

R-Output Presentation

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(a) Linear Model with Independent Predictors

$$Y_1 \sim 1.5X_1 + 1.5X_2 + 2X_3 + 2X_4 + 2X_5 + 3X_6 + 4X_7 + 5X_8 + \epsilon$$

(b) Linear Model with Correlated Predictors

$$Y_2 \sim 1.5X_1 + 1.5X_2 + 2X_3 + 2X_4 + 2X_5 + 3X_6 + 4X_7 + 5X_8 + \epsilon$$

Where $X_1 \not\perp X_2$ and $\text{cov}(X_1, X_2) = 0, 0.5, 0.75, 0.9$ respectively.

(c) Linear Model with Correlated Predictors and Different SNR

$$Y_3 \sim 1.5X_1 + 1.5X_2 + 2X_3 + 2X_4 + 2X_5 + 3X_6 + 4X_7 + 5X_8 + \epsilon$$

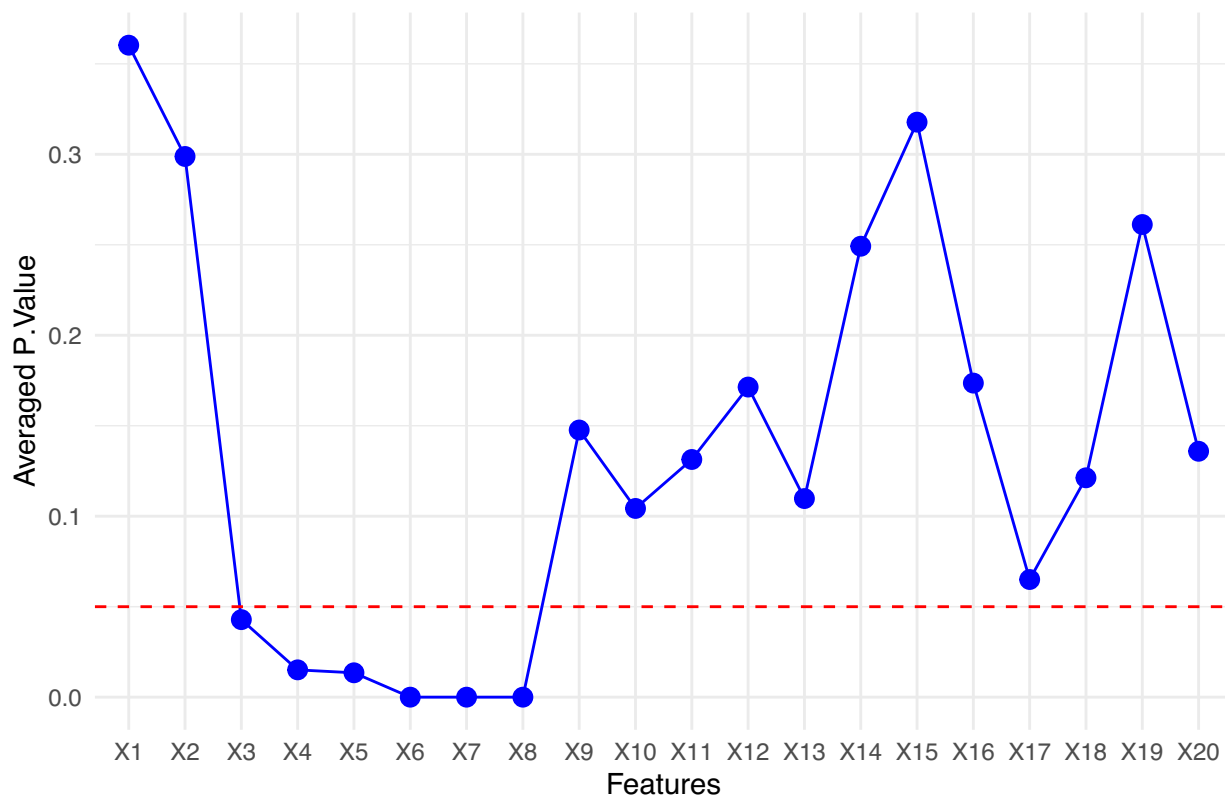
Where $\text{cov}(X_i, X_j) = \rho^{|i-j|}$ and $\epsilon \sim N(0, \sigma^2)$ with $\sigma^2 = 0.1, 0.5, 0.75, 2.1$.

(d) Non-linear Model

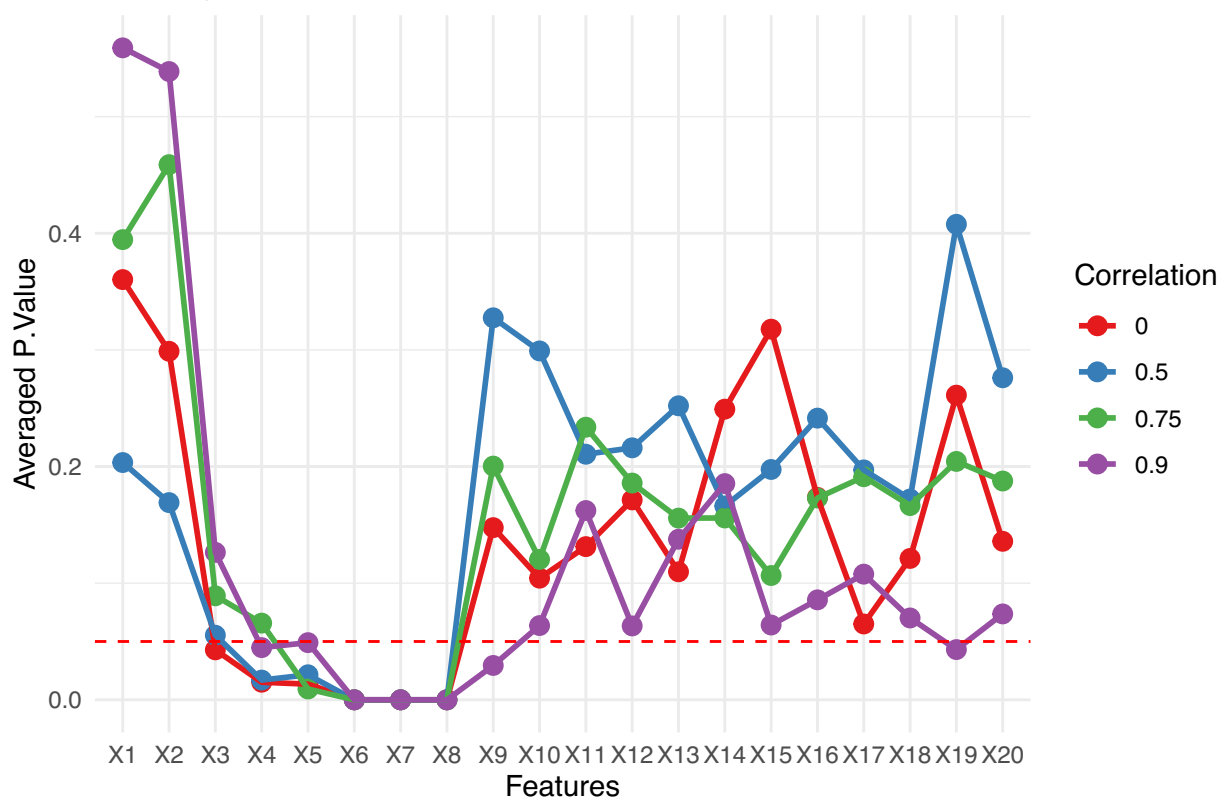
$$Y_4 \sim 2X_1^2 + 2\cos(4X_2) + \sin(X_3) + \exp\left(\frac{X_4}{3}\right) + 3X_5X_6 + 5X_7 + \max(0, X_8)$$

