MODULE *EagerVotingStuttering*

EXTENDS *EagerVoting*

$top \triangleq [top \mapsto \text{“top”}]$

VARIABLES s
$vars \triangleq \langle maxBal,\ votes \rangle$

$InitS \triangleq Init \land (s = top)$

$IncreaseMaxBalStutter(a,\ b) \triangleq$
IF $s = top$
THEN $\land\ IncreaseMaxBal(a,\ b)$
$\land\ s' = s$
ELSE $\land$ UNCHANGED $vars$
$\land\ s' = s$

$VoteForPostStutter(a,\ b,\ v) \triangleq$
IF $s = top$
THEN $\land\ VoteFor(a,\ b,\ v)$
$\land\ s' =$ IF $b \neq maxBal'[a]$
THEN $[acc \mapsto a,\ val \mapsto b]$
ELSE top
ELSE $\land$ UNCHANGED $vars$
$\land\ s' = top$

$NextS \triangleq$
$\exists\, a \in Acceptor,\ b \in Ballot :$
$\lor\ IncreaseMaxBalStutter(a,\ b)$
$\lor \exists\, v \in Value :$
$VoteForPostStutter(a,\ b,\ v)$

$SpecS \triangleq InitS \land \Box[NextS]_{\langle votes,\ maxBal,\ s \rangle}$

$V \triangleq$ INSTANCE $Voting$ WITH $votes \leftarrow votes,$
$maxBal \leftarrow$ IF $s = top$
THEN $maxBal$
ELSE $[a \in Acceptor \mapsto$
IF $a = s.acc$
THEN $s.val$
ELSE $maxBal[a]]$

THEOREM $Spec \Rightarrow V\,!\,Spec$