Imbedding of an abstract variety in a complete variety

By

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The purpose of the present paper is to prove that an arbitrary abstract variety can be imbedded in a complete variety as an open set.

As for the terminology, we shall employ the one in the sequence of papers of ours in the American Journal of Mathematics ([2] (I, II, III)). We note that we need not assume that a ground ring is a Dedekind domain. Namely, our proof is valid without any modification in the case of models over a Noetherian integral domain, models being adapted to the case. Therefore the ground ring can be replaced also by a so-called Noetherian scheme, provided that every localities are integral domains.

In §1, we state some of known theorems on birational correspondences. In §2, we discuss a special kind of birational transformation, called dilatation. In §3, we give some auxiliary results and in §4 we give the proof of our main theorem.

The writer likes to add here that there has been one contribution by J. Ohm [4] to this problem saying that if V is an abstract variety, C is a curve on V and if there is a quasi-projective open covering $\{U_i\}$ of V such that C meets all the U_i, then there is an abstract variety V' containing V as an open subset in such a way that the closure of C in V' is a complete variety.

1. Birational correspondences.

We consider from now on only models whose function fields