Partition Capacity Validation: $C(n) = 2n^2$
Categorical Partitioning Recovers Electron Shell Structure

Legend:
- Predicted: $C(n) = 2n^2$
- Observed (Electron Shells)

Perfect Agreement (0% Error)

$$C(n) = \sum_{\ell=0}^{n-1} (2\ell + 1) \times 2 = 2n^2$$

X-axis: Principal Quantum Number n
Y-axis: Capacity $C(n)$

Shell	Predicted	Observed
K ($n=1$)	2	2
L ($n=2$)	8	8
M ($n=3$)	18	18
N ($n=4$)	32	32
O ($n=5$)	50	50
P ($n=6$)	72	72
Q ($n=7$)	98	98