

Spectral density:

$$W(\alpha) = \sum_{-\infty}^{\infty} \rho^{|j|} z^j = -1 + \frac{1}{1+\rho z} + \frac{1}{1-\rho z^{-1}}$$

Indicator of a set A:

$$= \frac{-1 + \frac{1}{1-\rho e^{i\alpha}} + \frac{1}{1-\rho e^{-i\alpha}}}{1-2\rho \cos \alpha + \rho^2} = \frac{2A(\alpha) - 1 - \rho^2}{1-2\rho \cos \alpha + \rho^2} \quad x \in A$$

Yule series

$$u_t + \alpha_1 u_{t-1} + \alpha_2 u_{t-2} = \epsilon_t$$

Yule-Walker:

$$\rho_1 + \alpha_1 + \alpha_2 \rho_1 = 0$$

$$\rho_2 + \alpha_1 \rho_1 + \alpha_2 = 0$$

$$\rho_1 = -\frac{\alpha_1}{1+\alpha_2}, \quad \rho_2 = -\alpha_2 + \frac{\alpha_1^2}{1+\alpha_2}$$

$$\alpha_1 = -\frac{\rho_1(1-\rho_2)}{1-\rho_1^2}, \quad \alpha_2 = -\frac{\rho_2 - \rho_1^2}{1-\rho_1^2}$$

Solution of $x^2 + \alpha_1 x + \alpha_2 = 0$

μ, ν

$$\rho_j^t = A \mu^t + B \nu^t$$

$$\rho_0 = 1 = A + B$$

$$\rho_1 = A \mu + B \nu$$

For fixed j : $w_j = \sum_{k=1}^{\infty} f_k$

$$w_n = w_1 \cup w_2 \cup \dots \cup w_n$$

$$w_n \rightarrow \bigcup_{k=1}^{\infty} w_k$$

applies also to sets:

$$A = \lim A_n \text{ if } 1_A = \lim 1_{A_n}$$

each point of A belongs to all A_n with finitely many exceptions.

$$\limsup f_n = \bigcup_{j=1}^{\infty} \bigcap_{k=j}^{\infty} f_k$$

$$\liminf f_n = \bigcap_{j=1}^{\infty} \bigcup_{k=j}^{\infty} f_k$$