

Table 1: Models used throughout the paper. D denotes the data used for the model which in our applications would be $D \in \mathcal{D} = 2^{\{\mathbf{x}, \mathbf{B}\}}$. Here, 2^A denotes the power set of A .

| Experiment | Name | Abbreviation | Trafo $h(y D)$ |
|------------|--|---------------------|--|
| Wine | Multiclass classification | MCC | |
| | polr | polr | $\vartheta_k - \mathbf{x}^\top \boldsymbol{\beta}$ |
| | Complex intercept | CI $_x$ | $\vartheta_k(\mathbf{x})$ |
| | Simple intercept + linear shift | SI-LS $_x$ | $\vartheta_k - \mathbf{x}^\top \boldsymbol{\beta}$ |
| DR & Face | Multiclass classification | MCC | |
| | Multiclass classification + tabular | MCC- x | |
| | QWK loss | QWK | |
| | QWK loss + tabular | QWK- x | |
| | Simple intercept + tabular | SI-LS $_x$ | $\vartheta_k - \mathbf{x}^\top \boldsymbol{\beta}$ |
| | Complex intercept | CI $_B$ | $\vartheta_k(B)$ |
| | Complex intercept + tabular | CI $_B$ -LS $_x$ | $\vartheta_k(B) - \mathbf{x}^\top \boldsymbol{\beta}$ |
| | Simple intercept + complex shift | SI-CS $_B$ | $\vartheta_k - \eta(B)$ |
| | Simple intercept + complex shift + tabular | SI-CS $_B$ -LS $_x$ | $\vartheta_k - \eta(B) - \mathbf{x}^\top \boldsymbol{\beta}$ |