

## expectation-rv-add-fourth<sup>11,40</sup>

$$\begin{aligned} & \forall p:\text{FinProbSpace}, n:\mathbb{N}, X, Y:\text{RandomVariable}(p;n). \\ & \mathbb{E}(n;(x.(x * x) * x * x) \circ X + Y) \\ & = \\ & ((\mathbb{E}(n;(x.(x * x) * x * x) \circ X) \\ & + ((4 * \mathbb{E}(n;X * X * X * Y)) + (6 * \mathbb{E}(n;X * X * Y * Y))) \\ & + (4 * \mathbb{E}(n;X * Y * Y * Y))) \\ & + \mathbb{E}(n;(x.(x * x) * x * x) \circ Y)) \\ & \in \mathbb{Q} \end{aligned}$$