# A self-avoiding walk model of random copolymer adsorption



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# Corrigendum

**A self-avoiding walk model of random copolymer adsorption**

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There is an error in the proof of lemma 3.4 for $\alpha > 0$, which can be remedied, as we outline below, by using (3.22) and (3.13) directly. For fixed $\alpha \geqslant 0$ it follows from (3.22) that

$$Z_n^*(\alpha|\chi) \leqslant \mathrm{e}^{\kappa_d n+o(n)} + \mathrm{e}^{o(n)} \max_m [Z_m^+(\alpha|\bar{\chi}^{(1)}) Z_{n-m}^+(\alpha|\chi^{(2)})]$$

and using (3.13) this implies that

$$\begin{aligned} Z_n^*(\alpha|\chi) &\leqslant \mathrm{e}^{\kappa_d n+o(n)} + \mathrm{e}^{o(n)} \max_m \max_{0\leqslant i\leqslant 5} \max_{0\leqslant j\leqslant 5} [L_{m+i}(\alpha|\chi^{(1')}) L_{n-m+j}(\alpha|\chi^{(2')})] \\ &\leqslant \mathrm{e}^{\kappa_d n+o(n)} + \mathrm{e}^{o(n)} \max_{0\leqslant i\leqslant 10} L_{n+i}(\alpha|\chi^{(3)}) \end{aligned}$$

where $\chi^{(1')}$ and $\chi^{(2')}$ are colourings derived by extending the colourings $\bar{\chi}^{(1)}$ and $\chi^{(2)}$ respectively, and where $\chi^{(3)}$ is the colouring resulting from the concatenation of the two loops. For any $\alpha \geqslant 0$ $L_n(\alpha|\chi) \geqslant L_n(0,\chi) \geqslant \mathrm{e}^{\kappa_d n - o(n)}$. Moreover, $L_n(\alpha|\chi) \leqslant L_{n+i}(\alpha|\chi')$ for any $i \geqslant 0$ and any $\chi'$ which is an extension of $\chi$. Hence

$$Z_n^*(\alpha|\chi) \leqslant \mathrm{e}^{o(n)} L_{n+10}(\alpha|\chi^{(3)}).$$

Taking logarithms, dividing by $n$ and averaging over colourings gives

$$\langle n^{-1} \log Z_n^*(\alpha|\chi)\rangle \leqslant \langle n^{-1} \log L_{n+10}(\alpha|\chi^{(3)})\rangle + o(1) = \bar{\kappa}(\alpha) + o(1)$$

which is the result of (3.23) and proves lemma 3.4.

We also note that the proof of lemma 3.2 can be simplified by disconnecting the walk $\omega$ into *three* subwalks, the first running from vertex 0 to vertex $m-1$, the second being the single edge lying in the plane $z = 0$ from vertex $m-1$ to vertex $m$, and the third running from vertex $m$ to vertex $n$. In the reconnection process the orientation of the single edge (from vertex $m-1$ to vertex $m$) can be changed to avoid having to add an additional edge in the plane $z = 0$, in the middle of the walk.

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