LOCO only

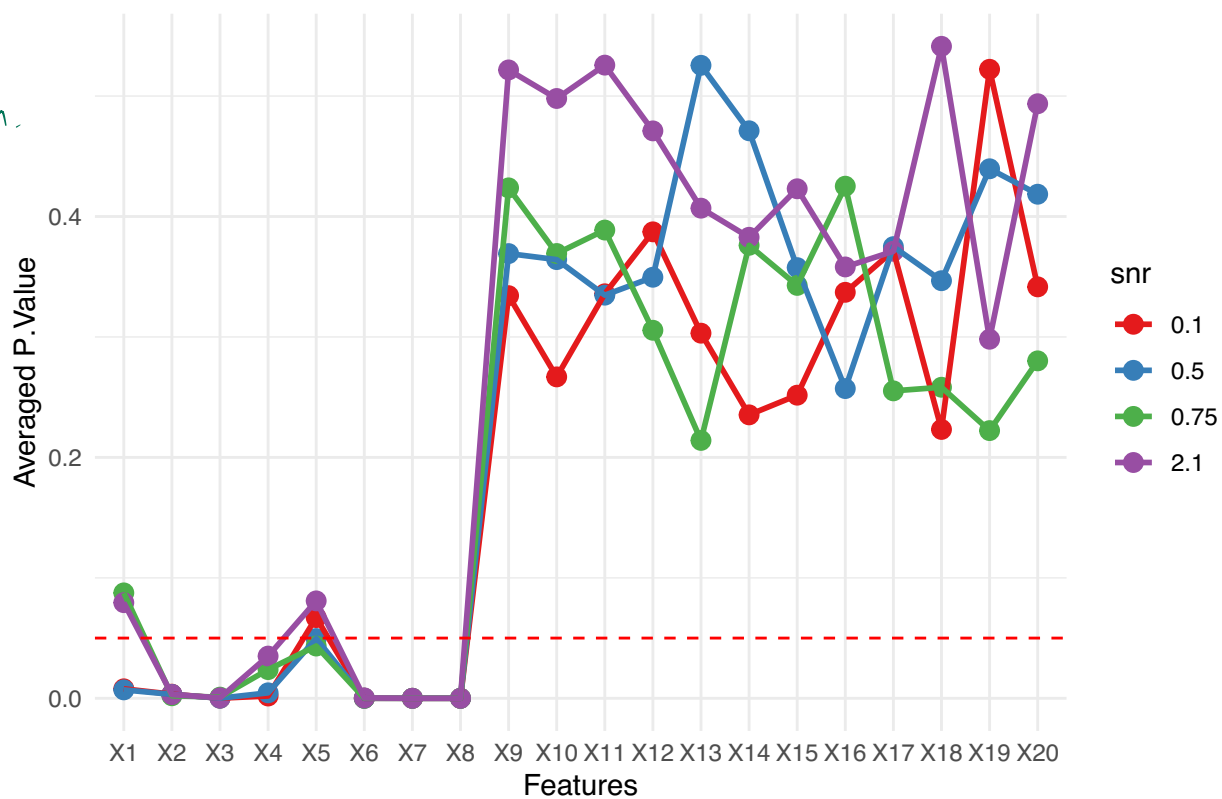
Case a): *Loco_all*



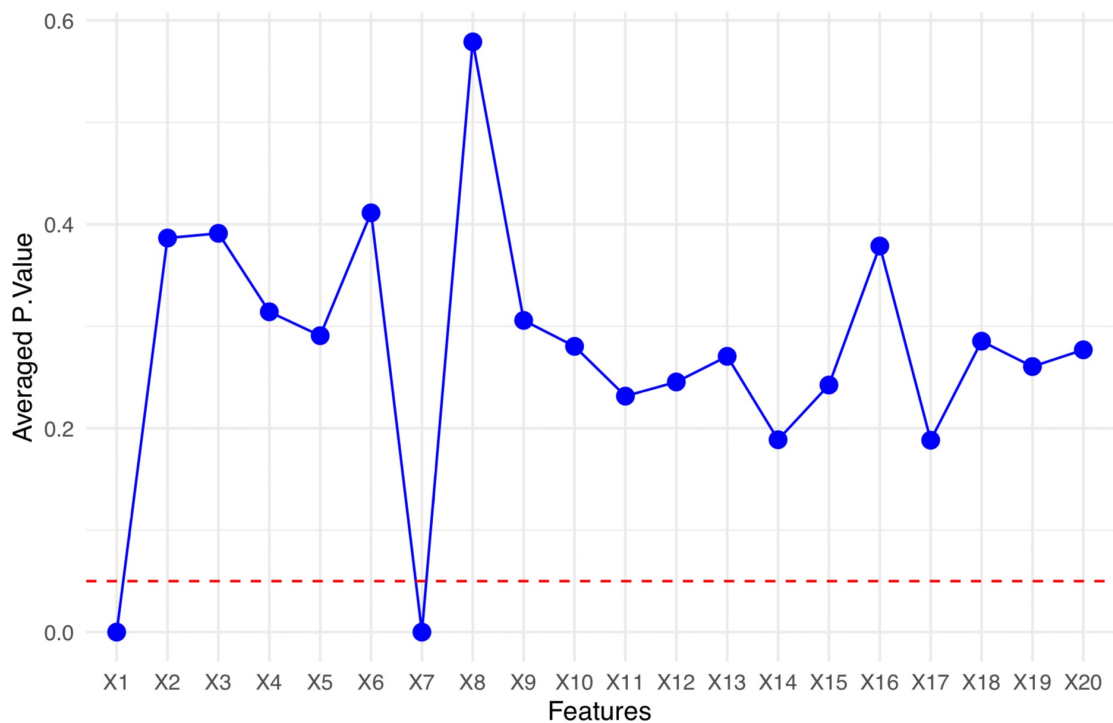
