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CORRIGENDUM

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In the corollary on page 783 of [1] there is a missing 2 in line -9. The statement of the corollary, as it stands, is not correct.

It should say the following.

Under the conditions of Lemma 3, *if M is a normal* **Z**-*ring then* $M[x_1, x_2, x_3, x_4]$ *is also normal.*

Note. This is a harmless requirement, since the aim of this corollary is to get the remark on page 785. Namely, *every normal model of IO can be extended to a normal model of IO satisfying Lagrange's theorem.*

This remains true because when we build up a normal model of IO + Lagrange's theorem extending a normal model of IO we can always get a **Z**-ring at even stages, say, of the construction (see the proof of Lemma 1).

Also, the remark on page 785 is true because the **Z**-ring containing $M[x_1, x_2, x_3, x_4]$ is normal.

A correct proof of the corollary, under the assumption that M is a **Z**-ring, is as follows.

Follow the published proof to get $2a_1(x)$ and $2a_2(x)$ in $M'[x]$. Then we have

$$u = \frac{s_1(x, w, z)}{2} + \frac{s_2(x, w, z)}{2}\sqrt{f} \in B'$$

with $s_i(x, w, z) = 2a_i(x, w, z) \in M[x, w, z]$ for $i = 1, 2$.

We must prove that

$$\frac{s_i(x, w, z)}{2} \in M[x, w, z] \quad \text{for } i = 1, 2. \tag{1}$$

Suppose this is not the case. Then, using the same reasoning as in the published proof, we get that neither of them is in $M[x, w, z]$. Since M is a **Z**-ring, we can express them as follows:

$$s_i(x, w, z) = \sum_{(k) \in I_i} x^{k_1} w^{k_2} z^{k_3} + 2h_i(x, w, z)$$

with $I_i \neq \varnothing$ for $i = 1, 2$. Since $uv \in M[x, w, z]$,

$$s_1^2(x, w, z) - s_2^2(x, w, z) f \in 4M[x, w, z].$$

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Then $r(x, w, z) \in 4M[x, w, z]$, with

$$r(x, w, z) = \left(\sum_{(k) \in I_1} x^{k_1} w^{k_2} z^{k_3}\right)^2 + \left(\sum_{(k) \in I_2} x^{k_1} w^{k_2} z^{k_3}\right)^2 (x^2 + w^2 + z^2 - a).$$

Let $x^m w^n z^l$ be the greatest term in I_2 for the lexicographic order. Then the greatest term in $r(x, w, z)$ is either $2x^{2m+2} w^{2n} z^{2l}$ or $x^{2m+2} w^{2n} z^{2l}$, depending on whether $(m + 1, n, l) \in I_1$ or not. In both cases this largest term is not in $4M[x, w, z]$. This contradiction proves (1).

REFERENCE

[1] M. Otero, *On Diophantine equations solvable in models of open induction*, this Journal, vol. 55 (1990), pp. 779–786.

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