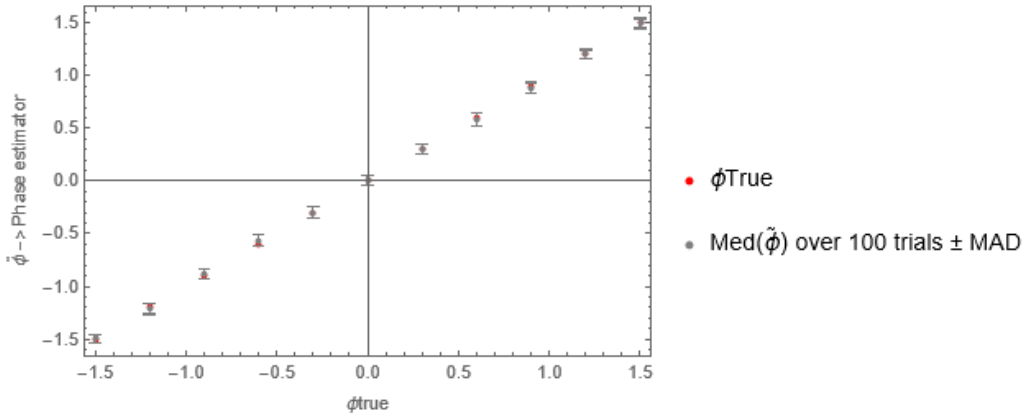
▼ Error Analysis for 100 trials of 30 shots

▼ Using Shifted input state

▼ $\tilde{\phi} \pm RMSE$



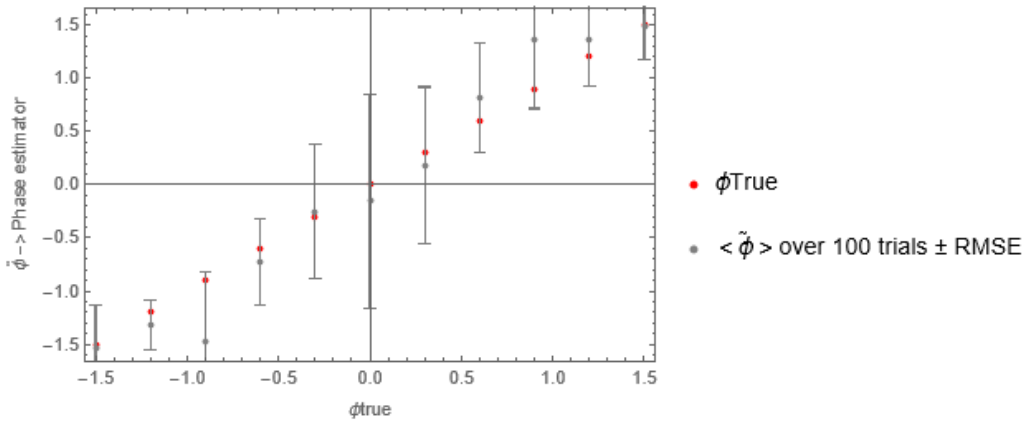
▼ $\tilde{\phi} \pm Median\ absolute\ error$



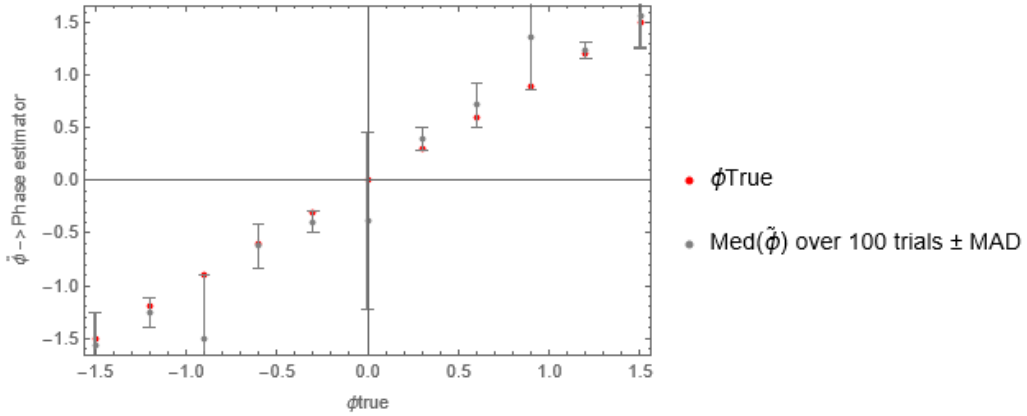
▼ Using Unshifted input state - High errors

