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02405 Probability

2003-11-12

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$$G(t) = e^{-\int_0^t \lambda(u) du}$$

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Now inserting $\lambda(u)$

IMM - DTU

02405 Probability

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$$G(t) = e^{-\int_0^t \lambda(u) du}$$

Now inserting $\lambda(u) = \lambda \alpha u^{\alpha-1}$

IMM - DTU

02405 Probability

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IMM - DTU

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IMM - DTU

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Now inserting $\lambda(u) = \lambda\alpha u^{\alpha-1}$

$$G(t) = e^{-\int_0^t \lambda\alpha u^{\alpha-1} du} = e^{-\lambda[u^\alpha]_{u=0}^{u=t}}$$

IMM - DTU

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IMM - DTU

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Similarly we derive $f(t)$ from $G(t)$ using (5) page 297

IMM - DTU

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Similarly we derive $f(t)$ from $G(t)$ using (5) page 297

$$f(t) = -\frac{dG(t)}{dt}$$

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Similarly we derive $f(t)$ from $G(t)$ using (5) page 297

$$f(t) = -\frac{dG(t)}{dt} = -e^{-\lambda t^\alpha} (-\lambda\alpha t^{\alpha-1})$$

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$$\lambda(t) = \frac{\lambda \alpha t^{\alpha-1} e^{-\lambda t^\alpha}}{e^{-\lambda t^\alpha}}$$

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$$\lambda(t) = \frac{\lambda \alpha t^{\alpha-1} e^{-\lambda t^\alpha}}{e^{-\lambda t^\alpha}} = \lambda \alpha t^{\alpha-1}$$