Let \( L \) be a variable, \( L: [*\text{int}] \). Here is a program to change all the negative items of \( L \) to 0, and otherwise leave \( L \) unchanged.

\[
\text{for } n := 0:..\#L \text{ do if } L n < 0 \text{ then } L := n \rightarrow 0 \mid L \text{ else ok fi od}
\]

Write all the specifications and refinements needed to prove that execution of this program does as intended. You do not need to prove the refinements.

§ The main specification is \( P \), defined as

\[
P = \#L' = \#L \land \forall i: 0,..\#L' \cdot L' i = (L i)^\uparrow 0
\]

For \( 0 \leq i \leq \#L \) define \( F i \) as

\[
F i = \#L' = \#L \land (\forall j: 0,..i \cdot L' j = L j) \land (\forall j: i,..\#L' \cdot L' j = (L j)^\uparrow 0)
\]

We need to prove

\[
P \iff F 0
\]

which is easy, and we need to prove

\[
F i \iff i: 0,..\#L \land (\text{if } L n < 0 \text{ then } L := n \rightarrow 0 \mid L \text{ else ok fi. } F(i+1))
\]

\[
F(\#L) \iff \text{ok}
\]

UNFINISHED