(time merge) We want to repeatedly read an input on either channel \( c \) or channel \( d \), whichever comes first, and write it on channel \( e \). At each reading, if input is available on both channels, read either one; if it is available on just one channel, read that one; if it is available on neither channel, wait for the first one and read that one (in case of a tie, read either one).

(a) Write the specification formally, and then write a program.

(b) Prove

\[
\forall e_{we} = \max t \left( \min (e_{rc}) (e_{rd}) + 1 \right)
\]

\[
\forall m, n \cdot e_{we+m+n+1} \leq \max (\max (e_{rc+m}) (e_{rd+n})) (e_{we+m+n}) + 1
\]