Stable Conjunction

Notes on UNITY: 21-90

Jayadev Misra*
Department of Computer Sciences
The University of Texas at Austin
Austin, Texas 78712
(512) 471-9547
misra@cs.utexas.edu

10/31/90

The following rule, though trivial, arises often enough in proofs that it is useful to assign it a name.

Stable Conjunction: For any *op*—*unless*, *ensures* or $\mapsto$—

$$\frac{p \;\; op \;\; q}{p \wedge \; b \;\; op \;\; q \;\wedge\; b}$$

for a stable property b.

The rule can be proven by applying the conjunction rule for *unless* and *ensures*, and the PSP rule for $\mapsto$.

A recurrent pattern in proofs is to deduce

$$\begin{array}{lll} & p \wedge b & op \quad q \wedge b \\ \text{from} & p & op \quad q \end{array}$$

where b is a constant boolean expression (constant expressions contain constants and free variables; see *Notes on UNITY 10-89.*)

*This material is based in part upon work supported by the Texas Advanced Research Program under Grant No. 003658–065 and by the Office of Naval Research Contract N00014-90-J-1640.