A19

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For a sample with n = 25 elements a correlation coefficient r_{xy} according to Bravais-Pearson was calculated with a value of r = 0,86. Find a 95%- and a 99%-confidence interval for the unknown value of the population parameter ρ according to formula $z_{1,2} = \dot{z} \pm z_{Tab} \cdot \dfrac{1}{\sqrt{n-3}}$, with subsequent back transformation of both z-values (where $\dot{z}$ is Fishers z-transform of the correlation coefficient and z_{Tab} is the 2-tailed quantile from a table of the normal distribution).

$$z = \tfrac{1}{2} \cdot \ln\left(\frac{1+r}{1-r}\right) = 1.2933$$

$$z_{TAB}(0.95) = 1.960$$

$$z_{TAB}(0.98) = 2.576$$

$$CI_{0.95} = 1.2933 \pm 1.86 \cdot \frac{1}{\sqrt{22}}$$

$$CI_{0.99} = 1.2933 \pm 2.576 \cdot \frac{1}{\sqrt{22}}$$

	r	Ztab	Zfrom	Zto	from	to
CI 95	1.2933	1.96	0.87543	1.71117	0.70412	0.93679
CI 99	1.2933	2.576	0.74409	1.84251	0.63161	0.95104