

**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  $X = X_0 + \bar{M} + \bar{A}$  for some continuous local martingale  $\bar{M}$  with  $\bar{M}_0 = 0$  and some continuous process  $\bar{A}$  of finite variation on  $[0, T]$  with  $\bar{A}_0 = 0$  then  $M_t = \bar{M}_t$  and  $A_t = \bar{A}_t$  for  $t \in [0, T]$ .*