ERRATUM TO: ALGEBRAS THAT SATISFY AUSLANDER'S CONDITION ON VANISHING OF COHOMOLOGY

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ABSTRACT. Andrew Soto Levins alerted us that our proof of [1, Theorem 4.4] is flawed. We fix the statement so that it is justified by the published proof.

Nasseh, Sather-Wagstaff, Takahashi, and VandeBogert [2, Theorem 3.3] show that the (AC) property is not preserved under localization. To be specific, they showcase a commutative noetherian local ring R and a prime ideal $\mathfrak{p} \subset R$ such that R satisfies (UAC) but $R_{\mathfrak{p}}$ does not even satisfy (AC). The reduction to the local case applied in lines 4–5 of the pubished proof of [1, Theorem 4.4] is hence invalid. This is most easily remedied by adding a local assumption to the statement:

Theorem. *Let A be a two-sided noetherian ring that satisfies* (AC), *and assume that A has a dualizing complex or is commutative and local. For every A-complex M with bounded and degreewise finitely generated homology there is an equality:*

$$\operatorname{G-dim}_A M = -\inf \mathbf{R}\mathrm{Hom}_A(M, A).$$

In lines 4–5 of the published proof the sentence "This can be verified ... we may assume that A is local" is now redundant, and the proof justifies the theorem stated above.

References

[1] Lars Winther Christensen and Henrik Holm, *Algebras that satisfy Auslander's condition on vanishing of cohomology*, Math. Z. **265** (2010), no. 1, 21–40. MR2606948

[2] Saeed Nasseh, Sean Sather-Wagstaff, Ryo Takahashi, and Keller VandeBogert, *Applications and homological properties of local rings with decomposable maximal ideals*, J. Pure Appl. Algebra **223** (2019), no. 3, 1272–1287. MR3862678

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