Organometallic Chemistry

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Ionic & Covalent

↓

ligands as donor of e^-s pairs.

Covalent : ligand as neutral species

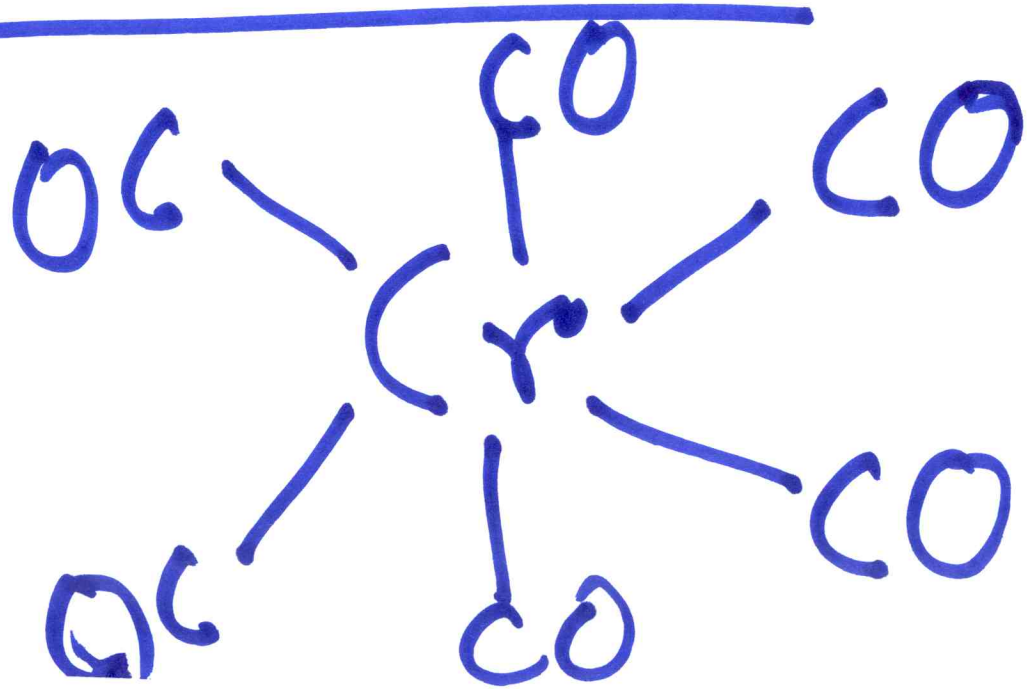
M–L

M :L

M–X

M^+ $:X^-$

Ionic Method:



