- Convention:

  1. Summation is over $\mathcal{S}_p$, i.e., $\sum_{x \in \mathcal{S}_p}$
  2. $c \log \frac{c}{0} = \infty$ for $c > 0$
  3. If $D(p\|q) < \infty$, then $p(x) > 0 \Rightarrow q(x) > 0$, or $\mathcal{S}_p \subset \mathcal{S}_q$.

- $D(p\|q)$ measures the "distance" between $p$ and $q$.

- $D(p\|q)$ is not symmetrical in $p$ and $q$, so $D(\cdot\|\cdot)$ is not a true metric.

- $D(\cdot\|\cdot)$ does not satisfy the triangular inequality.

- Also called *relative entropy* or the *Kullback-Leibler distance*.