

TPS: A Theorem Proving System for Church's Type Theory

TPS is a theorem proving system providing support for automated and interactive proving in fragments of Church's Type Theory. TPS has been developed by Peter Andrews and several of his students at Carnegie Mellon University. TPS users can interactively construct natural deduction proofs of theorems in Church's Type Theory. Users can also ask TPS to prove theorems automatically using a variety of modes. (A mode is a collection of flag settings.) Depending on the mode, the search procedure will attempt to find a proof in elementary type theory or extensional type theory, with various restrictions on the search space. Proofs found automatically by TPS are translated to natural deduction proofs. Users can also interactively construct part of a natural deduction proof, then ask TPS to automatically fill in certain gaps.