⑥ +12 = 18

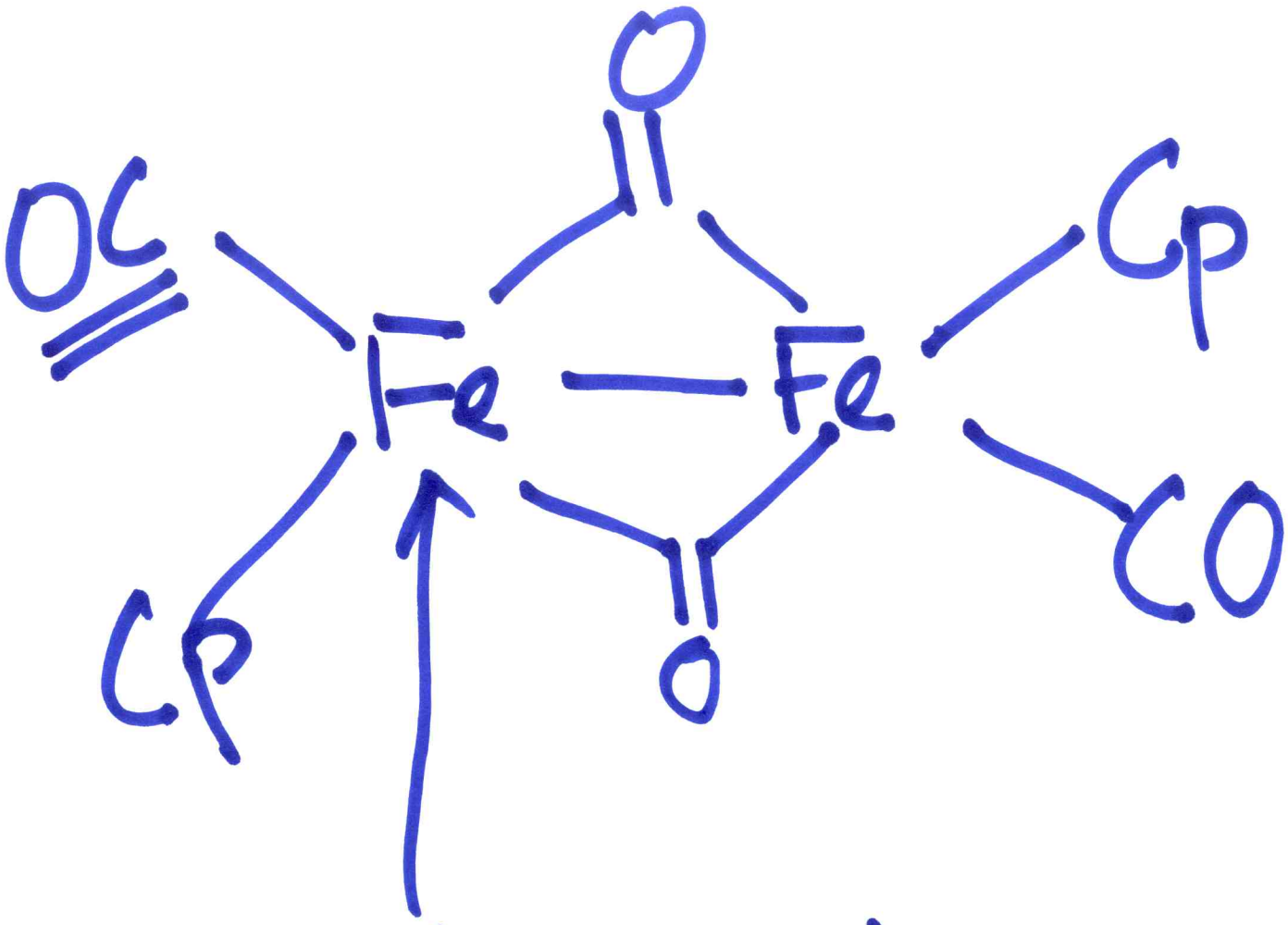
$PtCl_4^{2-}$

Pt^{2+} ← 8 e⁻s.

← 8 e⁻s

16 e⁻s.

$Cp\,Fe(CO)_2Cl$ → 18 e⁻s.



