Errata for "Auslander-Buchweitz Approximations of Equivariant Modules"

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An up-to-date version of this errata is available at author's web page `http://www.math.nagoya-u.ac.jp/~hasimoto`. It would be highly appreciated if you could write to the author to the e-mail address `hasimoto@math.nagoya-u.ac.jp` to point out errors or giving comments that would be useful for other readers. Thank you in advance for your help.

`^` (resp. `_`) denotes the line number counted from the top (resp. bottom) of the page. For example, `123_2` means the line before the last of page 123. Parentheses `(?)` surround necessary insertion, while brackets `[?]` surround deletion. The rightarrow ⇒ is used for replacement.

- `7^12` has an image ⇒ has a kernel.
- `12_{16--15}` Written proofs are available now, see [1] and [2].
- `28^6` any direct summands ⇒ any nonzero direct summands.
- `28^7` if $M_0 \in \mathcal{A}$, ⇒ if $M_0 \in \mathcal{A}$ is nonzero,.
- `40^1` We only prove **a** ⇒ We only prove the assertion for the case where **a** is assumed.
- `46_{11--9}` For a finitely generated R-module M, we have... ⇒ this assertion is true if $\dim M < \infty$ but not in general.
- `57^{12--13}` This definition is unusual. The usual definition of a Gorenstein module over a local ring is, a (finitely generated) maximal

Cohen–Macaulay module of finite injective dimension (see [4, (3.6)]). A Gorenstein module over a non-local ring is a finitely generated module which is Gorenstein locally.

- `90_{14--12}` However, if R is a... $\Rightarrow$ Omit this sentence.
- `93^{10--11}` The author knows the answer only for the case that M is R-projective. The question is also true for the case that R is Noetherian and V is R-finite.
- `98^{14--15}` the *dual Hopf algebra* $\Rightarrow$ the *dual bialgebra* (if H is a Hopf algebra, then $U = H^\circ$ is a Hopf algebra, and is called the dual Hopf algebra of H).
- `pp.120--121` In Theorem I.4.10.22, the correspondence **d**$\Rightarrow$ **a** should have been explained. To $(\mathcal{X}, \mathcal{Y}, \omega)$, we associate ω. This gives the correspondence.
- `124^5` Moreover, ${}_{G,A}\mathbb{M}$ has... $\Rightarrow$ Omit this sentence. The corresponding part in the proof is wrong. Indeed, $\mathrm{Hom}_R(A, R)$ is not A-injective in general.
- `139^17` U should have been assumed to be non-empty here.
- `141_4` The proof of Remark 2.1.12 is false, and is valid only for affine G. Nevertheless, the assertion of the remark is true [3, (31.14)].
- `153_11` so is $M \Rightarrow$ so is M_P.
- `226_3` $V^{(1)} \Rightarrow \bar{V}^{(1)}$.
- `252^3` local version $\Rightarrow$ graded version.
- `254^10` The i in $\bigwedge^i V$ should be replaced by something else, because it is not the same i in F_i.
- `257^3` $\mathbf{Z} := \mathcal{R} \otimes W^* \Rightarrow \mathbf{Z} := \mathcal{Q}^* \otimes W^*$.
- `257^5` The exact sequence should be:

$$0 \to \mathbf{Z} \xrightarrow{i} \mathbf{X} \times \mathbf{G} \to \mathcal{R}^* \otimes W^* \to 0.$$

References

[1] L. Alonso Tarrío, A. Jeremías López, and M. J. Souto Salorio, Localization in categories of complexes and unbounded resolutions, *Canad. J. Math.* **52** (2000), 225–247.

[2] J. Franke, On the Brown representability theorem for triangulated categories, *Topology* **40** (2001), 667–680.

[3] M. Hashimoto, *Equivariant Twisted Inverses*, "Foundations of Grothendieck Duality for Diagrams of Schemes" (J. Lipman, M. Hashimoto), Lecture Notes in Math., Springer, to appear.

[4] R. Y. Sharp, Gorenstein modules, *Math. Z.* **115** (1970), 117–139.