Key Properties of Ligand Building Blocks

Convergent Ligands: Donor atoms have correct configuration to bind to single metal
- bidentate (e.g.)
- tridentate (not good for tet, good for oct)

Divergent Ligands: Donor sites cannot bind to single metal centre.
- Hypothesis: convergent sites but cannot form 1:1 complex with metal centre
  involving all 4 N atoms.

Key Properties of Metal Building Blocks:

Terminal: Perpendicular binding of 2 bidentate
Octahedral: Perpendicular binding of 2 more ligands
Square Planar: Co-planar binding of 4 bidentates.

1. Synthesis of Molecular Squares

\[\text{Metal} \quad \text{Ligand} \quad \text{Partially-assembled} \quad \text{most stable configuration thermodynamically.} \]


2 bidentates coordinated to terminal metal ion must be orthogonality:

Extending to near poly-aceulate ligand systems leads numerous grids.