Answer

Remember how we consider the numbers in $0\,..\,(2N-1)$ to be arranged in a circle. For any a and b in $0\,..\,(2N-1)$, define $Interval(a, b)$ to be the set of numbers along the circle going clockwise from a up to, but excluding, b. Thus, if $a \leq b$, then $Interval(a, b) = a\,..\,(b-1)$. The required invariant is then:

$$
\begin{array}{rcl}
pc & = & [self \in 0\,..\,(N-1) \mapsto \\
 & & \quad \text{IF } (self \in Interval(c,\, p)) \lor (self + N \in Interval(c,\, p)) \\
 & & \quad\quad \text{THEN } \text{“b2”} \\
 & & \quad\quad \text{ELSE } \text{“b1”}]
\end{array}
$$

CLOSE