1 Comparison between optimizers

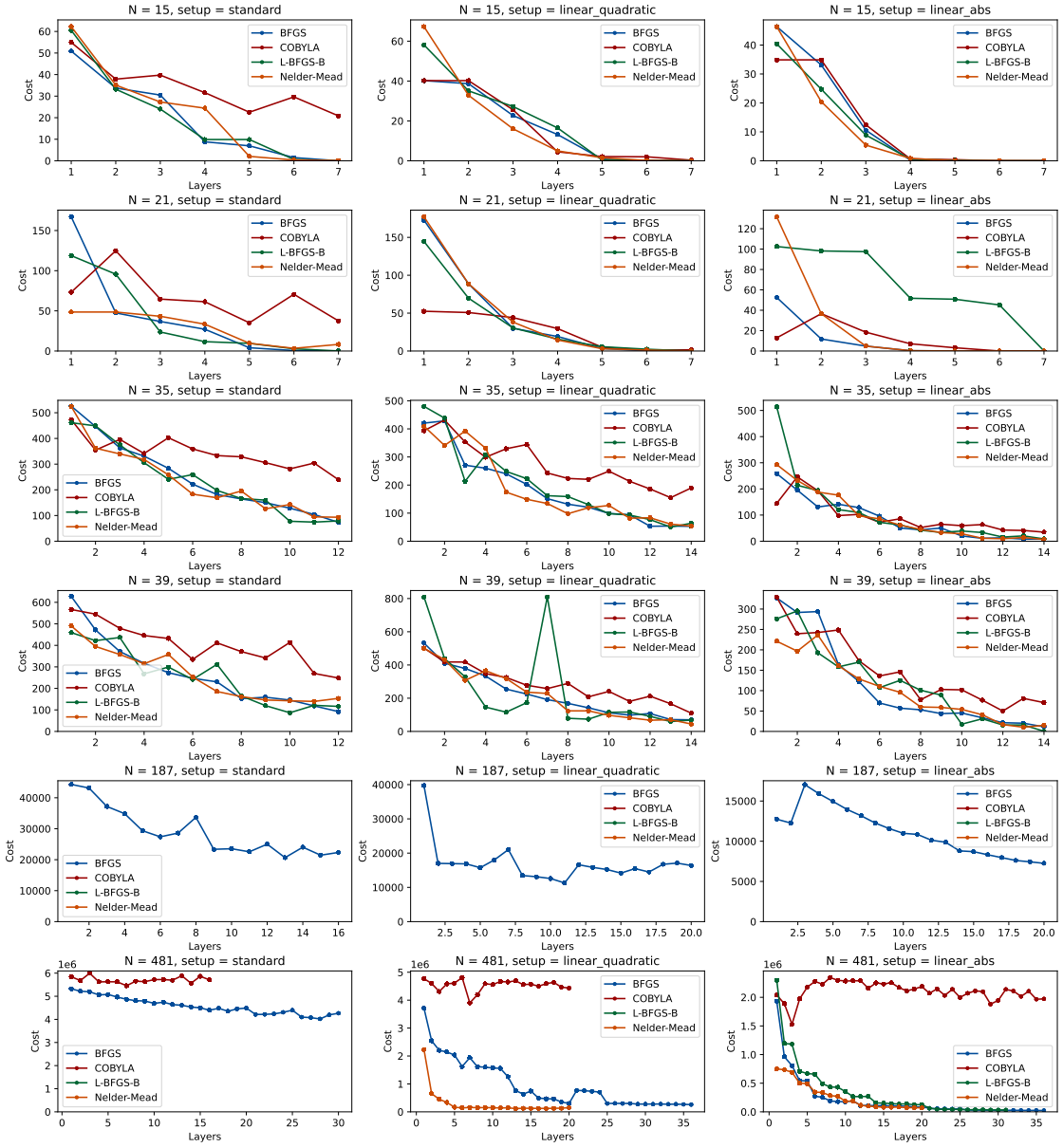

Figure 1: Normalized cost vs layers for different numbers and optimizers

2 Comparison between setups

We define the following setups:

- **standard**: quadratic Hamiltonian for evolution and quadratic Hamiltonian for cost evaluation.
- **linear_quadratic**: linear Hamiltonian for evolution and quadratic Hamiltonian for cost evaluation.
- **linear_abs**: linear Hamiltonian for evaluation and absolut value Hamiltonian for cost evaluation.

Where

- Quadratic Hamiltonian: $\hat{H}_{\mathrm{Q}} = \left[N\mathbb{I} - \left(\sum_{\ell=1}^{n_p} 2^{\ell}\hat{x}_{\ell} + \mathbb{I}\right)\left(\sum_{m=1}^{n_q} 2^{m}\hat{y}_{m} + \mathbb{I}\right)\right]^2$
- Linear Hamiltonian: $\hat{H}_{\mathrm{L}} = \left[N\mathbb{I} - \left(\sum_{\ell=1}^{n_p} 2^{\ell}\hat{x}_{\ell} + \mathbb{I}\right)\left(\sum_{m=1}^{n_q} 2^{m}\hat{y}_{m} + \mathbb{I}\right)\right]$

