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Behnke, Kurt (D-HAMB); **Kahn, Constantin** (D-MPI);
Riemenschneider, Oswald (D-HAMB)
Infinitesimal deformations of quotient surface singularities.
Singularities (Warsaw, 1985), 31–66, *Banach Center Publ.*, 20, *PWN*, *Warsaw*, 1988.

The authors consider ways to compute, for a quotient surface singularity $X = \mathbf{C}^2/G$, the space T^1 of first-order infinitesimal deformations. In case G is cyclic or dihedral, "standard" methods, using invariant theory of G on $\mathbf{C}^2$, give explicit bases; here, T^1 is the kernel of the G-invariant part of a map of $\mathrm{GL}(2, \mathbf{C})$-modules. This method is too cumbersome for the other groups, even for the binary polyhedral subgroups (in $\mathrm{SL}(2, \mathbf{C})$), though a simple answer exists in this last case because X is a hypersurface singularity. Following a suggestion of H. Knörrer, the dual $(T^1)^*$ is easier to study; it splits naturally into two parts. In working out the invariant theory, one part involves the Jacobian determinants of pairs of invariant polynomials, much as in a paper by the reviewer [Duke Math. J. **55** (1987), no. 4, 843–871; MR0916123]. Complete results are here described for all the exceptional groups. Finally, the splitting result is generalized to $(T^1)^*$ for other quasihomogeneous surface singularities (including all rational ones); one part has dimension equal to the minimal number of generators for the dualizing module.

{For the collection containing this paper see MR1101826}

Jonathan M. Wahl