CORRECTIONS FOR "THE LARGE SIEVE AND ITS APPLICATIONS" CAMBRIDGE TRACTS IN MATHEMATICS 175

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[1] Chapter 2, Sections 2 and 3 : For an alternate argument to derive Proposition 2.3, starting from the "dual" large sieve inequality (Lemma 2.8), see the short note `http://www.math.ethz.ch/~kowalski/dual-large-sieve.pdf` or the following remark that can be inserted (up to the fact that it changes the numbering of equations, etc) as Remark 2.16 in the book: `http://www.math.ethz.ch/~kowalski/remark-2.16.pdf`

[2] P. 118, proof of part (2) of Theorem 7.4 : There is a slight confusion during the proof of the formula

$$\langle (\pi\otimes\bar{\pi})(g)(e\otimes e'), f\otimes f'\rangle == \frac{\langle e,e'\rangle\langle f,f'\rangle}{\dim\pi} + \langle [\pi,\pi]_0(g)(e\otimes e'), f\otimes f'\rangle. \tag{1}$$

on line -5 of p. 118, although the formula itself is correct (and hence the theorem also). Precisely, the orthogonal projection from $\mathrm{End}(V_\pi)$ to the invariant subspace $\mathbf{C}\mathrm{Id}$ of scalar matrices is given by

$$T\mapsto \frac{\mathrm{Tr}(T)}{\dim\pi}\quad \text{instead of}\quad T\mapsto\frac{T}{\sqrt{\dim\pi}}\ ;$$

it is true, however, that a normalized generator of the invariant subspace is the scalar matrix $I_0 = (\dim\pi)^{-1/2}$, so the projection can also be expressed as

$$T\mapsto \frac{T}{\sqrt{\dim\pi}}I_0.$$

This leads to

$$\langle (\pi\otimes\bar{\pi})(g)(e\otimes e'), f\otimes f'\rangle = \frac{\langle e,e'\rangle\langle f,f'\rangle}{(\dim\pi)^2}\|\mathrm{Id}\|^2 + \langle [\pi,\pi]_0(g)(e\otimes e'), f\otimes f'\rangle$$

which in turns gives (1), since $\|\mathrm{Id}\|^2 = \dim\pi$.

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