ERRATA FOR "DYNAMICAL SYSTEMS AND ERGODIC THEORY"

Preliminaries

Thereom G should read:

Theorem G (Radon-Nikodym). *If μ is absolutely continuous with respect to ν then there exists a (unique) function $f \in L^1(X, \mathcal{B}, d\nu)$ such that for any $A \in \mathcal{B}$ we can write $\mu(A) = \int_A f d\nu$.*

Chapter I

page 1, Example 1: It should read $0 < \theta < 1$ (Tex error).
page 2, line 2: $y = (y_n)_{n\in\mathbb{Z}}$ instead of $x = (x_n)_{n\in\mathbb{Z}}$, again.
page 2, Proof of Lemma 1.1: The superscript ks should become ms, say (Too many ks)
page 3, Example 1: It should read "$T^k x = \sum_{n=0}^{+\infty} \frac{x_{n+k}-1}{2^{n+1}}$ (mod 1)."
page 7, Theorm 1.8: The sets in $\mathcal{E}$ should also be closed.

Chapter 2

page 12, Proof of Theorm 1.8: We should define $T_i := T^i = (\sigma \circ \ldots \circ \sigma)$
page 13, line 2: It should read $(T^b T_i^a x)_0 = x_{b+ia} = z_a \in \{1, \ldots, k\}$
page 13, bottom: It should read "In particular, $d_{\mathcal{X}_N}(S^{n_i}\underline{z}', z) \to 0$ as $n_i \to +\infty$ where $\underline{z} = (z, \ldots, z), \underline{z}' = (T_N^{-n_i} z, \ldots, T_N^{-n_i} z) \in \mathcal{D}_N$."
page 14-15, Sublemma 2.2.4 (and proof): Each $\mathcal{D}$ is really $\mathcal{D}_N$ (subscripts omitted)
page 15, mid-page: It should read "The proof of Theorem 2.3 is finished".
page 16, after (2.3): It should read: $d_{\mathcal{D}_N}(S^n z, z') < \delta$ (S^n for T^n).
page 16, displayed equation (2.3): It should read $d_{\mathcal{X}_N}(\hat{T}^{n_{1j}} \circ \ldots \circ \hat{T}^{n_{Nj}} z, \hat{T}^{n_{1j}} \circ \ldots \circ \hat{T}^{n_{Nj}} z') < \frac{\epsilon}{4}$. (no negative powers.)
page 16, displayed equation (2.4): $d_{\mathcal{X}_N}\left(S^n\left(\hat{T}^{n_{1j}} \circ \ldots \circ \hat{T}^{n_{Nj}} z\right), \hat{T}^{n_{1j}} \circ \ldots \circ \hat{T}^{n_{Nj}} z'\right) < \frac{\epsilon}{4}$. ($S^n$ for T^n)
page 16, last displayed equation :

$$d_{\mathcal{X}_N}(S^n y, x) \leq d_{\mathcal{X}_N}(S^n y, \hat{T}^{n_{1j}} \circ \ldots \circ \hat{T}^{n_{Nj}} z') + d_{\mathcal{X}_N}(\hat{T}^{n_{1j}} \circ \ldots \circ \hat{T}^{n_{Nj}} z', x)$$

$$+ d_{\mathcal{X}_N}(\hat{T}^{n_{1j}} \circ \ldots \circ \hat{T}^{n_{Nj}} z, \hat{T}^{n_{1j}} \circ \ldots \circ \hat{T}^{n_{Nj}} z')$$
$$+ d_{\mathcal{X}_N}(\hat{T}^{n_{1j}} \circ \ldots \circ \hat{T}^{n_{Nj}} z, x)$$

$$< \frac{\epsilon}{2} + \frac{\epsilon}{4} + \frac{\epsilon}{4} = \epsilon.$$

(term missing)

page 17, after (2.5): Another $\mathcal{D}$ which should be a $\mathcal{D}_N$ (subscript omitted).

Comments and references: It should read "An account also appears in [5]."

