Exercise sheet 6   **Submission:** 21.05.2019

Problem 1   **(4 Points)**

Let $A : [0, \infty) \to \mathbb{R}$ be a continuous function with finite (total) variation.

(a) Show that the quadratic variation satisfies $\langle A, A \rangle_t = 0$ for every $t \geq 0$.

(b) Let $(X_t)_{t \geq 0}$ be a stochastic process with finite quadratic variation $\langle X, X \rangle$. Show that $(X_t + A_t)_{t \geq 0}$ is also of finite quadratic variation such that

$$\langle X + A, X + A \rangle_t = \langle X, X \rangle_t, \qquad \text{for all } t \geq 0.$$

Total: 4 Points

Terms of submission:

- Solutions can be submitted in groups of at most 2 students.

- Please submit at the beginning of the lecture or until 9:50 a.m. in room 3523, Ernst-Abbe-Platz 2.