

統計学 One Point 22 卷『推薦システム』 正誤表

p.43 ↑4L-2L

$$\begin{aligned}\hat{r}_{11} &= \mu_{u1} + \frac{\text{correl}_{21} \times (r_{21} - \mu_{u2}) + \text{correl}_{41} \times (r_{41} - \mu_{u4})}{|\text{correl}_{21}| + |\text{correl}_{41}|} \\ &= \frac{1.00 \times (1 - 2.50) + 0.98 \times (2 - 2.50)}{1.00 + 0.98} \\ &= 2.25\end{aligned}$$

→

$$\begin{aligned}\hat{r}_{11} &= \mu_{u1} + \frac{\text{correl}_{21} \times (r_{21} - \mu_{u2}) + \text{correl}_{51} \times (r_{51} - \mu_{u5})}{|\text{correl}_{21}| + |\text{correl}_{51}|} \\ &= 3.50 + \frac{1.00 \times (1 - 2.50) + 0.98 \times (2 - 3.00)}{1.00 + 0.98} \\ &= 2.25\end{aligned}$$

p.54 (4.4) 式 $\|u_{il}\|^2, \|v_{jl}\|^2 \rightarrow u_{il}^2, v_{jl}^2$

p.54 (4.6) 式

$$\begin{aligned}\frac{\partial S}{\partial u_{il}} &= 2 \sum_{j=1}^n I(i, j) (r_{ij} - \sum_{l=1}^k u_{il} v_{jl}) \frac{\partial}{\partial u_{il}} \sum_{l=1}^k u_{il} v_{jl} - 2k_u u_{il} \\ &= 2 \sum_{j=1}^n I(i, j) (r_{ij} - \sum_{l=1}^k u_{il} v_{jl}) \sum_{l=1}^k v_{jl} - 2k_u u_{il}\end{aligned}$$

→

$$\begin{aligned}\frac{\partial S}{\partial u_{il}} &= 2 \sum_{j=1}^n I(i, j) \left(r_{ij} - \sum_{l=1}^k u_{il} v_{jl} \right) \frac{\partial}{\partial u_{il}} \left(r_{ij} - \sum_{l=1}^k u_{il} v_{jl} \right) + 2k_u u_{il} \\ &= 2 \sum_{j=1}^n I(i, j) \left(r_{ij} - \sum_{l=1}^k u_{il} v_{jl} \right) (-v_{jl}) + 2k_u u_{il}\end{aligned}$$

p.54 (4.7) 式

$$\begin{aligned}\frac{\partial S}{\partial v_{jl}} &= 2 \sum_{i=1}^m I(i, j) (r_{ij} - \sum_{l=1}^k u_{il} v_{jl}) \frac{\partial}{\partial v_{jl}} \sum_{l=1}^k u_{il} v_{jl} - 2k_v v_{jl} \\ &= 2 \sum_{i=1}^m I(i, j) (r_{ij} - \sum_{l=1}^k u_{il} v_{jl}) \sum_{l=1}^k u_{il} - 2k_v v_{jl}\end{aligned}$$

→

$$\begin{aligned}\frac{\partial S}{\partial v_{jl}} &= 2 \sum_{i=1}^m I(i, j) \left(r_{ij} - \sum_{l=1}^k u_{il} v_{jl} \right) \frac{\partial}{\partial v_{jl}} \left(r_{ij} - \sum_{l=1}^k u_{il} v_{jl} \right) + 2k_v v_{jl} \\ &= 2 \sum_{i=1}^m I(i, j) \left(r_{ij} - \sum_{l=1}^k u_{il} v_{jl} \right) (-u_{il}) + 2k_v v_{jl}\end{aligned}$$