

 $\begin{array}{c}
15:AS \\
q = r_reg;
\end{array}$

16: AS $r_next = r_reg \& \sim reset \mid r_reg \& reset \land (r_reg \& \{ 4\{ \sim feedback_value \} \}) \land (feedback_value \& \{ 4\{ \sim r_reg[4] \} \});$