Chapter 3

page 19, last displayed equation: Thete is a $\cap$ missing.

page 22, first paragraph of proof: It should read : This means that $N(\vee_{i=0}^{k-1}T^{-i}(\vee_{n=0}^{N-1}T^{-n}\alpha)) \geq$ $N(\vee_{i=0}^{k-1}T^{-i}\beta)$, for $k \geq 1$.

page 22, Definition: It should read The matrix A is called *aperiodic* if $\exists N > 0$, $\forall 1 \leq i, j \leq k$, $A^N(i,j) \geq 1$. (Power of N missing)

page 22, mid-page. The displayed equation should read

$$\vee_{n=-N}^{N}\sigma^{-n}\alpha = \{[i_{-N}, \ldots, i_0, \ldots, i_N]_{-N}^{N} : i_{-N}, \ldots, i_0, \ldots, i_N \in \{1, \ldots, k\}\}$$

and serveral $\sigma^{-i}\alpha$ should change to $\sigma^{-n}\alpha$.

page 23, mid-page. It should read $A(v_1, \ldots, v_k)^T = (v_1', \ldots, v_k')^T = (\sum_{i=1}^k A(i,1)v_i, \ldots, \sum_{i=1}^k A$ (the transpose $\cdot^T$ is omitted)

page 24, end of proof. It should read: However, elementary calculus shows that the supremum is realised where $z = (\frac{bd}{ac})^{1/2}$ and thus

$$C < \frac{\nu^{1/2} - \nu^{-1/2}}{\nu^{1/2} + \nu^{-1/2}} < 1,$$

where $\nu := \frac{ad}{bc} > 1$. **page 24, bottom of page**. It should read "a contraction with respect to this metric". (The error seems to appear in the source article: G. Birkhoff, *Extensions of Jentzsch's theorem*, Trans. Amer. Math. Soc., 85 (1957) 219-227)

page 25, second paragraph. It should read "$C < 1$ is independent of the choices x, y."

page 25, last displayed equation. It should read

$$H\left(\vee_{n=0}^{N-1}\sigma^{-n}\alpha\right) = \log \mathrm{Card}\left(\vee_{n=0}^{N-1}\sigma^{-n}\alpha\right) = \cdots$$

page 26, near top. It should read " ... Jordan block matrices $B_2, \ldots, B_l$, ..."

page 26, Lemma 3.6 (i) It should read: $s(n,\epsilon') \geq s(n,\epsilon)$ and $r(n,\epsilon') \geq r(n,\epsilon)$.

page 27, near top For $r(n,\epsilon) \geq s(n,\epsilon)$ read $s(n,\epsilon) \geq r(n,\epsilon)$.

page 28, near the bottom It should read: $\limsup_{n\to+\infty} \frac{1}{n} \log N\left(\vee_{i=0}^{n-1}T^{-i}\beta\right)$ (by Lemma 3.7 ((H instead of N)

page 30, near the top It should read: $r_{T^m}(n,\epsilon) \leq r_T(nm,\epsilon)$ (r missing).

page 30, middle of page. It should read R is also an (n,ϵ)-spanning set for T^m (T^m not T^n).

Chapter 4

page 33, Proof of Lemma 4.3 It should read "Let $J_2 = [a, b]$"

page 35, Sublemma 4.4.1 It should read:

(ii) $T^{n-1}(I_{n-1}) = J'$; and

(iii) $T^n(I_{n-1}) \supset J''$.

page 36, second paragraph. The two J' should be J''.

page 37, Proof of Lemma 4.5. The intervals of monotonicity for $S_1 \circ S_2 : I \to I$ take the form $J_j \cap S_2^{-1}(I_i)$. Thus $\mathcal{N}(S_1 \circ S_2) \leq \mathrm{Card}\{(i,j) : J_j \cap S_2^{-1}(I_i) \neq \emptyset\} \leq N(S_1) \cdot N(S_2)$.

page 37, Remark. The chain rule says: $(T^n)'(x) = \prod_{i=0}^{n-1} T'(T^i x)$.

page 37, Proof of Theorem 4.6. It should read: $0 \leq r_i \leq n-1$ and $0 \leq r_i \leq n-1$.

page 37, penultimate paragraph. It is better to write: $\{x_{i_0} < x_{i_1} < \ldots < x_{i_{m-1}}\} \subset E_n$

page 37, last paragraph.It should read: there are at least $\frac{m\epsilon}{C}$ intervals of monotonicity for T^r, i.e. $\mathcal{N}(T^r) \geq \frac{m\epsilon}{C} \geq \frac{N}{Cn}\epsilon$. Thus

$$\lim_{n\to+\infty} \frac{1}{n} \log \mathcal{N}(T^n) \geq \lim_{n\to+\infty} \frac{1}{n} (\log s(n,\epsilon) -$$

page 38, after first displayed equation.

