ERRATA:
RINGS OF LOW RANK WITH A STANDARD INVOLUTION

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This note gives errata for the article *Rings of low rank with a standard involution* [2].

(1) Proof of Lemma 1.3: it is assumed in the second paragraph that B is locally free of constant rank, so no parenthetical appeal to the connectedness of R is required.

(2) Lemma 2.9: in the second sentence, Lemma 1.3 does not immediately imply that there is a basis $1, x$ for S: it only says that $S \simeq R \oplus S/R$. This is not needed, however: S/R is itself locally free, so locally we still choose a generator for this summand. (It is, in fact, true that a free quadratic R-algebra has a basis including 1 [3, Lemma 3.2].)

Also, it is simpler to work directly with the affine cover of localization at distinguished opens, rather mixing localization at primes and at elements.

(3) Corollary 3.2: In the second case where $2 = 0$, we have

$$R[x_1, \ldots, x_n]/(x_1^2 - a_1, x_2^2 - a_2, \ldots, x_n^2 - a_n)$$

with $a_1, \ldots, a_n \in R$—this is what was proved in Proposition 3.1.

(4) The equations (4.1) are necessary if (C) is associative, but not sufficient. For a complete treatment, see Levin [1]. The necessary conditions still together with what is given imply the multiplication laws (NC), which are then visibly associative.

(5) Proposition 4.10: One needs to take *isomorphism classes* of flags.

References

[1] Alex S. E. Levin, *On the classification of algebras*, 2013, arXiv:1312.6612.

[2] John Voight, *Rings of low rank with a standard involution*, Illinois J. Math. **55** (2011), no. 3, 1135–1154.

[3] John Voight, *Discriminants and the monoid of quadratic rings*, arXiv:1504.05228, 13 January 2016.

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