Gave high errors (showed you results last time we spoke)

▼ $\tilde{\phi} \pm RMSE$



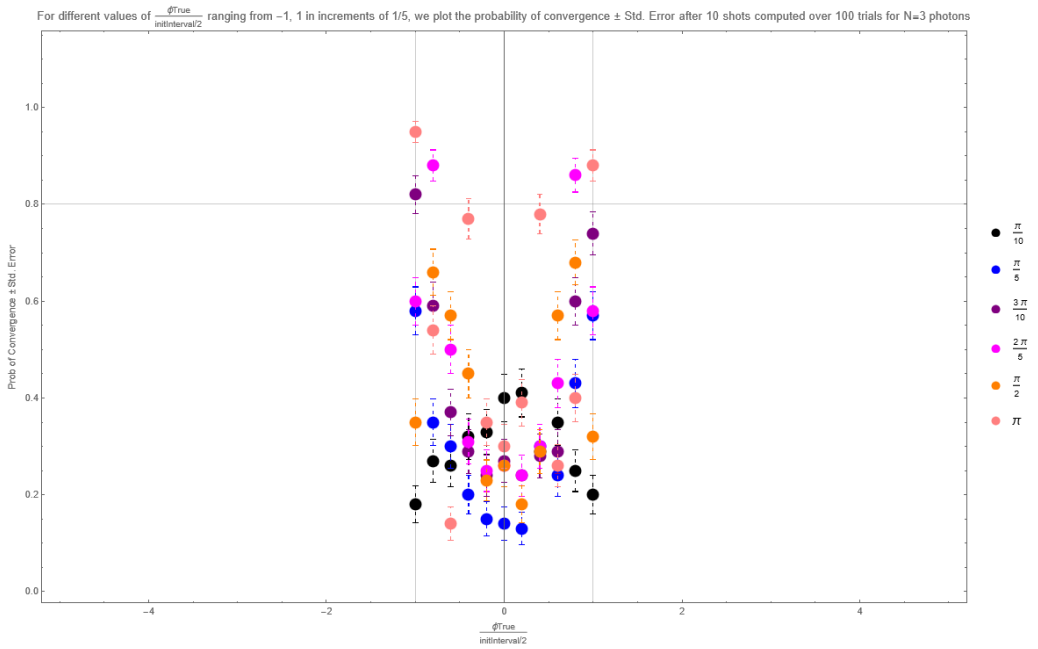
▼ $\tilde{\phi} \pm Median\ absolute\ error$



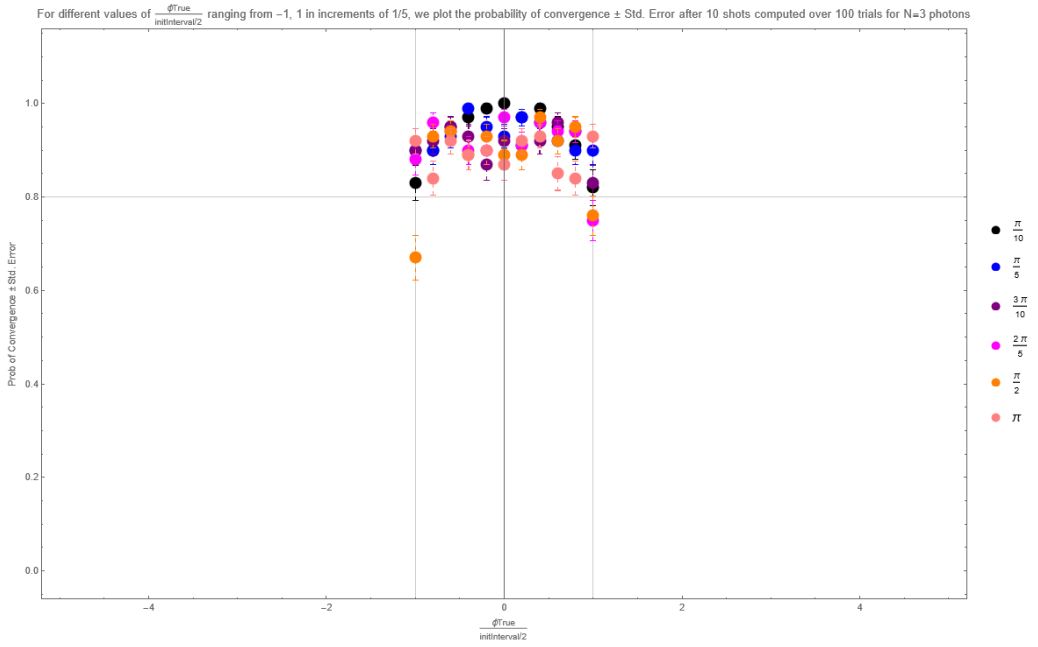
▼ Probability of convergence w.r.t $\frac{\phi_{true}}{\Delta/2}$

