

Integration by parts formula for continuous semimartingales X and Y :

$$\begin{aligned} X_t Y_t &= X_0 Y_0 + \int_0^t X_s dY_s + \int_0^t Y_s dX_s + [X, Y]_t \\ X_t &= X_0^2 + 2 \int_0^t X_s dX_s + [X]_t \end{aligned}$$