Brønsted-Lowry theory is a theory on acids and bases. In many reactions a H+, which is simply a proton, is transferred from one species to another. According to Brønsted-Lowry theory, the species that donates the H+ is an acid; the one that accepts the H+ is a base.

eg. 1:

\[
\text{HCl} + \text{H}_2\text{O} \rightleftharpoons \text{Cl}^- + \text{H}_3\text{O}^+
\]

In this reaction, 
HCl donates a H+ to water and, therefore, acts as an acid.
Water accepts a H+ from HCl and, therefore, acts as a base.

\[
\text{H} + \text{H}_2\text{O} \rightleftharpoons \text{Cl}^- + \text{H}_3\text{O}^+
\]

acid base

In the reverse reaction, Cl¯ acts as a base and H3O+ acts as an acid.

\[
\text{H} + \text{H}_2\text{O} \rightleftharpoons \text{Cl}^- + \text{H}_3\text{O}^+
\]

acid base base acid

When HCl acts as an acid, it becomes Cl¯, which is a base and is called the conjugate base of HCl. When water acts as a base, it becomes H3O+, which is an acid and is called the conjugate acid of water.

\[
\text{H} + \text{H}_2\text{O} \rightleftharpoons \text{Cl}^- + \text{H}_3\text{O}^+
\]

acid base Conjugate base of HCl Conjugate acid of H2O

eg. 2:

\[
\text{NH}_3 + \text{H}_2\text{O} \rightleftharpoons \text{NH}_4^+ + \text{OH}^{-}
\]

base acid Conjugate acid of NH3 Conjugate base of H2O

see also acid strength, acid dissociation constant, Lewis theory

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