

Alignment: Computation of the alignment R-square

For each group, compute the estimated

$A = \text{loading} * \text{factor\_mean},$

$B = \text{threshold} - \text{loading} * \text{factor\_mean}$  (for a categorical item)

or

$= \text{intercept} + \text{loading} * \text{factor\_mean}$  (for a continuous item)

Then compute

$R\text{-square} = \text{Var}(A) / \text{Var}(B),$

where  $\text{Var}(A)$  is the sample variance of A over the groups and similarly for  $\text{Var}(B)$ .