INVARIANTS ASSOCIATED WITH SINGULARITIES OF ALGEBRAIC CURVES.

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1. **Introduction.** Each singularity of an algebraic curve f, with the exception of distinct nodes, cusps, bitangents and stationary tangents, is associated with two distinct sets of invariants.[1] One set, in which the number of invariants is denoted by I_p, consists of the invariants among the coefficients of the equation in point coordinates of the curve f; the other set, in which the number is I_l, consists of the invariants among the coefficients in the line equation of f. The existence of both sets of invariants is necessary and sufficient for f to possess the designated singularity. Both I_p and I_l are independent of the order and class of f. The value of I_l for any given singularity is the same as the value of I_p for the reciprocal of this singularity.

An algebraic singularity, therefore, uniquely determines the two numbers I_p and I_l defined above. In this paper, the values of both I_p and I_l are found for a general algebraic singularity considered as defined by its constituent multiple points and their manner of combination. The chief problem is to find the value of I_l for a singularity so defined, that is, to determine the number of invariants among the coefficients of the equation of f in point coordinates associated with a general line singularity.

It has been proved by Lefschetz[2] that each node of f accounts for one invariant and his *Postulate of Singularities* states that a cusp of f always accounts

[1] The term »invariant» is used in this paper to mean an independent function of the coefficients of the equation of f whose vanishing is necessary in order that f possess a certain singularity.

[2] S. Lefschetz, On the existence of loci with given singularities, Transactions of the American Mathematical Society, Vol. 14 (1913), pp. 23—41.