Errata

This document contains a list (probably not exhaustive!) of mistakes I've found in my PhD thesis. If you notice any other, just tell me! (Please ignore syntaxical, grammatical, stylistical, ... errors; otherwise this file would become too large!)

p.50 In definition (D81) and (D82), $w^*(\underline{\gamma})$ should be $w^*(\underline{\gamma}')$.

p.57 After equation (3.11), replace "which is exactly (D88)" by "which, up to a constant, is (D88)".

p.58 Equation (3.11) should be $\alpha(\boldsymbol{n}) = -\dfrac{1}{\|t\|_2} \lim\limits_{k\to\infty} \dfrac{G(k)}{k}$.

p.60 After the end of the proof, replace "τ is continuous" by "$\tau(\boldsymbol{n}|\Lambda_{L,M};\beta)$ is Lipschitz, uniformly in $\boldsymbol{n}$ and $\Lambda_{L,M}$".

p.64 In equations (3.37) and (3.38), $\langle\sigma((0,0))\rangle^{+,\beta,h'}_{\Lambda_{L,M}}$ should be $\langle\sigma((0,0))\rangle^{+,\beta,h'}$ (3 times). Between these two equations, $N \geqslant N_0$ should be $L \geqslant L_0$.

p.76 In equation (4.22), replace $=$ by $\leqslant$.

p.78 In Lemma 4.2.6, replace $\lambda_i \subset A_i$, $i = 1,\dots,n$ by $\lambda_i \subset A_i$, $i = 0,\dots,n$.

p.82 Equation (4.44) should read

$$\langle\sigma(t)\sigma(t')\rangle^J \geqslant \langle\sigma(t)\sigma(t')\rangle^J_\Lambda = \sum_{\lambda:\,\partial\lambda=\{t,t'\}} q_\Lambda(\lambda;J) \geqslant \sum_{\substack{\lambda:\,\partial\lambda=\{t,t'\}\\ \lambda\subset\Lambda}} q(\lambda;J)\,,$$

and the first line of equation (4.45) should be

$$\sum_{\substack{\lambda:\,\partial\lambda=\{t,t'\}\\ \lambda\subset\Lambda}} q_{\Lambda'}(\lambda) = \sum_{\lambda:\,\partial\lambda=\{t,t'\}} q_{\Lambda'}(\lambda) - \sum_{\substack{\lambda:\,\partial\lambda=\{t,t'\}\\ \lambda\not\subset\Lambda}} q_{\Lambda'}(\lambda)$$

p.85, 86 Lemma 4.3.3 contains a lot of typos and a mistake.

1) Typos:

First line of the proof of Lemma 4.3.3: i, j should of course be t, t'.

In equations (4.50) and (4.53), replace $\langle\sigma(0)\rangle^{+,\beta}_\Lambda\langle\sigma(t)\rangle^{+,\beta}_\Lambda$ by $\langle\sigma(t)\rangle^{+,\beta}_\Lambda\langle\sigma(t')\rangle^{+,\beta}_\Lambda$.

In (4.55), replace twice $t' - t$ by t.

2) Correction of the mistake:

First $\mathfrak{c}$ in (4.51) must be interpreted as the $\star$-connected circuit of $+$ on the exterior boundary of the smallest contour surrounding t (which cannot contain t' by construction! Notice that there are no constraints on the system outside this contour). Then one has to rewrite the last line of (4.51) as

$$\leqslant \sum_{\mathfrak{c}\in\mathfrak{C}} P^{+,\beta}_\Lambda[\{\omega(t) = -1\} \mid \mathfrak{c}]\, P^{+,\beta}_{\Lambda''(\mathfrak{c})}[\{\omega(t') = -1\}]\, P^{+,\beta}_\Lambda[\mathfrak{c}] + P^{+,\beta}_\Lambda[\mathcal{Z}]\,.$$

Now FKG implies $P^{+,\beta}_{\Lambda''(\mathfrak{c})}[\{\omega(t') = -1\}] \leqslant P^{+,\beta}_\Lambda[\{\omega(t') = -1\}]$ and therefore

$$\begin{aligned}\sum_{\mathfrak{c}\in\mathfrak{C}} P^{+,\beta}_\Lambda[\{\omega(t) = -1 \mid \mathfrak{c}\}] P^{+,\beta}_{\Lambda''(\mathfrak{c})}[\{\omega(t') = -1\}] P^{+,\beta}_\Lambda[\mathfrak{c}]& \\ \leqslant P^{+,\beta}_\Lambda[\{\omega(t) = -1\} \cap \mathcal{Z}^c]\, P^{+,\beta}_\Lambda[\{\omega(t') = -1\}]& \\ \leqslant P^{+,\beta}_\Lambda[\{\omega(t) = -1\}]\, P^{+,\beta}_\Lambda[\{\omega(t') = -1\}]\,,&\end{aligned}$$

and the conclusion follows as before.

p.88 In equation (4.62), replace $\leqslant \tau^*$ by $= \tau^*$.

p.97 In equation (4.105), remove $\lim_n$.

p.106 In 3. of Proposition 4.6.2., the upper bound is $\|t\|_2^{-\mathcal{O}(K)}$.

p.121 In equation (5.53), $\varepsilon|\Lambda|$ should be ε (twice).

p.137 There is some confusion of notations here... To be written!

p.143 7 lines from the bottom: $2D$ should be $D > 2$.

p.151 In equation (7.26), $m^*(\beta)$ should be $m^*(\beta)\,|\Lambda_L|$.

p.156 In equations (7.46) and (7.47), $1 - \mathcal{O}(L^{-K_1})$ should be $\mathcal{O}(L^{-K_1})$.

p.164 In equation (7.75), $E_1(m; c)$ should be $E_1(C, \nu, c)$.

p.171 In equations (7.112) and (7.113), add a minus sign in the exponent.

p.172 Line 7: Add a minus sign in the exponent.

p.247 In the second footnote, replace $= \exp\{-\tau_\sigma(y-x)\}$ by $\leqslant \exp\{-\tau_\sigma(y-x)\}$.

p.272 In the proof of Lemma B.1.3, only the second part of the claim is proved; the existence of the convex body is proved in Lemma B.1.8.

p.275 In the statement of Lemma B.1.8 and in equation (B.10), replace $\tau_{\mathcal{W}}$ by τ.

p.276 In equations (B.12) and (B.13), replace $\tau_{\mathcal{W}}$ by τ.

p.281 In the second line of the proof, replace "angles" by "corners".

Bibliography The reference [De] is not complete and at the wrong place. It should be
Ben Arous, G. and Deuschel, J.-D., ...
Several references have the same labels [Ca] and [D].
The reference [Al2] appeared of course in Annals of Probability.