

Squares of modal logics and relation algebras

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We consider squares of modal logics with additional connectives corresponding to the diagonal symmetry and two projections on the diagonal (“Segerberg squares”). It is known that if a logic is complete and Horn-axiomatizable, then its Segerberg square can be axiomatized in a standard way. In some cases Segerberg squares also enjoy the fmp, in particular, for the minimal n -temporal logic. On the other hand, Segerberg squares can be interpreted as fragments of equational theories of relation algebras. Our results on the fmp and axiomatizability imply decidability of these fragments.