Case b): *Loco_all*



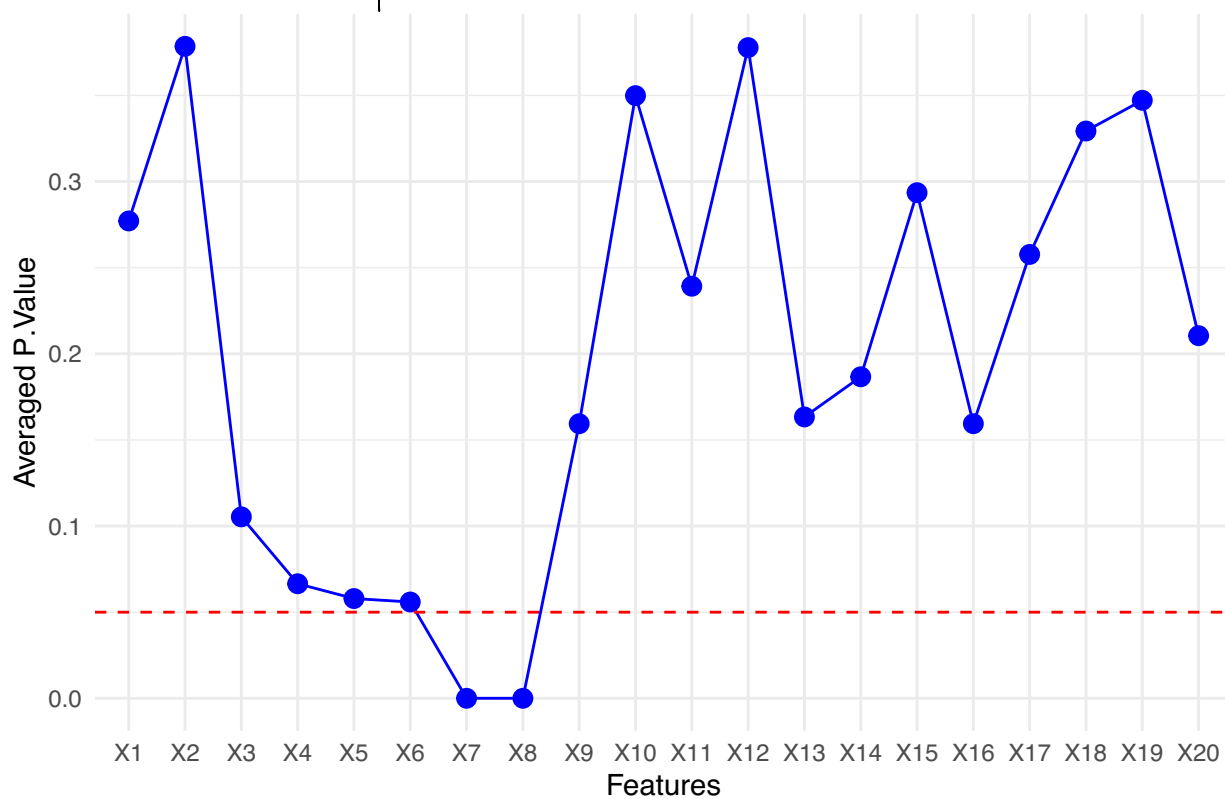
Case c): *Loco_all*



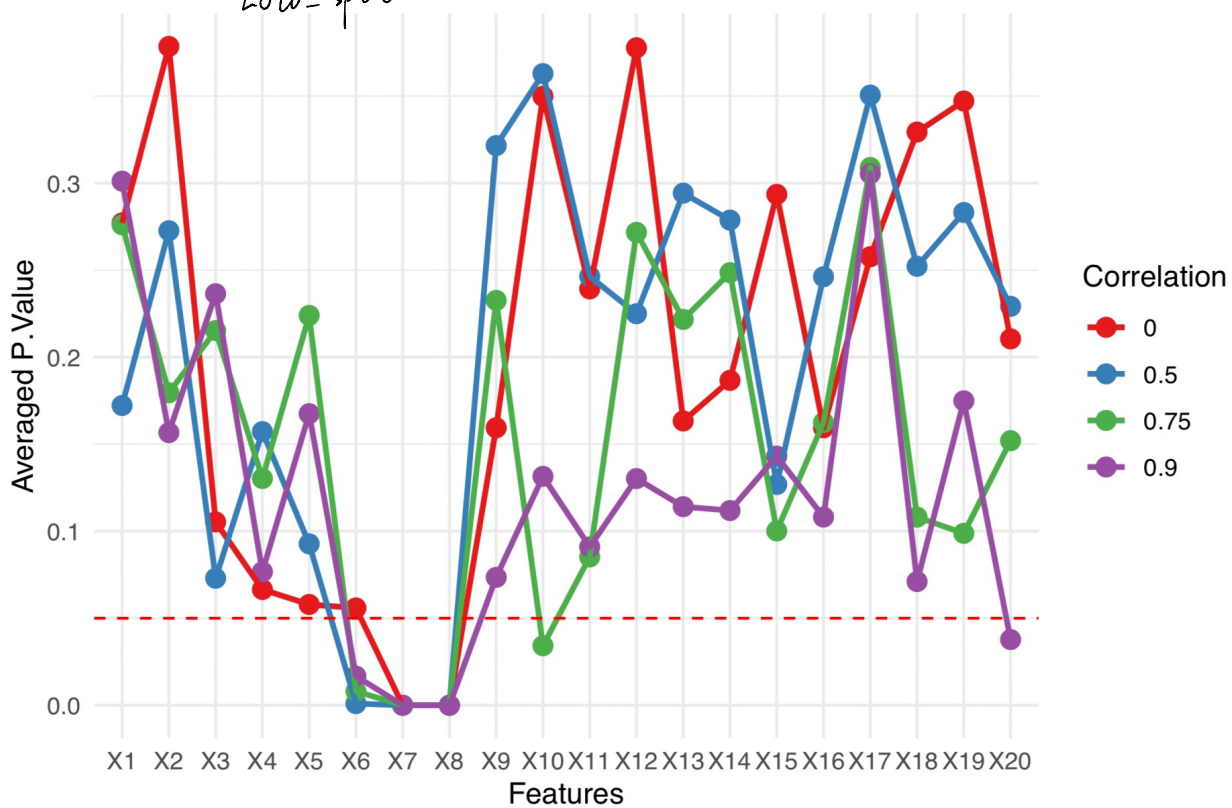
