Topics Covered in Lecture 23

17-September-2002

- Assignment # 5 solutions are discussed.
- The Laplace-Stieltjes transform of R given $N = n$ is the convolution:

$$L_{R|N}(s|n) = \left(\frac{\mu}{s+\mu}\right)^{n+1}$$

$$\begin{aligned} L_R(s) &= \sum_{n=0}^{\infty} \left(\frac{\mu}{s+\mu}\right)^{n+1} (1-\rho)\,\rho^n \\ &= \frac{\mu(1-\rho)}{s+\mu(1-\rho)} \end{aligned}$$

- PASTA Theorom

$$P_N(n) = (1-\rho)\rho^n$$

$$\begin{aligned} L_R(s) &= \sum_{n=0}^{\infty} \left(\frac{\mu}{s+\mu}\right)^{n+1} \rho^n(1-\rho) \\ &= \frac{\mu(1-\rho)}{\mu+s} \sum_{n=0}^{\infty} \left(\frac{\mu\rho}{s+\mu}\right)^{n} \\ &= \frac{\mu(1-\rho)}{s+\mu(1-\rho)} \end{aligned}$$