

## **A Tool for Facilitating Students' Construction of Proofs**

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This software helps student users learn to construct proofs of logical formulas such as  $[(P \vee Q) \Rightarrow R] \Rightarrow [(P \Rightarrow R) \wedge (Q \Rightarrow R)]$  and  $(\forall n)[10^n \bmod 3 = 1]$ . Student users must still do 'high-level' deductive planning and logical reasoning, but this software helps by (i) providing a framework for strategies such as forward reasoning and proof by cases, (ii) performing 'low-level' symbolic manipulations such as substituting "0" and "n+1" where appropriate when applying stepwise induction, and (iii) enforcing sound deduction. This software is written in Java, and it includes features such as to-the-millisecond timestamps which enable detection of cheating.