CORRECTIONS - Lecture notes on RWRE
Page numbers refer to the published version, Springer Lecture Notes in Mathematics, Volume 1837, pp. 191–312.

1. Page 200, line 6, reverse $<$ to $>$ in first indicator.
2. Page 202, lines 2,3,10,12,13, replace $\rho_{(-i)}$ by ρ_i.
3. Page 206: the right side of equation (2.1.23) should be replaced by
$$\prod_{\ell=1}^{L} \binom{m+k}{k} (\omega_i^0)^{m_\ell} (\omega_i^-)^{k_\ell} \omega_i^+ .$$
Last line, right most E_ω^o should be erased.
4. Page 207, last line, $\overline{\omega}(n)$ should be replaced by $\overline{\omega}(j)$.
5. Page 209, display below (2.1.29), the sum $\sum_{i=2}^{\infty}$ should be multiplied by $1/\omega_1^+$ and the sum $\sum_{i=1}^{\infty}$ should be multiplied by $1/\omega_0^+$.
6. Page 212, line -2 (Remark): As F. Rassoul-Agha pointed out to me, the argument given only shows that
$$P\Big(\Big| P_\omega^o\Big(\frac{X_n - v_P n - Z_n}{\sqrt{n}\sigma_{P,1}} > x \Big) - \Phi(-x) \Big| > \delta \Big) \to_{n\to\infty} 0 ,$$
which gives less than a full-blown quenched CLT; To give a full quenched CLT requires an additional estimate. *Update: Jon Peterson, in his thesis, has completed the details of this argument, by using hitting times. See arXiv:0810.0257v1 [math.PR], and also Ilya Goldsheid's article "Simple transient random walks in one-dimensional random environment: the central limit theorem", Probab. Theory Related Fields 139 (2007), pp. 41–64.*
7. Page 213, section 2.3: A better version of this argument, that avoids some of the coupling arguments and hence gives better conditions, is available at
Dembo, A., Gantert, N., and Zeitouni, O., " Large Deviations for Random Walk in Random Environment with holding times", *Annals Probab.* 32 (2004), pp. 996–1029.
8. Page 219, line 2, replace $\le \delta$ by $< \delta$.
9. Page 228: line 1, write $M_1^{s,\epsilon} = M_1^{s,\epsilon,P}$ and erase in line 5 the sentence "Let .....}."
10. Page 230, last display, last line: add (twice) $h(\eta|P)$.
11. Page 232, display below (2.3.47), last line: replace $\lambda_0(u)$ by $\lambda_0(u,\eta)$.
12. Page 239, line below (2.4.13), replace $\tilde{\tau}_k$ by $\tilde{\tau}_k^{(i)}$.

13. Page 240, (2.4.14) and (2.4.15): (2.4.14) does not follow from the α mixing condition $(D3)$. It does follow if one assumes β mixing instead. Alternatively, (2.4.14) holds true if instead of the last summand in the right hand side one writes $n^2 m_k \alpha(2k)/4 + m_k \mathbb{P}^o(\tilde{\tau}^{(1)} > n^2)/4 =: B(n)$. Using Lemma 2.4.16 and the definition of $\alpha(2k)$, one then replaces (2.4.15) by the estimate $B(n) \leq o(n^{1-s})$.

14. Page 247, (2.4.34), a factor $(1 - v/v_P)^{1/3}$ is missing on the right hand side.

15. Page 250, line 5, it would be clearer to write

$$LHS \leq \frac{1}{1 + \frac{\exp\{(\log n)(W^n(\bar{a}^n_\delta) - W^n(\theta_n))\}}{J(\log n)^2}}$$

where θ_n is the location of the maximum of W^n on $(0, \bar{b}^n_\delta)$, and then continue (using the good event) with the current inequalities; line 9, replace $\omega^+_{a^n_\delta - 1}$ by $\omega^+_{a^n_\delta + 1}$. Line 12, replace $2J^2$ by $2(J \log n)^2$.

16. Page 251, lines 3 and 19, replace $P^{\bar{b}^n}_\omega$ by $P^{b_n}_\omega$. Line 19, last display in proof, replace in right side $(\bar{b}^n + \delta)$ by J.

17. Page 252, equation (2.5.12), replace $B_{-\alpha}$ by B_α (recall $\alpha < 0$!).

18. Page 255, display (2.5.17): replace $\mathcal{Q}(E_{\mathcal{Q}}(\bar{b}(h) = \bar{b}(1)|\Gamma(h))$ by $E_{\mathcal{Q}}(\mathcal{Q}(\bar{b}(h) = \bar{b}(1)|\Gamma(h))$.

19. Page 255, display below (2.5.17): remove $s_-(1) = s_-(t)$ from the conditioning.

20. Page 256, line 4 and (2.5.19), condition on $s_+(1) = s_+(t)$. Line 5, add) at end of line. Line 16, replace $f(z, \omega)$ by $f(z, w)$ and replace $e^{-w-(t-1)}$ by $e^{w-(t-1)}$.

21. Page 258: all of the multi-dimensional chapter 3 actually assumes that $P(\omega(0, 0) > 0) = 0$, that is no holding times. This should have been stated explicitely as part of **(A2)**.

22. Page 262, line -2, erase the words *is omitted*.

23. Page 263, last line, add) after h.

24. Page 264: in lines 5 and 9, P should be replaced by $\overline{\mathbb{P}}^o$ (twice in each line). In line 11, $\mathbb{Q}^p$ should be $\mathbb{Q}^o$. Finally, in line -7, $X_{\tau_k + y}$ should be replaced by $X_{\tau_k} + y$.

25. Page 265, in the left hand of (3.2.8), one should divide by τ_k, not by k.

26. Page 268, line 8, replace $\liminf$ by $\limsup$.

27. Page 270, change the index of summation in both sums in (3.3.7) from i to k, replace X_{i-1} by X_{k-1}, and $\overline{\omega}(i)$ by $\overline{\omega}(k)$.

28. Page 279, line 15, should have $\mathcal{A} := [2\varepsilon, 1-2\varepsilon(d-1)]$. Line 19, $Y_n^{\hat{\alpha}} = X_n \cdot e_1$. Display below (3.3.24), $g_{n+1,\omega}(x+1)$ should be $g_{n-1,\omega}(x+1)$.

29. Page 300, lines 5,6, replace x by x_1 (x_1 is as in (3.5.19)). Line 8, replace inf in the right hand side by sup, and α by $\bar{\alpha}$. In (3.5.20), replace x_0 by x, and in lines -4 and -3, replace i by i_0. It is a good idea to replace X_i by ξ_i in the second half of the page.

30. Page 304, (3.5.25), replace $\tau_2 - \tau_2$ by $\tau_2 - \tau_1$.

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