Erratum for "Fano Threefolds with 2-Torus Action"

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Abstract. The list of Fano threefolds given in Theorem 1.1 wrongly contained an element of the family 3.8.

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The statement of Theorem 1.1 contained the wrong claim that there exists a smooth element of the family 3.8 of Fano threefolds which admits a 2-torus action. In the proof of Theorem 1.1 it has been overlooked that the corresponding element is in fact not smooth. This also becomes clear by comparison with the classification of Fano threefolds with infinite automorphism group in [CPS18]. Hence, the Fano threefold 3.8 should not appear in the list of Theorem 1.1 and its combinatorial data should not appear in the list given in Section 5 of the paper. Below we state the corrected version of our main theorem.

Theorem 1.1. *The Fano threefolds Q, 2.24[1], 2.29–2.32, 3.10[1], 3.18–3.24, 4.4, 4.5, 4.7 and 4.8 from Mori's and Mukai's classification admit a 2-torus action. The moment polytopes together with their Duistermaat-Heckman measures are given in Section 5. The Cox rings, Futaki characters $F(X)$ as well as the existence of a Kähler-Einstein metric can be found in the following table.*

[1] Only one variety of the family is known to admit a 2-torus action

No.	*Cox ring*	*F(X)*	*Kähler-Einstein*
Q	$k[\underline{T}]/(T_1T_2+T_3T_4+T_5^2)$	0	*yes*
2.24^1	$k[\underline{T}]/(T_1T_2^2+T_3T_4^2+T_5T_6^2)$	0	*yes*
2.29	$k[\underline{T}]/(T_1T_2^2T_3+T_4T_5+T_6^2)$	0	*?*
2.30	$k[\underline{T},S_1]/(T_1T_2+T_3T_4+T_5^2)$	$\binom{0}{-2}$	*no*
2.31	$k[\underline{T}]/(T_1T_2+T_3T_4+T_5T_6^2)$	$\binom{-4/3}{-4/3}$	*no*
2.32	$k[\underline{T}]/(T_1T_2+T_3T_4+T_5T_6)$	0	*yes*
3.10^1	$k[\underline{T}]/(T_1T_2^2T_3+T_4T_5^2T_6+T_7^2)$	0	*yes*
3.18	$k[\underline{T},S_1]/(T_1T_2^2T_3+T_4T_5+T_6^2)$	$\binom{0}{-7/8}$	*no*
3.19	$k[\underline{T},S_1,S_2]/(T_1T_2+T_3T_4+T_5^2)$	0	*?*
3.20	$k[\underline{T}]/(T_1T_2+T_3T_4+T_5T_6^2T_7)$	0	*?*
3.21	$k[\underline{T},S_1]/(T_1T_2^2+T_3T_4^2+T_5T_6)$	$\binom{7/8}{7/8}$	*no*
3.22	$k[\underline{T},S_1,S_2]/(T_1T_2+T_3T_4+T_5^2)$	$\binom{0}{-2/3}$	*no*
3.23	$k[\underline{T},S_1]/(T_1T_2+T_3T_4+T_5T_6^2)$	$\binom{-13/12}{-53/24}$	*no*
3.24	$k[\underline{T},S_1]/(T_1T_2+T_3T_4+T_5T_6)$	$\binom{-2/3}{-4/3}$	*no*
4.4	$k[\underline{T},S_1,S_2]/(T_1T_2^2T_3+T_4T_5+T_6^2)$	0	*?*
4.5	$k[\underline{T},S_1,S_2]/(T_1T_2^2+T_3T_4^2+T_5T_6)$	$\binom{5/24}{5/24}$	*no*
4.7	$k[\underline{T},S_1,S_2]/(T_1T_2+T_3T_4+T_5T_6)$	0	*?*
4.8	$k[\underline{T},S_1,S_2]/(T_1T_2+T_3T_4+T_5T_6)$	$\binom{0}{-13/12}$	*no*

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REFERENCES

[CPS18] I. Cheltsov, V. Przyjalkowski, and C. Shramov. Fano threefolds with infinite automorphism groups, preprint 2018, arXiv 1809.09223

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