Case d): *Loco_all*



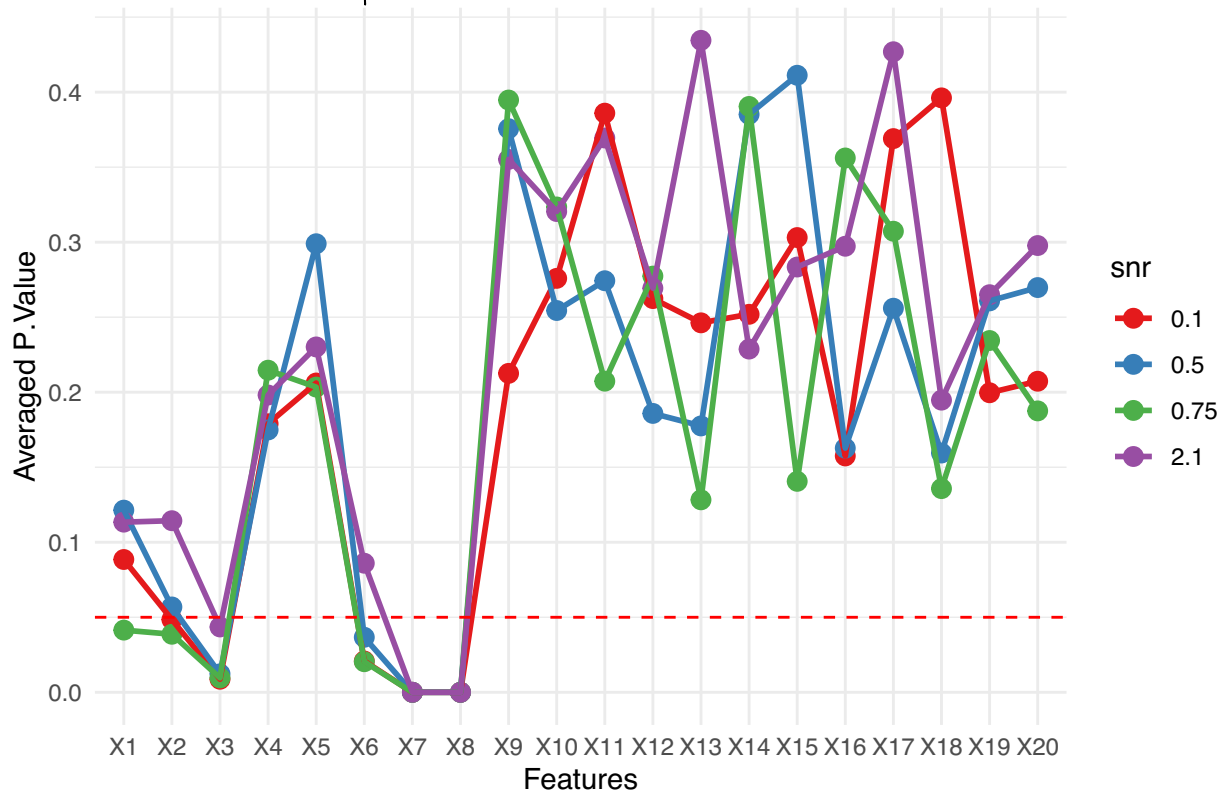
Case a): *Loco-split.*



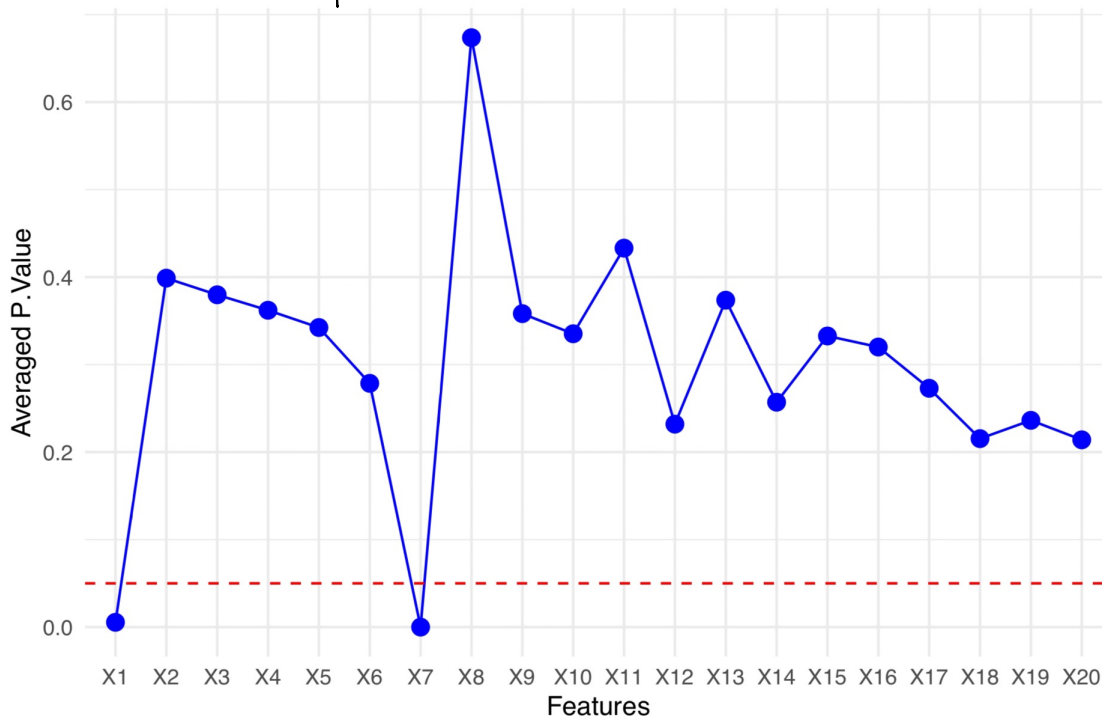
