

$$\begin{aligned}
r_{1,3}^3 &= r_{1,3}^2 (r_{3,3}^2)^* r_{3,3} + r_{1,3}^2 \\
&= 0^* 1 (\epsilon + (0 + 1) 0^* 1)^* (\epsilon + (0 + 1) 0^* 1) + 0^* 1 \\
&= 0^* 1 ((0 + 1) 0^* 1)^* + 0^* 1 \\
&= 0^* 1 ((0 + 1) 0^* 1)^*
\end{aligned}$$