Some More Notation

$\sigma_1^2, \dots, \sigma_r^2$ as values of the spectral density function of y_t at frequencies $\omega_1, \dots, \omega_r$

$$\gamma_y(h) = \int_{-0.5}^{0.5} \exp\{2\pi\omega h i\} f(\omega)\, d\omega$$

$$\gamma_y(h) = \sum_{k=1}^{r} \sigma_k^2 \cos(2\pi\omega_k h)$$

$$(*) \quad y_t = \sum_{k=1}^{r} v_k \cos(2\pi \omega_k t) + u_k \sin(2\pi \omega_k t)$$

$$u_k, v_k \overset{iid}{\sim} N(0, \sigma_k^2)$$

conventionally, we define ω_k's in increasing order, $\omega_1 < \omega_2 < \dots < \omega_r$

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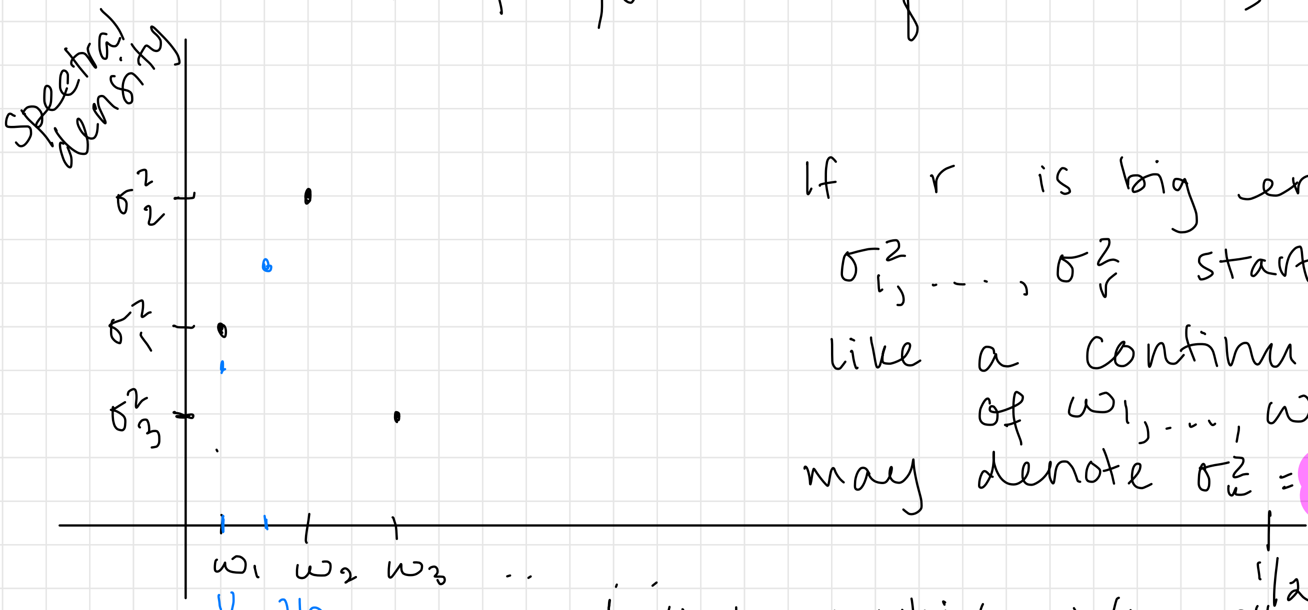

If r is big enough, $\sigma_1^2, \dots, \sigma_r^2$ starts looking like a continuous function of $\omega_1, \dots, \omega_r$, we may denote $\sigma_k^2 = f(\omega_k)$

we don't know which ω_k's matter in practice, so we always look at frequencies $1/n \dots \frac{(n-1)}{2}/n$