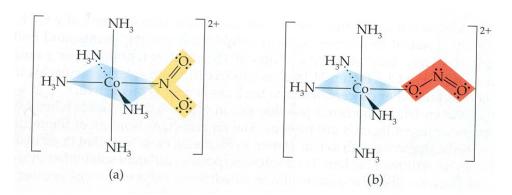
Metals and their Compounds Lecture 7.1

Coordination compounds

- 1. Coordinate bond is a *covalent* bond between a metal ion and a ligand *atom* lone pair from ligand is *donated* to metal ion.
- 2. Ligands must have at least one *lone pair* of electrons

Some ligands have *lone pairs* only on one atom, e.g. chloride Cl^- or ammonia NH_3 . These are known as *mono-dentate* ("one toothed") ligands. Can only be attached to metal ion thru that atom

However many ligands have more than one *lone* pair, e.g. the nitrite ion NO_2^- O=N-O



Another example is the thiocyanate ion SCN^{-} S=C=N

Can be either S-bonded or N-bonded. These are ambi-dentate ("one or other toothed") ligands