# Boosting: Foundations and Algorithms <br> by R. E. Schapire \& Y. Freund <br> - errata - 

Last update: June 7, 2012

| page | correction |
| :---: | :---: |
| 82 | theorem 4.6: $\|\mathcal{H}\|$ should be omitted from the second bound, which should instead read: $\operatorname{err}(H) \leq \frac{2 T(\lg (2 e m / T)+d \lg (2 e m / d))+2 \lg (2 / \delta)}{m}$ |
| 265 | exercise 8.5(d): $\mathrm{RE}\left(\mathbf{p}_{0} \\| \mathbf{q}\right)$ should instead be $\mathrm{B}_{G}\left(\mathbf{p}_{0} \\| \mathbf{q}\right)$. |
| 266 | exercise 8.7(a): The first part of the question should instead read, "Use exercise 8.5(d) to prove that..." |
| 407 | exercise 12.2: $\rho(x)$ should instead be redefined to be: $\rho(x) \doteq C(\pi(x), F(x))-C_{\min }(\pi(x)) .$ |
| 410 | exercise 12.5: In parts (a) and (b), all occurrences of $\widehat{\operatorname{risk}(\cdot)}$ should be replaced by $\ln (\widehat{\operatorname{risk}}(\cdot))$. In particular, the displayed equation in part (a) should read: $\ln \left(\widehat{\operatorname{risk}}\left(F_{t-1}+\alpha h\right)\right) \leq \ln \left(\widehat{\operatorname{risk}}\left(F_{t-1}\right)\right)-\alpha \sum_{i=1}^{m} D_{t}(i) y_{i} h\left(x_{i}\right)+\frac{\alpha^{2}}{2} .$ |

And the displayed equation in part (b) should read:

$$
\ln \left(\widehat{\operatorname{risk}}\left(F_{t}\right)\right) \leq \ln \left(\widehat{\operatorname{risk}}\left(F_{t-1}\right)\right)-c_{t} \sum_{i=1}^{m} \sum_{j=1}^{n} w_{j} D_{t}(i) y_{i} \hat{h}_{j}\left(x_{i}\right)+\frac{c_{t}^{2}}{2} .
$$

Finally, the expression appearing in the hint for part (b) should instead read:

$$
\sum_{j=1}^{n}\left|w_{j}\right| \ln \left(\widehat{\operatorname{risk}}\left(F_{t-1}+c_{t} \operatorname{sign}\left(w_{j}\right) \hat{h}_{j}\right)\right) .
$$

| 426 | equation (13.27) should instead read: $G(\mathbf{z})=m \Lambda_{t}(\mathbf{s}+\mathbf{z})$. |
| :--- | :--- |
| 427 | equation (13.34) should include an additional factor of $1 / 2$. |
| 428 | algorithm 13.1: the equation for $w_{t}(s)$ should include an additional factor of $1 / 2$. |
| 450 | equation (13.66), and also the definition of $C_{\bar{T}}$ at the very bottom of the page should both <br> include additional factors of $1 / 2$. |
| 487 | exercise 14.3(c): The very last sentence should read, "Also show that this solution is unique, <br> except possibly when $\tau^{\prime}=1 . "$ |

