Errata to

Random Walks and Percolation on Trees

Ann. Probab. **18** (1990), 931–958

by Russell Lyons

On page 936, line 7, "2" should be "$\sqrt{2}$". Also on page 936, the tree in the last example is not specified with sufficient precision. To make sure that it has the desired properties, embed Γ in the upper half-plane with 0 at the origin and order $\partial\Gamma$ clockwise. Let the vertices in S_n be $\sigma_1^n, \ldots, \sigma_{2^n}^n$ in clockwise order. Then Γ is required to be such that σ_k^n has 1 successor for $k \le 2^{n-1}$ and 3 successors otherwise.

The proof of Proposition 3.1 needs the following changes. Change "$\lambda^{-|\sigma|}$" to "$\lambda^{-|\sigma|+1}$" each of the six times it occurs *except* two: in the sum over G and the sum over Γ. The definition of "$|t|$" should be "$|t| = (|\sigma_1| - 1) + \cdots + (|\sigma_n| - 1) + |\sigma_0|$". Change "=" in the second line of the proof to "$\ge$". After "observe that", add "$|\Pi| \ge 2$ and". After "because Γ is subperiodic", add "and $|\Pi| \ge 2$".

On page 941, preceding the definition of $\mathcal{F}(\Gamma)$, should appear the remark that by Cauchy-Buniakowski-Schwarz inequality, we have for any $\sigma \in V$,

$$(*) \qquad \sum_{(\sigma,\tau)\in E} |\theta(\sigma,\tau)| \le \left[\sum_{(\sigma,\tau)\in E} |\theta(\sigma,\tau)|^2 / C(\sigma,\tau) \sum_{(\sigma,\tau)\in E} C(\sigma,\tau) \right]^{1/2} .$$

In particular, if $\theta C^{-1/2} \in l^2(E)$, then $\forall\sigma \ \sum_{(\sigma,\tau)\in E} |\theta(\sigma,\tau)| < \infty$. The definition of $\mathcal{F}(\Gamma)$ should thus be

$$\mathcal{F}(\Gamma) := \{\theta : E \to \mathbf{R};\ \theta C^{-1/2} \in l^2(E) \ \text{ and } \ \forall\sigma \ne 0 \ \ (d^*\theta)(\sigma) = 0\}.$$

Also, the definition of $E(\theta)$ should be $E(\theta) = ||\theta C^{-1/2}||_2^2$. The inequality $(*)$ is needed at the beginning of the last paragraph on page 942 in order to show that the limit point θ of the minimizing sequence θ_n is a unit flow.

On page 941, line -4, insert "increasing" before "sequence". On page 942, line 14, change "$= M$" to "$\le \sup E(\theta_n) =: M$".

The punctuation in Corollary 4.2 has an obvious mistake. Also, the last line of its proof is missing a factor of $\theta(0)$.

The last sentence on page 948 is not quite correct. It should read: "If Γ is the directed cover of G and $x \in H$, then the universal cover of H is isomorphic to the union of the subtrees $\emptyset \cup \Gamma^{(x,v)}$ for $(x,v) \in E$."

24 Feb. 1993

Department of Mathematics
Indiana University
Bloomington, IN 47405-5701