

ABSTRACT: This paper investigates a Description Logic, namely \mathcal{SHI}_+ , which extends \mathcal{SHI} by adding transitive closure of roles. The resulting logic \mathcal{SHI}_+ allows transitive closure of roles to occur not only in concept inclusion axioms but also in role inclusion axioms. We show that \mathcal{SHI}_+ is decidable by devising a sound and complete algorithm for deciding satisfiability of concepts in \mathcal{SHI}_+ with respect to a set of concept and role inclusion axioms.