# Arbitrary geometry and 3D infrastructure + experiments

TN subgroup

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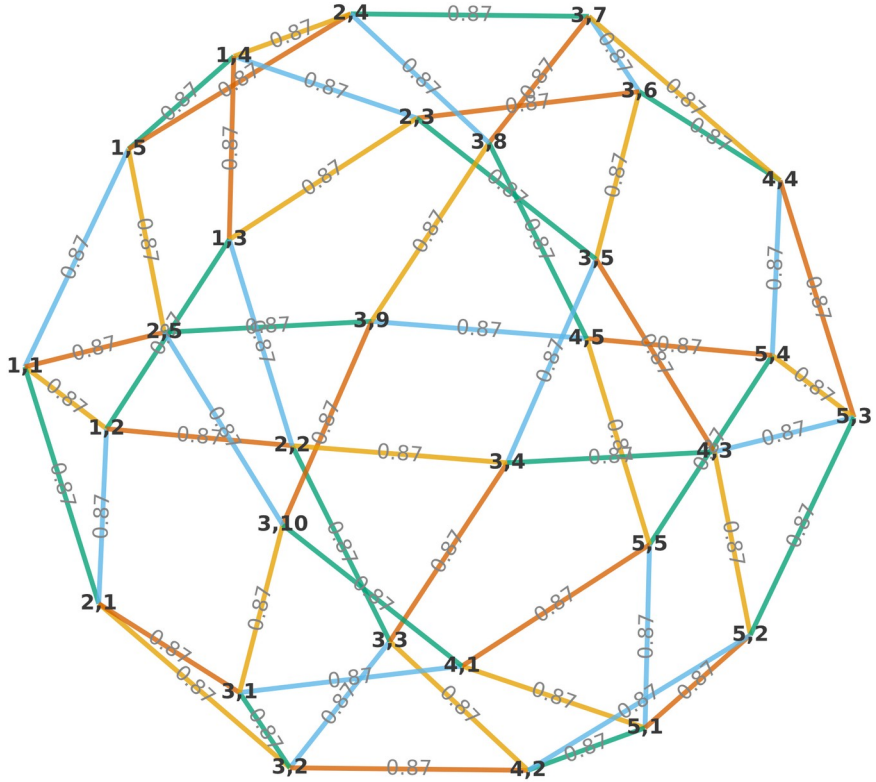
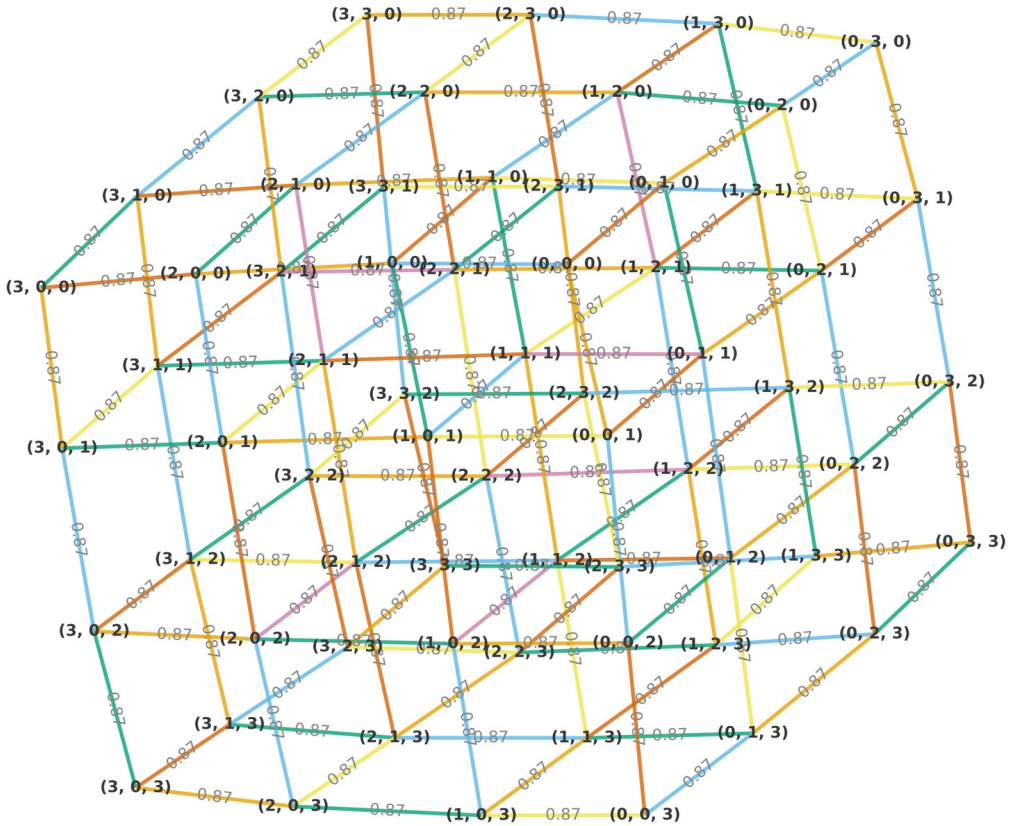
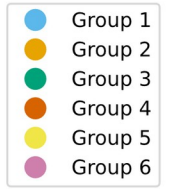
Johnnie Gray

