

Proof of Step 2.2

2.2. *MutualExclusion'*

2.2.1. It suffices to assume $InCS(i)'$ and prove $\neg InCS(1 - i)'$.

PROOF: By definition of *MutualExclusion*.

2.2.2. $\neg x[1 - i]$

PROOF: By the 2.2.1 assumption and $e2(i)$ (which holds by the step 2 assumption), since an $e2(i)$ step puts process i in its critical section only if $\neg x[1 - i]$ equals TRUE.

2.2.3. $\neg InCS(1 - i)$

PROOF: By 2.2.2 and $Inv \wedge (i \in \{0, 1\})$ (which holds by the step 2 assumption), since the third conjunct of Inv together with $i \in \{0, 1\}$ imply $InCS(1 - i) \Rightarrow x[1 - i]$.

2.2.4. Q.E.D.

PROOF: By 2.2.1, 2.2.3, and $e2(i)$, which implies that $pc[1 - i]$ is unchanged and hence $InCS(1 - i)$ equals $InCS(1 - i)'$.