Recognition of $\Delta l K$-Singularities of Functions

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Abstract

We describe a computer program, based on Maple, that decides whether or not a polynomial function has a simple or unimodal singularity at the origin, and determines the $\Delta l K$-class of this singularity. The program applies the splitting lemma to the function, in an attempt to reduce the number of variables. Then, in the more interesting cases, linear coordinate changes reduce the 3-jet of the function (or the 4-jet if necessary) to a standard form, and auxiliary procedures complete the classification by looking at higher-order terms. In particular, the reduction procedure classifies cubic curves in $\P^2$.