Initial support for doing TEBD style (e.g. Simple Update) simulations on arbitrary lattices:







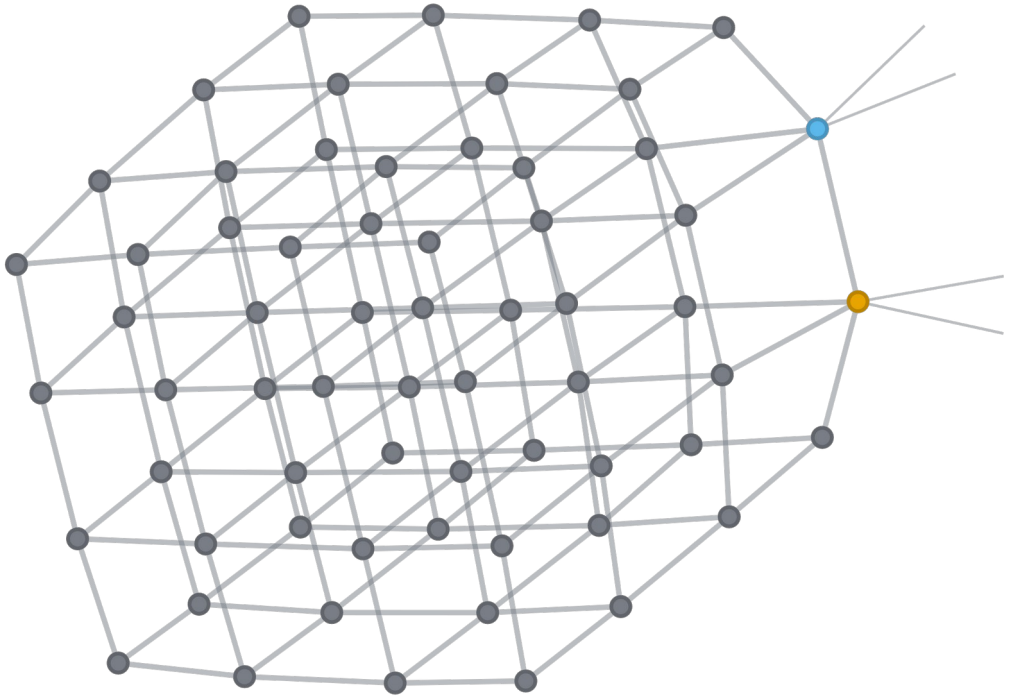

*Compute energy options:*

1. ‘simple environment’
2. ‘local region’
3. ‘compressed contraction’

Use these for initial guess?

# accuracy of local term computation in 3d

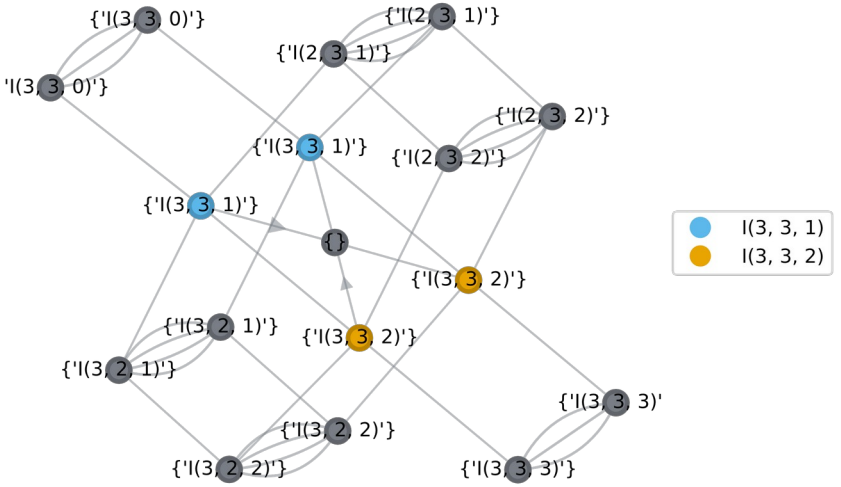
- 4x4x4 D=2 Heisenberg model, partially optimized using TEBD



Outstanding questions:

