154   Let the variables be x, y: *int* . Write a program to refine specification $\neg ok$. Prove your refinement.

After trying the question, scroll down to the solution.

§ $\neg ok \;\;\Longleftarrow\;\; x := x+1$

Proof:

	$\neg ok$	expand ok
$=$	$\neg(x'{=}x \land y'{=}y)$	duality, unequality
$=$	$x' {\neq} x \lor y' {\neq} y$	generalization
$\Longleftarrow$	$x' {\neq} x$	direction, translation, exclusivity
$\Longleftarrow$	$x' {=} x{+}1$	specialization
$\Longleftarrow$	$x' {=} x{+}1 \land y' {=} y$	definition of assignment
$=$	$x := x+1$	