E R R A T A

to

Entropy in Dynamical Systems

Tomasz Downarowicz

⋆ page 8, line –8: [1]

satisfies ~~$I_{\mathcal{P}}(\omega)$~~ ~~$\leq$~~ $N(\omega) \leq I_{\mathcal{P}}(\omega) + 1$ for μ-almost every ω. The difference — $\mathsf{E}(I_{\mathcal{P}}) \leq \mathsf{E}(N)$ (where E denotes the expected value) and

⋆ page 97, line 6:

∧A *data compression algorithm* in information theory is an algorithm (described — Throughout this section Λ denotes a finite alphabet.

⋆ page 98, lines –13 to –9:

Theorem 3.5.1 *Let ϕ be a compression algorithm that applies to all sufficiently long blocks appearing in some ergodic process* ~~$(X, \mathcal{P}, \mu, T, \mathbb{S})$~~ — $(\Lambda^{\mathbb{S}}, \mu, \sigma, \mathbb{S})$
of entropy h = ~~$h(\mu, T, \mathcal{P})$. *Let n be so large that* $H(\mu, \mathcal{P}^n) < n(h+\varepsilon)$~~. — $h(\mu, \Lambda)$
Then the joint measure of all blocks B of length m whose compression rate is smaller than ~~$H_n(B)$~~ $/\log\#\Lambda$ *tends to zero with m.* — $(h - \epsilon)$

⋆ page 101, line 8:

n ∧exceeds $2^{n(\log l - \varepsilon)}$. Hint: Choose carefully a block W which cannot — eventually

⋆ page 111, line 7:

~~equals~~ $\Pi_{\mathcal{P}}$, where $\mathcal{P} = \bigvee_{i=1}^{k} \mathcal{P}_i$. By Theorem 3.2.2 again, $h(\mathcal{Q}') = 0$ and, by — is inscribed in

⋆ page 131, line –5:

4.9 Prove that every ∧automorphism $(X, \mathfrak{A}, \mu, T, \mathbb{Z})$ of finite entropy admits, — ergodic

⋆ page 131, line –3:

4.10 Use the Sinai Theorem to show that every ∧system $(X, \mathfrak{A}, \mu, T, \mathbb{S})$ admits — ergodic

⋆ page 199, line –14:

6.3 ~~Show~~ that if T is Lipschitz, i.e., $d(Tx, Ty) \leq cd(x, y)$ for some constant — Is it true

⋆ page 199, line –4:

$\mathbf{h}(T^n, \mathcal{U}^{|n|}|\nu) = |n|\mathbf{h}(T, \mathcal{U}|\nu)$, $\mathbf{h}(T^n|\nu) = |n|\mathbf{h}(T|\nu)$∧ — (attention, some equalities hold only for $n \geq 0$).

⋆ page 216, lines 1 and 2:

- For every n ∧the projections onto X of the cells of $\mathcal{A}_{\mathcal{F}_k}$ ∧labeled $y_{k,n}$ ∧have — and k — and $\mathcal{A}_{\mathcal{F}_{k+1}}$, — and $y_{k+1,n}$, respectively,

⋆ page 216, lines 3 and 4:

~~Since~~ the diameters of these cells decrease to zero ∧with k (for n fixed), the above ~~intersection is~~ a single point in X. We denote this point by $\pi_{X,n}(y)$. — If we arrange that — sufficiently fast — projections converge to

⋆ page 219, lines –2 and –1:

satisfies the column condition; the projections of the cells corresponding to the symbols ∧in column n of this rectangle ~~all~~ contain the point $T^n x_D$. — in rows k and $k+1$ — both

[1] I thank Krzysztof Przesławski for this correction.

⋆ page 237, line 2:
or it is finite everywhere. Clearly, the transfinite sequence $u_{\boldsymbol{\alpha}}$ is increasing. and upper semicontinuous

⋆ page 260, line –14:
say that G' is a fiber saturation of F. Since F' is compact and π is continuous, F'

⋆ page 261, line 7:
$\mathbf{H}(\mathcal{U}|\mathcal{F},\mathcal{W}) \le \mathbf{H}(\mathcal{U}|\mathcal{F},\mathcal{V}) + \mathbf{H}(\mathcal{V}|\mathcal{W})$. We apply the above to $\mathcal{U}^n$, $\mathcal{V}^n$ and $\mathcal{V}^n$, $\mathcal{W}^n$

⋆ page 261, line –14:
generated by the partitions $\mathcal{P}$ and $\mathcal{Q}$. Consider a cell $V \in \mathcal{V}^n$ not disjoint of (The points in G should satisfy the above for a generating sequence of partitions $\mathcal{P}$ (each with possibly different threshold number n_σ).)

⋆ page 270, line –14:
8.5 (David Burguet) Check that the superenvelopes of $\mathcal{H}$ are precisely the repair functions of the tails

⋆ page 270, lines –10 and –9:
Theorem [Tarski, 1955] to deduce the existence of the smallest superenvelope. repair function

⋆ page 290, line –11:
combination $\sum_{k=1}^{\infty} 2^{-k} \mu_{k+1}$ (like the points b_k in Example 8.2.17, which are now $\mu_{(B_{k+1})}$

⋆ page 299, line –11:
the functions. By monotonicity, each function can strech at most $1/\delta$ of these t

⋆ page 323, line 1:
Lemma 11.2.10 Let f, g be two bounded measurable functions on X. For belong to $L^1(\mu)$

⋆ page 323, line 11:

$$\int T^{n+1} f \wedge T^{n+1} g \, d\mu \ge \int T^n f \wedge T^n f \, d\mu, \qquad g$$

⋆ page 391, line -12:
Toepilitz system, 225, **363**, 363–364