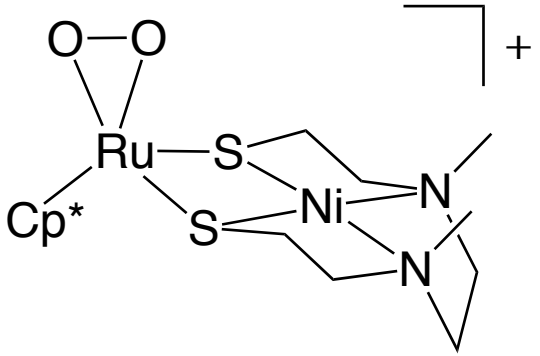
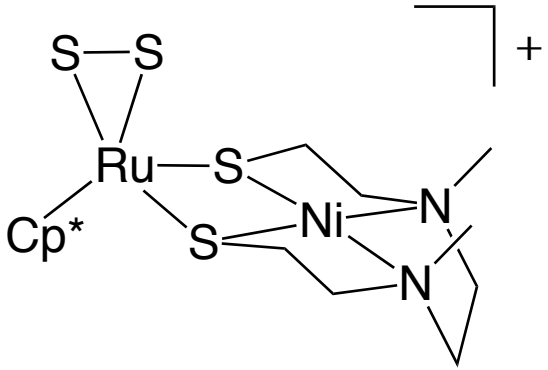
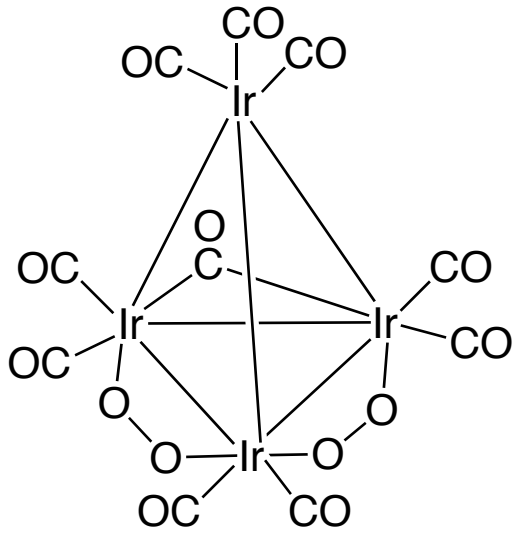
O_2^{2-} and S_2^{2-}:



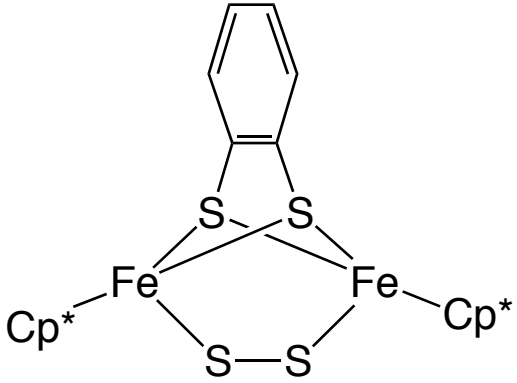
4e donor



4e donor



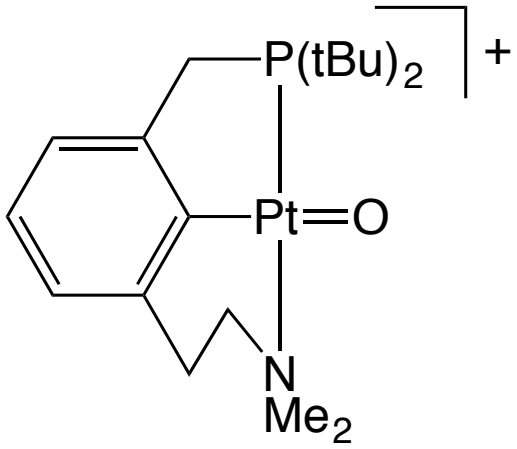
4e donor



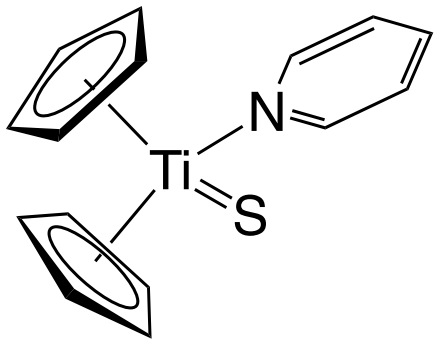
4e donor

Organometallics 2003, 22, 8, 1619–1625; *Inorg. Chem.* 2019, 58, 21, 14338–14348; *Dalton Trans.*, 2017,46, 3820-3824

