

$$\forall(i, j : \mathbb{N} \mid 0 \leq i < SIZE \wedge 0 \leq j < SIZE : \\ \text{checkHoriz}(i, j) \vee \text{checkVert}(i, j) \vee \text{checkDiag}(i, j))$$

local functions

checkHoriz: $\mathbb{N} \times \mathbb{N} \rightarrow \mathbb{B}$

checkHoriz(i, j) \equiv (
 $i + 2 \geq SIZE \Rightarrow \text{false} \mid$
 $\text{true} \Rightarrow \text{board}[i][j] = \text{board}[i + 1][j] \wedge \text{board}[i][j] = \text{board}[i + 2][j]$
 $)$

checkHoriz: $\mathbb{N} \times \mathbb{N} \rightarrow \mathbb{B}$

checkHoriz(i, j) \equiv (
 $j + 2 \geq SIZE \Rightarrow \text{false} \mid$
 $\text{true} \Rightarrow \text{board}[i][j] = \text{board}[i][j + 1] \wedge \text{board}[i][j] = \text{board}[i][j + 2]$
 $)$

checkDiag: $\mathbb{N} \times \mathbb{N} \rightarrow \mathbb{B}$

checkHoriz(i, j) \equiv (
 $i + 2 \geq SIZE \Rightarrow \text{false} \mid$
 $j + 2 \geq SIZE \Rightarrow \text{false} \mid$
 $\text{true} \Rightarrow \text{board}[i][j] = \text{board}[i + 1][j + 1] \wedge \text{board}[i][j] = \text{board}[i + 2][j + 2]$
 $)$