



Figure 1: An example including three environments. The invariance (1) and (2) holds if we consider $S^* = \{X_2, X_4\}$. Considering indirect causes instead of direct ones (e.g. $\{X_2, X_5\}$) or an incomplete set of direct causes (e.g. $\{X_4\}$) may not be sufficient to guarantee invariant prediction.