Case b): *Loco-split.*



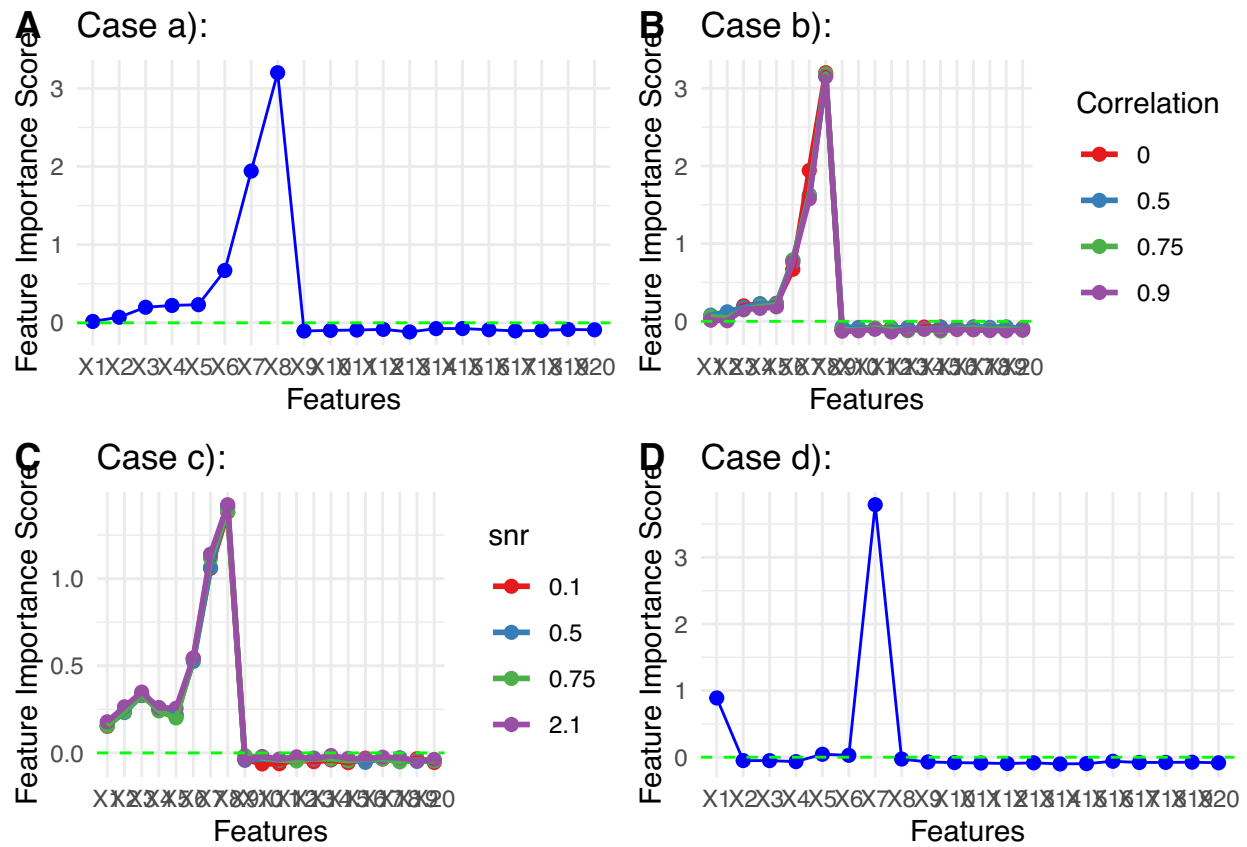
Case c): *Loco-split.*



