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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  $\beta_n$  (7.1.13.2). We give a correct construction of  $\beta_n$  (for  $A$  such that  $\pi$  is not a zero divisor).

Let  $c$  be an integer such that

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

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

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

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

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

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

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

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

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

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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