Additive Errata

Additive Combinatorics mini course - errata by Rani Hod

- In section 2.4:

... subsets into intersections of $ V_i, V_i \setminus S_i, V_j, V_j \setminus T_j$ over all non-regular ... should be ... subsets into intersections of $S_i, V_i \setminus S_i, T_j, V_j \setminus T_j$ over all non-regular ...

- In section 3.1.1, Theorem 3.1.4:

... The best ϵ known ... is 4/3, but it is conjectured ... for $\epsilon = 2 - o(1)$. should be ... The best ϵ known ... is 1/3, but it is conjectured ... for $\epsilon = 1 - o(1)$.

- In section 3.1.2:

... a condition that $\mathbb{F}$ contains on subfields. should be ... a condition that $\mathbb{F}$ contains no subfields.

- In section 3.1.2, Theorem 3.1.5:

... and it is known that ϵ cannot be larger than 3/2. should be ... and it is known that ϵ cannot be larger than 1/2.

- In section 3.2.1, definition of I:

$$ I = \{ ... such that point p lies on line l \} $$ should be $$ I = \{ ... such that point p lies on line l \} $$

- In section 3.2.2:

... but the same procedure may be plied to the other three ... should be ... but the same procedure may be applied to the other three ...

- In section 3.2.2, just after Theorem 3.2.7:

This is essentially Theorem 3.2.1; maybe it's better to prove the more general case in section 3.2.1. Also, maybe refrain from using p to denote both the field characteristic and a member of P.

- In section 3.2.3, Definition 3.2.8:

ω is not defined. I reckon it is the (complex) $|G|$-th root of unity.

- In section 3.2.5, Definition 3.2.14:

$$ || f(x) - U_m ||_1 \le \epsilon$$ is an (S, ϵ)-disperser. should be $$ || f(X) - U_m ||_1 \le \epsilon$$ is an (S, ϵ)-extractor.

- In section 3.2.5, last paragraph before "A Statistical Version of ...":

... Before the sum-product theorem, Erdos (using the ... should be ... Before the sum-product theorem, Erd\"{o}s (using the ...

- In section 3.2.5, just before Definition 3.2.18:

... for $k = \delta n$ and $c = \textrm{poly}(1/\delta)$ Note that ... should be ... for $k = \delta n$ and $c = \textrm{poly}(1/\delta)$. Note that ...

- In section 3.2.5, Definition 3.2.18:

$$ \exists c > 0 : ... $$ is c dependent on X? on ϵ? should f_c be a family of functions defined for many values of c?

- In section 3.3, proof of Lemma 3.3.2:

... It is left to prove the claim: assume otherwise, ie that $\delta' < \frac 1k$. should be ... It is left to prove the claim: assume otherwise, that is, $\delta' < \frac 1k$. ("ie that" appears once more just after Theorem 3.3.6.)

- In section 3.3, proof of Lemma 3.3.2:

... such that each s_j satisfies $s_j \not\in s_0 A' + s_1 A' + \ldots s_{j-1} A'$. should be ... such that each s_j satisfies $s_j \not\in s_0 A' + s_1 A' + \cdots + s_{j-1} A'$. (The same expression appears two more times throughout the proof.)

- In section 3.3, Theorem 3.3.6:

$||A + A||^{-1} < |A|^{1+\epsilon}$ should be (?) $|A + A|^{-1} < |A|^{1+\epsilon}$

- In section 3.3, after Theorem 3.3.6:

(i) Lemma 1 and Lemma 2 should be \ref{}s to Lemma 3.3.2 and 3.3.3, respectively. (ii) The contrapositive assumptions $|A+A| \le |A|^{1+\epsilon}$ and $|A\times A| \le |A|^{1+\epsilon}$ should be strict $|A+A| < |A|^{1+\epsilon}$ and $|A\times A| < |A|^{1+\epsilon}$ (iii) The last sentence in the bracketed proof is missing end punctuation.
