519.766.4

[illegible]

«resecum» [illegible] [1]. [illegible]

[illegible] [1, 2]. [illegible]

[illegible] (1) [illegible] (2) [illegible] [3, 4].

[illegible] (1) [illegible] (2) [illegible] (3) [illegible]

[illegible]

(1) (2)

(1) (2) (3)

(1) (2) (3) (4) X_i (' = 1,2,..., N) [5].

$$S = \sum_{i=1}^{N} X_i$$ u.

S u,

$$R = p\left\{ \sum_{i=1}^{N} X_i > u \right\}.$$

[illegible] ([illegible]) [illegible] N, [illegible]

$$S = \sum_{i=1}^{N} X_i$$

[illegible] N [illegible]

$$\frac{S_N - E\left[S_N\right]}{\sqrt{\operatorname{var}\left[S_N\right]}}$$

[illegible] (0; 1). [illegible] [6]:

$$R = p\left\{ S_N > u \right\} = 1 - \mathbf{N}_{0,1}\left(\frac{u - E\left[S_N\right]}{\sqrt{\operatorname{var}\left[S_N\right]}} \right),$$

[illegible] $\mathbf{N}_{0,1}(S)$ [illegible] (0; 1) [illegible] S.

[illegible]: (1) [illegible]; (2) [illegible]; (3) [illegible] $X_1, X_2, \ldots$, [illegible]; [illegible] X_i [illegible] $X_1, X_2, \ldots$ [illegible]; (4) [illegible] $N(t)$ [illegible] $X_1, X_2, \ldots$ [illegible].

[illegible] R [illegible]

$$S(t) = \sum_{i=1}^{N(t)} X_i$$

[illegible] u:

$$R = p\left\{ S(t) > u \right\}.$$

[illegible] [7]:

$$U(t) = u + ct - S(t),$$

[illegible] $U(t)$ – [illegible]; u – [illegible]; c – [illegible]; $S(t)$ – [illegible] 0 [illegible] t, [illegible] $N(t)$ [illegible], $N(t) \sim P_0(\lambda t)$, [illegible] $t \geq 0$. [illegible] $X_1, X_2, \ldots$ [illegible].

[illegible] $\psi(u)$ [illegible] u; [illegible]:

$$\psi(u) \leq \exp(-Ru),$$

[illegible] R – [illegible]:

$$\lambda + cr = \lambda M_X(r),$$

[illegible] λ – [illegible]; c – [illegible]; $M_X(r)$ – [illegible].

[illegible] R [illegible] u [illegible], 1%.

[illegible] $\psi(u)$ [illegible] $\psi(u)$ [illegible] u, [illegible]

[illegible] λ [illegible] $\lambda = 1$). [illegible] n [illegible] $X = (x_1, x_2, \ldots, x_n)$, [illegible] R; [illegible]

[illegible] AIC [illegible] BSC). [illegible] R [illegible] $\psi(u)$.

[illegible] $\psi(u)$ [illegible] R. [illegible] $\psi(u \mid x)$ [illegible]:

$$\psi(u \mid x) = E[I \mid x] = E[E(I \mid R) \mid x] \le E[\exp(-Ru) \mid x], \tag{1}$$

[illegible] $I = 1$, [illegible] $I = 0$; [illegible] $R = 0$, [illegible] $c \le \lambda\, E[X_i \mid \theta_i, M_i]$, [illegible] X_i, θ_i, M_i – [illegible] i – [illegible] $E[\exp(-Ru) \mid x] \ge \exp(-\mu_R u)$, [illegible] $\mu_R = E(R \mid x)$.

[illegible] i – [illegible] θ_i) [illegible] n [illegible]

$$\theta_i \sim N\left(\hat{\theta}_i, H_i^{-1}\right),$$

[illegible] $\hat{\theta}_i$ – [illegible]; H_i – [illegible] $\hat{\theta}_i$; [illegible] $\lim_{n \to \infty} H_i^{-1} = O\left(n^{-1}\right)$. [illegible] ($\lambda = 1$) [illegible]: $1 + cR = M_i(R, \theta_i)$, [illegible] $M_i(R, \theta_i)$ – [illegible] i – [illegible] $M_i(R, \theta_i)$ [illegible] $(\hat{R}_i, \hat{\theta}_i)$:

$$M_i(R, \theta_i) = M_i\left(\hat{R}_i, \hat{\theta}_i\right) + \frac{\partial M_i\left(\hat{R}_i, \hat{\theta}_i\right)}{\partial R}\left(R - \hat{R}_i\right) + \sum_{j=1}^{k_i} \frac{\partial M_i\left(\hat{R}_i, \hat{\theta}_i\right)}{\partial \theta_{ij}}\left(\theta_{ij} - \hat{\theta}_{ij}\right) + O\left(\left|R - \hat{R}_i, \theta_i - \hat{\theta}_i\right|\right),$$

[illegible] k_i – [illegible] θ_i.

[illegible] $1 + c\hat{R}_i = M_i\left(\hat{R}_i, \hat{\theta}_i\right)$ [illegible]:

$$1 + cR \approx 1 + c\hat{R}_i + m_{ir}\left(R - \hat{R}_i\right) + \sum_{j=1}^{k_i} m_{ij}\left(\theta_{ij} - \hat{\theta}_{ij}\right),$$

[illegible] $m_{ir} = \dfrac{\partial M_i\left(\hat{R}_i, \hat{\theta}_i\right)}{\partial R}$; $m_{ij} = \dfrac{\partial M_i\left(\hat{R}_i, \hat{\theta}_i\right)}{\partial \theta_{ij}}$, $j = 1, 2, \ldots, k_i$.

