CORRECTIONS - FIRST EDITION - MARCH 12 2007

1. Page 4, line -2: Replace “consequences” by “consequence”.

2. Page 8, add line 3: “All topological spaces in the sequel are assumed to be Hausdorff”.

3. Page 41, line 10: Normal(0,1) and not Normal(0,1).

4. Page 60, line -1: replace $\Pi_\lambda$ by $\Pi_\lambda$.

5. Page 61, line -4: should be “unique non negative left eigenvectors”.

6. Page 68, line 5: replace $H(q)^{\triangle}_\lambda \ldots$ by $H(q)^{\triangle}_\lambda - \ldots$.


8. Page 86 line -11: replace $\Sigma = \mathbb{R}$ by $\Sigma = [0,1]$.

9. Page 90, Theorem 3.6.8, part (a): add “for all sufficiently large $n$”

10. Page 111, line 17: Replace $\mathcal{X}$ by $\mathcal{Y}$.

11. Page 130, line -13: Add “log” after the second equality to read

$$\log \int_{\mathcal{X}} e^{\lambda(x)} \mu_c(dx), \quad \lambda \in \mathcal{X}^*,$$

12. Page 134, Figure 4.5.2: the lines are not of $<\lambda_i, x> - g(\lambda_i) = 0$ but rather of $<\lambda_i, x> - g(\lambda_i) = c_i$, where $c_i = f(x_i)$ and $x_i$ is the point of tangency of the line with slope $\lambda_i$ to the graph of $f(\cdot)$.

13. Page 152, line -10: replace

$$\mathcal{AC}^{\triangle}_\lambda \left\{ \phi \in C([0,1]) : \sum_{\ell=1}^k |t_\ell - t_{\ell-1}| \to 0 \Rightarrow \sum_{\ell=1}^k |\phi(t_\ell) - \phi(t_{\ell-1})| \to 0 \right\}.$$

by

$$\mathcal{AC}^{\triangle}_\lambda \left\{ \phi \in C([0,1]) : \sum_{\ell=1}^k |t_\ell - s_\ell| \to 0, s_\ell < t_\ell \leq s_{\ell+1} < t_{\ell+1} \Rightarrow \sum_{\ell=1}^k |\phi(t_\ell) - \phi(s_\ell)| \to 0 \right\}.$$

14. Page 156, line -4 until Page 157, line 4: Replace text by

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Finally, suppose that \( \phi \in \mathcal{X} \) and \( \phi \not\in \mathcal{AC} \). Then there exist \( \delta > 0 \) and \( \{s^n_k \leq t^n_k \leq t^n_{k+1}\} \) such that \( \sum_{\ell=1}^{k_n} (t^n_\ell - s^n_\ell) \to 0 \), while \( \sum_{\ell=1}^{k_n} |\phi(t^n_\ell) - \phi(s^n_\ell)| \geq \delta \). Note that, since \( \Lambda^* \) is nonnegative,

\[
I_x(\phi) = \sup_{0 < \ell_1 < \ell_2 < \ldots < \ell_k \in \mathbb{R}^d} \sum_{\ell=1}^{k} \left[ \langle \lambda_\ell, \phi(t_\ell) - \phi(t_{\ell-1}) \rangle - (t_\ell - t_{\ell-1}) \lambda(\lambda_\ell) \right] \\
\geq \sup_{0 < \ell_1 < \ell_2 < \ldots < \ell_k \in \mathbb{R}^d} \sum_{\ell=1}^{k} \left[ \langle \lambda_\ell, \phi(t_\ell) - \phi(s_\ell) \rangle - (t_\ell - s_\ell) \lambda(\lambda_\ell) \right].
\]

Hence, for \( t_\ell = t^n_\ell \), \( s_\ell = s^n_\ell \), and \( \lambda_\ell \) proportional to \( \phi(t_\ell) - \phi(s_\ell) \) and with \( |\lambda_\ell| = \rho \), the following bound is obtained:

\[
I_x(\phi) \geq \limsup_{n \to \infty} \left\{ \rho \sum_{\ell=1}^{k_n} \left| \phi(t^n_\ell) - \phi(s^n_\ell) \right| - \left[ \sup_{|\lambda| = \rho} \Lambda(\lambda) \right] \sum_{\ell=1}^{k_n} (t^n_\ell - s^n_\ell) \right\} \geq \rho \delta.
\]

15. Page 157, proof of Lemma 5.1.14: The argument is incomplete, for one could have both sides of the equality before last in the page infinite when \( \nu((\infty, \bar{x}) > 0 \). Rather, after (5.1.15), for any \( M < \bar{x} \) such that \( \nu((\infty, M]) > 0 \) integration by parts yields

\[
\int_{M}^{\bar{x}} \frac{\nu(dx)}{\nu((\infty, \bar{x})^\delta} \leq \frac{1}{1 - \delta}.
\]

Using monotone convergence, one may then set \( M = -\infty \).

16. Page 161, line 11: Replace \( g^2(t) \) by \( |g(t)|^2 \).

17. Page 161, line 14 and Page 163, line 9: Replace \( \dot{g}^2(t) \) by \( |\dot{g}(t)|^2 \).

18. Page 161, line 10 and Page 163, line 12: add “all absolutely continuous functions with value \( \theta \) at \( \theta \) ....”

19. Page 164, (5.2.15): the right hand side should be \( 2e^{-(\delta-E)^2/2V} \), where

\[
V = \sup_{0 \leq n, t \leq 1} E|X_{t,n}|^2.
\]

20. Page 189, display in remark: add \( ) \) before the transpose sign in the expression for \( I_x(f) \).

21. Page 192, line -6: Replace \( |y^2| \) by \( |y|^2 \).

22. Page 208, line 7: Replace \( x \in \mathcal{G} \) by \( x \in B_\rho \).
23. Page 216, line 6: omit -. 
24. Page 242, line 14: Add “is weakly” before “closed”. 
25. Page 250, line 9 and in (6.3.7): replace $N$ by $N'$. 
27. Page 298, line -9, remove one ) before the period. 
28. Page 313, line 11: replace “were” by “where”. 
29. Page 322, line 11: add $f(t, x) : [0, \infty) \times \mathbb{R}^d \to \mathbb{R}^d$. 
30. Page 331, item [KK86]: replace “Kellenberg” by “Kallenberg”.