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CORRECTION

RANDOM TREE-TYPE PARTITIONS AS A MODEL FOR ACYCLIC POLYMERIZATION: HOLTSMARK (3/2-STABLE) DISTRIBUTION OF THE SUPERCRITICAL GEL

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The statement of Theorem 3.3 is incorrect. The correct formulation is as follows.

THEOREM 3.3. *Suppose that* $\bar{\sigma}/\sigma_n = 1 - an^{-1/3}$, *where* $a \in (-\infty, \infty)$ *is fixed. Then, for every* $x > 0$ *and* $k \geq 1$,

$$\lim P\big(L_n^{(k)} \leq xn^{2/3}\big)$$

$$= \frac{1}{2\pi p(a)} \int_{-\infty}^{\infty} \exp[i(\Psi(u) - au)] \left[e^{-\Lambda(x,u)} \sum_{j=0}^{k-1} \frac{\Lambda^j(x,u)}{j!} \right] du,$$

where $\exp[i\Psi(u)]$ *is the characteristic function of the* $(3/2)$*-stable density* $p(\cdot)$ *and*

$$\Lambda(x,u) = \frac{\beta_0}{\bar{\sigma}} \int_x^{\infty} e^{iuy} y^{-5/2}\, dy. \tag{3.4}$$

(Curiously, the limit is the mixture of Poisson-type "probabilities" with the complex-valued parameter Λ, taken with the complex-valued weights which add up to 1, since $p(a) = (2\pi)^{-1} \int_{-\infty}^{\infty} \exp[i(\Psi(u) - au)]\, du$.)

The error is contained in the seventh to last line of the paper. This line, and the rest of the argument should be replaced by the following.

More generally, for every $k \geq 1$,

$$E\big([c_n(x, x_1)]_k\big) \to I_k(x, x_1)$$

$$= \frac{1}{p(a)} \int_{x \leq y_s \leq x_1} \cdots \int p\left(a - \sum_{s=1}^{k} y_s\right) \left(\prod_{s=1}^{k} \frac{\beta_0}{\bar{\sigma}} y_s^{-5/2}\, dy_s \right).$$

Since $\lim_{k \to \infty} (I_k(x, x_1))^{1/k} < \infty$, $c_n(x, x_1)$ converges in distribution, and with all its moments, to a random variable $c(x, x_1)$ such that $E([c(x, x_1)]_k) = I_k(x, x_1)$. Letting $x_1 \to \infty$, using $\lim_{k \to \infty} (I_k(x, \infty))^{1/k} < \infty$ and the result in (ii), we obtain

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that $c_n(x) = \sum_{j \geq xn^{2/3}} c_{nj}$ converges in distribution to $c(x)$ such that

$$E([c(x)]_k) = \frac{1}{p(a)} \int \cdots \int_{y_s \geq x} p\left(a - \sum_{s=1}^{k} y_s\right) \left(\prod_{s=1}^{k} \frac{\beta_0}{\bar{\sigma}} y_s^{-5/2}\, dy_s\right).$$

This formula is simplified considerably by applying the Fourier transformation to the last integral, and then inverting it. The result is

$$E([c(x)]_k) = \frac{1}{2\pi p(a)} \int_{-\infty}^{\infty} \exp[i(\Psi(u) - au)] \left(\frac{\beta_0}{\bar{\sigma}} \int_x^{\infty} e^{iuy} y^{-5/2}\, dy\right)^k du,$$

where $\exp[i\Psi(u)]$ is the characteristic function of the density $p(\cdot)$. Consequently

$$\begin{aligned} \lim P\left(L_n^{(k)} < xn^{2/3}\right) &= P(c(x) < k) \\ &= \frac{1}{2\pi p(a)} \int_{-\infty}^{\infty} \exp[i(\Psi(u) - au)] \\ &\quad \times \left[e^{-\Lambda(x,u)} \sum_{j=0}^{k-1} \frac{\Lambda^j(x,u)}{j!}\right] du, \end{aligned}$$

with Λ defined in (3.4).

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