It should read.

$$\begin{aligned} m\left(\lim_{n\to+\infty} \frac{1}{n} \log \mathcal{N}(T^n)\right) &= m\left(\limsup_{n\geq 1} \frac{1}{n} \log \mathcal{N}(T^n)\right) \\ &\geq \limsup_{k\geq 1} \frac{1}{k} \log \mathcal{N}(S^k) \\ &= \lim_{k\to\infty} \frac{1}{k} \log \mathcal{N}(S^k) \end{aligned}$$

(since $\left(\frac{m \log \mathcal{N}(S^k)}{k}\right)_{k\in\mathbb{N}}$ is a sub-sequence of $\left(\frac{\log \mathcal{N}(T^n)}{n}\right)_{n\in\mathbb{N}}$. Moreover, we can estimate

$$\begin{aligned} & m\left(\lim_{n\to\infty} \frac{1}{n} \log \mathcal{N}(T^n)\right) \\ & \leq \lim_{n\to\infty} \frac{m}{n} \log\left(\mathcal{N}(S^{[\frac{n}{m}]}) \mathcal{N}(T^{n-[\frac{n}{m}]m})\right) \qquad \text{(by Lemma 4.5)} \\ & \leq \lim_{n\to\infty} \frac{m}{n} \log\left(\mathcal{N}(S^{[\frac{n}{m}]}) + \max_{0\leq i\leq m-1} \{\log \mathcal{N}(T^i)\}\right) \\ & = \lim_{k\to\infty} \frac{1}{k} \log \mathcal{N}(S^k). \end{aligned}$$

page 39, first displayed equation. It should read

$$\geq \limsup_{k\to+\infty} \frac{1}{k} \log\left(\mathcal{N}(S^k)/3^k\right) \qquad (\text{since } \mathcal{N}(S^k) \leq 3^k N(\vee_{r=0}^{k-1} S^{-r}\alpha))$$

page 42, Proof of (i). It should read for every point x in the complement of the dense set $\cup_{n\in\mathbb{Z}^+} T^{-n}\{x_0, \ldots, x_k\}$

page 42, Proof of (ii). It should read $\pi(w) = z$ (twice) instead of $\pi(w) = x$.

page 43, Proof of Theorem 4.9. We actually use Proposition 3.11.

page 43, Proof of sublemma 4.9.1. We actually use Proposition 3.5.

page 44, Proof of sublemma 4.10.1. For λ_0 read λ_1.

Chapter 5

page 47 We should use $GL(2,\mathbb{Z})$ instead of $SL(2,\mathbb{Z})$.

page 47 To give the broadest definition of hyperbolicity we should ue

Let $A \in GL(2,\mathbb{Z})$ have eigenvalues λ_1, λ_2 then if $|\lambda_1| > 1 > |\lambda_2| (= \frac{1}{|\lambda_1|})$ we call the matrix A *hyperbolic*

page 49, below figure 5.2 It should read: (where $(x_1, x_2) \in [0,1) \times [0,1)$).

page 50, near the top Delete the upper bound on k (For the "boxes" below to cover we should require $k \leq \frac{4}{\epsilon^2 \sin\theta}$, where θ is the angle between the eigenvectors.)

page 50, Next paragraph add "We can choose boxes such that $\mathrm{Box}(x_1^i, x_2^i)$, $i = 1, \ldots, n$ cover the torus."

page 50, Proof of Sublemma 5.3.1 Change the first line(s) to: "For any point $(z_1, z_2) \in \mathbb{R}^2/\mathbb{Z}^2$ we can choose some $i = 1, \ldots, k$ such that $(z_1, z_2) \in \mathrm{Box}(x_1^i, x_2^i)$ and so ..."

page 51, displayed equation (5.2) Change to: $\lim_{\epsilon\to 0}\lim_{n\to+\infty}\frac{1}{n}\log r(n,\epsilon) \leq \lim_{\epsilon\to 0}\lim_{n\to+\infty}\frac{1}{n}\log\left(k(2[|\lambda_1|^n]+1)\right)$.

page 51, sublemma 5.3.2. The statement should read: "S is an $(n, 2\epsilon/|\lambda_1|)$-separated".

