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Fuzzy Description Logics

Challenging Exercise 1

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Consider a concept name A and $q \in (0, 1)$.

Build a Gödel \mathcal{ALC} ontology \mathcal{O} such that for every model \mathcal{I} of \mathcal{O} and every $x \in \Delta^{\mathcal{I}}$,

$$A^{\mathcal{I}}(x) = q$$

or show that no such ontology exists.