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PRIMITIVITY IN MEREOLOGY. I

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Introduction This dissertation* deals with the Mereology, the formal system which Leśniewski constructed as a foundation for mathematics. The first chapter is introductory in nature; it sets forth some of the basic theorems of Mereology and it also offers a brief background of Ontology, Leśniewski's calculus of names. In this chapter the first of two important logical concepts, that of cardinality, is introduced.

The second important concept, that of primitivity, initially appears in the second chapter. The more familiar terms of Mereology are classified as primitive and non-primitive. The non-primitive terms are further classified under three headings. Co-primitive terms are those pairs of non-primitive terms which may be jointly used to define a primitive term. Independent terms are pairs of non-primitive terms; neither term of the pair is definable in terms of the other. Finally, dependent terms are those pairs of non-primitive terms which have one term definable by another, but not vice-versa. Much of the work with non-primitive terms is done with models, so many are displayed. Most of the terms in the second chapter are binary, but some ternary terms also appear. The third chapter deals with the possible elementary ternary relations on three individuals. After noting that a number of these relations are contradictory, we investigate the primitivity of the remainder. In Chapter IV we blend the notions of number and primitivity to yield a sequence of primitive terms, dependent by their definitions upon the cardinality of the name involved. These terms have the interesting property that the n-th term is primitive if and only if we assume the existence of at least $2^n - 1$ objects.

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