Corrections to Chapters 1-3 of
“An Introduction to the Langlands program”

• p. 27, line 15: replace “expansion of \( \Lambda(\chi, s) \) in the Weierstrass” by “expansion of \( \Lambda(\chi, s) \) in Weierstrass”

• p. 30, line 21: replace “Soudararajan” by “Soundararajan”.

• p. 30, footnote 6: insert “(first solved by Linnik)” after “the Titchmarsh divisor problem”.

• p. 31, line 3: replace \( \zeta(\rho) = 0 \) by \( L(\chi, \rho) = 0 \) in the summation condition.

• p. 33, line 12: add “and on \( \xi_\infty \)” after “depending only on \( \varepsilon \).”

• p. 34, line 18: add “and on \( \xi_\infty \)” after “depending only on \( \varepsilon \).”

• p. 50, line 14: replace “translates to \( \lambda \in [0, 1[ \) ” by “translates to \( s \in ]0, 1[ \) ”.

• p. 60, line -4: replace “we denote by \( \lambda_f(n) \)” its Hecke-eigenvalues” by “we denote by \( \lambda(n) \) its Hecke-eigenvalues”.

• p. 58, line 4: the formula (5.2) should read

\[
= \prod_p \left( 1 - (1 + \chi_4(p))p^{-s} + \chi_4(p)p^{-2s} \right)^{-1}.
\]

• p. 62, line 17: replace “There is a unique orthonormal basis...” by “There is a unique orthogonal basis...”

• p. 65–66, Prop. 6.2 and its proof: the statement of Prop. 6.2 is in fact valid, but the proof only works as stated for \( k = \ell \) and for \( L(f \otimes \bar{g}, s) \) where \( f \) and \( g \in S_k(1) \). The point is that the two functions \( z \mapsto y^{k/2}f(z) \) and \( z \mapsto y^{\ell/2}g(z) \) are not in fact \( SL(2, \mathbb{Z}) \)-invariant, but \( z \mapsto y^k f(z) \overline{g(z)} \) is, for \( f \) and \( g \) of weight \( k \). In particular in Prop. 6.2, one must state the result for \( L(f \otimes \bar{g}, s) \) which is entire unless \( f = g \), with residue as stated. If \( f \) and \( g \) have different weights, one must use a different Eisenstein series. See also the chapters by Cogdell which sketch the representation-theoretic approach to Rankin-Selberg convolutions.

• p. 66, line -6: replace “Since \( E(z, s) \) at a simple pole” by “Since \( E(z, s) \) has a simple pole”.

• p. 67, remark 6.4: the formula for \( a_f(p^k) \) and \( a_g(p^k) \) should be replaced by

\[
a_f(p^k) = \frac{\alpha_1^{k+1} - \alpha_2^{k+1}}{\alpha_1 - \alpha_2}, \quad \text{and} \quad a_g(p^k) = \frac{\beta_1^{k+1} - \beta_2^{k+1}}{\beta_1 - \beta_2}.
\]

• p. 69, lines 3-4: Replace from “It is conjectured...” to the end of the sentence by “It is conjectured that all primitive Maass forms with eigenvalue \( \lambda = 1/4 \) are similarly algebraic (arising from even Artin representations of \( \text{Gal}(\overline{\mathbb{Q}}/\mathbb{Q}) \) into \( GL(2, \mathbb{C}) \); those which dihedral image in \( PGL(2, \mathbb{C}) \) should correspond to real quadratic fields as above.)”