

- 487 Redefine merged composition  $P|||Q$  (Exercise 485) so that if  $P$  and  $Q$  agree on a changed value for a variable, then it has that final value, and if they disagree on a changed value for a variable, then its final value is
- (a) arbitrary.
  - (b) either one of the two changed values.

After trying the question, scroll down to the solution.

(a) arbitrary.

$$\begin{aligned} \S \quad P \parallel Q &= \exists xP, xQ, yP, yQ, \dots, tP, tQ \cdot \\ &\quad \langle x', y', \dots, t' \cdot P \rangle xP yP \dots tP \\ &\quad \wedge \langle x', y', \dots, t' \cdot Q \rangle xQ yQ \dots tQ \\ &\quad \wedge (xP=x \Rightarrow x'=xQ) \wedge (xQ=x \Rightarrow x'=xP) \wedge (xP=xQ \Rightarrow x'=xP) \\ &\quad \wedge (yP=y \Rightarrow y'=yQ) \wedge (yQ=y \Rightarrow y'=yP) \wedge (yP=yQ \Rightarrow y'=yP) \\ &\quad \wedge \dots \\ &\quad \wedge t' = tP \uparrow tQ \end{aligned}$$

(b) either one of the two changed values.

$$\begin{aligned} \S \quad P \parallel Q &= \exists xP, xQ, yP, yQ, \dots, tP, tQ \cdot \\ &\quad \langle x', y', \dots, t' \cdot P \rangle xP yP \dots tP \\ &\quad \wedge \langle x', y', \dots, t' \cdot Q \rangle xQ yQ \dots tQ \\ &\quad \wedge (xP=x \Rightarrow x'=xQ) \wedge (xQ=x \Rightarrow x'=xP) \wedge (x'=xP \vee x'=xQ) \\ &\quad \wedge (yP=y \Rightarrow y'=yQ) \wedge (yQ=y \Rightarrow y'=yP) \wedge (y'=yP \vee y'=yQ) \\ &\quad \wedge \dots \\ &\quad \wedge t' = tP \uparrow tQ \end{aligned}$$