Hint

The invariant Inv should express type correctness as well as conditions HS1 and HS2. Here is a suitable definition of an inductive invariant Inv. The second conjunct expresses HS1 and HS2, with HS1 being the case $i = N$.

$$
\begin{array}{lll}
Inv \triangleq & \land\ ca \in [0\,..\,(N-1) \to \{0,\,1\}] & \\
& \land\ \exists\, i \in 1\,..\,N : & \\
& \quad \forall\, j \in 1\,..\,(N-1) : & (ca[j] = ca[0]) \equiv (j < i)
\end{array}
$$

CLOSE