Brownian Motion — A Guide to Random Processes and Stochastic Calculus

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by

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List of misprints and smaller additions to the present text. Date: February 6, 2023.

PAGE, LINE	READS	SHOULD READ
p. 302, line 1,2 above	... if we use [...] the martingale $M_{t_j} = B_{t_j}^2 - t_j$.	... Indeed, set $\Delta M(t_j) = (B_{t_j} - B_{t_{j-1}})^2 - (t_j - t_{j-1})$ and observe that $\mathbb{E}\left[\Delta M(t_j) \mid \mathscr{F}_{t_{j-1}}\right] = 0$. This means that $M(t_j) := \sum_{k=1}^j \Delta M(t_k)$ is a (discrete) martingale and we can use (15.7) to see the claimed equality.
p. 304, line 10 above	A similar, but simpler calculation yields... here is the fully worked argument:	$\mathbb{P}\left(\sup_{t\le T}\left\|\int_0^t \left(b_\Pi(s) - b(s)\right) ds\right\| > \epsilon\right)$ $\le \mathbb{P}\left(\sup_{t\le T}\left\|\int_0^t \left(b_\Pi(s) - b(s)\right) ds\right\| > \epsilon,\ \tau_n > T\right) + \mathbb{P}(\tau_n \le T)$ $\le \mathbb{P}\left(\left\|\int_0^{T\wedge\tau_n} \left(b_\Pi(s) - b(s)\right) ds\right\| > \epsilon\right) + \mathbb{P}(\tau_n \le T)$ $\underset{\text{Jensen}}{\overset{\text{Chebyshev}}{\le}} \frac{4T}{\epsilon^2}\mathbb{E}\left(\int_0^{T\wedge\tau_n} \left\|b_\Pi(s) - b(s)\right\|^2 ds\right) + \mathbb{P}(\tau_n \le T)$ $\xrightarrow[\|\Pi\|\to 0]{n \text{ fixed}} \mathbb{P}(\tau_n \le T) \xrightarrow[n\to\infty]{} 0.$
p. 311, line 12 above	$f''(x) = \delta_0(x)$	$f''(x) = 2\delta_0(x)$
p. 311, formula (18.19)	$\frac{1}{2}\int_0^t \delta_0(B_s)\,ds$	$\int_0^t \delta_0(B_s)\,ds$
p. 333, line 4 below	$M_t \in L^2(\mathbb{P})$	$M_t \in L^2(\mathbb{P})$, $M_0 = 0$
p. 350, line 9 above	$(\cdots)_{t\le 0}$	$(\cdots)_{t\ge 0}$
p. 381, Problem 6	$I^2(f) - \\|f\\|_{L^2}^2$ is and	$I_1^2(f) - \\|f\\|_{L^2}^2$ is
p. 381, Problem 7.b)	$\\|\widehat{e}_\alpha\\|_{L^2(\mathbb{R}_+^n)}$	$\\|\widehat{e}_\alpha\\|_{L^2(\mathbb{R}_+^n)}^2$

The following readers have contributed to this list: Wojciech Cygan; Julian Lee.