A list of corrections and remarks for *Automorphic Forms and Even Unimodular Lattices*, by G. Chenevier & J. Lannes. We thank Hiraku Atobe (H.A. below) for his many remarks. Last update : 11/03/2020.

(1) Preface, p. viii l. -3.

Contrary to what stated in this cultural paragraph, the group $\mathrm{PGL}_2(\mathbb{R})$ obviously has *two* 1-dimensional unitary representations, namely the trivial representation 1 and an order 2 character χ, defined as the sign of the determinant. The equality $\chi(\mathrm{PGL}_2(\mathbb{Z})) = \{\pm 1\}$ shows $\mathcal{A}_\chi(\mathrm{PGL}_2) = 0$.

(2) (H.A.) p. 111. l.-4.

Replace $\mathrm{R}(G)$ by $\mathrm{H}(G)$.

(3) (H.A.) Proof of Lemma 5.4.2, p. 131.

The fourth line of the proof should be the first. Also, the last line should rather be "From this, we deduce the lemma."

(4) (H.A.) p. 132, l.-15.

Replace $\mathrm{M}_{(n/2)+d}(\mathrm{O}_n)$ by $\mathrm{M}_{(n/2)+d}(\mathrm{Sp}_{2g}(\mathbb{Z}))$.

(5) p. 149, l.-4.

Replace $\varepsilon_0^* + \sum_{i=1}^r \varepsilon_i^*$ by $2\varepsilon_0^* + \sum_{i=1}^r \varepsilon_i^*$.

(6) (H.A.) p. 151, end of third paragraph.

Replace "the space of invariants $V^{\mathrm{B}(k)}$ is of dimension 1 and that the action of T in this space" by "the group $\mathrm{B}(k)$ has a unique stable line in V and that the action of T on this line".

(7) (H.A.) p. 157, 3 lines before Scholium 6.2.9.

Replace d_r by $\max(m_r, m_0 - m_r)$, or equivalently, by $d_r + m_0$.

(8) (H.A.) p. 159, 3 lines after Remark 6.2.12.

Replace $r(r+1)$ by $r(r-1)$ in the formula for ρ for GSO_L.

(9) (H.A.) p. 160, l.3.

In the formula for ρ for GSp_{2g} replace ε_i^* by ε_i.

(10) (H.A.) p. 171, formula for the degree 3 polynomial.

The constant term is -1, not 1.

(11) (H.A.) p. 179, Formula (7.1.1).

The $n/2 - g + 1$ in the product should rather be $n/2 - g - 1$.

(12) Paragraph after Corollary 7.3.5, p. 187. We are grateful to Ricardo Salvati Manni for pointing out the two references mentioned below.

Contrary to what is asserted, it had already been noticed before that $\vartheta_g(\mathbb{C}[\mathrm{X}_n])$ is not always equal to $\mathrm{M}_{n/2}(\mathrm{Sp}_{2g}(\mathbb{Z}))$, by W. Kohnen and R. Salvati Manni in their paper *Linear relations between theta series*, Osaka J. Math. vol. 41 number 2, 353–356 (2004). Their argument is close to the one given here : they observe that for $g \geq k$ and $g+k \equiv 0 \bmod 8$, the genus g Ikeda lift of a Hecke eigenform F in $\mathrm{S}_k(\mathrm{SL}_2(\mathbb{Z}))$, which is a Hecke eigenform in $\mathrm{S}_{\frac{k+g}{2}}(\mathrm{Sp}_{2g}(\mathbb{Z}))$, is never in $\vartheta_g(\mathbb{C}[\mathrm{X}_{g+k}])$ for $g > k$ (resp. for $g = k$ when $\mathrm{L}(k/2, F) \neq 0$).[1] This shows for instance

$$\vartheta_{20}(\mathbb{C}[\mathrm{X}_{32}]) \subsetneq \mathrm{S}_{16}(\mathrm{Sp}_{40}(\mathbb{Z}))$$

for $k = 12$ and $g = 20$. The example we give in Corollary 7.3.5, based on Theorem 7.3.2, is of a similar flavour, except that in this theorem we rather study the Ikeda lift in the case $g \leq k$.