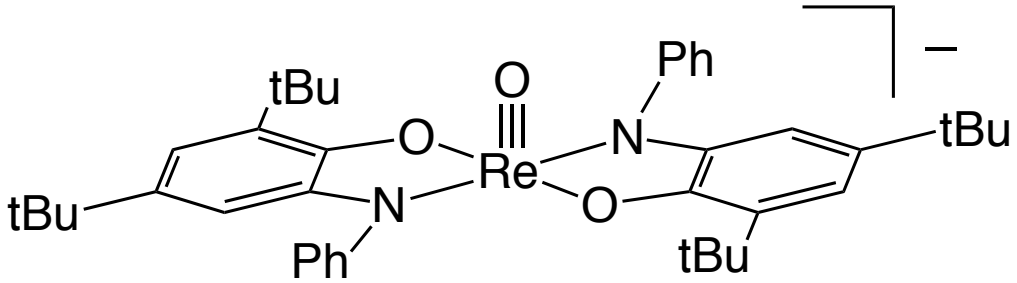
➢ O^{2-} and S^{2-}:



4e donor



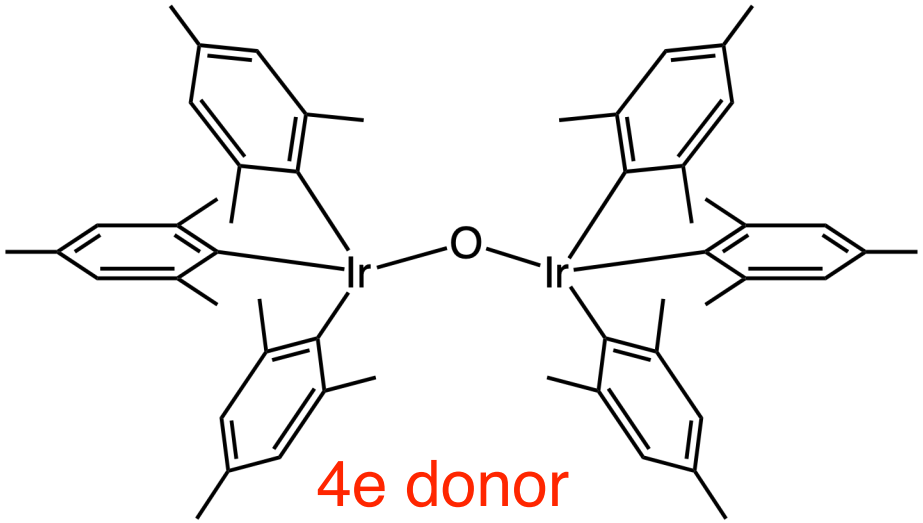
4e donor



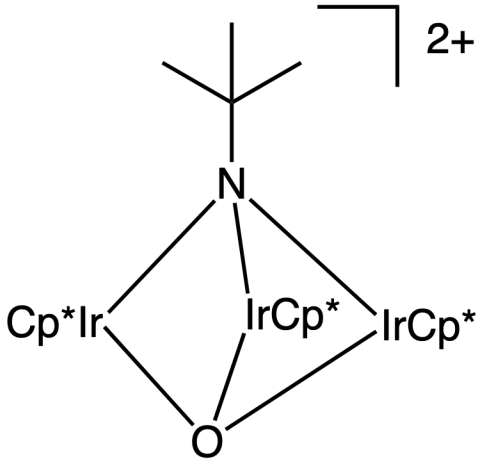
6e donor

Nature 2008, 455, 1093–1096; *Organometallics* 1999, 18, 5502–5510; *Inorg. Chem.* 2011, 50, 20, 9864–9878