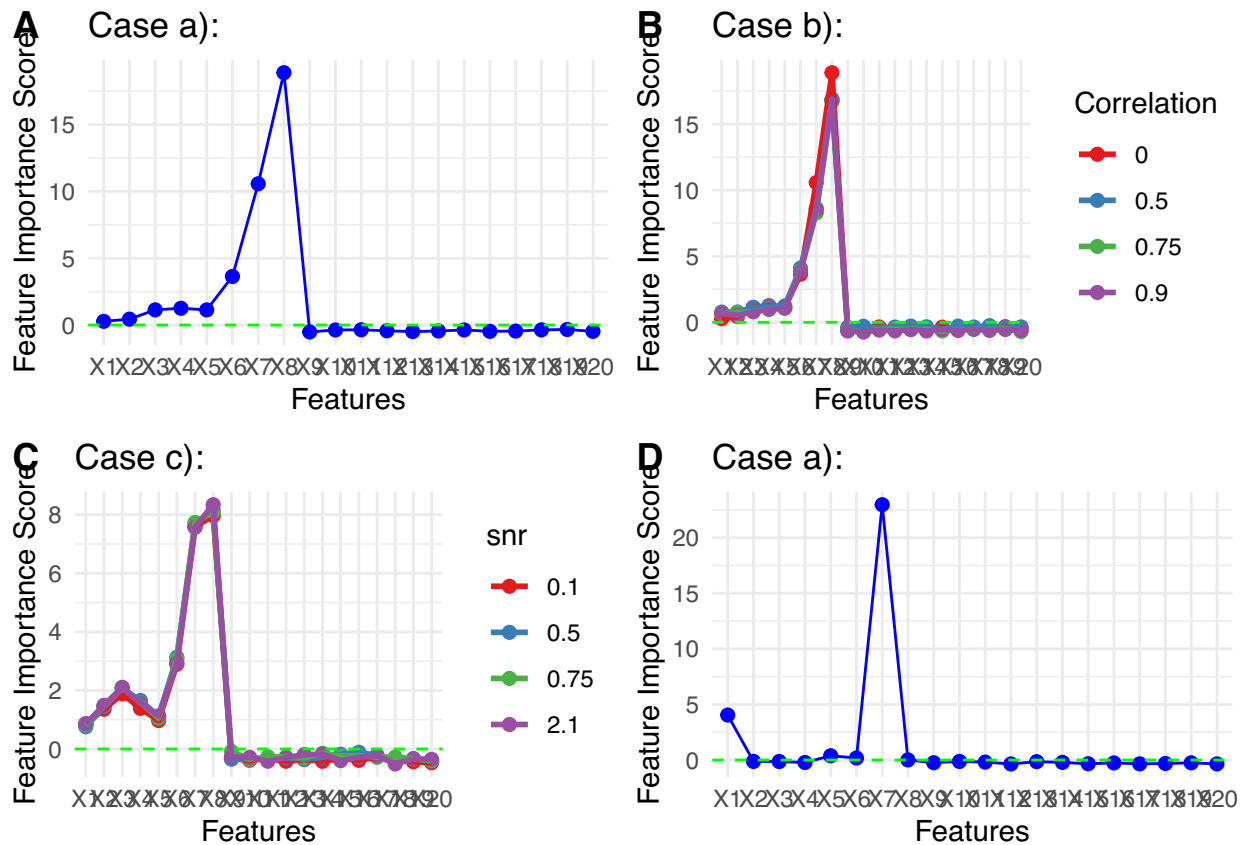
Case d): *Loco-split.*



Low all

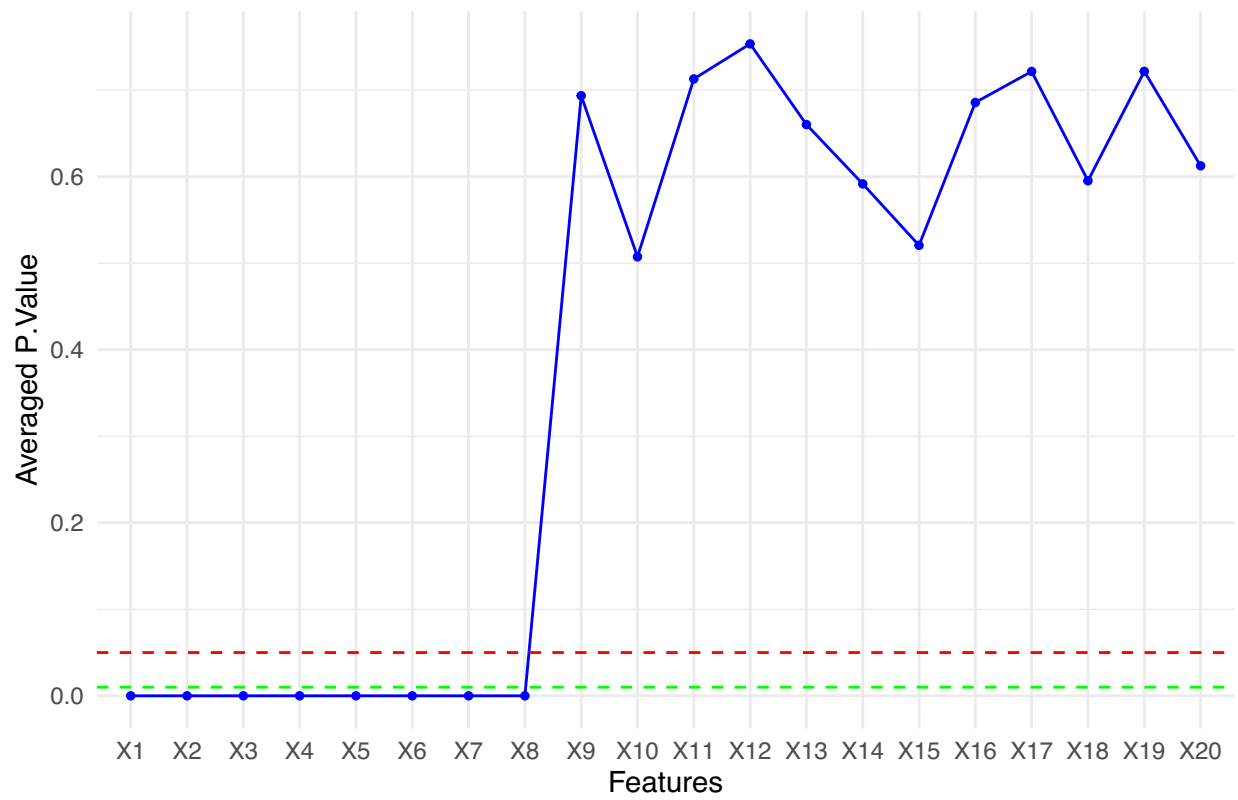


Loco-split.

