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Erratum to: "Uniform K-stability and asymptotics of energy functionals in Kähler geometry". (English) Zbl 1483.53087

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Summary: The goal of this note is to indicate a gap in the proof of Theorem 5.6 of the authors' paper [ibid. 21, No. 9, 2905–2944 (2019; Zbl 1478.53115)], and the consequences it has on other results in the same paper. Let us stress that the main result (Theorem A), which expresses the slopes at infinity of functionals in algebro-geometric terms, is independent of the flawed result, and thus remains valid.

MSC:

53C55 Global differential geometry of Hermitian and Kählerian manifolds
14L24 Geometric invariant theory
32P05 Non-Archimedean analysis
32Q20 Kähler-Einstein manifolds
32Q26 Notions of stability for complex manifolds

Keywords:

K-stability; Kähler geometry; canonical metrics; non-Archimedean geometry

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References:

[1] Theorem 1.1. Let G be a complex reductive group with a linear action on a finite dimen-sional complex vector space U . If the .Zariski/ closure of the G-orbit of a point x 2 P .U / meets a G-invariant Zariski closed subset Z P .U /, then some z 2 Z \ G x can be reached by a 1-parameter subgroup W C ! G, i.e. lim t !0 .t / x D z.

[2] Set X WD P .U /, K WD C..t // and R WD COEOEt . As in [2], our approach was based on the Iwasawa decomposition theorem, which states that each double coset in G.K/ modulo G.R/ is represented by a 1-PS of G (viewed as an element of G.K/). By properness of X, each 2 X.K/ has a reduction Q 2 X.C/, to be interpreted as lim t!0 .t /. The problem with the proof of [1, Theorem 5.6] is the claim that for any 1-PS of G and 2 X.K/, the reduction of only depends on Q . This claim is indeed incorrect, as shown by the following simple counterexample, kindly provided to us by Yan Li.

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