In “Dijkstra's little language” there is a conditional program with the syntax
\[
\text{if } b \rightarrow P \ [ ] c \rightarrow Q \ \text{fi}
\]
where \(b\) and \(c\) are binary and \(P\) and \(Q\) are programs. It can be executed as follows. If exactly one of \(b\) and \(c\) is true initially, then the corresponding program is executed; if both \(b\) and \(c\) are true initially, then either one of \(P\) or \(Q\) (arbitrary choice) is executed; if neither \(b\) nor \(c\) is true initially, then execution is completely arbitrary.

(a) Express this program as a specification using the notations of this book.
(b) Refine this specification as a program using the notations of this book.

After trying the question, scroll down to the solution.
(a) Express this program as a specification using the notations of this book.
§
$b \lor c \Rightarrow b \land P \lor c \land Q$

(b) Refine this specification as a program using the notations of this book.
§
$b \lor c \Rightarrow b \land P \lor c \land Q \iff \text{if } b \text{ then } P \text{ else } Q \text{ fi}