Errata of the book

*Analysis and Geometry of Markov Diffusion Operators*

Springer, Grundlehren der mathematischen Wissenschaften
Vol. 348 (2013)

Dominique Bakry, Ivan Gentil and Michel Ledoux

May 18, 2015

- Page 90, line 11: instead of
  \[ k_3(t, d) = \frac{1}{4\pi t} \frac{d}{\sinh(d)} \exp\left(-t - \frac{d^2}{4t}\right) \]
  read (add a ()
  \[ k_3(t, d) = \frac{1}{4\pi t} \frac{d}{\sinh(d)} \exp\left(-t - \frac{d^2}{4t}\right) \]

- Page 158, line 13: instead of
  \[ H(f)(g, h) = \frac{1}{2} [\Gamma(g, \Gamma(f, h)) + \Gamma(h, \Gamma(f, g)) - \Gamma(f, \Gamma(g, h))]. \]
  read (add a ))
  \[ H(f)(g, h) = \frac{1}{2} [\Gamma(g, \Gamma(f, h)) + \Gamma(h, \Gamma(f, g)) - \Gamma(f, \Gamma(g, h))]. \]

- Page 170, line -6: remove \( L^*(f) \) at the beginning of the formula.

- Page 298, line -8: instead of
  \[ P_t(f \log f) - P_t f \log P_t f \leq t \Delta P_t f + \frac{n}{2} (1 - \frac{2t}{n} \frac{P_t(f \Delta(\log f))}{P_t f}), \]
  read
  \[ P_t(f \log f) - P_t f \log P_t f \leq t \Delta P_t f + \frac{n}{2} P_t f \log\left(1 - \frac{2t}{n} \frac{P_t(f \Delta(\log f))}{P_t f}\right). \]
• Page 301, line 11: instead of

\[ \Lambda''(s) \geq \frac{2[LP_tf - \Lambda'(s)]^2}{nPt_f} + \rho\Lambda'(s), \]

read

\[ \Lambda''(s) \geq \frac{2[LP_tf - \Lambda'(s)]^2}{nPt_f} + 2\rho\Lambda'(s). \]

• Page 338, line -1: instead of \( I(u) \), read \( I_{\mu,F}(u) \).

• Page 364, line -6: The sentence starting by \textit{In the finite measure case...} is not correct. It has to be replaced by the following one: \textit{In the finite measure case, the tight Nash inequality (3.2.3), p. 281, correspond to a function \( \Phi \) which is the inverse function of \((1, +\infty) \ni x \mapsto (x^{1+2/n} - x)/C\).}

• Page 372, line -5: instead of \( e^{-C/t} \), read \( e^{-t/C} \).

• Page 373, line -13: instead of \( w(x) = p(x)^{1/2}(1 + x^2)^{-\beta} \), read \( w(x) = p(x)^{-1/2}(1 + x^2)^{-\beta} \) (thanks to Persi Diaconis).

• Page 425, Theorem 8.6.3: the set \( A_{d_t} \) should be here the \( d_t \)-closed neighborhood of \( A \) instead the open one \( A_{d_t} = \{ x \in E; d(x,A) \leq d_t \} \) instead \( A_{d_t} = \{ x \in E; d(x,A) < d_t \} \).

• Page 448, line -7: (the line before formula (9.3.5)) the integration is w.r.t. the measure \( u^{1-1/n}dx \) instead \( udx \) (thanks to Emanuel Milman).

• Page 464, formula (9.7.4) should be

\[ W_2^2(P_tf\mu, P_tg\mu) \leq W_2^2(f\mu, g\mu) + 2n(\sqrt{t} - \sqrt{s})^2, \]

thanks to Luigia Ripani.