of V is denoted V^*. A point $p \in V - V^*$ is called a singular point of V; the singular locus $V - V^*$ of V is denoted V_s. V is called smooth or non-singular if $V = V^*$, i.e., if V is a submanifold of M.

In particular, if p is a point of an analytic hypersurface $V \subset M$ given (in terms of local coordinates z) by the function f, we define the multiplicity $\mathrm{mult}_p(V)$ to be the order of vanishing of f at p, that is, the greatest integer m s.t all partial derivatives

$$\frac{\partial^k f}{\partial z_{i_1} \cdots \partial z_{i_k}}(p) = 0 \ , \quad k \le m-1 .$$

We should mention here a piece of terminology that is pervasive in algebraic geometry: the word generic. When we are dealing with a family of objects parametrized locally by a complex manifold or an analytic subvariety of a complex manifold, the statement that "a (or the) generic member of the family has a certain property" means exactly that "the set of objects in the family that do not have the property is contained in a subvariety of strictly smaller dimension".

In general, it will be clear how the objects in our family are to be parametrized. One excep