Chapter 6

page 59, proof of part (i). In fact, it is the argument in part (ii).

page 59, statement of Lemma 6.3. We are assuming ρ is irrational.

page 60, first line. Assume $n_1 > n_2$

page 60, first paragraph. There Ts should be $\hat{T}$ (i.e. hats missing).

page 61, lower part of page. It should read: "It is easy to see that if $T : \mathbb{R}/\mathbb{Z} \to \mathbb{R}/\mathbb{Z}$ is C^2 with $|T''|/|T'|$ is bounded then $\mathrm{Var}(\log|T'|)$ is finite."

page 62, Statement of Sublemma 6.5.1. The displayed equation should be $|(T^{q_n})'(x)| \cdot |(T^{-q_n})'(x)| \geq C$.

page 62, Displayed equation, mid-page. It should read $|I_{q_n}| + |I_{-q_n}|$ (misplaced minus sign).

page 62, last line. It should read $|T^{q_n}x - x| = \delta_n$.

page 63, displayed equation (6.4). The second line should read $\geq$ instead of $=$.

Chapter 7

page 67, first displayed equation . In the first line the upper limit in the sum should be $N_n^{(n)} - 1$; the second line should be $f_k(T^{N_n^{(n)}}x) + \sum_{n=0}^{N_n^{(n)}-1} f_k(T^n x) - f_k(x)$ (reverse signs).

page 68, item (2). It should read "for every non-empty open set $U \subset X$"

page 68, mid-page. It should read $\mu([z_0, \ldots, z_n]) = \left(\frac{1}{2}\right)^{n+1}$ ($n+1$ instead of n).

page 69, second line. For $(1, \ldots, 1)$ read $(1, \ldots, 1)^T$ (i.e. the transpose).

Chapter 8

page 74, Lemma 8.1 . Part (1) should read $I(\alpha|\{\emptyset, X\})(x) = I(\alpha)(x)$;

Part(2) should read $I(\alpha|\mathcal{A})(Tx) = I(T^{-1}\alpha|T^{-1}\mathcal{A})(x)$.

page 74, line before definition. Delete the erroneous comment "(in particular, $\hat{\alpha}$ is countable and consists of all unions of elements from α)."

page 75, last displayed equation. It should read $I(\alpha \vee \beta|\hat{\gamma})(x)$ (hat missing in $\hat{\gamma}$).

page 76, proof of lemma 8.3. It should be corrected to:

"For part (4) we have

$$\begin{aligned} H(\alpha|\gamma) &= -\sum_{A\in\alpha, C\in\gamma} \mu(A\cap C)\log\left(\frac{\mu(A\cap C)}{\mu(C)}\right) \\ &= -\sum_{C\in\gamma}\mu(C)\left[\sum_{A\in\alpha}\frac{\mu(A\cap C)}{\mu(C)}\log\left(\frac{\mu(A\cap C)}{\mu(C)}\right)\right] \\ &\leq -\sum_{A\in\alpha}\left[\sum_{C\in\gamma}\mu(A\cap C)\right]\log\left[\sum_{C\in\gamma}\mu(A\cap C)\right] \\ &\leq -\sum_{A\in\alpha}\mu(A)\log\mu(A) = H(\alpha) \end{aligned}$$

since for fixed $A \in \alpha$ we can bound

$$-\sum_{C\in\gamma}\frac{\mu(A\cap C)}{\mu(C)}\log\left(\frac{\mu(A\cap C)}{\mu(C)}\right) \leq -\left[\sum_{C\in\gamma}\mu(A\cap C)\right]\log\left[\sum_{C\in\gamma}\mu(A\cap C)\right]$$

using concavity of $t \mapsto -t\log t$."

