Possible Final Projects Intermediate Logic

Logic Systems

=> Prove metalogical results such as soundness, completeness or dependence or independence

- Which equivalence rules can be derived from which other(s)?
- What would be a 'minimal' set of equivalence rules that is still (sound) and complete?
- What sets of operators are expressively complete?

=> Create an automated axiom independence checker.

=> Show how to emulate equivalency rules (such as DeMorgan, Distribution, etc) in F.

=> Compare efficiency of different logic systems

=> Program interface for a logic system

=> A Fitch-like interface, but adding some more convenient rules

=> An Existential Graphs applet capable of allowing the user to construct proofs in EG

Automated Theorem Proving or Automated Proof Generation

=> Develop own ATP or APG routine

=> Implement different ATP or APG routines

- Implement automated equivalence prover

=> Program an ATP or APG for Existential Graphs.

=> Compare efficiency of different ATP routines and/or heuristics used in ATP routines

=> Make interface that depict ATP routines at work

Puzzles and Logic

=> Implement puzzle solver based on puzzle logic rules

=> Investigate other logic puzzles

=> Create a set of sound and complete inference rules for some logic puzzle.

Other

=> Philosophical paper on the nature of proof and demonstration