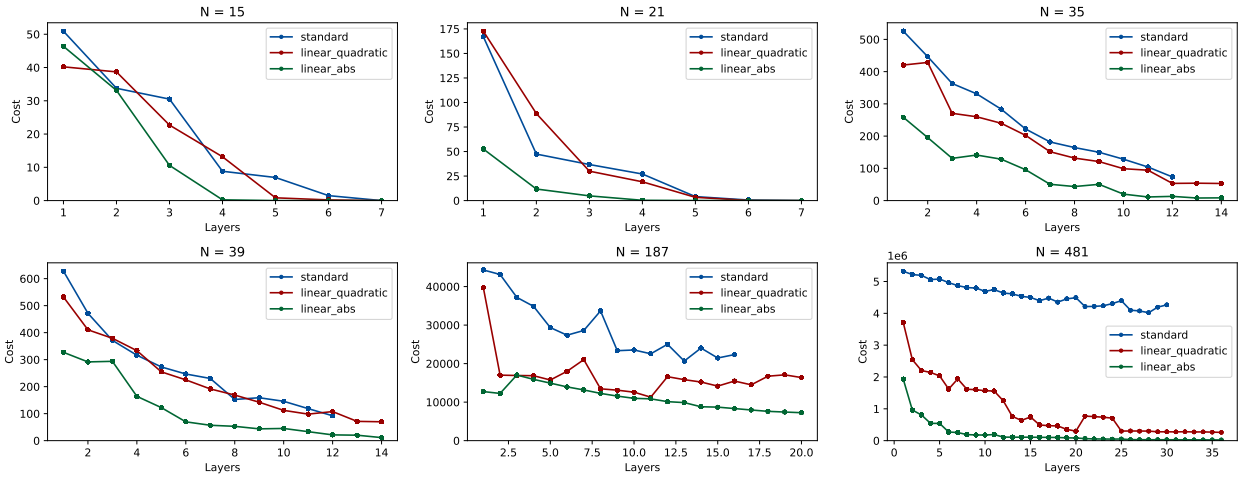

Figure 2: Normalized cost vs layers for different numbers and setups.

3 Populations

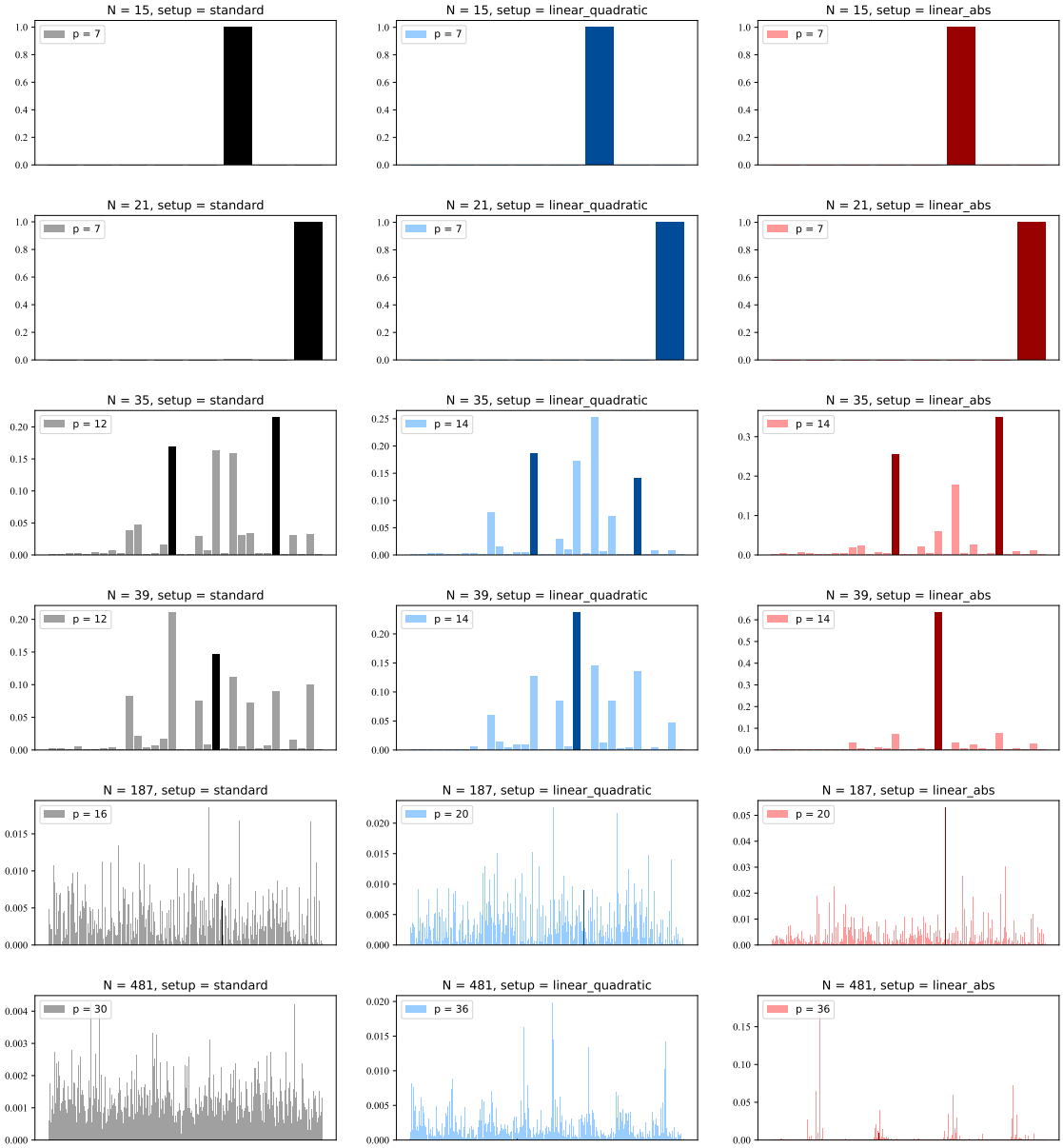

Figure 3: Average populations for different numbers and setups. The dark-colored bars represent the solution. The solutions are clearly identified except for 481.