Dative covalent bonds

1 What are they?

- type of covalent bond (sharing of e^-)
- difference w/ normal CBs

normal	两颗 atom 也会提供电子	两夫妇一起买楼
dative	一颗 atom 提供电子，两颗 atom 共用	老公付钱，但两夫妇一起住

- 两颗 species (开心 + 不开心) 结合为新的一颗 (非常开心)

开心 = 获得 duplet / octet 的电子排布

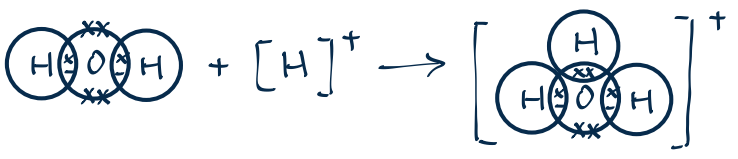
2 Formation

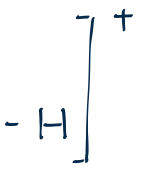
- There are <2> lone pair of e^- in <O> atom from <H_2O> molecule.
- There is <no> outermost shell e^- in <H^+ ion> → vacant site
- A lone pair of e^- from <O> atom is donated to the vacant site in <H^+ ion>.

3 Examples

H_3O^+

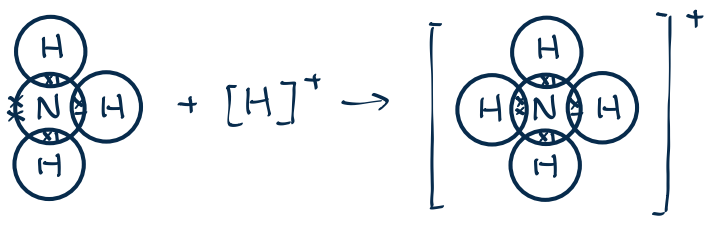
$$H_2O + H^+ \longrightarrow H_3O^+$$

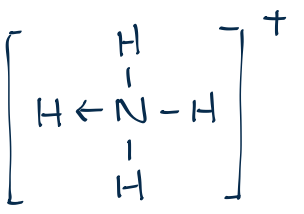




NH_4^+

$$NH_3 + H^+ \rightarrow NH_4^+$$





CO

$C \equiv O$

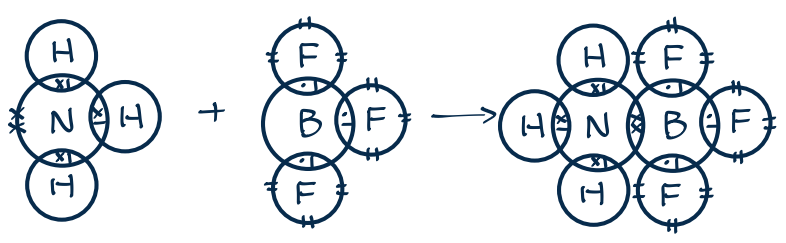
O_3

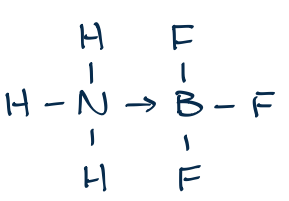
$$O_2 + O \rightarrow O_3$$

$O = O \rightarrow O$

NH_3BF_3

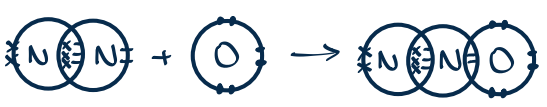
$$NH_3 + BF_3 \rightarrow NH_3BF_3$$





N_2O

$$N_2 + O \rightarrow N_2O$$



$N \equiv N \rightarrow O$

Al_2Cl_6