

rv-identically-distributed^{11,40}

rv-identically-distributed($p;n.f(n);i.X(i)$)

$\equiv_{\text{def}} \forall n, m:\mathbb{N}.$

$$\begin{aligned} & \mathbb{E}(f(n);X(n)) = \mathbb{E}(f(m);X(m)) \\ & \& \mathbb{E}(f(n);(x.x * x) \circ X(n)) = \mathbb{E}(f(m);(x.x * x) \circ X(m)) \\ & \& \mathbb{E}(f(n);(x.(x * x) * x) \circ X(n)) = \mathbb{E}(f(m);(x.(x * x) * x) \circ X(m)) \\ & \& \mathbb{E}(f(n);(x.(x * x) * x * x) \circ X(n)) = \mathbb{E}(f(m);(x.(x * x) * x * x) \circ X(m)) \end{aligned}$$

clarification:

rv-identically-distributed($p;n.f(n);i.X(i)$)

$\equiv_{\text{def}} \forall n:\mathbb{N}, m:\mathbb{N}.$

$$\begin{aligned} & \text{expectation}(p;f(n);X(n)) = \text{expectation}(p;f(m);X(m)) \in \mathbb{Q} \\ & \& \text{expectation}(p;f(n);(x.x * x) \circ X(n)) = \text{expectation}(p;f(m);(x.x * x) \circ X(m)) \in \mathbb{Q} \\ & \& \text{expectation}(p;f(n);(x.(x * x) * x) \circ X(n)) \\ & \quad = \\ & \quad \text{expectation}(p;f(m);(x.(x * x) * x) \circ X(m)) \\ & \quad \in \mathbb{Q} \\ & \& \text{expectation}(p;f(n);(x.(x * x) * x * x) \circ X(n)) \\ & \quad = \\ & \quad \text{expectation}(p;f(m);(x.(x * x) * x * x) \circ X(m)) \\ & \quad \in \mathbb{Q} \end{aligned}$$