▼ N=3

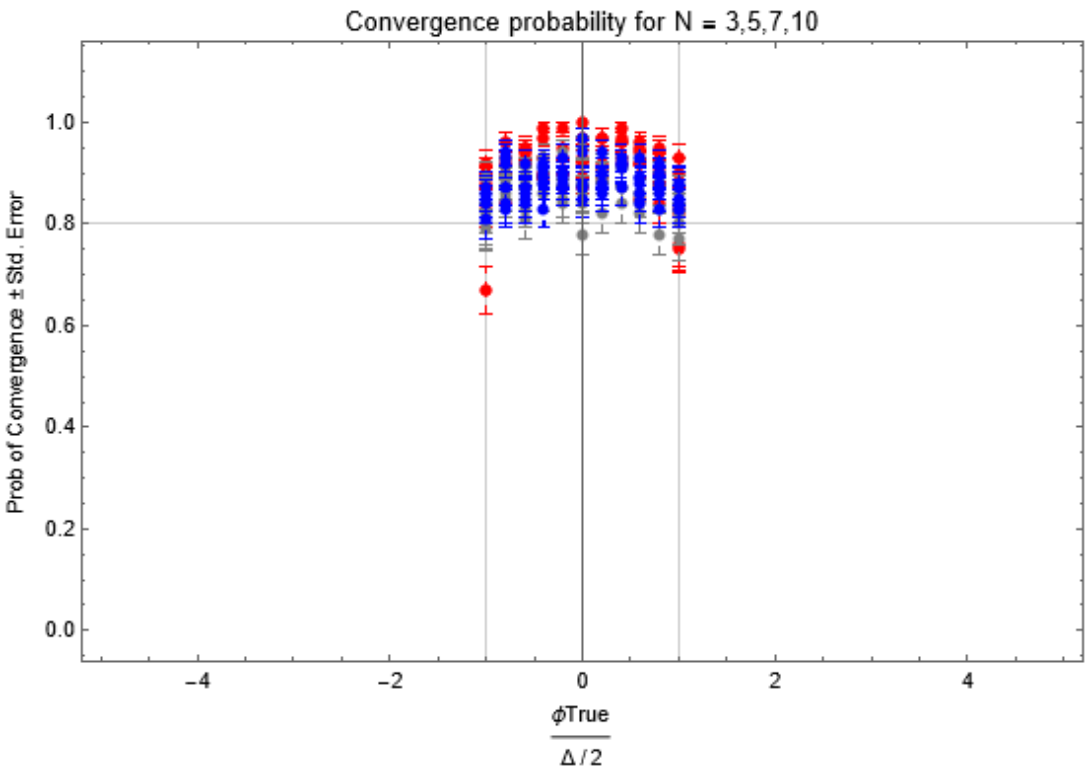
▼ Using unshifted state



▼ Using shifted state



▼ Continued using shifted state



▼ Compare simulation results: Adaptive and Non-Adaptive