Erratum to the article A simply connected surface of general type with $p_g = 0$ and $K^2 = 3$

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We give a different configuration constructed from a rational elliptic surface to correct an example from [1].

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In Section 6 of the authors' paper [1], we presented another example of a simply connected surface of general type with $p_g = 0$ and $K^2 = 3$ constructed from a rational elliptic surface with singular fibers $I_5 + I_5 + I_1 + I_1$ via $\mathbb{Q}$–Gorenstein smoothings in Figure 8. However the canonical divisor of the example is shown to be not nef: Let e be the -1–curve connecting the -3–curve and the -2–curves on the left side of Figure 8(d). Then $f^*K_X \cdot e = 25/39 + 1/3 - 1 = -1/39 < 0$. Therefore we cannot apply the same technique in Section 5. Hence the configuration in Figure 8 cannot be a model for a surface of general type.

Here we present a different configuration constructed from a rational elliptic surface with the same type of singular fibers $I_5 + I_5 + I_1 + I_1$, which produces a simply connected surface of general type with $p_g = 0$ and $K^2 = 3$. See Figure 1.

References

[1] **H Park**, **J Park**, **D Shin**, *A simply connected surface of general type with $p_g = 0$ and $K^2 = 3$*, Geom. Topol. 13 (2009) 743–767 MR2469529

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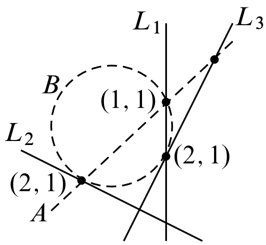
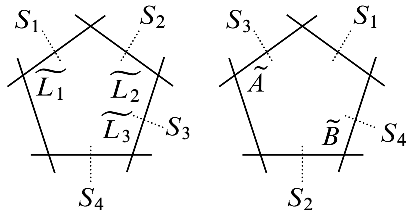
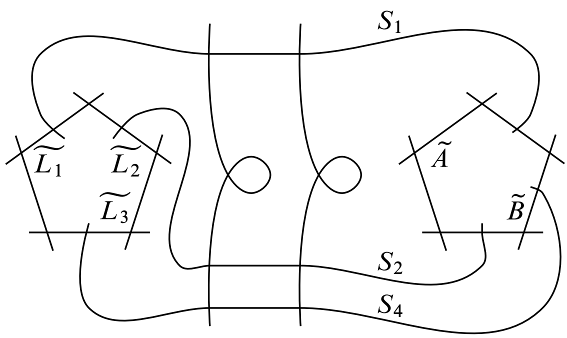


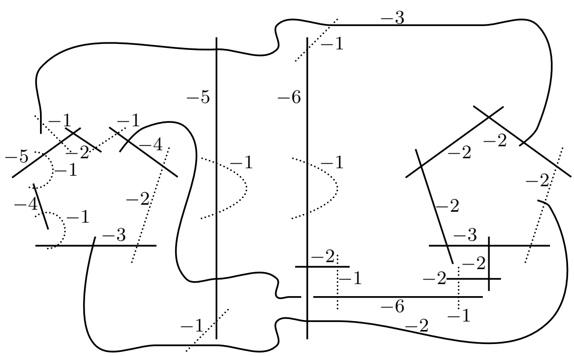
(a) The pencil of cubics.
$L_1 + L_2 + L_3$: three lines
$A + B$: line + conic



(b) Configuration of sections



(c) $E(1)$



(d) $Z = E(1) \sharp 14\overline{\mathbb{P}^2}$. $C_{2,1} : (-4)$. $C_{3,1} : (-5,-2)$.
$C_{7,4} : (-2,-6,-2,-3)$.
$C_{65,17} : (-4,-6,-5,-3,-2,-2,-2,-3,-2,-2)$.

Figure 1: $I_5 + I_5 + 2I_1$