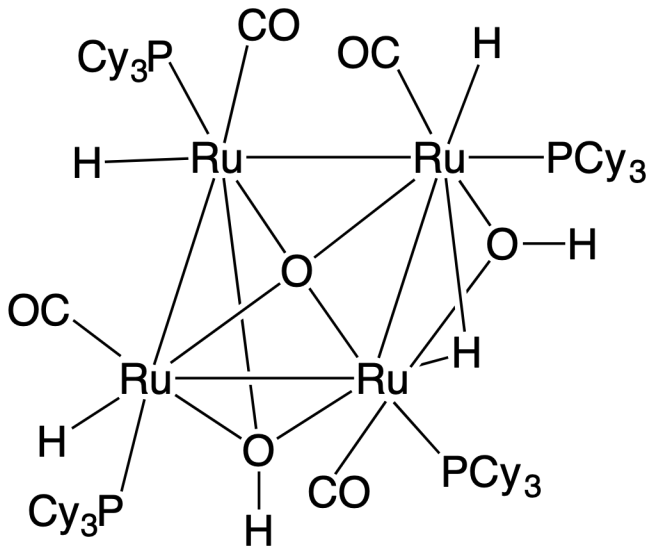
➢ O^{2-} and S^{2-}:



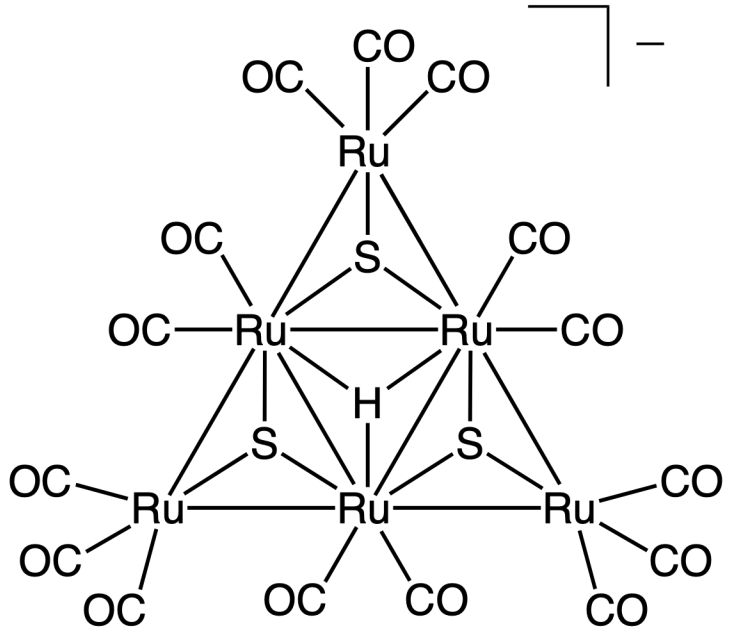
4e donor



6e donor



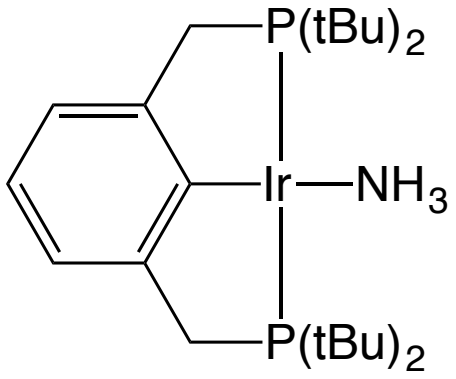
8e donor



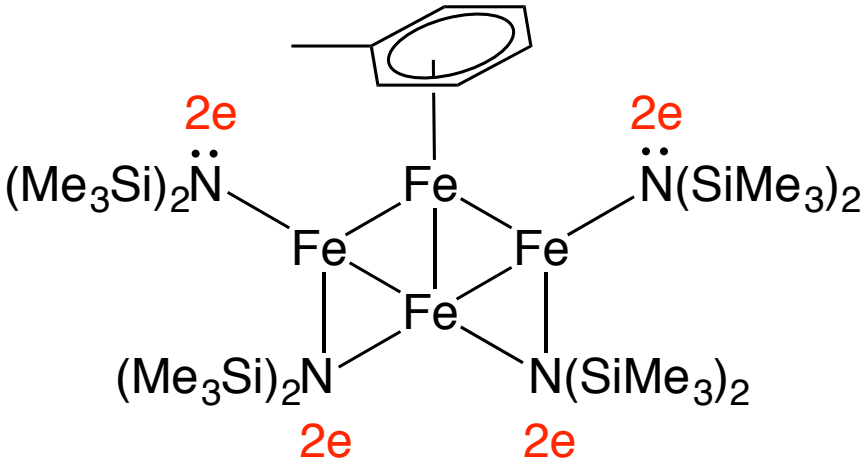
6e donor

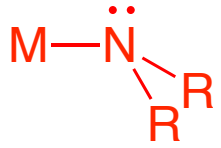
Inorg. Chem. 2009, 48, 8154–8163; *Dalton Trans.*, 2011,40, 4212-4216; *Angew. Chem. Int. Ed.* 1991, 30, 1126–1127