[illegible]:

$$\left(c-m_{ir}\right)R \approx \left(c-m_{ir}\right)\breve{R}_i + \sum_{j=1}^{k_i} m_{ij}\left(\theta_{ij}-\breve{\theta}_{ij}\right),$$

[illegible]

$$R\left(\theta_i\right) \approx \breve{R}_i + \frac{1}{c-m_{ir}}\, m_i^T\left(\theta_i-\breve{\theta}_i\right), \qquad (2)$$

[illegible] $m_i^T = \left[m_{i1}, m_{i2}, ..., m_{ik_i}\right]$.

[illegible] R [illegible]:

$$R \sim N\left(\breve{R}_i, \sigma_i^2\right),$$

[illegible] $\sigma_i^2 = \frac{1}{\left(c-m_{ir}\right)^2}\, m_i^T H_i^{-1} m_i$. [illegible] $\lim_{n\to\infty} H_i^{-1} = O\left(n^{-1}\right)$, [illegible] $\sigma_i^2 = O\left(n^{-1}\right)$ [illegible] $n \to \infty$; [illegible].

[illegible] R [illegible] $i-$ [illegible]:

$$\Pr\left[R \le r \mid x, M_i\right] = \begin{cases} 0, & \text{[illegible]}\ r<0; \\ \Phi\left(-\dfrac{\breve{R}_i}{\sigma_i}\right), & \text{[illegible]}\ r=0; \\ \Phi\left(-\dfrac{r-\breve{R}_i}{\sigma_i}\right), & \text{[illegible]}\ r>0. \end{cases} \qquad (3)$$

[illegible] $p_i = \Pr\left(M_i \mid x\right)$ [illegible], [illegible] $i-$ [illegible] i^*- [illegible] M_{i^*}. [illegible] M_{i^*} [illegible] p_i. [illegible] R [illegible] $f_{i^*}\left(r \mid x\right)$, [illegible]: $f\left(r \mid x\right) = \sum_i p_i\, f_i\left(r \mid x\right)$.

[illegible] R, [illegible] (1): $\psi\left(u \mid x\right) \le E\left[\exp\left(-Ru\right) \mid x\right]$. [illegible] (3) [illegible]:

$$E\left[\exp\left(-Ru\right) \mid x, M_i\right] = \exp\left[-\breve{R}_i u + \frac{1}{2}\sigma_i^2 u^2\right]\left\{1-\Phi\left(\frac{-\breve{R}_i + u\sigma_i^2}{\sigma_i}\right)\right\} + \Phi\left(\frac{-\breve{R}_i}{\sigma_i}\right), \qquad (4)$$

[illegible] $\Phi\left(\cdot\right)-$ [illegible]

$$\psi\left(u\right) \le \exp\left[-\breve{R}_{i^*} u + \frac{1}{2}\sigma_{i^*}^2 u^2\right]\left\{1-\Phi\left(\frac{-\breve{R}_i + u\sigma_{i^*}^2}{\sigma_{i^*}}\right)\right\} + \Phi\left(\frac{-\breve{R}_{i^*}}{\sigma_{i^*}}\right), \qquad (5)$$

[illegible]

$$\psi\left(u\right) \le \sum_i p_i \exp\left[-\breve{R}_i u + \frac{1}{2}\sigma_i^2 u^2\right]\left\{1-\Phi\left(\frac{-\breve{R}_i + u\sigma_i^2}{\sigma_i}\right)\right\} + \Phi\left(\frac{-\breve{R}_i}{\sigma_i}\right). \qquad (6)$$

[illegible] M_i, $i = 1, \ldots, 10$ [illegible] α_i [illegible] γ. [illegible] Y [illegible]:

$$f\left(y\right) = \frac{\gamma^{\alpha}\, y^{\alpha-1} e^{-\gamma y}}{\Gamma\left(\alpha\right)},$$

[illegible] $\bar{y} = \alpha/\gamma$ [illegible] $Var(y) = \alpha/\gamma^2$. [illegible] γ. [illegible] $p(M_i) = 0{,}1;\ i = 1, ..., 10$, [illegible] γ [illegible] $(0, \infty)$.

[illegible] 1000 [illegible] $\mu = 1$ [illegible] $\sigma^2 = 0{,}15$ [illegible] $c = 1{,}1$). [illegible] (4) [illegible] (6). [illegible] u, [illegible] 0,01. [illegible]:

$u_1 = 31{,}1$ $(G_1(u) = \exp(-Ru) = 0{,}01)$; $u_2 = 37{,}5$ [illegible]: $G_2(u) = E[\exp(-Ru) \mid x, M_5] = 0{,}01$ [illegible] $i^* = 5$; [illegible] $u_3 = 39{,}2$ [illegible] $G_2(u) = E[\exp(-Ru) \mid x] = 0{,}01$. [illegible]

[illegible]

[illegible]

[illegible]

[illegible] R [illegible]

[illegible]

1. [illegible], 1998. – 528 [illegible]
2. [illegible] 2000, 2005. – 480 [illegible]
3. [illegible], 2002. – 208 [illegible]
4. [illegible], 2001. – 274 [illegible]
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