Errata (September 5, 2013)

p. 42, line 3 ↓

$C_e^*(K) = \cdots = e^{-rT} \int_K^\infty (x-K)\varphi_T^*(x)\,dx$

p. 65, line 1 ↓

... $\varphi_1, \varphi_2 \in \mathbb{R}^{d+1}$...

p. 106, line 5 ↓

... for $|h| > 0$...

p. 115, line 2 ↓

$\psi(L) = \sum_{i=0}^\infty \psi_i L^i$

p. 118, line 4 ↑

.. if $|z_j| > 1$...

p. 148, line 10 ↑

... from time $t-1$ to t ...

p. 154, Definition 4.4.2

... if there is some *self-financing* trading strategy...

p. 156, line 11 ↓

Thus, $1_{\Omega \setminus A_c} \cdot E^*(V_t^*|\mathcal{F}_t) + 1_{A_c} V_{t-1}^*$ is a version of $E(V_t^*|\mathcal{F}_{t-1})$.

p. 158, Theorem 4.4.8

In the proof of Theorem 4.4.8 the definition of $\mathcal{V}$ is not correct (one considers the discounted terminal values but has to allow for self-financing strategies) and it is instructive to add the details of the verification that $\widetilde{Q}$ is an equivalent martingale measure, which are similar to the argument in Theorem 4.3.5. Here are the changes:

Define

$$\mathcal{V} = \left\{ V_0 + \int_0^T \varphi_t'\, dS_t^*, \quad \{\varphi_t\} \text{ predictable}, V_0 \text{ a constant} \right\}$$

In order to verify that S_t^* is a $\mathcal{F}_t$-martingale under $\widetilde{Q}$, it suffices to show that

$$E_{\widetilde{Q}}\left(\int_0^T \varphi_t'\, dS_t^* \right) = 0 \tag{1}$$

for all predictable and bounded $\{\varphi_t\}$. Indeed, this implies that

$$E_{\widetilde{Q}}\left(1_A(S_{t+1,i}^* - S_{t,i}^*)\right) = 0, \qquad A \in \mathcal{F}_t,$$

which is equivalent to $E_{\widetilde{Q}}(S_{t+1,i}^*|\mathcal{F}_t) = S_{t,i}^*$, since the left-hand side equals $\int_0^T \varphi_t'\, dS_t^*$, if we put $\varphi_{uj} = 1_A$ if $u = t$ and $j = i$ and $\varphi_{uj} = 0$ otherwise. To check (1), notice that by definition of $\widetilde{Q}$

$$E_{\widetilde{Q}}\left(\int_0^T \varphi_t'\, dS_t^*\right) = E^*\left(\int_0^T \varphi_t'\, dS_t^*\right) + \frac{1}{\|C_{\mathcal{V}^\perp}\|_\infty} \int C^*_{\mathcal{V}^\perp} \int \varphi_t'\, dS_t^*\, dP^*.$$

The first term vanishes, since φ_t is predictable and S_t^* a martingale under P^*. The second one can is given as $\frac{1}{\|C_{\mathcal{V}^\perp}\|_\infty}(C^*_{\mathcal{V}^\perp}, \int \varphi_t'\, dS_t^*) = 0$, since $\int \varphi_t'\, dS_t^* \in \mathcal{V}$.

p. 159, line 3 ↑

... $E(C^*|\mathcal{F}_t)$...

p. 161, line 8 ↓

The model is arbitrage-free if and only if $\mathcal{P} = \{P^*\}$. Then S_t^* is a martingale under P^* and...

p. 167, line 3 ↓

Replace $\sigma/\sqrt{n}$ by σ.

p. 167, line 9 ↑

Replace $B(1)$ by B_1.

p. 320, line 6 ↑

Replace m^2/T by m^3/T.

p. 322, line 3,5 ↑

Replace $\frac{1}{N}|$ in front of $|\sum ...|$ by $\frac{1}{T}$. The final estimate is $O(m^3/T)$ instead of $O(m^2/T)$.

p. 352, line 9 ↑

Replace dx_t by dx_T.

p. 352, Theorem 9.3.2

The proof is written down for a non-randomized test δ. Replacing (at lines $9, 15$) $P_0(\delta = 1)$ by $E_0(\delta)$ and $P_k(\delta = 1)$ by $E_k(\delta)$ (at line 2) and deleting $= P_k(\delta = 1)$ (at line 11) yields the proof for a randomized test δ.

p. 354, line 10 ↓

Replace $L_1(X_1, \ldots, X_T)$ by $L_0(X_1, \ldots, X_T)$.

p. 360, line 9 ↓

Delete the first $\frac{1}{\sqrt{T}}$ in front of $\widehat{m}_t$.