R_3N, R_3P, R_2N^-:

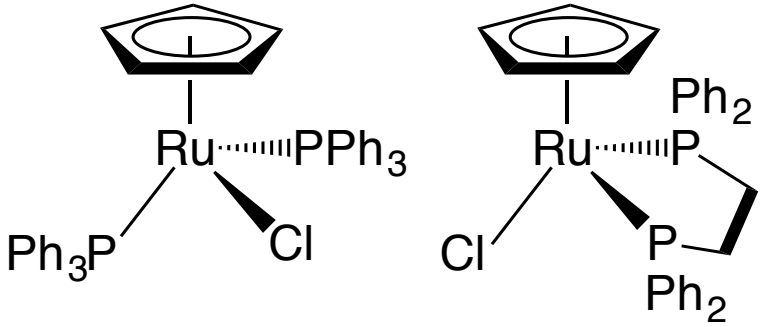


2e donor

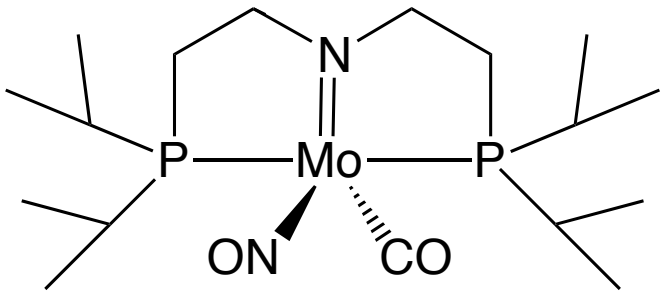




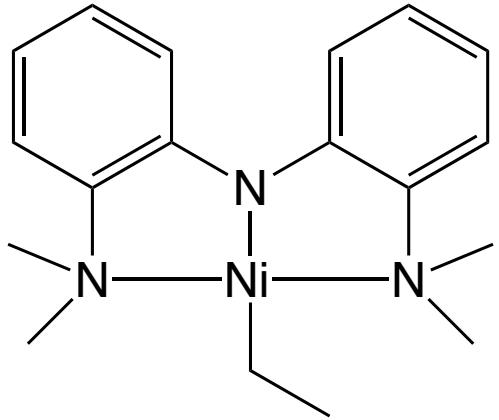
2e donor
pyramidal



2e donor



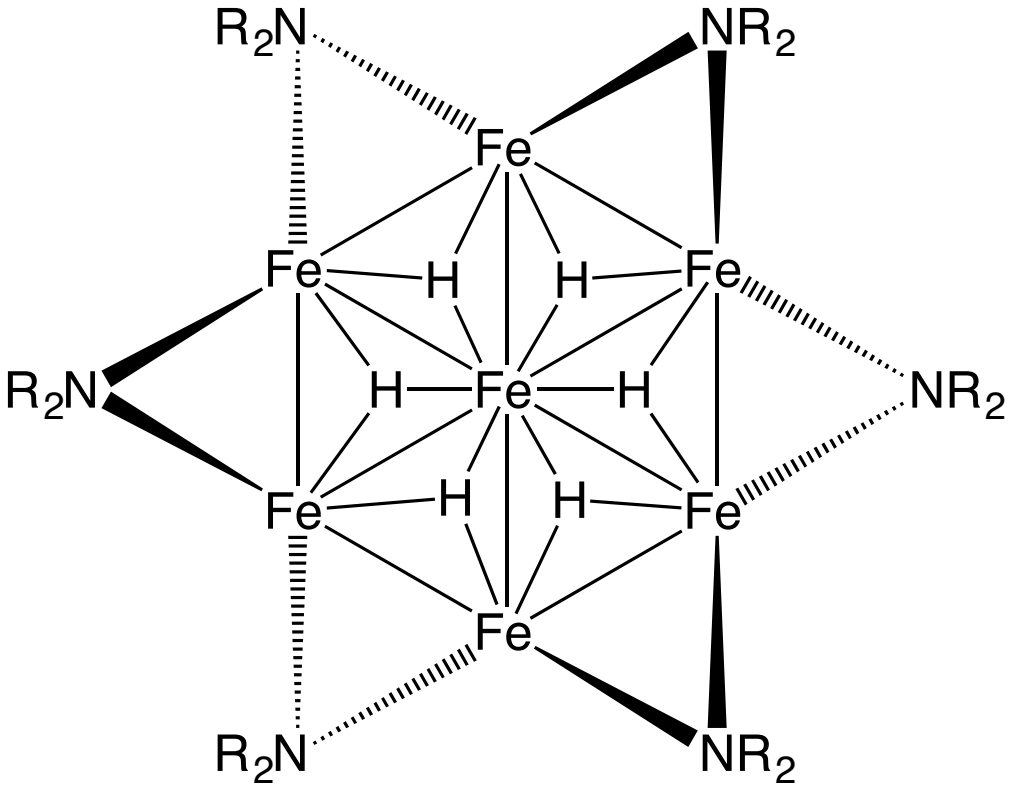
4e donor



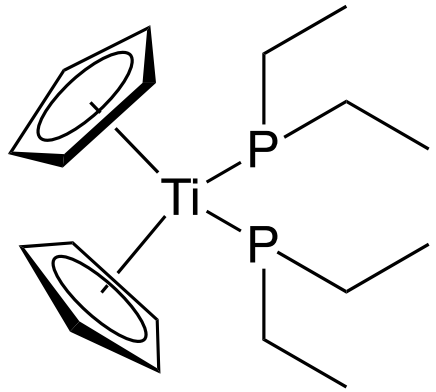