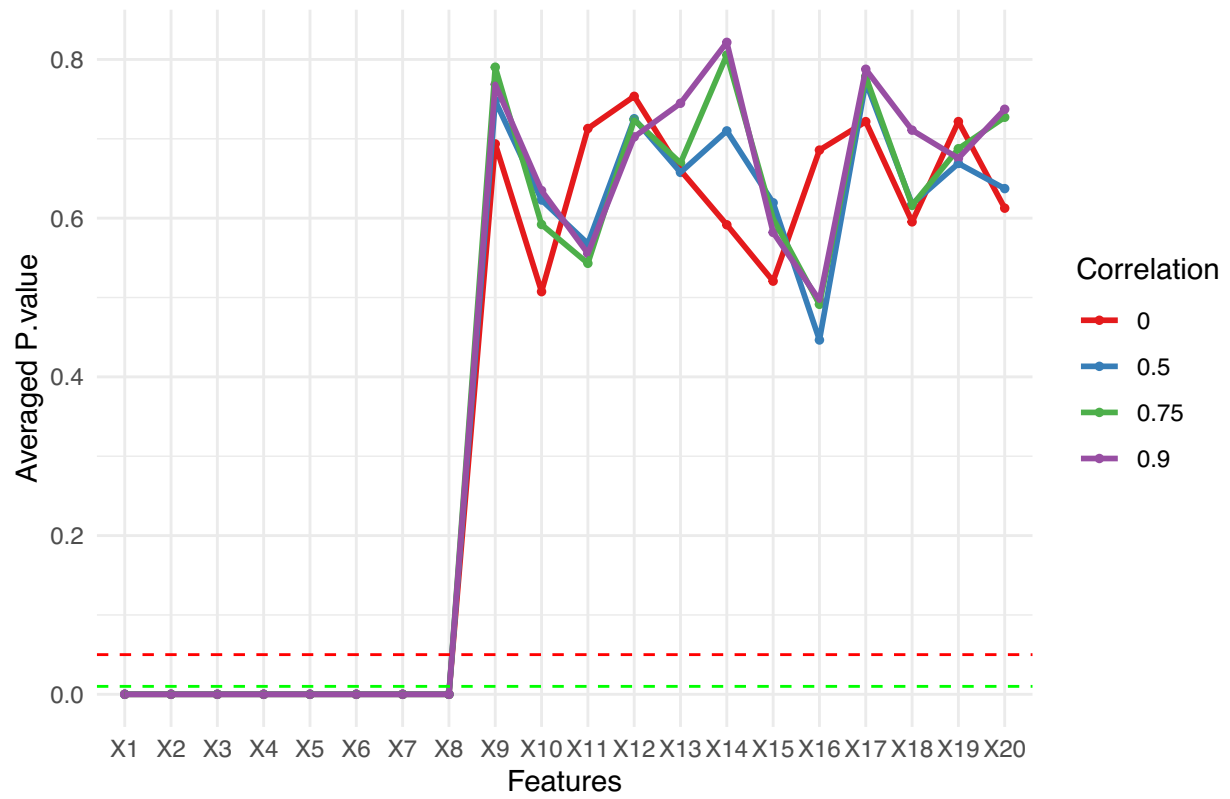


GCM filter only

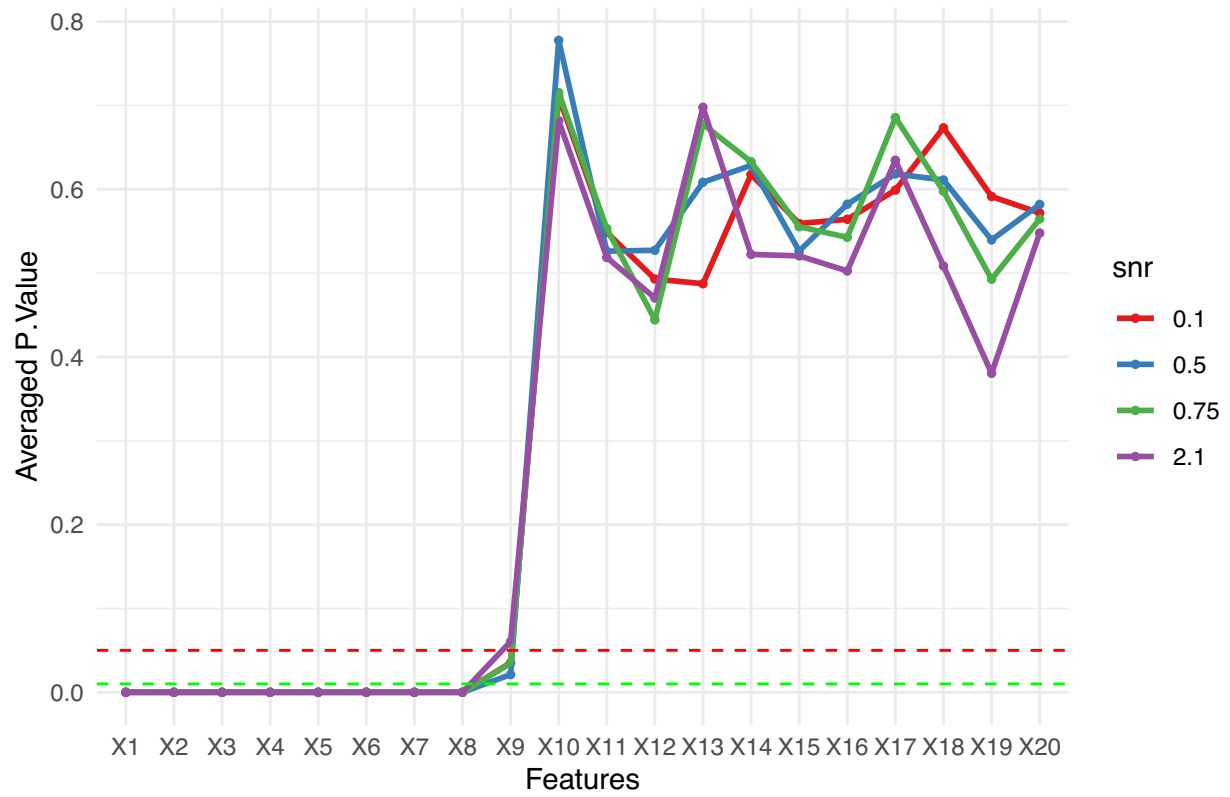
Case a):



