Errata in *Class Field Theory*

Jungin Lee

Page 22, Last Line : [$\cdots$ tamely ramified if and only if it has conductor 0] should be [$\cdots$ tamely ramified if and only if it has conductor 0 or 1]. (Since unramified extensions are tamely ramified, it should contain conductor 0 case.)

Page 52, Example A.5(b) : Change $0 \le a_i < p-1$ to $0 \le a_i \le p-1$, $\xi_{p^r}^u = \xi_{p^r}^{a_0+a_1p+\cdots a_sp^s}$ to $\xi_{p^r}^u = \xi_{p^r}^{a_0+a_1p+\cdots+a_sp^s}$ and $s > r$ to $s \ge r-1$.

Page 62, boundary map of homogeneous r-cochains : [$\cdots$ induced by d_r] should be [$\cdots$ induced by d_{r+1}].

Page 97, Line 4 : Change $v = \lim_{m\to\infty} \prod_{j=1}^m v_j$ to $v = \lim_{m\to\infty} \prod_{j=0}^m v_j$.

Page 99, Proof of proposition 1.8 : Change $\sigma_L \mid K = \sigma_K^f$ to $\sigma_L \mid K^{un} = \sigma_K^f$.

Page 100, Line 7 : [$\cdots \sigma^i \mapsto \frac{i}{m}$ where $0 \le i < m-1$] should be [$\cdots \sigma^i \mapsto \frac{i}{n}$ where $0 \le i \le n-1$].

Page 100, Line -3 : Change $NL^\times$ to $Nm(L^\times)$.

Page 104, The fundamental class : L should be a finite Galois extension of K in the definition of fundamental class and lemma 2.7.

Page 111, Line 1 : Change $\overline{K}^\times$ to $K^{al\times}$.

Page 112, Proof of proposition 4.1 : Change $\mathbb{Q}$ to $\mathbb{Q}_p$ and $(a,b)=0$ to $(a,b)=1$.

Page 113, Remark 4.8 : Change 5.4 below to V 5.4.

Page 125, Line 3 : Change $c \in k$ to $c \in k \setminus \{0\}$.

Page 152, After theorem 2.4 : Change $\log \frac{1}{1-s}$ to $\log \frac{1}{s-1}$ two times. Also [$\cdots$ prime ideals in T] should be [$\cdots$ prime ideals in K].

Page 165, Line -6 : [$1+\widehat{\mathfrak{p}}_v \supset 1+\widehat{\mathfrak{p}}_v^2 \supset 1+\widehat{\mathfrak{p}}^3 \supset \cdots$] should be [$1+\widehat{\mathfrak{p}}_v \supset 1+\widehat{\mathfrak{p}}_v^2 \supset 1+\widehat{\mathfrak{p}}_v^3 \supset \cdots$].

Page 174, norm group : The norm group in $\mathbf{C}_K$ should be defined by a subgroup of $\mathbf{C}_K$ of the form $Nm_{L/K}(\mathbf{C}_L)$ for some finite abelian extension L/K. (The definition in the book is not compatible with Chapter VII.9.)

Page 203 : Change II 1.3 to I 1.3.

Page 212, Line 6-10 : [$\cdots$ finite set T' of primes of L] should be [$\cdots$ finite set T' of primes of M]. [$\cdots$ basis for $Gal(M/K)$] should be [$\cdots$ basis for $Gal(M/L)$]. Change $(\mathfrak{p}_w, M/L) = (\mathfrak{p}_{w_K}, M/K)$ to $(\mathfrak{p}_w, M/L) = (\mathfrak{p}_w, M/K)$.

Page 216, Line -7 : Change $(\mathbb{Z}/l^r\mathbb{Z}) \approx \begin{cases} \Delta \times C(l^{r-2}) & l\, odd \\ \Delta \times C(2^{r-3}) & l = 2 \end{cases}$ to $(\mathbb{Z}/l^r\mathbb{Z})^\times \approx \begin{cases} \Delta \times C(l^{r-1}) & l\, odd \\ \Delta \times C(2^{r-2}) & l = 2 \end{cases}$.

Page 218 : Change $\mathbb{I}'_K$ in the diagram to $\mathbb{I}_{K'}$. [$\cdots$ carries $K^\times$ into $\mathbb{Q}^\times$] should be [$\cdots$ carries $K'^\times$ into $K^\times$]. Change (5.10) to (V 5.10).

Page 222, Proof of lemma 9.4 : Change Lemma 8.6 to Lemma 9.1.

Page 222, Proof of theorem 9.5 : Change $Nm_{K'/K}\mathbb{I}_{K'} = U_1$ to $Nm_{K'/K}\mathbf{C}_{K'} = U_1$.

Page 237, Line 4 : [According to , $\cdots$] should be [According to the reciprocity law $\cdots$].

Page 241, 5.3 : Change $\zeta(\mathfrak{p})(a^{\frac{1}{n}}) \equiv x^{\frac{\mathbb{N}\mathfrak{p}}{n}}\ \ mod\ \mathfrak{p}$ to $\zeta(\mathfrak{p})(a^{\frac{1}{n}}) \equiv a^{\frac{\mathbb{N}\mathfrak{p}}{n}}\ \ mod\ \mathfrak{p}$.

Page 243, Theorem 5.11 : Change $\left(\frac{c}{b}\right) = \prod_{v\in S}(c,b)_v$ to $\left(\frac{c}{b}\right) = \prod_{v\in S}(b,c)_v$.

Page 246, Proof of theorem 5.14 : Change $Tr - \dfrac{y\pi}{x+y}$ to $Tr - \dfrac{y}{x+y}$.

Page 279, Index : Change Dirchlet character to Dirichlet character.

Page 70, Exact sequence : (not an erratum) $H^3(G/H, M^H)$ can be added to the six-term exact sequence. (This result can be found in [1], p.257).

References

[1] C. H. Sah, Cohomology of split group extensions, J. Algebra. 29 (1974) 255–302.