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Instructor: Manuel Bodirsky

Constraint Satisfaction: Algorithms and Complexity

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Series 3

Problem 1

Prove that the *Betweenness relation* $\{(x, y, z) \in \mathbb{Q}^3 \mid (x < y < z) \vee (z < y < x)\}$ is not primitive positive definable in the structure $(\mathbb{Q}; <)$.

Problem 2

Show that the structures $(\mathbb{Q}; <)$ and $(\mathbb{Q}; \leq, \neq)$ have the same endomorphisms. Do they also have the same polymorphisms?