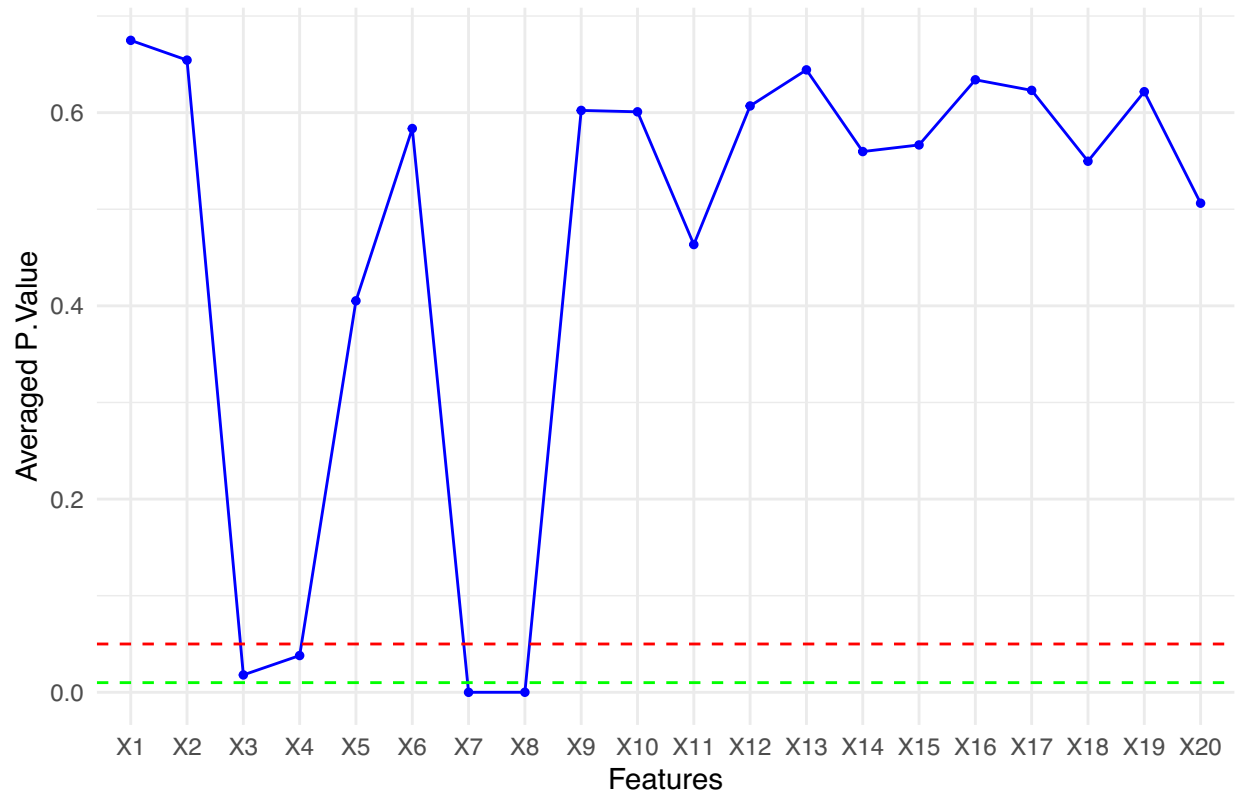
Case b):



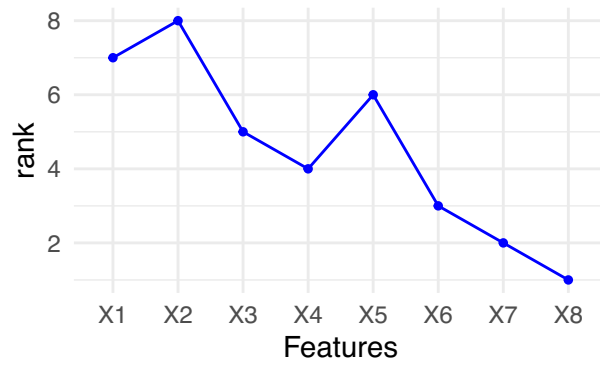
Case c):



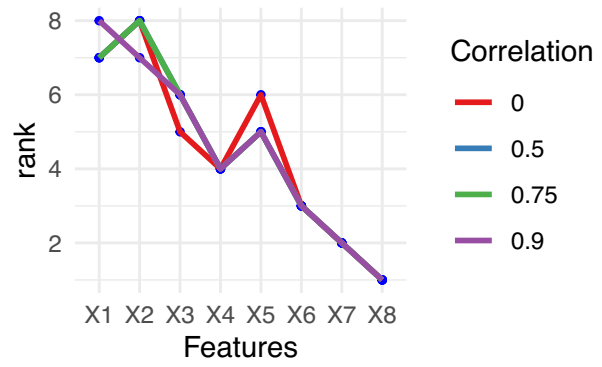
Case d):



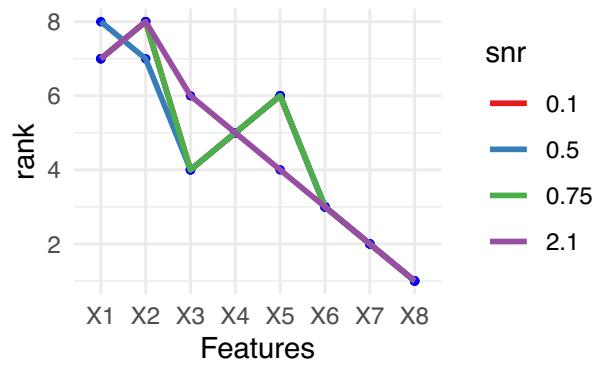
A Case a):



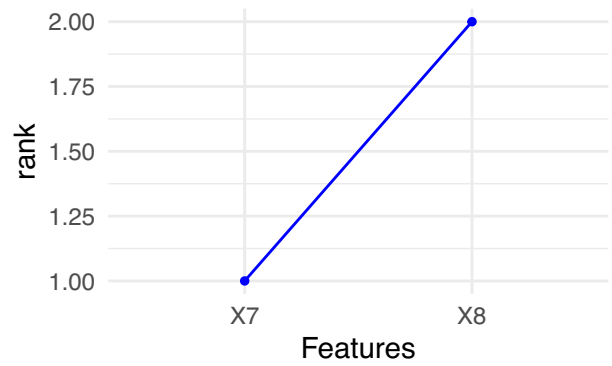
B Case b):



C Case c):



D Case d):



GCM filter first + LOCO