In “Dijkstra's little language” there is a conditional program with the syntax

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if \( b \rightarrow P \) [\( \) \( c \rightarrow Q \) fi
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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.

\[ b \lor c \Rightarrow b \land P \lor c \land Q \]

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

\[ b \lor c \Rightarrow b \land P \lor c \land Q \iff \text{if} \; b \; \text{then} \; P \; \text{else} \; Q \; \text{fi} \]