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Sei l der zu $\bar{l} = (y + g, z)$ gehörige Substitutionshomomorphismus. Dann ist $l \in L$ und

$$\begin{aligned} (l^{-1}p\varphi)(y) &= l^{-1}((y + g(z))e(y, z)) \\ &= (y - g(z) + g(z))(e(y - g(z), z)) = ye(y - g(z), z). \end{aligned}$$

Damit ist $l^{-1}p\varphi = u \in U$ und $\varphi = p^{-1}lu$, also $G = PLU$. Durch Inversion folgt daraus $G = ULP$.

Sei nun $p \in P$ so, daß $(\varphi^{-1}p)_1$ y -allgemein der Ordnung 1 ist. Wie zuvor finden wir dann ein l so, daß $l^{-1}\varphi^{-1}p = u \in U$. Dann ist $\varphi^{-1} = lup^{-1}$ und damit $\varphi = pu^{-1}l^{-1}$, also $G = PUL$. \square

BIBLIOGRAPHIE

- [Ab1] ABHYANKAR, S. Desingularization of plane curves. In: *Summer Institute on Algebraic Geometry. Arcata 1981. Proc. Symp. Pure Appl. Math.* 40. Amer. Math. Soc.
- [Ab2] ——— Algebraic Geometry for Scientists and Engineers. *Math. Surveys and Monographs* 35. Amer. Math. Soc., 1990.
- [Ab3] ——— Local uniformization on algebraic surfaces over ground fields of characteristic $p \neq 0$. *Ann. of Math.* (2) 63 (1956), 491–526.
- [AHV1] AROCA, J. M., H. HIRONAKA and J. L. VICENTE. The theory of the maximal contact. *Memorias Mat. Inst. Jorge Juan Madrid* 29 (1975).
- [AHV2] AROCA, J. M., H. HIRONAKA and J. L. VICENTE. Desingularization theorems. *Memorias Mat. Inst. Jorge Juan Madrid* 30 (1975).
- [AM] ATIYAH, M. F. and I. G. MACDONALD. *Introduction to Commutative Algebra*. Addison-Wesley, Reading, Mass., 1969.
- [BM] BIERSTONE, E. and P. MILMAN. Canonical desingularization in characteristic zero by blowing up the maximum strata of a local invariant. *Invent. Math.* 128 (1997), 207–302.
- [BL] BONDIL, R. and D. T. LÊ. Résolution des singularités de surfaces par éclatements normalisés (multiplicité, multiplicité polaire, et singularités minimales). In: *Trends in Singularities*. Birkhäuser, 2002.
- [BK] BRIESKORN, E. und H. KNÖRRER. *Ebene algebraische Kurven*. Birkhäuser, 1981. English translation: *Plane Algebraic Curves*. Birkhäuser, 1986.
- [Cp] CAMPILLO, A. Algebroid curves in positive characteristic. *Lecture Notes in Math.* 813. Springer-Verlag, 1980.
- [Cs] CASAS, E. *Singularities of Plane Curves*. Cambridge Univ. Press, 2000.
- [Du] DULAC, H. Sur les intégrales passant par un point singulier d'une équation différentielle. *Bull. Soc. Math. France* 36 (1908), 216–224.

- [EH] ENCINAS, S. and H. HAUSER. Strong resolution of singularities in characteristic zero. *Comment. Math. Helv.* 77 (2002), 421–445.
- [EV] ENCINAS, S. and O. VILLAMAYOR. Good points and constructive resolution of singularities. *Acta Math.* 181 (1998), 109–158.
- [Fu] FULTON, W. *Algebraic Curves*. Benjamin, 1969.
- [GT] GOLDIN, R. and B. TEISSIER. Resolving singularities of plane analytic branches with one toric morphism. In: *Resolution of Singularities, Progress in Math.* 181. Birkhäuser, 2000.
- [Hs] HARTSHORNE, R. *Algebraic Geometry*. Springer-Verlag, 1977.
- [Ha1] HAUSER, H. Resolution of singularities 1860–1999. In: *Resolution of Singularities, Progress in Math.* 181. Birkhäuser, 2000.
- [Ha2] — The Hironaka Theorem on resolution of singularities (Or: A proof that we always wanted to understand). *Bull. Amer. Math. Soc.* 40 (2003), 323–403.
- [Ha3] — Excellent surfaces and their taut resolution. In: *Resolution of Singularities, Progress in Math.* 181. Birkhäuser, 2000.
- [Ha4] — Seventeen obstacles for resolution of singularities. In: *Singularities, The Brieskorn Anniversary Volume, Progress in Math.* 162. Birkhäuser, 1998.
- [Ha5] — Why Hironaka’s proof of resolution of singularities fails in positive characteristic. *Preprint*.
- [Ha6] — Three power series techniques. *Proc. London Math. Soc.* 89 (2004), 1–24.
- [Hi] HIRONAKA, H. Resolution of singularities of an algebraic variety over a field of characteristic zero. *Ann. of Math.* (2) 79 (1964), 109–326.
- [La] LANG, S. *Algebra. Revised third edition*. Graduate Texts in Mathematics, 211. Springer-Verlag, New York, 2002.
- [Lp] LIPMAN, J. Introduction to resolution of singularities. *Proceedings Symp. Pure Appl. Math.* 29, 187–230. Amer. Math. Soc., 1975.
- [Mu] MUMFORD, D. The Red Book of Varieties and Schemes. *Lecture Notes in Math.* 1358. Springer-Verlag, 1988.
- [Ok] OKA, M. Geometry of plane curves via toroidal resolution. In: *Algebraic Geometry and Singularities, Progress in Math.* 134. Birkhäuser, 1996.
- [Or] ORBANZ, U. Embedded resolution of algebraic surfaces after Abhyankar (characteristic 0). In: *Resolution of Surface Singularities. Lecture Notes in Math.* 1101. Springer-Verlag, 1984.
- [Ru] RUIZ, J. M. *The Basic Theory of Power Series*. Vieweg & Sohn, Braunschweig, 1993.
- [SS] SCHEJA, G. und U. STORCH. *Lehrbuch der Algebra, Teil 2*. B. G. Teubner, Stuttgart, 1988.
- [Sg] SEGRE, B. Sullo scioglimento delle singolarità delle varietà algebriche. *Ann. Mat. Pura Appl.* 33 (1952), 5–48.
- [Sh] SHAFAREVICH, I. R. *Basic Algebraic Geometry 1 and 2, second edition*. Springer-Verlag, Berlin Heidelberg New York, 1994.

- [Vi1] VILLAMAYOR, O. Constructiveness of Hironaka's resolution. *Ann. Sci. École Norm. Sup. (4)* 22 (1989), 1–32.
- [Vi2] ——— Patching local uniformizations. *Ann. Sci. École Norm. Sup. (4)* 25 (1992), 629–677.
- [Za] ZARISKI, O. *Algebraic Surfaces*. Ergebnisse der Mathematik 61, 2nd edition. Springer-Verlag, 1971.
- [ZS] ZARISKI, O. and P. SAMUEL. *Commutative Algebra, vol. I, II*. Van Nostrand, 1958, 1960. Reprints: Graduate Texts in Mathematics 28, 29. Springer-Verlag, 1975.

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