Chapter 9

page 95, line 3 : Replace $X \times \mathbb{R}/\mathbb{Z}$ by $X \times G$.
page 95, line 25 from below : $\mu(A) > 0$ should be $0 < \mu(A) < \infty$.
page 96, line 5 from below : $\hat{T} : X \to X$ should be $\hat{T} : \hat{X} \to \hat{X}$.
page 96, line 1 : *natural extension* of X sould be *natural extension* of T.
page 96, line 2 : $\pi\left((x_n)_{n\in\mathbb{Z}^+}\right) = X$ should be $\pi\left((x_n)_{n\in\mathbb{Z}^+}\right) = x_0$

Chapter 10

page 100, line 2 from below : $= \int f(x)g(x)d\mu(x)$ should be removed.
page 101, line 6 : $\epsilon||g||_2$ should be $\sqrt{\epsilon}||g||_2$.
page 101,lines 11,13 : Replace $\left(\int f d\mu \int g d\mu - \epsilon, \int f d\mu \int g d\mu + \epsilon\right)$ should be $\left(\int f_1 g d\mu - \epsilon, \int f_1 g d\mu + \epsilon\right)$. **Mark ?** Hoeever..??? Or are you assuming ergodicity ?
page 102, line 5 from below : We assume $\min(f_+, f_-) = 0$.
page 105, line 9 : We assume ergodicity.
page 106, lines 17-18 : Replace $2^k, r_k$ by $2^n, r_n$ respectively.

page 107 : (ii) should be corrected as follows. (ii) there exists $D > 0$ such that $\sup_{x,y,z\in I_k} \frac{|T''(x)|}{|T'(y)T'(z)|} \leq D$, $\forall 0 < x < 1$. Then $|\frac{\psi'_{k_0\ldots k_n}(x)}{\psi'_{k_0\ldots k_n}(y)}|$ is bounded from above by

$$\prod_{i=0}^{n}\left(1+\frac{D}{4^{[(n-i-1)/2]}}|T^n x - T^n y|\right) \leq C.$$

We assume in (a) that $l(E\cap I_{k_0}\cap T^{-1}I_{k_1}\cap\ldots\cap T^{-n}I_{k_n}) > 0$.

page 109, line 18 : Replace " Absolutely continuous " by " nonsingular ".

page 110, line 2 : Mark ? : We should put a reference for the ergodicity of the geodesic flow....

page 111, line 19 from below : Replace "sublemmas 10.5.1 and 10.5.2" by "sublemmas 10.2.1 and 10.2.2."

Chapter 11

page 115 : Lemma 11.4 : " a bounded sequence of real numbers $\{a_n\}$ " should read " a bounded sequence of positive numbers $\{a_n\}$. "

page 115, line 3 from below : N_k, N_{k+1} should be n_k, n_{k+1} respectively.

page 117, line 6 from below : " (11-1), (11.2) and (11.3) " should be " (11-2), (11.3) and (11.4) "

page 118, line 3 from below : It should read $n \in \mathbb{Z}$.

page 119, line 1 : It should read $n \in \mathbb{Z}$.

page 120 All $C^{\perp}$ should be $\mathbb{C}^{\perp}$.

120, Proof of Proposition 11.8 : $\bar{\mu}$ denotes the spectral measure.

page 121,(2) $\implies$ (3): All n_i should b n_k.

page 121, line 8 from below : $\mu\left(T^{-n_i}B_i\cap D_j\right)$ should be removed.

page 123, line 9 : It should read " (by writing P in terms of Jordan forms) "

page 123, line 7 from below : It should read $\mu(A\cap T^{-(n+l)}B)\to\mu(A)\mu(B)$ as $n\to+\infty$.

Chapter 12

page 125, line 8 from below : It should read " $\{k_i\circ T^n\}_{i=0}^{j_n}$ for $L^2(T^{-n}\mathcal{B})\ominus L^2(T^{-(n+1)}\mathcal{B})$. It follows that $\{k_i\circ T^n\}_{i=0}^{j_n}{}_{n=0}^{\infty}$. "

page 126, line 4 : Example 1 should be one-sided aperiodic Markov shifts(aperiodicity is missing).

page 127, line 4 : $\int_A f(x)dx$ should be $\int_{T^{-1}A} f(x)dx$.

