Projet PiCoq
Deliverable D4
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We summarize in this documents the Coq libraries that were developed during the project.

The ATBR library provides algebraic tools for reasoning about binary relations and can be found at `http://www.lix.polytechnique.fr/coq/pylons/contribs/view/ATBR/v8.4`. Its main tactic is a reflexive tactic for solving (in)equations in an arbitrary Kleene algebra. The decision procedure goes through standard finite automata constructions, that is formalized. The motivation in the development of this library was a convenient way to reason about bisimulations.

The ATBR library was later extended to a modular library about relation algebra: those algebras admitting heterogeneous binary relations as a model, ranging from partially ordered monoid to residuated Kleene allegories and Kleene algebra with tests (KAT). It is available at `http://perso.ens-lyon.fr/damien.pous/ra/`.

Finally, the AACTactics library helps reasoning modulo associativity and commutativity: most process calculi use a parallel operator that is commutative and associative. This library is available at `http://www.lix.polytechnique.fr/coq/pylons/contribs/view/AACTactics/v8.4`.