2e donor; planar !!

Science 2005, 307, 1080-1082; *Organometallics* 2009, 28, 7006–7014; Angew.Chem. Int.Ed. 2017, 56,3585 –3589; Chem. Asian J. 2014, 9, 328 – 337; *J. Am. Chem. Soc.* 2008, 130, 26, 8156–8157;

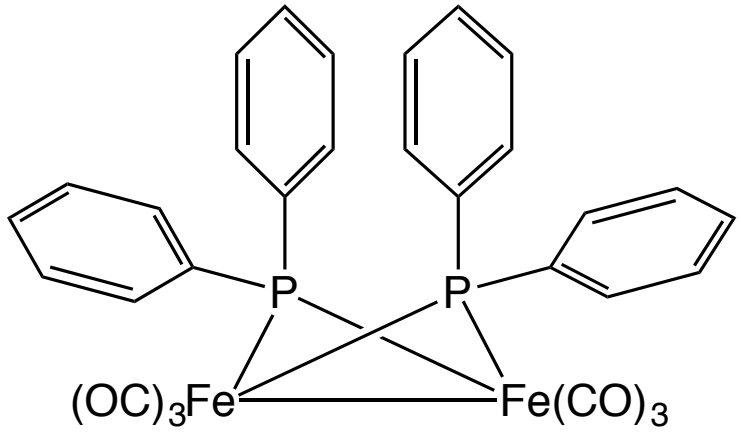
R_2N^- and R_2P^-:



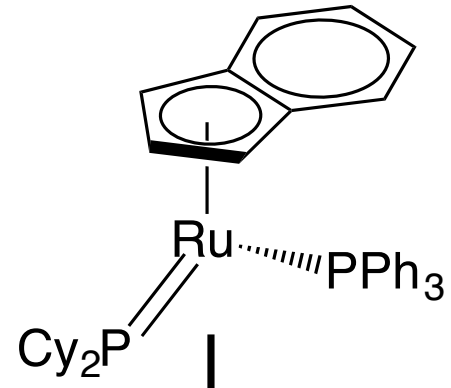
4e donor



2e donor

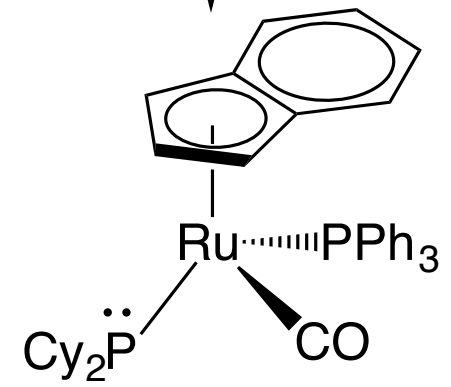


4e donor



4e donor

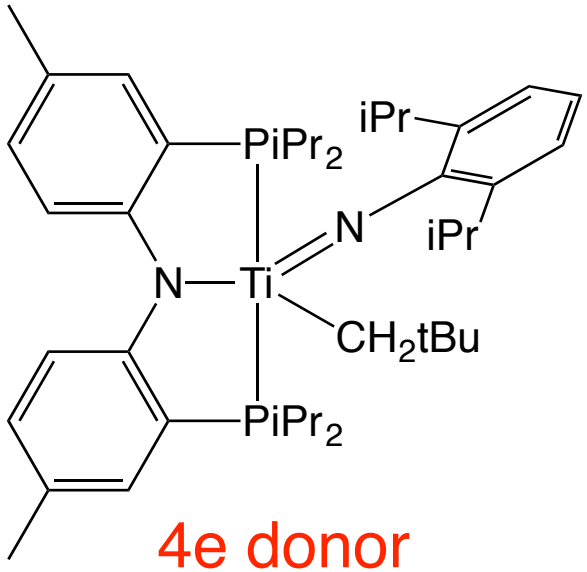
CO



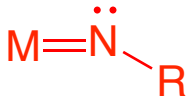
2e donor

Angew.Chem. Int. Ed. 2017, 56,3585 –3589; *Organometallics* 1983, 2, 8, 1049–1051;
J. Am. Chem. Soc. 1977, 99, 7381–7383; *Organometallics* 2007, 26, 1473-1482

RN^{2-}:

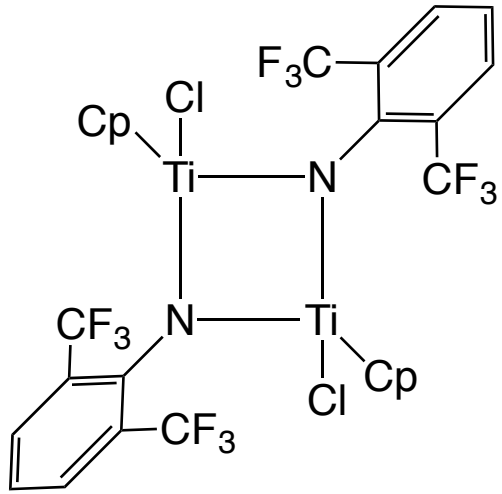


4e donor

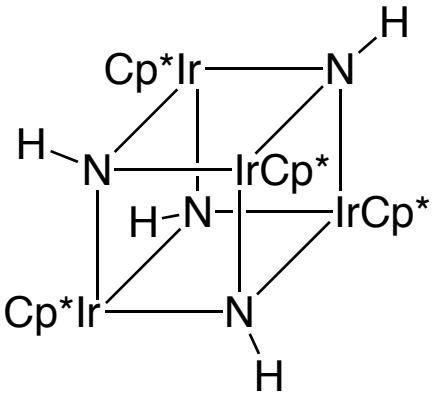


4e

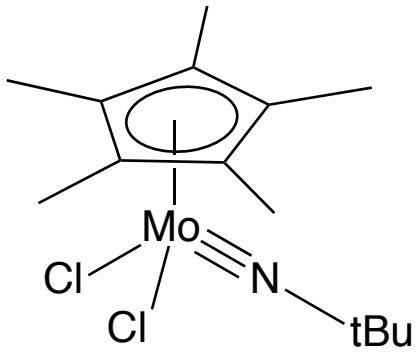
6e



4e donor

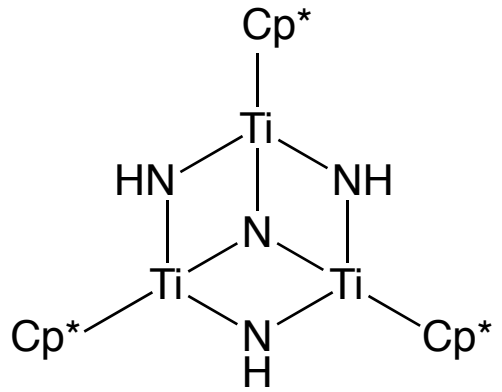


6e donor

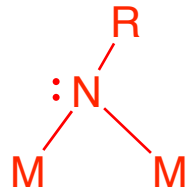


6e donor

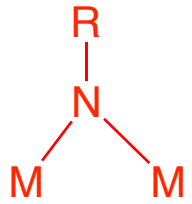
4e



4e donor



4e

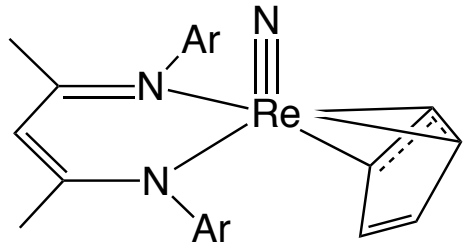


4e

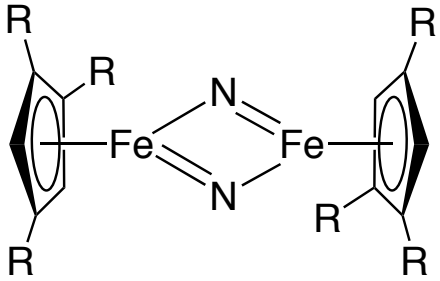
6e

Organometallics 2005, 24, 7, 1390–1393; *Inorg. Chem.* 1996, 35, 1773-1777; *Chem. Commun.*, 2011,47, 5620-5622; *Inorg. Chem.* 2020, 59, 11, 7631–7643; *J. Am. Chem. Soc.* 2011, 133, 8880–8883

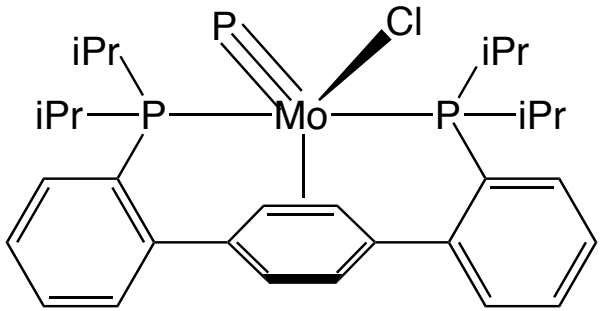
➢ N^{3-}, P^{3-}:



