

**CORRECTIONS FOR “THE LARGE SIEVE AND ITS APPLICATIONS”  
CAMBRIDGE TRACTS IN MATHEMATICS 175**

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<sup>[1]</sup>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>

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

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

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

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

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

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

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

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