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CORRECTION TO "CANONICAL DIVISORS AND THE ADDITIVITY OF THE KODAIRA DIMENSION FOR MORPHISMS OF RELATIVE DIMENSION ONE"*

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Trying to make the application of duality theory as easy as possible, I made a silly mistake in Corollary 5.3, claiming, that the singularities of V', W' and V_s are Gorenstein. However (as the participants of the Conference on Algebraic Geometry in Avignon pointed out to me) it is only true, that they are Cohen–Macaulay and that some power of the canonical sheaves are invertible. This is easily shown for every quotient singularity and since π_s is a flat Gorenstein morphism, for V_s too. You have to argue slightly differently to prove:

$$K(\omega_{V_s/W'}, V_s) \leqq K(\omega_{V/W}, V). \tag{6.7}$$

Using the notation of 6.7 and the arguments used in 6.5, we get an isomorphism $f_*\omega_{V'} \cong \omega_{V_s}$ and hence a morphism $f^*\omega_{V_s} \to \omega_{V'}$. We can apply 6.1 iii) to h_1, h, g and to the flat morphism π_s. Choose $r \in \mathbb{N}$, such that the r-th power of every canonical sheaf is invertible. The trace map of h_2 gives a morphism $h_{2*}\omega_{V'/V} \to \omega_{V_1/V}$ and therefore $h_2^*(h_{2*}\omega_{V'/V})^{\otimes r} \to h_2^*\omega_{V_1/V}^{\otimes r}$. Using the exact sequence

$$0 \to \epsilon \to h_2^*(h_{2*}\omega_{V'/V})^{\otimes r} \to \omega_{V'/V}^{\otimes r} \to 0$$

we get an injection $\omega_{V'/V}^{\otimes r} \to h_2^*\omega_{V_1/V}^{\otimes r}$ (everything is isomorphic on an open set!). Putting both parts together we have $f^*\omega_{V_s}^{\otimes r} \hookrightarrow \omega_{V'}^{\otimes r} \hookrightarrow h^*\omega_V^{\otimes r} \otimes \pi_s^*\omega_{W'/W}^{\otimes r}$.

If we tensor both sides with $(\pi'^*\omega_{W'}^{\otimes r})^{-1}$ we obtain the injection $f^*\omega_{V_s/W'}^{\otimes r} \hookrightarrow h^*\omega_{V/W}^{\otimes r}$.

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