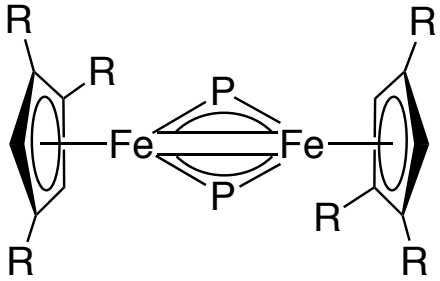
6e donor



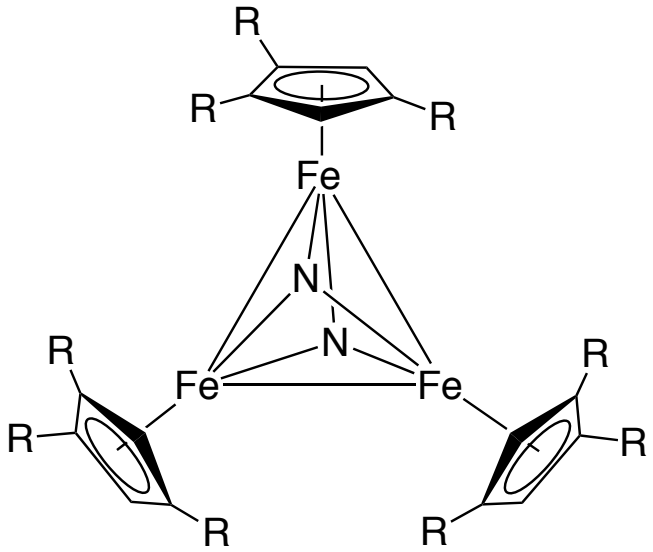
6e donor



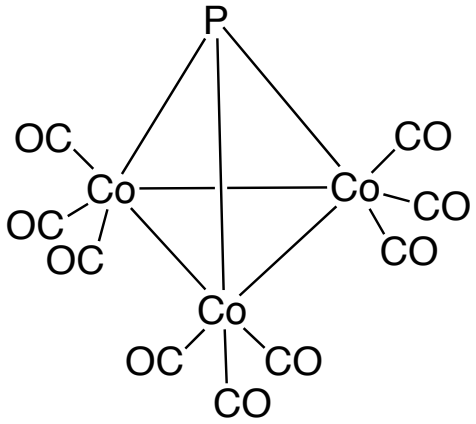
6e donor



6e donor



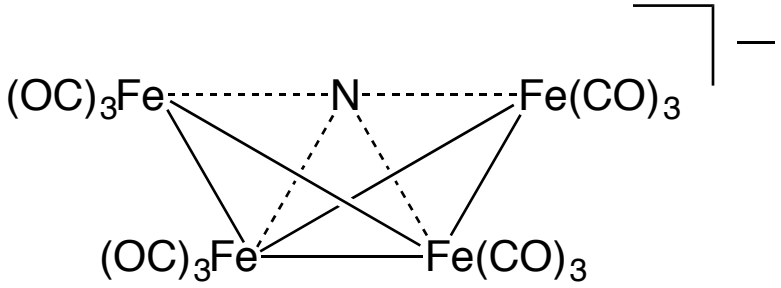
6e donor

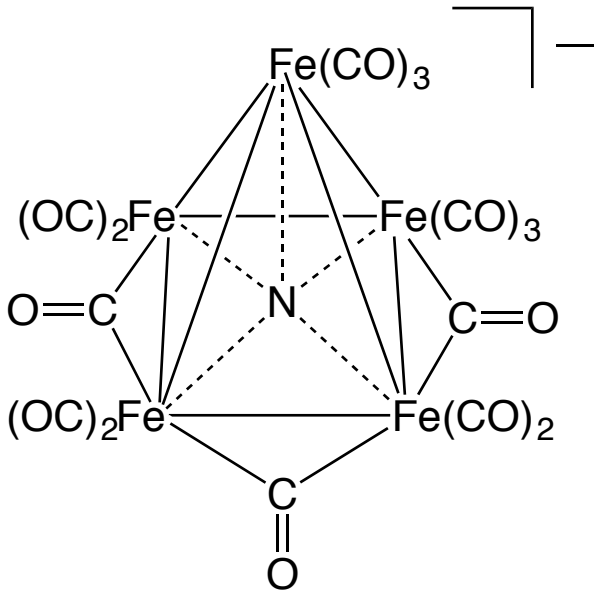


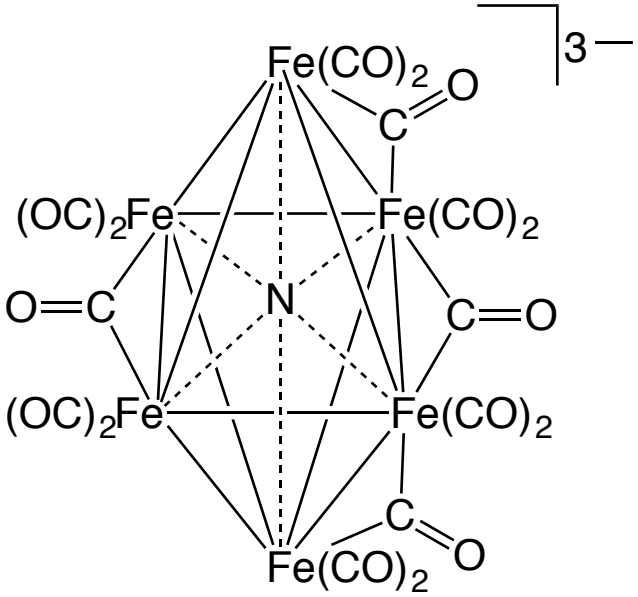
6e donor

Inorg. Chem. 2019, 58, 13492–13501; *Chem. Sci.*, 2017,8, 4108-4122;
Angew.Chem. Int. Ed. 2001, 40,2859 –2861; *J. Organomet. Chem.* 1976, 111, 61-64

N^{3-}:







Chem. Sci., 2016,7, 2728-2735