

## ***PROOF STRATEGIES***

### GOAL

### STRATEGY

*atom*

Assume its negation for RAA, then seek a contradiction; by means of the contradiction, discharge the assumption by RAA, obtaining the desired atom.

*negation*

Assume the unnegated wff for RAA, then seek a contradiction; by means of the contradiction, discharge the assumption, obtaining the desired negation.

*conditional*

Assume its antecedent for  $\rightarrow$ I, then establish its consequent; discharge the assumed antecedent by  $\rightarrow$ I, obtaining the desired conditional.

*conjunction*

Obtain its conjuncts separately, then use  $\&$ I to obtain the desired conjunction.

*biconditional*

Obtain the two required conditionals separately, then use  $\leftrightarrow$ I to obtain the desired biconditional.

*disjunction*

Assume its negation for RAA, then perform the following three-line procedure:

(i) assume one of the disjuncts of the disjunction,

(ii) use  $\vee$ I to obtain the disjunction,

(iii) use RAA to discharge the assumed disjunct;

then look for something useful to do. (Bear in mind that this procedure can be repeated, starting with the other disjunct.)