Global invariant \textit{RING}:

\[ \text{T[1] is blue } \Rightarrow \ ( \text{T[1] \ldots T[token+1] are blue } \land \text{ch[2] \ldots ch[token\%n + 1] are empty} ) \]

actions of \text{T[1]} when it first becomes idle:
\[ \text{color[1] = blue; token = 0; send ch[2](token)}; \]

actions of \text{T[2], \ldots, T[n]} upon receiving a regular message:
\[ \text{color[i] = red;} \]

actions of \text{T[2], \ldots, T[n]} upon receiving the token:
\[ \text{color[i] = blue; token++; send ch[i\%n + 1](token)}; \]

actions of \text{T[1]} upon receiving the token:
\[ \text{if (color[1] == blue)} \]
\[ \text{announce termination and halt;} \]
\[ \text{color[1] = blue; token = 0; send ch[2](token)}; \]

\textbf{Figure 9.16}  Termination detection in a ring.

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