

**Theorem 10.5 (Gries, p. 135)**

Let  $IF = \mathbf{if} \ B_1 \rightarrow S_1$   
     $\square \ \dots$   
     $\square \ B_n \rightarrow S_n$   
     $\mathbf{fi}$

Let  $Q$  be a proposition (that does not depend on  $i$ )<sup>1</sup> such that:

1.  $Q \Rightarrow B_1 \vee \dots \vee B_n$
2.  $(\forall i : 1 \leq i < n + 1 : (Q \wedge B) \Rightarrow wp(S_i, R))$

Then (and only then):

3.  $Q \Rightarrow wp(IF, R)$

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<sup>1</sup>Else, rename that occurrence of  $i$ .