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Corrections to the paper "On values of a polynomial at arithmetic progressions with equal products"

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N. Saradha (Mumbai), T. N. Shorey (Mumbai) and
R. Tijdeman (Leiden)

We wish to make the following changes and corrections in the above paper.

From lines 24–26 on page 70, we delete the definition of $K = \mathbb{Q}(\beta_1, \ldots, \beta_\mu)$, the assumption that $\sigma_1, \ldots, \sigma_\mu$ are all the automorphisms of K and the notation that $\sigma_q(\beta) = \beta^{(q)}$ for $\beta \in K$ and $1 \le q \le \mu$.

We replace K by $\mathbb{Q}(\beta_1, \ldots, \beta_\mu)$ on page 71, line 8. We replace lines 11–19 (and part of line 20 to the period) on page 72 by the following:

"We prove that every element of S has μ distinct conjugates. Let $1 \le i \le s$ be given. We observe that

$$(*)\qquad [\mathbb{Q}(t_{i,j}) : \mathbb{Q}] = [\mathbb{Q}(u_{i,j'}) : \mathbb{Q}] = \mu \quad \text{for } 1 \le j \le l \text{ and } 1 \le j' \le m.$$

Hence $[\mathbb{Q}(t_{i,j}) : \mathbb{Q}(v_i)] = \mu/[\mathbb{Q}(v_i) : \mathbb{Q}]$ for $1 \le j \le l$. On the other hand, we see from (10) that for any $1 \le j \le l$, $t_{i,j}$ satisfies the polynomial equation $F(X) - v_i = 0$ over $\mathbb{Q}(v_i)$ where the degree of F is l. Hence $[\mathbb{Q}(t_{i,j}) : \mathbb{Q}(v_i)]$ divides l. Thus $\frac{\mu}{[\mathbb{Q}(v_i):\mathbb{Q}]} \mid l$. Similarly we derive from (11) that $\frac{\mu}{[\mathbb{Q}(v_i):\mathbb{Q}]} \mid m$. Since $\gcd(l, m) = 1$, we get

$$(**)\qquad [\mathbb{Q}(v_i) : \mathbb{Q}] = \mu.$$

Hence every element of S has μ distinct conjugates."

We delete "By subtracting (10) ..., we derive that" from lines 26–27 of page 72.

Finally, we explain the proof of (12). Let $1 \le i \le k$ be given. By subtracting (10) with $X = x$ from (11) with $Y = y$ and using (8) we have

$$(x - t_{i,1}) \ldots (x - t_{i,l}) = (y - u_{i,1}) \ldots (y - u_{i,m}).$$

From (10), (11), $(*)$ and $(**)$ we observe that $\mathbb{Q}(v_i) = \mathbb{Q}(t_{i,j}) = \mathbb{Q}(u_{i,j'})$ for $1 \le j \le l$ and $1 \le j' \le m$. Thus taking the norm over $\mathbb{Q}(v_i)$ of the above equation we derive (12).

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School of Mathematics
Tata Institute of Fundamental Research
Homi Bhabha Road
Mumbai 400005, India
E-mail: saradha@math.tifr.res.in
shorey@math.tifr.res.in

Mathematical Institute
Leiden University
P.O. Box 9512
2300 RA Leiden, The Netherlands
E-mail: tijdeman@wi.leidenuniv.nl

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