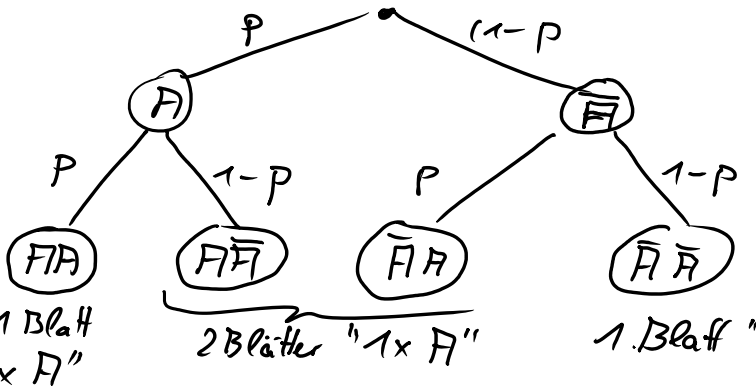
V 2024-05-08

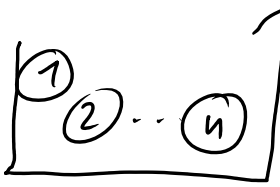
Mittwoch, 8. Mai 2024 10:53

Binomialverteilung

Baum für $n = 2$



Allg. es gibt $\binom{n}{k}$ Blätter mit "k mal A"



ZoZ
Reihenfolge egal
$\Rightarrow \binom{n}{k}$ Mögl

Übung $N = 60$ Kugeln, $S = 6$ weiße

$n = 2$ = Länge Bernoullikette

$k = 2$ = Anzahl der A's (Treffer

$(\bar{A}, A, \bar{A}, \bar{A}, A, A)$

$n = 6$

$k = 3$

a) ZmZ: Binomial

$p = \frac{6}{60} = 0.1$

$P(X=2) = \binom{2}{2} 0.1^2 (1-0.1)^0$

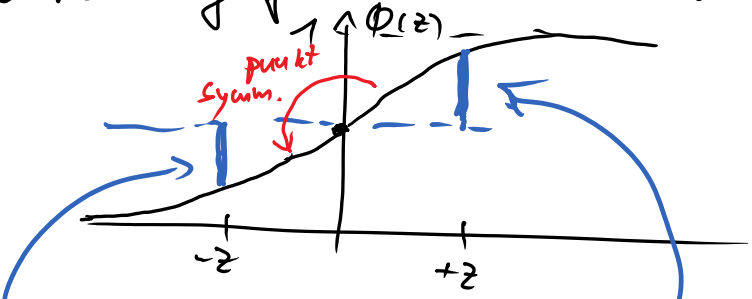
$= 0.01 = \underline{1\%}$

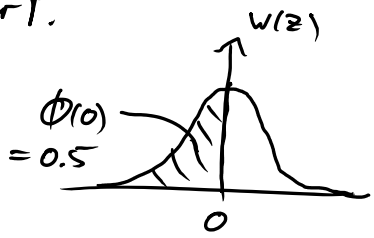
b) ZoZ: hypergeometrisch $\frac{\binom{6}{2}\binom{54}{0}}{\binom{60}{2}}$

$= \frac{6}{60} \cdot \frac{5}{59} = \underline{0.85\%}$

$\approx 1\%$

Verteilungsfunktion Standardnormalvert.



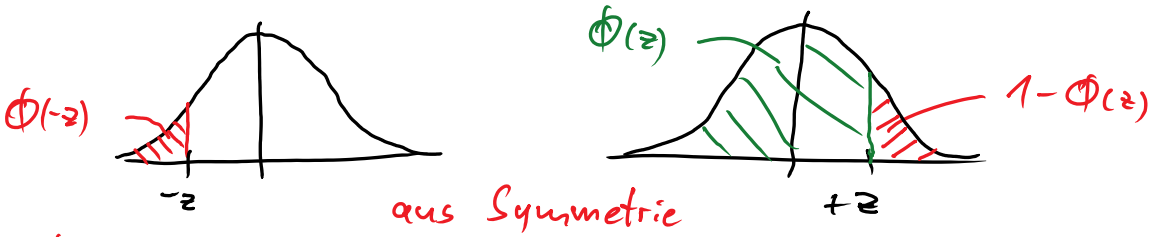


$(0.5 - \Phi(-z)) = \Phi(z) - 0.5)$

$-\Phi(-z) = \Phi(z) - 1$

$$\Phi(-z) = (1 - \Phi(z))$$

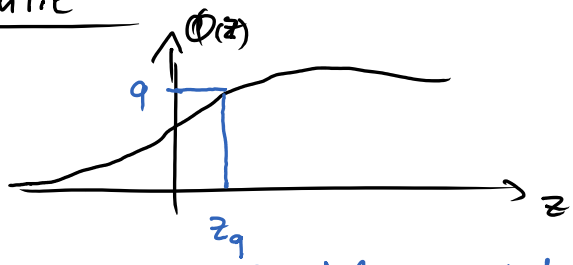
Regel Nr. 1



aus Symmetrie

$$\Phi(-z) = 1 - \Phi(z)$$

q-Quantil



= q-Quantil : Welches z_q erfüllt

$\Phi(z_q) = q$

$= P(Z \leq z_q)$