volving w and the u_i alone, any algebraically irreducible form which is of the least rank in w. Such a form, however, was found to be a member of Ω_2 and hence may be identified with the form B.

B_1 is contained in Ω_1. It is reduced with respect to B and, of all such forms in Ω_1 in the u_i, w, and y_1, it certainly has a lowest rank. Consequently we may replace A_1, in (1), by B_1. Continuing, we find that (2) is a basic set for Ω_1. Then Σ_1 and Σ_2 are identical. This contradiction proves that A is of lower order in w than B and establishes our theorem.

COLUMBIA UNIVERSITY

AXIOM C OF HAUSDORFF AND THE PROPERTY OF BOREL-LEBESGUE*

BY SELBY ROBINSON†

1. *Introduction.* This is a study in an abstract space (P, K) of the Hausdorff‡ property C which may be expressed in the form *the interior of every set is an open set.* A point p of the space P is interior to a set V, if p is a point of V and is not a K-point (point of accumulation, limit point) of any subset of $C(V)$. An open set is one all of whose points are interior points. We say that space (P, K) has property B of Hausdorff if and only if any point p which is interior to each of two sets is interior to their logical product; we shall designate as the open set B property, the weaker property: the product of two open sets is an open set.§ By the Hausdorff property D we shall mean that any two points are respectively interior to sets which are disjoined, while in the open set D property the points are required to be in disjoined open sets. The Borel and Borel-Lebesgue properties take three non-equivalent forms in spaces not having property C. These three forms coincide if property C is present as do the two forms of property B and of property D. In §3 we consider three

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† National Research Fellow.

‡ F. Hausdorff, *Grundzüge der Mengenlehre*, first edition, 1914, p. 213.

§ Chittenden chose the open set B property as the one to designate as the Hausdorff B property. See Transactions of this Society, vol. 31 (1929), p. 315.