page 128, line 6 : $K\exp\left(|x-y|\frac{D'}{1-\frac{1}{\beta}}\right)$ should be $K\left(|x-y|\frac{D'}{1-\frac{1}{\beta}}\right)$

page 129, line 15 : It should read " we can choose a finite disjoint set of cylinders $\{I_{\underline{j}} : \underline{j} = (j_1,\ldots,j_l)\}$, with $\mu\left(\left(\cup_{\underline{j}}I_{\underline{j}}\right)\Delta A\right) < \epsilon$."

page 129 line 2 from below : It should read

$$\sup_{x,y\in T^n I_{\underline{i}}}\frac{|\psi_{\underline{i}}{}'(x)|}{|\psi_{\underline{i}}{}'(y)|}\leq C. \tag{12.2}$$

page 130, Sublemma 12.5.1. The statement should read "There exist $S > 0$ and a subset I' of $T^l(I_{\underline{j}})$ which is a finite disjoint union of elements of $\vee_{i=0}^{S-1}T^{-i}\{I_1\ldots I_k\}$

and satidfies $T^S(I') = I$. " In the proof, $T^{s_i}U_i \supset T^{s_i} I^{(i,j)}_{m_1,\ldots,m_{s_j}}$ should be $T^{s_j}U_i \supset T^{s_j} I^{(i,j)}_{m_1,\ldots,m_{s_j}}$.

page 131, Proof of Proposition 12.6 : All $I^{(i)}_{tm_1\ldots m_{s_i}}$ should be $I^{(i)}_{m_1\ldots m_{s_i}}$. Relace $\psi_{tm_1\ldots m_{s_i}h_1\ldots h_t}(x)$ by $\psi_{m_1\ldots m_{s_i}}(x)$. "Here we take $t = S - s_i$ " on the line 17 should be put before " Let $l = l(\epsilon)$ " on the line 15.

page 132, lines 5-6 : It should read " $\hat{\mathcal{L}^*(\mu)} = \mu$, i.e. the dual operator $\hat{\mathcal{L}}^*$ acting on measures (defined by $(\mathcal{L}^*\mu)(A) = \int \mathcal{L}\chi_A d\mu)$ fixes μ. "

page 124, line 7 : it should read " Channon-McMillan- Breiman theorem ".

page 134, line 14 : It should read $\alpha_n = \vee_{i=0}^{n-1} T^{-i}\alpha$.

page 135 line 1 from below : $I(\alpha|\vee_{j=1}^{n-i} T^{-j}\alpha)T^i$ should be replacded by $I(\alpha|\vee_{j=1}^{n-1-i} T^{-j}\alpha)T^i$.

page 135-136 : Mark ? How to correct......

Define

$$F_m(x) =: |I(\alpha|\vee_{j=1}^{m} T^{-j}\alpha)(x) - I(\alpha|\vee_{j=1}^{\infty} T^{-j}\alpha)(x)|.$$

Then we see that

$$\frac{1}{n}\left|I(\vee_{i=0}^{n-1}T^{-i}\alpha) - \sum_{i=0}^{n-1} fT^i\right| \le \frac{1}{n}\sum_{j=0}^{n-1} F_{n-j}T^j(x).$$

It follows from Corollary 1.2 in page 96 in [Mane's book] that if F_n is a sequence that converges to 0 almost everywhere and in L^1 then $\frac{1}{n}\sum_{j=0}^{n-1} F_{n-j}T^j(x)$ converges to 0 almost everywhere and in L^1. It is easy (??) to see pointwise convergence and L^1-convergence of F_n to 0 (?!)

Chapter 14

page 147, line 12 : It should read " a compact metric space. "

page 147, line 12 from below : It shoud read " a finite Borel measurable partition "

page 148, line 7 : Sub-lemma 14.1 should be Sub-lemma 14.7.

