Errata - Introduction to Online Convex Optimization

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• found by Zhize Li, section 8.4: Algorithm 25 needs to be initialized by a point of full support, for the relative entropy (and hence regret bound) to be finite. Changed to start with uniform distribution.

• found by Zhize Li, section 7.3.1: The norm of $\|x\|$ should be $\sqrt{k}$ rather than $k$.

• found by Naman Agarwal, lemma 6.2: Replace $\hat{\ell}_t(i_t)$ with $\hat{\ell}_t(x_t)$.

• found by Nikhil Bansal, Section 6.5: In proof of Theorem 6.9, Theorem 5.1 cannot be used directly, since the $\|\|_{\ell}$ norm is not shown to be the $\|\|_{\infty}$ norm. Correction is to use Lemma 5.2 instead, and derive the RFTL bound, using Lemma 6.8 to get the local norm.

• found by Raunak Kumar, Section 5.6: AdaGrad incorporated an additional $\delta I$ inconsistently in $G_t$. We have eliminated the $\delta I$ altogether, using pseudo-inverse for the analysis, and tightened the regret bound.