Binomial distribution as part of the Exponential family

density: $f(y, \theta, \phi) = \binom{n}{y} p^y (1-p)^{n-y}$

we can rewrite the density as

$$\exp\left[y \log\left(\frac{p}{1-p}\right) + n \log(1-p) + \log\binom{n}{y} \right]$$

then $E[Y] = np$, $var(Y) = np(1-p)$,

$\theta = \log\left(\frac{p}{1-p}\right)$ is the natural parameter

and $b(\theta) = -\log(1-p) = \log(1+\exp(\theta))$

$\phi = 1/n$, $a(\phi) = \phi$ and $c(y, \phi) = \binom{n}{y}$

The natural parameter $\theta = \log\left(\frac{p}{1-p}\right)$ is called the log-odds or logit of p and is used as a the canonical link function in Generalized Linear Models.

The Binomial distribution is thus a member of the Exponential family.