$Fe^+ \rightarrow 7\ e^-s.$

$Fe^+ \rightarrow 7$

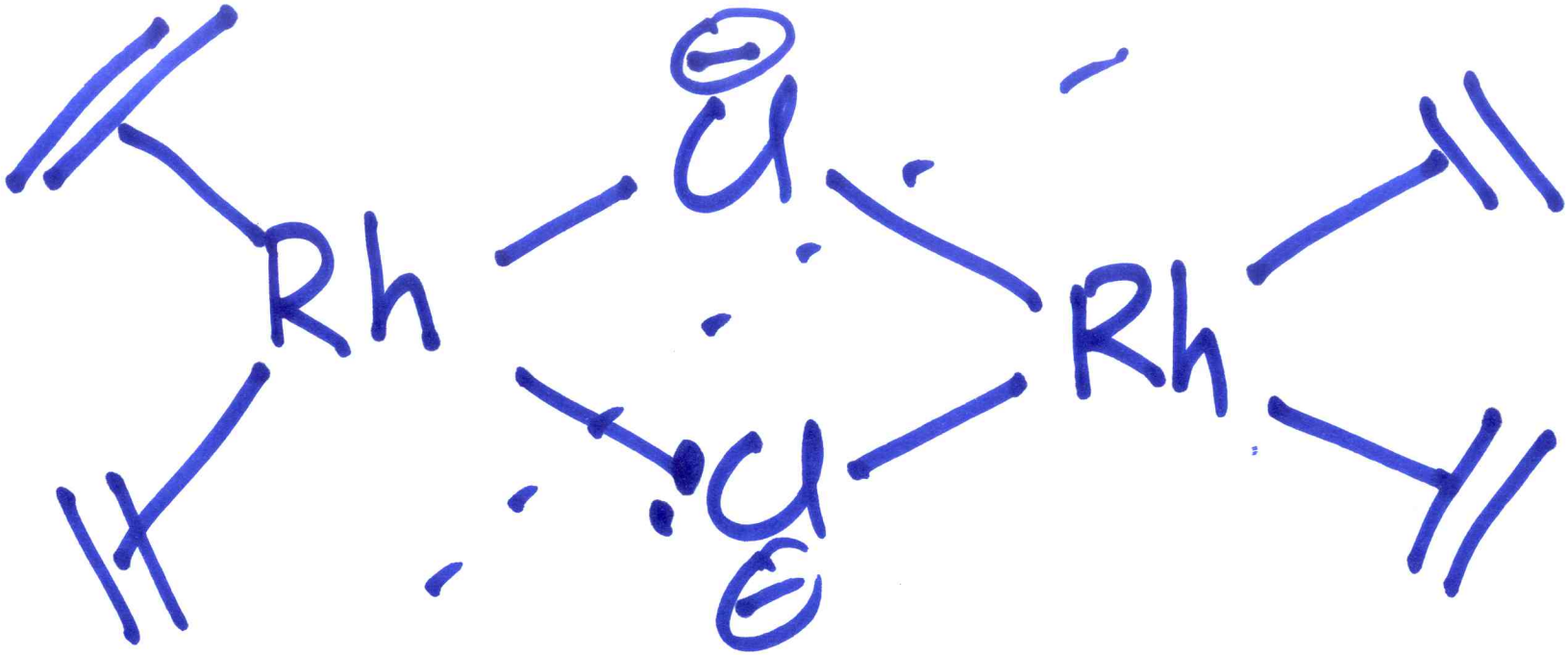
$CO \rightarrow 2$

$Cp \rightarrow 6$

$CO \rightarrow 2$

$Fe\text{-}Fe \rightarrow 1$

$18\bar{e}$



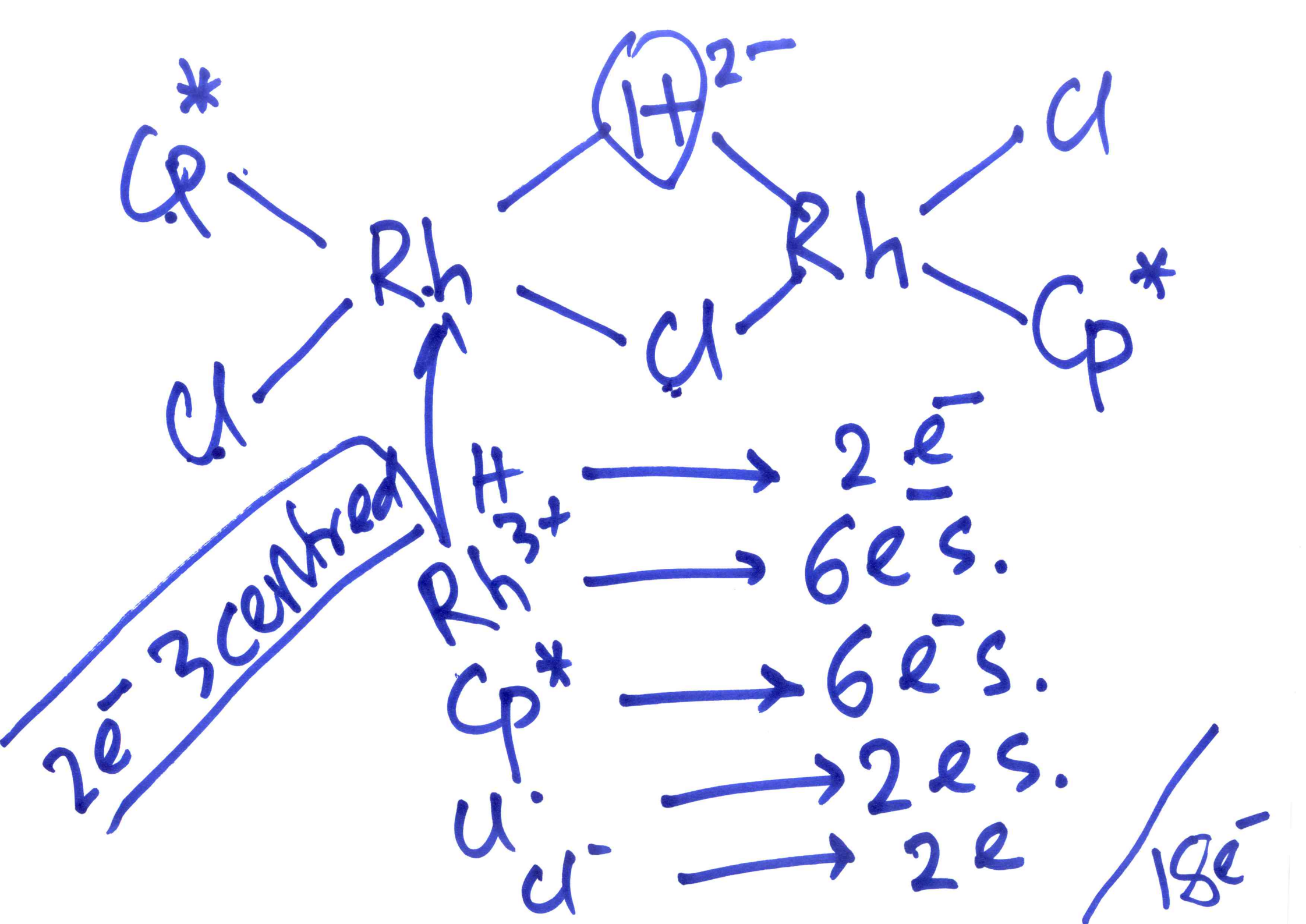
$Cl_{bridging}$ ⟶ 2 e⁻s.

