$$\begin{aligned}&\mathbb{P}(\mathbb{P}\text{-}\mathbb{N}) = \mathbb{N}(\mathbb{P}\text{-}\mathbb{N}) - \mathbb{N}(\mathbb{P}\text{-}\mathbb{N}) \\ &= \left(1 - e^{-1}\right)^{\mathbb{N}} \mathbb{P} - e^{-1}\left(1 - e^{-1}\right)^{\mathbb{N}}\mathbb{P}\text{-}\mathbb{N}\end{aligned}$$