

512 According to the definition of **value** expression given in Subsection 5.5.0, what happens to any input or output?

After trying the question, scroll down to the solution.

§ According to the textbook Subsection 5.5.0, the expression $P \text{ value } e$ expresses the value that expression e would have after executing P , but nonlocal variables are unchanged. Input on a nonlocal channel changes nonlocal variable r (the read cursor), and output on a nonlocal channel changes nonlocal variable w (the write cursor). Therefore $P \text{ value } e$ expresses the value that expression e would have after reading the inputs and writing the outputs according to P , but variables r and w are unchanged. Evaluating $P \text{ value } e$ requires reading nonlocal inputs and writing nonlocal outputs according to P in order to find the value of e , and then “unreading” and “unwriting” these inputs and outputs, which means that after evaluation of $P \text{ value } e$ input and output begin where they were before evaluation of $P \text{ value } e$. Reading and writing on local channels do not have to be undone because the local channels disappear.

In popular languages, either input and output are prohibited in a function that returns a value, or they are allowed but not undone, which is a side-effect of the function.