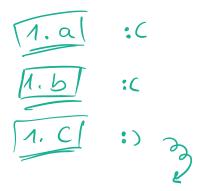
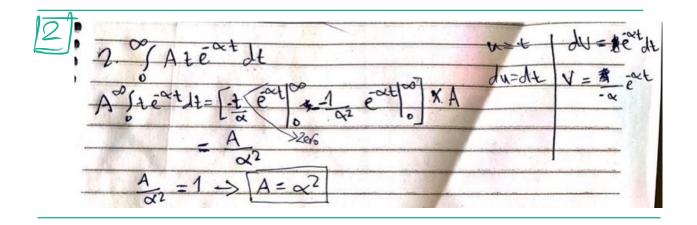
## AAND-AT-Problemset 2

Ammar Ibrahim & Mohammad Orabe



- A high cross correlation value at a certain time deley could mean:
  - 1. The two Signals are similar but one of them is delayed (shows a similar but delayed response to the Stimulus.
  - 2. One signal is driving the other, i.e. the activity of one neuron drives the activity of the other neuron with a certain del



$$\frac{3a}{3a} \int_{-\infty}^{\infty} \rho(t) dt = \int_{-\infty}^{\infty} \rho(t) dt + \int_{-\infty}^{\infty} \rho(t) dt = \int_{-\infty}^{\infty} \rho(t) dt \dots \omega$$

$$\Rightarrow \int_{0}^{\infty} \rho(z) dz = \int_{0}^{\infty} re^{-rz} dz = -e^{-rz} \int_{0}^{\infty} = -0 - (-1) = \boxed{1}$$

3.b • 
$$\langle \tau \rangle = \int_{-\infty}^{\infty} \rho(\tau) d\tau$$

$$= \int_{-\infty}^{\infty} \tau e^{-r\tau} d\tau$$

$$= \int_{-\infty}^{\infty} \tau e^{-r\tau} d\tau$$

$$= r \left( \frac{1}{2} \cdot \left( \frac{e^{-r\tau}}{r} \right) \right)^{\infty} = \int_{0}^{\infty} -\frac{e^{-r\tau}}{r} d\tau$$

$$= r \left( \frac{1}{2} \cdot \left( \frac{e^{-r\tau}}{r} \right)^{\infty} - \frac{e^{-r\tau}}{r} \right)$$

$$= r \left( \frac{1}{2} \cdot \left( \frac{e^{-r\tau}}{r} \right)^{\infty} - \frac{e^{-r\tau}}{r^{2}} \right)$$

$$= r \left( \frac{1}{2} \cdot \left( \frac{e^{-r\tau}}{r} \right)^{\infty} - \frac{e^{-r\tau}}{r^{2}} \right)$$

• 
$$\langle \tau^{2} \rangle = \int_{-\infty}^{\infty} \tau^{2} \rho(\tau) d\tau$$

=  $r \int_{0}^{\infty} \tau^{2} e^{-r\tau} d\tau$ 

=  $r \left( \tau^{2} \cdot \left( -\frac{e^{-r\tau}}{r} \right) \right)^{\infty} \left( \int_{0}^{\infty} 2\tau \cdot \left( -\frac{e^{-r\tau}}{r} \right) \right)$ 

=  $r \left( \left( -\frac{e^{-r\tau}}{r} \right) \int_{0}^{\infty} \left( 2\tau \left( \frac{e^{-r\tau}}{r^{2}} \right) \int_{0}^{\infty} \left( 2\tau \left( \frac{e^{-r\tau}}{r^{2}} \right) \right) \right)^{\infty}$ 

=  $r \left( \left( -\frac{e^{-r\tau}}{r} \right) \int_{0}^{\infty} \left( 2\tau \left( \frac{e^{-r\tau}}{r^{2}} \right) \int_{0}^{\infty} \left( 2\tau \left( \frac{e^{-r\tau}}{r^{2}} \right) \int_{0}^{\infty} \left( 2\tau \left( \frac{e^{-r\tau}}{r^{2}} \right) \right) \int_{0}^{\infty} \left( 2\tau \left( \frac{e^{-r\tau}}{r^{2}} \right) \left( 2\tau \left( \frac{e^{-r\tau}}{r^{2}} \right) \right) \int_{0}^{\infty} \left( 2\tau \left( \frac{e^{-r\tau}}{r^{2}} \right) \left( 2\tau \left( \frac{e^{-r\tau}}{r^{2}} \right) \right) \left( 2\tau \left( \frac{e^{-r\tau}}{r^{2}} \right) \right) \int_{0}^{\infty} \left( 2\tau \left( \frac{e^{-r\tau}}{r^{2}} \right) \left( 2\tau \left( \frac{e^{-r\tau}}{r^{2}} \right) \right) \left( 2\tau \left( \frac{e^{-r\tau}}{r^{2}} \right)$ 

$$\begin{array}{ccc}
\boxed{3.cl} & \sigma = \boxed{1} \\
CV = \boxed{-6\tau} \\
= \boxed{-1} \\
= \boxed{1}
\end{array}$$

4

H.) mean = < n = + the moment's capible ()

derived from the moment generating function;  $0(\alpha) = \sum_{n=0}^{\infty} |r(n)|^n \exp(\alpha n) \exp(-r(n))$ to be;  $(n) = r(T_{-1}, \sigma^2 = r(T_{-1}))$