$$B(n) = B(n-1) + \frac{2(n-1)}{n(n+1)}$$

$$T(n) = aT\left(\frac{n}{b}\right) + cn^d$$

$$n = b^m$$

$$T(n) = aT\left(\frac{b^m}{b}\right) + c(b^m)^d$$

$$b = 2$$

$$T(n) = aT\left(\frac{2^m - 2}{2}\right) + c(2^m)^d$$

$$T(n) = \frac{1}{2}T(2^m - 2) + c(2^m)^d$$