

532 Section 5.3 defined and implemented the program **wait until**  $w$  where  $w$  is a time. Define and implement the program **wait until**  $b$  where  $b$  is a binary expression. For example, **wait until**  $x=y$  should delay execution until variables  $x$  and  $y$  are equal. At least one variable in the expression should be an interactive variable belonging to another process.

After trying the question, scroll down to the solution.

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$$\mathbf{wait\ until\ } b = \neg(\exists t'' \cdot t \leq t'' < t' \wedge b'') \wedge b' \parallel ok$$

The concurrent composition with  $ok$  says that all my variables other than time are unchanged. If I have any interactive variables, they are unchanged at all times from  $t$  to  $t'$ .

$$\mathbf{wait\ until\ } b \Leftarrow \mathbf{if\ } b \mathbf{\ then\ } ok \mathbf{\ else\ } t := t+1. \mathbf{wait\ until\ } b \mathbf{\ fi}$$