Logic and Learning
TOSS 2026
Homework 3
hand-in deadline: Friday, July 3rd at 23:59

Ex. 1 **[Cond]** Given a data sequence σ, $set(\sigma)$ is the set of elements enumerated in σ. Show that Cond is set-driven, i.e., two data sequences σ and σ' such that $set(\sigma) = set(\sigma')$, we have that

$$\mathrm{Cond}((S, \mathcal{O}, \preceq), \sigma) = \mathrm{Cond}((S, \mathcal{O}, \preceq), \sigma').$$

Ex. 2 **[Majority merge]** Show that the majority merge, defined on slide 13 of Lecture 3, does not preserve transitivity.

Ex. 3 **[Descendant merge]** Show that the descendant merge I, defined on slide 19 of Lecture 3, does not preserve transitivity.

Ex. 4 **[Lex and confirmation bias]** Argue that Lex is a strictly more powerful learning method than Lex_{CB}.