Sur les algèbras de Hilbert, by A. Diego. Gauthier-Villars, Paris, 1966, Collection de logique mathématique, serie A. No. 21. 56 pages. 20 francs.

In the classical propositional calculus one can construct 2^{2n} inequivalent formulas out of n generators or "propositional variables". For the entire intuitionist calculus there are known to be an infinite number of inequivalent formulas even in one generator. The present author has investigated the implicational intuitionist calculus, i.e., that fragment of the intuitionist calculus which deals with the symbol $\Longrightarrow$ alone. He has shown that there exist only finitely many inequivalent formulas in n generators. (It would have been helpful to the uninitiated to give an example in the introduction of two implicational formulas which are equivalent classically but not intuitionistically). More interesting than this result are his methods. A Hilbert algebra $(A, 1, \Longrightarrow)$ consists of a set A with a fixed element 1 and a binary operation $\Longrightarrow$ satisfying the following axioms:

(1) $p \Longrightarrow (q \Longrightarrow p) = 1$

(2) $(p \Longrightarrow (q \Longrightarrow r)) \Longrightarrow ((p \Longrightarrow q) \Longrightarrow (p \Longrightarrow r)) = 1$

(3) If $p \Longrightarrow q = 1$ and $q \Longrightarrow p = 1$ then $p = q$.

Even though this last axiom does not have the form of an equation, the author has succeeded in showing that the class of Hilbert albegras is equationally definable. (Actually he uses the operation $\Longrightarrow$ alone and must then stipulate that A is not empty, not exactly an equational condition). The methods of universal algebra then become applicable, and one may consider free Hilbert algebras in n generators. A topological representation of Hilbert algebras is also considered.

This booklet, a French translation of the author's thesis at the University of Buenos Aires, will be of interest to those who wish to apply algebra to logic.

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Stationary and related stochastic processes: sample function properties and their applications, by Harald Cramér and M.R. Leadbetter. John Wiley and Sons, New York, 1967. 348 pages. $12.50.

This account of the sample path functions of stationary processes is remarkable for its completeness and clarity. Without doubt, the book will become a standard reference for researchers interested in either the theory or the application of stochastic processes.

The contents of the book are well described in the author's preface, as follows, "The book is written for a reader assumed to have a working knowledge of the basic features of modern probability theory. However, some fundamental concepts and propositions of this theory are briefly reviewed in an introductory chapter (Chapter 2).

The foundations of the general theory of stochastic processes are then developed, with special emphasis on processes with a continuous-time parameter (Chapter 3). The analytic properties of the trajectories (or sample functions), such as continuity, differentiability, etc., are studied in some detail (Chapter 4). The general theory is then applied to certain classes of processes important as tools for the study of stationary processes (Chapters 5 and 6).

The main part of the book is concerned with the theory and applications of stationary processes. Their spectral representation is deduced by methods of Hilbert space geometry introduced in a previous chapter, analytic properties of the sample functions are studied, and proofs of some basic ergodic theorems are given (Chapter 7). On the other hand, problems of prediction and filtering, of which excellent accounts are available elsewhere, are only briefly discussed. Certain generalizations are treated in a separate chapter (Chapter 8).

In the important case of normal (Gaussian) stationary processes, the conditions for continuity, etc., of the sample functions take a particularly simple form; this form is thoroughly studied in Chapter 9. For this class of processes, the problem of the time distribution of the intersections between a sample function and a given constant level, or a given curve, has recently attracted a considerable interest. Problems of this type are extensively discussed, and this is believed to be the first account in book form of much recent work by American, Soviet Russian, and other authors. Several results believed to be new are given in this connection (Chapters 10 to 13). Various applications to problems of frequency detection and reliability are given (Chapters 14 to 15)."

Charles H. Kraft

Elements of Mathematics - General Topology, by Nicolas Bourbaki. Hermann, Paris, and Addison-Wesley, Reading, 1967. Part 1, vii + 438 pages. $18.50. Part 2, iv + 368 pages. $18.50.

Voici la traduction anglaise tant attendue d'une partie importante du Traité de Mathématique que l'on a pris l'habitude depuis de nombreuses années de voir figurer dans les références d'articles mathématiques de toutes langues et de toutes spécialités. Ce seul fait pourrait être considéré comme garant de l'excellence de l'oeuvre. On sait que celle-ci répond au projet ambitieux en cours de réalisation depuis une trentaine d'années avec tant de bonheur par l'école française "de donner des fondations solides a tout l'ensemble des mathématiques modernes". Les auteurs font souvent une auto-critique publique sous