Let $\Sigma$ be an alphabet of binary relational symbols ("relational names") and $X$ a countably infinite set of variables. A "relational language" is a subset of the set of all sequences over the infinite set $\{r(x, y) \mid r \in \Sigma, \; x, y \in X\}$.

The authors introduce a finite-state acceptor model for these relational languages, which is based on transitions defined in terms of unification of variables. This model—called a finite-state datalog automaton or FSDA—results in the family of FSDA-acceptable or "regular relational languages". The authors’ main result consists of a pumping lemma for this family of regular relational languages.

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