Rh^{1+} ⟶ 8 e⁻s.

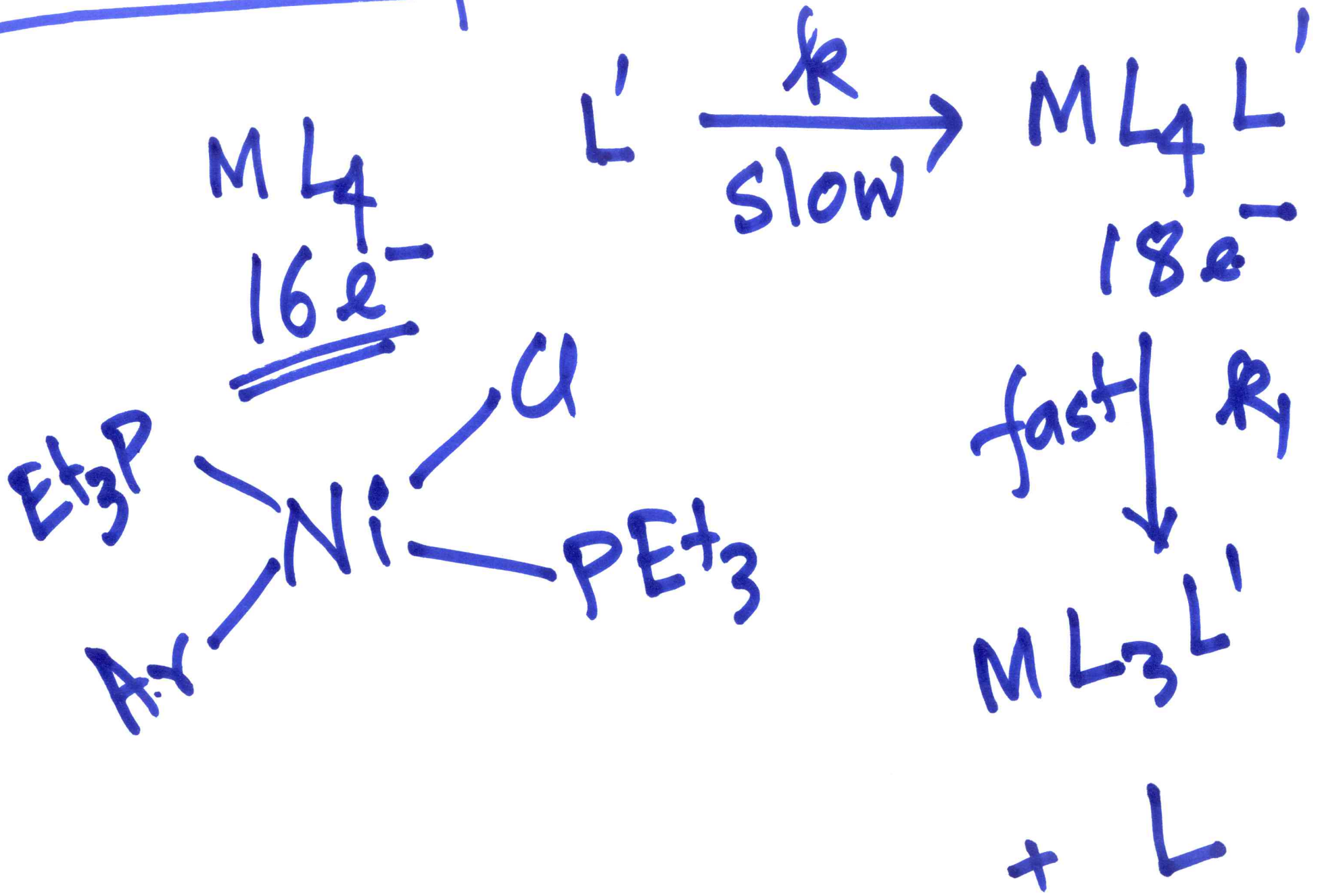
2 = ⟶ 4 e⁻s.

