A CORRECTION

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Professor C. L. Siegel has pointed out that the statement following equation (9) on page 98 of [**1**] is false, but can be made correct by adding to the conditions (7) of [**1**] the further condition:

(7′) *If* a_i, $\mathfrak{q}_j$ *are not relatively prime, then* $b_i^t \equiv 1 \pmod{\mathfrak{q}_j}$.

As with the other conditions in (7), this is satisfied provided t is a multiple of a fixed positive integer. So the proof still goes through.

In order to show that, under conditions (7) and (7′), the determinant in (9) is divisible, mod $\mathfrak{q}_j$, by

$$(\Pi_{1 \leqslant g < h \leqslant p}\, d_{gh})\, (\Pi_{p+1 \leqslant g < h \leqslant m}\, d_{gh}),$$

we proceed as follows:

Multiply the first p rows of N by $a_1^{-(t-1)}, \ldots, a_p^{-(t-1)}$, respectively. Multiply the remaining $m-p$ rows by $b_{p+1}^{-(t-1)}, \ldots, b_m^{-(t-1)}$ respectively. Since $a_1, \ldots, a_p, b_{p+1}, \ldots, b_m$ are units mod $\mathfrak{q}_j$, the determinant is, to within a unit factor, congruent to:

$$\det \begin{bmatrix} \left(\dfrac{b_1}{a_1}\right)^k, & \ldots, & \left(\dfrac{b_1}{a_1}\right)^l, & 0 \\ \vdots & & \vdots & \vdots \\ \left(\dfrac{b_p}{a_p}\right)^k, & \ldots, & \left(\dfrac{b_p}{a_p}\right)^l, & 0 \\ & & & \\ \left(\dfrac{a_{p+1}}{b_{p+1}}\right)^{t-1-k}, & \ldots, & \left(\dfrac{a_{p+1}}{b_{p+1}}\right)^{t-1-l}, & 1 \\ \vdots & & \vdots & \vdots \\ \left(\dfrac{a_m}{b_m}\right)^{t-1-k}, & \ldots, & \left(\dfrac{a_m}{b_m}\right)^{t-1-l}, & 1 \end{bmatrix} = \det \begin{bmatrix} A, 0 \\ B \end{bmatrix},$$

where A is a $p \times m-1$ submatrix, and B a $(m-p) \times m$ submatrix. This determinant is a linear combination of terms of the form $\det N_1 . \det N_2$, where N_1 is a $p \times p$ minor of A and N_2 a $(p-m) \times (p-m)$ minor of B. However, both N_1 and N_2 are generalized Vandermonde determinants. So $\det N_1$ is divisible by

$$\Pi_{1 \leqslant g < h \leqslant p} \left(\frac{b_g}{a_g} - \frac{b_h}{a_h}\right),$$

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which is a unit times $\prod_{1 \leqslant g < h \leqslant p} d_{gh}$, while $\det N_2$ is divisible by

$$\prod_{p+1 \leqslant g < h \leqslant m} \left(\frac{a_g}{b_g} - \frac{a_h}{b_h} \right),$$

which is a unit times $\prod_{p+1 \leqslant g < h \leqslant m} d_{gh}$. Since each term is divisible, mod $\mathfrak{q}_j$, by the required product, so is the whole determinant of N.

Reference

1. E. C. Dade, " Algebraic integral representations by arbitrary forms ", *Mathematika*, 10 (1964), 96–100.

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