Definition 0.0.1 (local martingales). A process M is an $\mathcal{F}$-**local martingale** if there exists an increasing sequence $(\tau_n)_{n\in\mathbb{N}}$ of stopping times such that $\tau_n \to T$ a.s. (T can be ∞), and for every n the stopped process M^{τ_n} is a uniformly integrable martingale. Any sequence $(\tau_n)_{n\in\mathbb{N}}$ with these properties is called the **reducing sequence** for a local martingale M.