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ERRATUM TO:

CRYSTALLINE DIEUDONNÉ MODULE THEORY VIA FORMAL AND RIGID GEOMETRY

by A. J. de JONG

Lemma 7.1.13.1 of [1] is wrong. This was pointed out to the author by Brian Conrad. The only place where Lemma 7.1.13.1 is used in the article is in the construction of the maps β_n (7.1.13.2). We give a correct construction of β_n (for A such that π is not a zero divisor).

Let c be an integer such that

$$\pi A \cap I^n \subset \pi I^{n-c}$$

for all $n \geqslant c$. The existence of c is the Artin-Rees lemma. Then for any integer $t \in \mathbf{N}$ we have

$$\pi^t A \cap (\pi^{t-1} I^n + \pi^{t-2} I^{2n} + \ldots + I^{tn}) \subset \pi^t I^{n-c}.$$

Next, we come to the definition of β_n. Let $n \geqslant c$. Any $a \in A[I^n/\pi]$ can be written in the form

$$a = a_0 + a_1/\pi + \ldots + a_t/\pi^t, \quad a_i \in I^{in}$$

for some $t \in \mathbf{N}$. We simply put $\beta_n(a) = a_0 \bmod I^{n-c}$. To show that β_n is well defined, suppose that $a_0 + a_1/\pi + \ldots + a_t/\pi^t$ ($a_i \in I^{in}$) represents zero in $A[I^n/\pi]$. This means that $\pi^t a_0 + \pi^{t-1} a_1 + \ldots + a_t = 0$, as A has no π-torsion. Thus

$$\pi^t a_0 \in \pi^{t-1} I^n + \pi^{t-2} I^{2n} + \ldots + I^{tn}$$

and by the above it follows that $a_0 \in I^{n-c}$. Hence

$$\beta_n(a_0 + a_1/\pi + \ldots + a_t/\pi^t) = a_0 \bmod I^{n-c} = 0$$

as desired.

[1] A. J. de Jong, Crystalline Dieudonné module theory via formal and rigid geometry, *Publ. math. IHES*, **82**, 5-96 (1995).

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