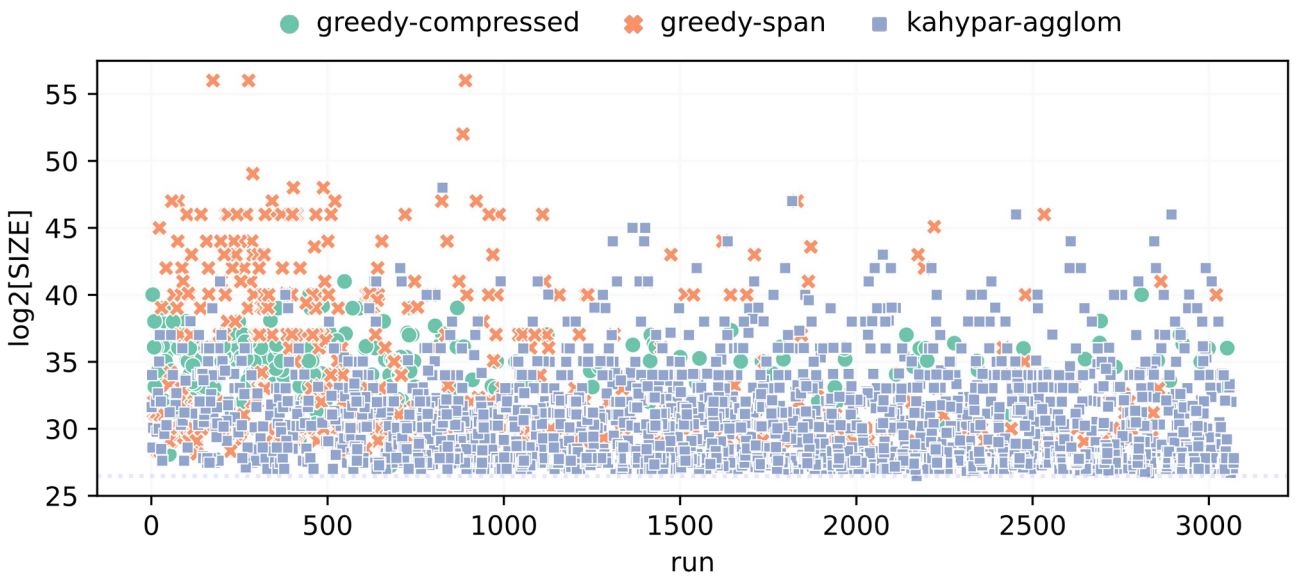
1. to flatten or not to flatten?
2. Can one improve accuracy with tricks like bond reduction?

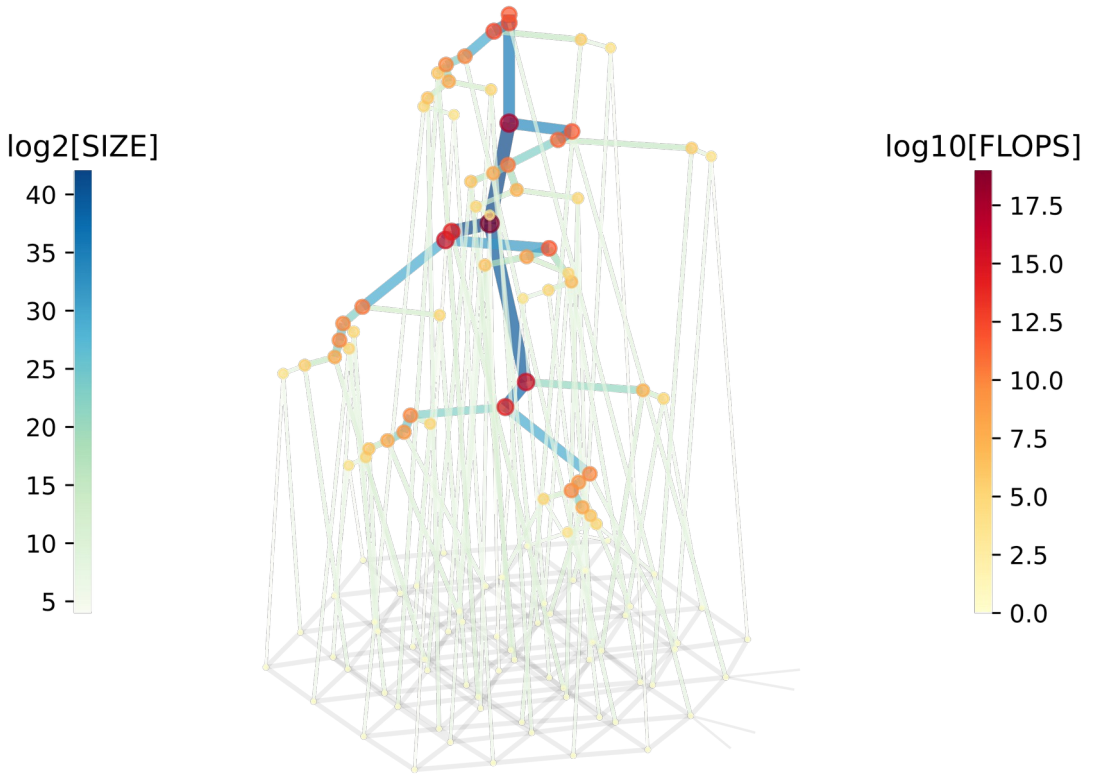
‘Local region’ computation (can combine with SU on boundary):



