Summation:

$$[\![\sum_i \pi_i.R_i]\!]^d \stackrel{\text{def}}{=} d?(n).(d!\langle n+1\rangle \mid \text{new}(l).(l!\langle \mathit{true}\rangle \mid \prod_i [\![\pi_i.R_i]\!]^d_{n,l}))$$

Sending:

$$\begin{aligned}[\![c!\langle \overline{V}\rangle.P]\!]^d_{n,l} \stackrel{\text{def}}{=} & \text{new}(\mathit{ack}).(c!\langle n,l,\mathit{ack},\overline{V}\rangle \mid \mathit{ack}?(x).\text{if } x=\mathit{true} \text{ then } [\![P]\!]^d \\ & \text{else (if } x=\mathit{retry} \text{ then } c!\langle n,l,\mathit{ack},\overline{V}\rangle \text{ else } \mathit{stop}))\end{aligned}$$

Receiving:

$$\begin{aligned}[\![c?(\overline{X}).P]\!]^d_{n,l} \stackrel{\text{def}}{=} & \text{rec } q.(c?(m,r,\mathit{ack},\overline{X}).(\\ & \text{if } n=m \text{ then } (\mathit{ack}!\langle \mathit{retry}\rangle \mid q) \text{ else } (\\ & \text{if } n<m \text{ then } (l,r)?\mathit{d\text{-}lock}.[\![P]\!]^d \text{ else } (r,l)?\mathit{rd\text{-}lock}.[\![P]\!]^d)))\end{aligned}$$

$(\mathbf{l},\mathbf{r})?$d-lock.P means:

$$\begin{aligned}& l?(x).(\text{if } x=\mathit{true} \\ & \quad \text{then } r?(y).(\text{if } y=\mathit{true} \\ & \qquad \text{then } l!\langle \mathit{false}\rangle \mid r!\langle \mathit{false}\rangle \mid \mathit{ack}!\langle \mathit{true}\rangle \mid P \\ & \qquad \text{else } l!\langle \mathit{true}\rangle \mid r!\langle \mathit{false}\rangle \mid \mathit{ack}!\langle \mathit{false}\rangle \mid q) \\ & \quad \text{else } l!\langle \mathit{false}\rangle \mid \mathit{ack}!\langle \mathit{retry}\rangle)\end{aligned}$$

$(\mathbf{r},\mathbf{l})?$rd-lock.P means:

$$\begin{aligned}& r?(x).(\text{if } x=\mathit{true} \\ & \quad \text{then } l?(y).(\text{if } y=\mathit{true} \\ & \qquad \text{then } l!\langle \mathit{false}\rangle \mid r!\langle \mathit{false}\rangle \mid \mathit{ack}!\langle \mathit{true}\rangle \mid P \\ & \qquad \text{else } l!\langle \mathit{false}\rangle \mid r!\langle \mathit{true}\rangle \mid \mathit{ack}!\langle \mathit{retry}\rangle) \\ & \quad \text{else } r!\langle \mathit{false}\rangle \mid \mathit{ack}!\langle \mathit{false}\rangle \mid q)\end{aligned}$$