

EXTENDS *simple_election**IndAuto* \triangleq

$$\begin{aligned}
& \wedge \forall \text{ VARS} \in \text{Acceptor} : \forall \text{ VART} \in \text{Acceptor} : \\
& \quad \forall \text{ VARPA} \in \text{Proposer} : \forall \text{ VARPB} \in \text{Proposer} : \exists \text{ VARQ} \in \text{Quorum} : \\
& \quad \quad (\text{ChosenAt}(\text{VARQ}, \text{VARPB})) \vee \neg(\text{VARPB} \in \text{leader}) \\
& \wedge \forall \text{ VARS} \in \text{Acceptor} : \forall \text{ VART} \in \text{Acceptor} : \\
& \quad \forall \text{ VARPA} \in \text{Proposer} : \forall \text{ VARPB} \in \text{Proposer} : \exists \text{ VARQ} \in \text{Quorum} : \\
& \quad \quad \vee (\langle \text{VART}, \text{VARPA} \rangle \in \text{promise}) \\
& \quad \quad \vee \neg(\langle \text{VARS}, \text{VARPA} \rangle \in \text{promise}) \\
& \quad \quad \vee \neg(\text{ChosenAt}(\text{VARQ}, \text{VARPB})) \\
& \wedge \forall \text{ VARS} \in \text{Acceptor} : \forall \text{ VART} \in \text{Acceptor} : \\
& \quad \forall \text{ VARPA} \in \text{Proposer} : \forall \text{ VARPB} \in \text{Proposer} : \exists \text{ VARQ} \in \text{Quorum} : \\
& \quad \quad (\text{VARPA} \in \text{start}) \vee \neg(\text{ChosenAt}(\text{VARQ}, \text{VARPA})) \\
& \wedge \forall \text{ VARS} \in \text{Acceptor} : \forall \text{ VART} \in \text{Acceptor} : \\
& \quad \forall \text{ VARPA} \in \text{Proposer} : \forall \text{ VARPB} \in \text{Proposer} : \exists \text{ VARQ} \in \text{Quorum} : \\
& \quad \quad \vee ((\text{VARPA} = \text{VARPB}) \wedge \text{promise} = \text{promise}) \\
& \quad \quad \vee \neg(\text{ChosenAt}(\text{VARQ}, \text{VARPA})) \\
& \quad \quad \vee \neg(\text{ChosenAt}(\text{VARQ}, \text{VARPB})) \\
& \wedge \forall \text{ VARS} \in \text{Acceptor} : \forall \text{ VART} \in \text{Acceptor} : \\
& \quad \forall \text{ VARPA} \in \text{Proposer} : \forall \text{ VARPB} \in \text{Proposer} : \exists \text{ VARQ} \in \text{Quorum} : \\
& \quad \quad (\text{VARPA} \in \text{start}) \vee \neg(\langle \text{VART}, \text{VARPA} \rangle \in \text{promise}) \\
& \wedge \forall \text{ VARS} \in \text{Acceptor} : \forall \text{ VART} \in \text{Acceptor} : \\
& \quad \forall \text{ VARPA} \in \text{Proposer} : \forall \text{ VARPB} \in \text{Proposer} : \exists \text{ VARQ} \in \text{Quorum} : \\
& \quad \quad \vee ((\text{VARPA} = \text{VARPB}) \wedge \text{promise} = \text{promise}) \\
& \quad \quad \vee \neg(\langle \text{VART}, \text{VARPA} \rangle \in \text{promise}) \\
& \quad \quad \vee \neg(\langle \text{VART}, \text{VARPB} \rangle \in \text{promise})
\end{aligned}$$