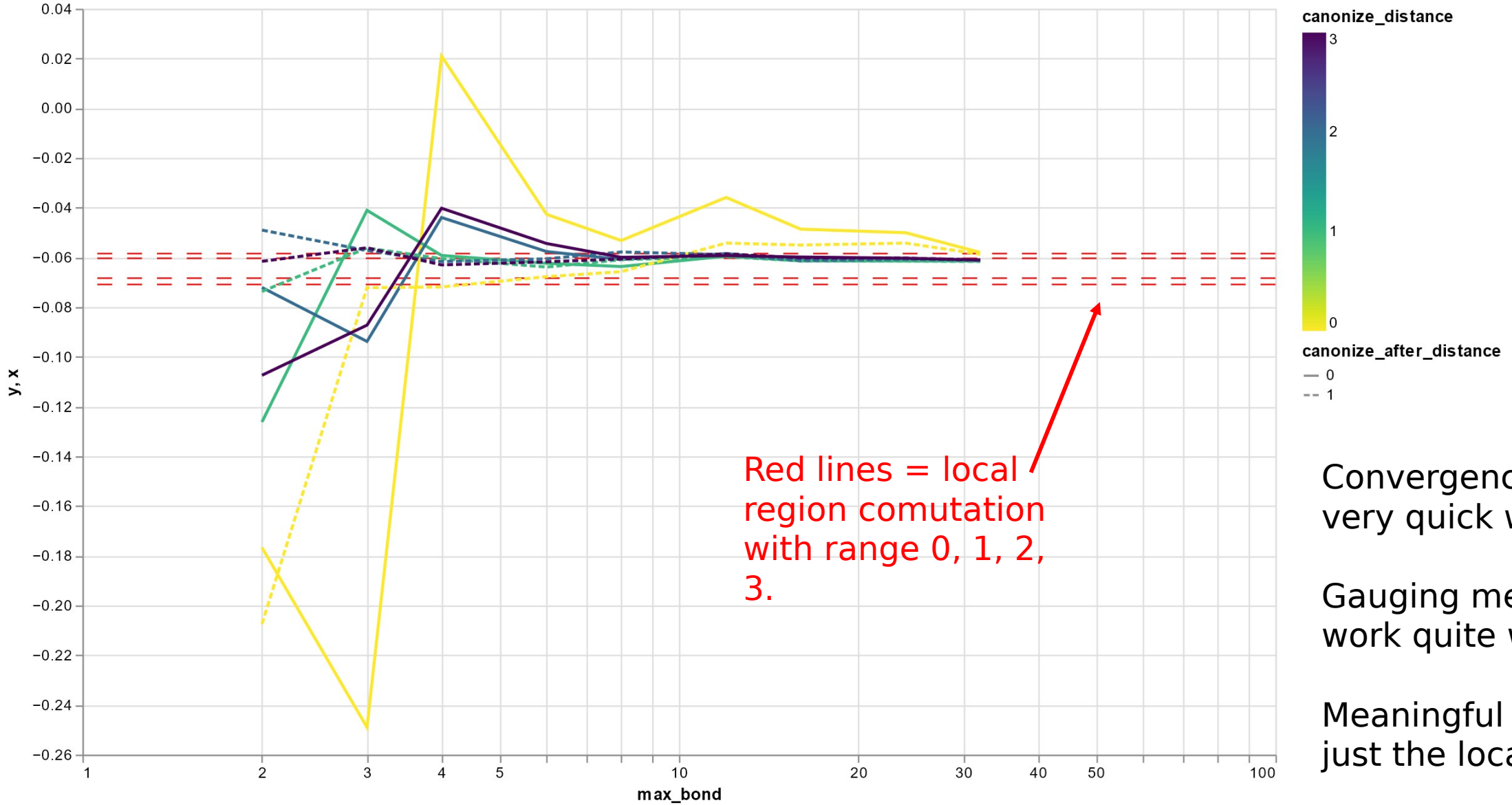
# The contraction path

‘span’ method doesn’t seem to be best in practice in 3D, are all methods equivalent accuracy?



# Results for single term




Convergence seems very quick with

Gauging methods work quite well

Meaningful info in just the local region