Errata for "The non-orientable 4-genus for knots with 8 or 9 crossings"

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57M25; 57M27

The original version of this article incorrectly claimed that the nonorienable 4-genus of the knot 8_{21} is 1, while its correct value is 2. This mistake resulted from a typographical error in one of the references that the authors relied on. The correct statement of the Theorem 1.1 from the original article is:

Theorem 1.1 *The values of γ_4 for the 21 knots with crossing number 8, are given as follows.*

$\gamma_4(K) = 1$ *for* $K = 8_3,\ 8_4,\ 8_5,\ 8_6,\ 8_7,\ 8_8,\ 8_9,\ 8_{10},\ 8_{11},\ 8_{14},\ 8_{16},\ 8_{19},\ 8_{20}.$

$\gamma_4(K) = 2$ *for* $K = 8_1,\ 8_2,\ 8_{12},\ 8_{13},\ 8_{15},\ 8_{17},\ 8_{21}.$

$\gamma_4(K) = 3$ *for* $K = 8_{18}.$

To compute $\gamma_4(8_{21})$ one can use Corollary 3 from [1]. Let K be a knot with $\det K = n$ and with n a product of primes all with odd exponent. Suppose that $H_1(M(K);\mathbb{Z}) \cong \mathbb{Z}_n$ where $M(K)$ is the 2-fold cover of S^3 branched along K. Then by the aforementioned corollary, if K bounds a Möbius band in the 4-ball, the linking form

$$\ell k : H_1(M(K);\mathbb{Z}) \times H_1(M(K);\mathbb{Z}) \to \mathbb{Q}/\mathbb{Z}$$

has the property that $\ell k(x,x) = \pm 1/n$ for some generator $x \in H_1(M(K);\mathbb{Z})$.

For $K = 8_{21}$ the linking form $\ell k : \mathbb{Z}_{15} \times \mathbb{Z}_{15} \to \mathbb{Q}/\mathbb{Z}$ is, up to isomorphism, given by multiplication by $13/15$. It is easy to check that $\pm 1/15$ does not occur as an output value of $\ell k(x,x)$ for any generator $x \in \mathbb{Z}_{15}$, proving that $2 \leq \gamma_4(8_{21})$. To see that $\gamma_4(8_{21}) \leq 2$ it suffices to exhibit a nonorientable band move that changes $K = 8_{21}$ into a knot K' with $\gamma_4(K') = 1$. This is accomplished in Figure 1 with $K' = 5_2$.

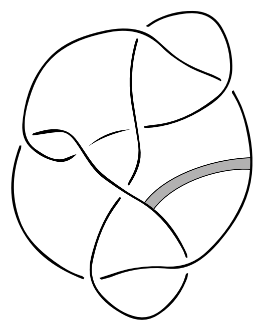

Figure 1: The knot 8_{21} yields the knot 5_2 via the indicated nonorientable band move.

References

[1] P. Gilmer and C. Livingston, *The nonorientable 4-genus of knots*, J. Lond. Math. Soc. (2) **84** (2011), no. 3, 559–577.

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