page 148, line 2 from below : It shoud read

$$"h_\mu\left(T^k, \vee_{i=0}^{k-1}T^{-i}\alpha\right) = \lim_{n\to+\infty}\frac{1}{n}H_\mu\left(\vee_{i=0}^{n-1}T^{-ik}\left(\vee_{j=0}^{k-1}T^{-j}\alpha\right)\right)"$$

page 149, line 8 : It should read

$$"h_\mu(T^k) \ge h_\mu\left(T^k, vee_{i=0}^{k-1}T^{-i}\alpha\right) \ge kh_\mu(T,\alpha) \ge kh_\mu(T) - k\epsilon."$$

page 151, line 2 : It should read "$C \in T^{-l}\alpha^{(N)}$ with $(T^l)^*\nu_{n_i}(D) := \nu_{n_i}(T^{-l}D) = \nu_{n_i}(C))$ and $C = T^{-l}D$."

page 151, line 5 : It should read :

$$"N\log(s(n_i,\epsilon)) \le \sum_{l=0}^{n_i-1}\left(-\sum_{D\in\alpha^{(N)}}(T^l)^*\nu_{n_i}(D)\log((T^l)^*\nu_{n_i}(D))\right) + 2N^2\log k"$$

page 151, line 9 from below : It should read

$$" \le -\frac{1}{N}\sum_{C\in\alpha^{(N)}} \mu_{n_i}(C)\log\mu_{n_i}(C) + \frac{2N\log k}{n_i}"$$

page 151, line 5 to page 152, line 2 : All H_ν should be H_μ.

Chapter 15

page 154, (3) : It should read

$$"\int f(x+a)d\mu = \lim_{n\to+\infty}\int E(f(x+a)|S^{-n}\mathcal{B})d\mu = \lim_{n\to+\infty}\int E(f(x)|S^{-n}\mathcal{B})d\mu = \int f(x)d\mu$$

and thus we know that μ is the Haar-Lebesgue measure. "

page 154, (4) : It should read

$$"T'(Sx)\cdot S'(x) = (TS)'(x) = (ST)'(x) = S'(Tx)\cdot T'(x)."$$

page 155, line 6 : it should read " $E(.|T^{-1}\mathcal{B})(x) : L^2(X,\mathcal{B},\mu)\to L^2(X,\mathcal{B},\mu)$ is an orthogonal projection which is a contraction "

page 155, line 7 from below : It should read " $S^{n'}$ and S' are $\mathcal{A}_n$-measurable "

Proof 157 : It should read : " Thus by subadditivity the limit $h(T|\mathcal{A}) := \lim_{n\to+\infty}\frac{1}{n}H(\vee_{i=0}^{n-1}T^{-i}\gamma|\mathcal{A})$ exists.

By the basic equalities for entropy we see that

$$\begin{aligned} h(T|\mathcal{A}) &= \lim_{n\to+\infty}\frac{1}{n}H(\vee_{i=0}^{n-1}T^{-i}\gamma|\mathcal{A}) \\ &= \lim_{n\to+\infty}\frac{1}{n}\left(H\left(\vee_{i=0}^{n-2}T^{-i}\gamma|\mathcal{A}\right) + H\left(T^{-(n-1)}\gamma|\mathcal{A}\vee\left(\vee_{i=0}^{n-2}T^{-i}\gamma\right)\right)\right) \\ &= h(T) \end{aligned}$$

since

$$h(T) = \lim_{n\to+\infty}\frac{1}{n}\left(H(\vee_{i=0}^{n-2}T^{-i}\gamma)\right)$$

and

$$H\left(T^{-(n-1)}\gamma|\mathcal{A}\vee\left(\vee_{i=0}^{n-2}T^{-i}\gamma\right)\right) \le H\left(T^{-(n-1)}\gamma|\mathcal{A}\right) = H(\gamma|\mathcal{A}) < +\infty.$$

It follows from Sub-lemma 15.1.3 that $h(T|\mathcal{A}) = \frac{\log 3}{\log 2}h(S|\mathcal{A})$ and so we have that the following limit exists

$$h(S|\mathcal{A}) := \lim_{n\to+\infty}\frac{1}{n}H(\vee_{i=0}^{s_n-1}T^{-i}\gamma|\mathcal{A}).$$

Observe that if we replace $\mathcal{A}$ by the trivial sigma-algebra then the same argument gives that $h(T) = \frac{\log 3}{\log 2}h(S)$. Comparing these identities we see that $h(S) = h(S|\mathcal{A})$. ∎

"

page 158 : In Sub-lemma 15.1.5 and in the proof, all $\mathcal{B},\beta$ should be γ.