Errata: Hausdorff étale groupoids and their C^*-algebras

Thanks to the great efforts of many very helpful people including Becky Armstrong, Kevin Aguyar Brix, Valentin Deaconu and Alex Mundey, many typos and thinkos were removed from this manuscript before publication.

Errata:

(1) page 76, line -2 (final two sentences of the proof of Lemma 8.4.11): $\alpha_i^{-1}\gamma$ should be $\alpha_i^{-1}\gamma_i$ (three instances).

(2) page 81, lines 18–19 (the first two lines of the second paragraph of the proof of Lemma 9.2.4): the assertion that the inductive-limit topology is weaker than the I-norm topology is false—the reverse is true [2, Proposition II.1.4]. For second-countable locally compact Hausdorff spaces X, the inductive limit topology is characterised by convergence of sequences, and a sequence (f_n) in $C_c(X)$ converges to x if the supports of the f_n are eventually contained in some fixed compact set K and $f_n \to f$ uniformly on K. So (as pointed out to me by Lisa Orloff Clark and Joel Zimmerman—thanks both), the sequence $\frac{1}{n}\delta_n$ of multiples of point masses converge in ℓ^1 to 0 but do not converge in the inductive-limit topology on $C_c(\mathbb{N})$. However, the statement of the Lemma is correct (see [2, Corollary II.1.22]); unfortunately, to my knowledge, existing proofs all require the Disintegration Theorem [2, Theorem II.1.21].

(3) page 101, line 12: It is not true that $hbh \leq b$, even for h a diagonal projection in $M_2(\mathbb{C})$ and an appropriate choice of b. For the correct argument that it suffices to find an infinite projection p and a partial isometry w such that $w^*pw \leq h\Phi(b)h$, see the final seven lines of the proof of [1, Proposition 2.4]

(4) page 103, line -3: The cocycle in the involution formula is missing a conjugate. It should read

$$f^*(\gamma) = \overline{\sigma(\gamma, \gamma^{-1})}\;\overline{f(\gamma^{-1})}.$$

(5) page 104, Definition 11.1.1: the definition of a twist should include the requirement that the homeomorphism $x \mapsto \pi(i(x, 1))$ of $\mathcal{G}^{(0)}$ should be trivial. That is,

$$\pi(i((x, 1))) = x \qquad \text{for all } x \in \mathcal{G}^{(0)}.$$

To put it yet another way, the identification of $\mathcal{G}^{(0)}$ with $\mathcal{E}^{(0)}$ determined by $x \leftrightarrow i((x, 1))$ and the identification of $\mathcal{E}^{(0)}$ with $\mathcal{G}^{(0)}$ determined by $y \leftrightarrow \pi(y)$ should be one and the same.

(6) page 104, Example 11.1.5: On line 4 of this example, the formula for $(\alpha, w)^{-1}$ is incorrect—the α in the first coordinate should be an α^{-1}; so the formula should read

$$(\alpha, w)^{-1} = (\alpha^{-1}, \overline{\sigma(\alpha^{-1}, \alpha)w})$$

(7) page 105, line 1: at the beginning of the line, the formula $\sigma(S(\alpha)S(\beta)S(\alpha\beta)^{-1}) = r(\alpha) \in \mathcal{G}^{(0)}$ should read

$$\pi(S(\alpha)S(\beta)S(\alpha\beta)^{-1}) = r(\alpha) \in \mathcal{G}^{(0)}.$$

(8) page 105, line 11: The formula $S(\alpha)S(\beta)S(\alpha\beta)^{-1} = i(s(\alpha), \sigma(\alpha, \beta))$ should read

$$S(\alpha)S(\beta)S(\alpha\beta)^{-1} = i(r(\alpha), \sigma(\alpha, \beta)).$$

(9) page 105, line $-6, -5$ (just above equation 11.1): $\epsilon \in \mathcal{G}$ should be $\epsilon \in \mathcal{E}$, and $\pi|_{\mathcal{G}^{r(\epsilon)}}$ should be $\pi|_{\mathcal{E}^{r(\epsilon)}}$

References

[1] C. Anantharaman-Delaroche, *Purely infinite C^*-algebras arising from dynamical systems*, *Bull. S. M. F.* **125** (1997), 199–225.

[2] J. Renault, A groupoid approach to C^*-algebras, Springer, Berlin, 1980, ii+160.