(13) (H.A.) p. 188, l.3..

Replace "Theorem 5.2" by "Theorem 5.2.2".

(14) (H.A.) p. 196, cases I, II and III..

Replace "$\inf_V$" by "Inf_V" in case I. Also, replace $\mathrm{Irr}(\widehat{G})$ by $\mathrm{Irr}(G_{\mathbb{C}})$ in each case.

(15) (H.A.) p. 196, statement of Proposition 8.2.10..

Replace the letter r by the letter k in the definition of ψ.

(16) Proof of Proposition 8.2.13, p. 198 l. -4 .

Read $|\mathrm{Re}\, s| < 1$ instead of $|\mathrm{Re}\, s| < 1/2$.

(17) Remark 8.2.14, p. 199 l. 4.

Again we can only say $|\mathrm{Re}\, s_i| < 1$ rather than $|\mathrm{Re}\, s_i| < 1/2$. The proof of the claim has to be replaced by the following argument. As π_∞ is unitary, its Langlands parameter $\mathrm{L}(\pi_\infty)$ is hermitian : we have $\mathrm{L}(\pi_\infty) \simeq \overline{\mathrm{L}(\pi_\infty)^\vee}$. Fix some i. We claim $s_i \in \mathbb{Z}$. As r_i is hermitian, there are two cases: either we have $r_i \otimes |\eta|^{s_i/2} \simeq r_i \otimes |\eta|^{-s_i/2}$, or there is $j \neq i$ with $r_i \otimes |\eta|^{s_i/2} \simeq r_j \otimes |\eta|^{-s_j/2}$. In the first case, taking the determinant shows $s_i = 0$, and we are done. In the second case, we must have $r_i \simeq r_j$ and $s_i = -s_j$. Assume $w/2$ is a weight of r_i (hence of r_j), so $w \in \mathbb{Z}$. Then $(w+s_i)/2$ and $(w+s_j)/2$ are weights

[1] As explained by Schultze-Pillot in *Local theta correspondence and the liftings of Duke, Immamoglu and Ikeda*, Osaka J. Math. vol 45 number 4, 965–971 (2008), there is a simple local reason for that in the case $g > k$ (following here from the work of Rallis [169]). This is not the case anymore for $g \leq k$.

of π_∞. By assumption, their difference $(s_i - s_j)/2 = s_i$ is in $\mathbb{Z}$. We have proved $s_i \in \mathbb{Z}$ for each i. As the weights of π are of the form $(w_i + s_i)/2$ with $w_i \in \mathbb{Z}$, this proves $\mathrm{Weights}(\pi) \subset \frac{1}{2}\mathbb{Z}$.

(18) (H.A.) p. 199, 2 lines before Corollary 8.2.15.

Replace $\mathrm{Irr}(\widehat{G})$ by $\mathrm{Irr}(G_{\mathbb{C}})$.

(19) p. 238, l.-10, Remark 8.5.9.

Contrary to what is claimed, *a combination of these ideas* does not seem to be enough to imply the asserted criterion (not used anywhere in the book) for the existence of a π in $\Pi_{\mathrm{disc}}(\mathrm{SO}_n)$ with multiplicity greater than 1. However, this criterion is correct, and a complete argument will be given elsewhere. We are grateful to H. Atobe for drawing our attention to this point.

(20) (H.A.) p. 302 & 303, proof of Theorem 9.5.9, Case $k = 11$.

In the case $g = 6$ we missed a third possibility for ψ in this discussion, namely $\psi = \Delta_{19}[2] \oplus \Delta_{15}[2] \oplus \Delta_{11}[2] \oplus [1]$. Nevertheless, if this case occurs then the standard L-function of the eigenform F clearly does not vanish at $s = 2 = 16/2 - 6$. By Böcherer's criterion, F is thus in the image of the map

$$\vartheta_{3,6} : \mathrm{M}_{\mathrm{H}_{3,6}(\mathbb{R}^{16})}(\mathrm{O}_{16}) \longrightarrow \mathrm{S}_{11}(\mathrm{Sp}_{12}(\mathbb{Z})).$$

But the left-hand side is 0 by Corollary 9.5.13 (ii).