APPLICATIONS OF THE BERRN-ESSEN INEQUALITY TO LIMIT THEOREMS FOR RANDOM ADDITIONS

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Uniformly distributed, indiscriminate

$$\xi_1, \xi_2, \dots, \xi_n, \dots \qquad (1)$$

given a sequence of random quantities, i.e.

$$F(x) = P\{\xi < x\}, \quad M\xi = a, \quad D\xi = \sigma^2, \quad \beta_3 = M|\xi - a|^3.$$

The following $\nu = \nu(1)$ random quantity $\lambda > 0$ depends on the parameter and (1) does not depend on random quantities and

$$M\nu(\lambda) = \sum_{k=1}^{\infty} k p_k = \alpha,$$

$$D\nu(\lambda) = \sum_{k=1}^{\infty} (k-\alpha)^2 p_k = \gamma^2.$$

(1) from $\nu = \nu(\lambda)$ depending on

(2) $$\eta_\nu = \sum_{i=1}^{\nu} \xi_i \qquad (2)$$

we make the sum.

Its distribution function is

$$F_{\nu(\lambda)}(x) = P(\eta_\nu < x)$$

S.G. The inequality given by S.G.Essen is $|F_n(x) - \Phi(x)| < c\frac{\beta_3}{\sqrt{n}}$,

in terms of visibility, this inequality is given by Y.V.Prokhorov in terms of this flat estimate

$$|F_n(x) - \Phi(x)| < c\frac{\beta_3}{\sqrt{n}} - \frac{1}{1+|x|^3},$$

and generalized from the Berry side.

$$\Phi(x) = \frac{1}{\sigma\sqrt{2\pi}} \int_{-\infty}^{x} e^{-\frac{(t-a)^2}{2\sigma^2}} dt$$

This article explores the generalization of theorems by applying the Berry-Essen inequality of non-planar estimates given for assigned random quantities. Theorem. If $\beta_3 < \infty$ and $\beta_3 < \infty$, then

$$\left|F_{v(\lambda)}(x)-\Phi(x)\right|\le c_1\left[\frac{\beta_3}{\sqrt{\alpha}}\cdot\frac{1}{\sigma^3(1+x^2)}+\frac{\gamma}{\alpha}\right] \qquad (3)$$

The isiubot of the theorem is proved by applying a complete probability formula, using P.L.Chebishev's inequality.

If $P(v(\lambda)-k)=P_k$ is said, then the Berry-Essen inequality from (3) follows and generalizes.

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