Lemma 0.0.1 (abstract Bayes formula)**.** *Let $\mathcal{G}$ be a sub-σ-algebra of $\mathcal{F}_T$, and let ψ be a $\mathbb{Q}$-integrable random variable. Then*

$$\mathbb{E}^{\mathbb{Q}}(\psi \mid \mathcal{G}) = \frac{\mathbb{E}^{\mathbb{P}}(\eta\psi \mid \mathcal{G})}{\mathbb{E}^{\mathbb{P}}(\eta \mid \mathcal{G})}$$