

Theorem 0.0.1 (uniqueness of semimartingale decomposition). *Let X be a continuous semimartingale with the decomposition $X = X_0 + M + A$ so that $M_0 = A_0 = 0$. If X admits also a decomposition $X = X_0 + \tilde{M} + \tilde{A}$ for some continuous local martingale \tilde{M} with $\tilde{M}_0 = 0$ and some continuous process \tilde{A} of finite variation on $[0, T]$ with $\tilde{A}_0 = 0$ then $M_t = \tilde{M}_t$ and $A_t = \tilde{A}_t$ for $t \in [0, T]$.*