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MODULE *KnightsKnaves*

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CONSTANT *Native*  
 CONSTANT *Knight, Knave*  
 ASSUME  $KnightOrKnave \triangleq Knight \cup Knave = Native \wedge Knight \cap Knave = \{\}$   
 $Lying(p) \triangleq p \in Knave$   
 $Truthful(p) \triangleq p \in Knight$   
 $p :> statement \triangleq Truthful(p) \equiv statement \text{ } p \text{ says}$   
 CONSTANTS *A, B, C*  
 ASSUME  $ABC\_Natives \triangleq \{A, B, C\} \subseteq Native$   
 ASSUME  $B\_Says \triangleq B :> (A :> (A \in Knave))$   
 ASSUME  $C\_Says \triangleq C :> Lying(B)$   
 THEOREM  $C \in Knight$   
 PROOF BY *KnightOrKnave, ABC\_Natives, B\_Says, C\_Says* DEF  $:> , Lying, Truthful$

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