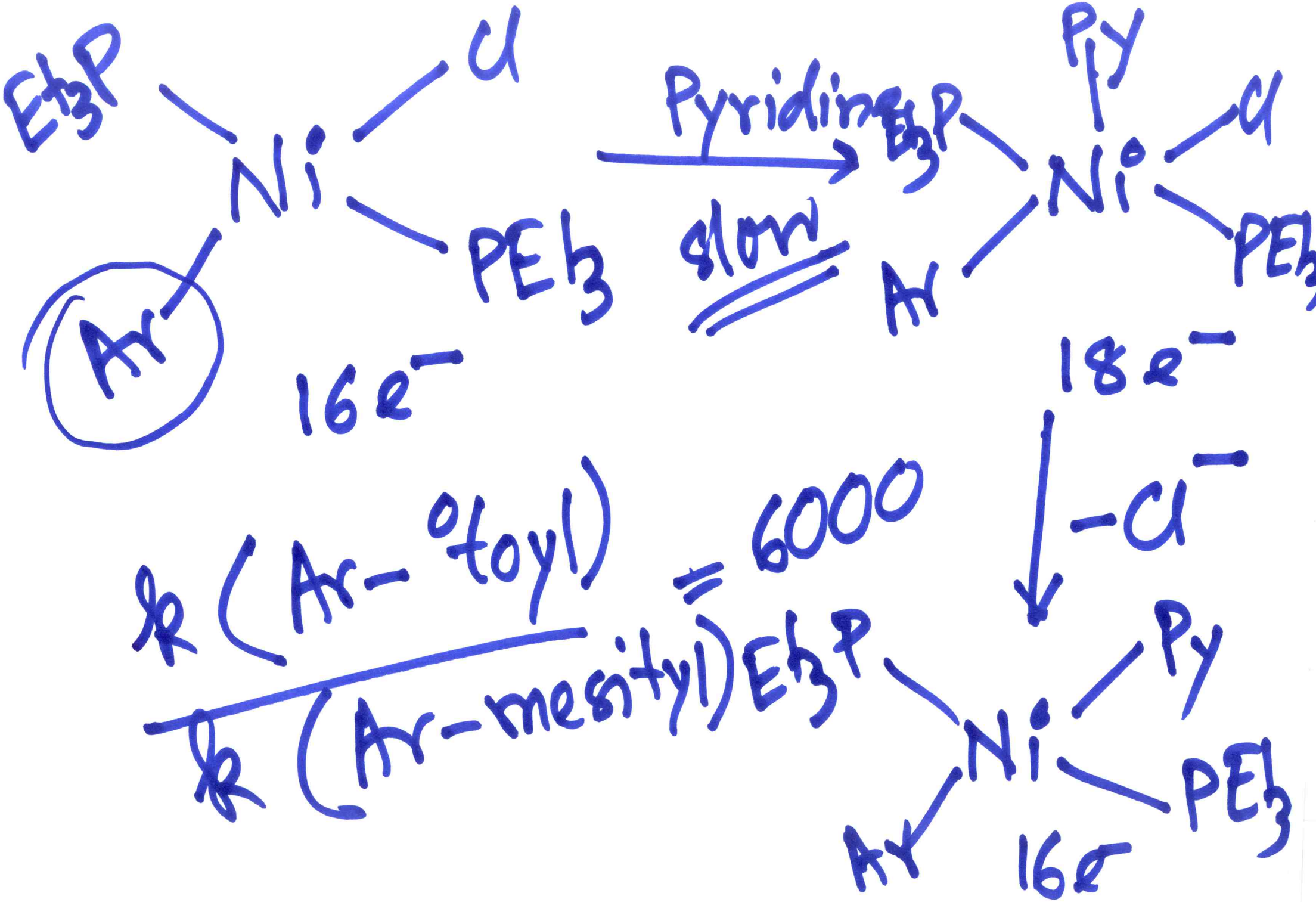
2 Cl ⟶ 2 e⁻s.

16 e⁻s.


Cp*
Rh
Cl
Cl
H
2-
Rh
Cl
Rh
Cl
Cp*
2e⁻ 3centred
H
Rh3+
2 e⁻
6 e⁻s.
Cp*
6 e⁻s.
Cl
2 e⁻s.
Cl⁻
2 e
18e⁻

16 e⁻ complexes




Et3P
Cl
Ni
PEt3
Ar
16e−
Pyridine
slow
Py
Et3P
Ni
Cl
Ar
PEt3
18e−
−Cl−
Py
Ar
Ni
Py
PEt3
16e
kR (Ar- ortoyl) = 6000
kR (Ar-mesityl) Et3P