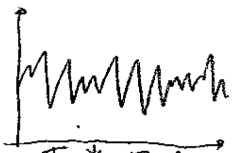
AR-process (Auto Regression) 自己回帰過程

- AR(1) process

$$x(t) = \alpha_1 x(t-1) + \mu + \varepsilon_t$$

1つ前のデータ　定数項　誤差項

ex) $x(t) = 0.8x(t-1) + 1 + \varepsilon_t \quad (\varepsilon_t \sim N(0,1))$



定常過程

非定常過程

- AR(P) process

$$x(t) = \alpha_1 x(t-1) + \alpha_2 x(t-2) + \cdots + \alpha_p x(t-p) + \mu + \varepsilon_t$$

MA-process (Moving Average) 移動平均過程

- MA(1) process

$$x(t) = \mu + \varepsilon_t + \theta_1 \varepsilon_{t-1}$$

1つ前の誤差項

ex) $x(t) = 10 + \varepsilon(t) + 0.5\,\varepsilon(t-1)$

- MA(q) process

$$x(t) = \mu + \varepsilon_t + \theta_1 \varepsilon_{t-1} + \cdots + \theta_q \varepsilon_{t-q}$$

ARMA-process

- ARMA(p, q)

$$x(t) = \mu + \alpha_1 x(t-1) + \cdots + \alpha_p x(t-p) + \varepsilon_t + \theta_1 \varepsilon_{t-1} + \cdots + \theta_q \varepsilon_{t-q}$$