adjoined at the right (left) yielding the complete sets ($\alpha_1\alpha_2$; $\lambda_1\alpha_2$; $\alpha_1\lambda_2$, $\lambda_1\lambda_2$), and so on. It is then assumed that the preceding $(n+1)$-ads belong to the general abstract space $S_{n+1}(G, H)$ as defined by the author (abstract 46-9-438). When $G=H=$alternating (symmetric) group on $n+1$ variables, the α_i and λ_i are represented graphically as opposite vertices of regular polyhedra in euclidean $(n+1)$-space or opposite faces of duals of the latter. When $n=2$ the polyhedra are the octahedron and the cube. (Received January 30, 1942.)

135. A. R. Schweitzer: *On a class of ordered $(n+1)$-ads relevant to the algebra of logic.* II.

The author develops a finite algebra of logic in which the complete set of ordered $(n+1)$-ads of generalized constituent type relative to $\alpha_1\alpha_2 \cdots \alpha_{n+1}$ and the ordered dyads $(\alpha_1 \lambda_1), \cdots, (\alpha_{n+1}\lambda_{n+1})$ is expressed as a reflexive formal sum: $\sum(\alpha_1\alpha_2 \cdots \alpha_{n+1}) = \sum(I)$. The corresponding terms are $\sum(\mathrm{A}_1\alpha_2 \cdots \alpha_{n+1})$, $\sum(\alpha_1\mathrm{A}_2 \cdots \alpha_{n+1}), \cdots,$ $\sum(\Lambda_1\, \alpha_2 \cdots \alpha_{n+1}), \cdots, \sum(\alpha_1\alpha_2 \cdots \Lambda_{n+1})$, where $\sum(\mathrm{A}_1\alpha_2 \cdots \alpha_{n+1})$ is the sum of all $(n+1)$-ads containing α_1, and so on. Then for $n=2$, for example, $\alpha_1\alpha_2\alpha_3 = \sum(\mathrm{A}_1\mathrm{A}_2\mathrm{A}_3) = \sum(\mathrm{A}_1\alpha_2\alpha_3) \times (\alpha_1\mathrm{A}_2\alpha_3) \times \sum(\alpha_1\alpha_2\mathrm{A}_3)$, and so on. Also, $\sum(\mathrm{A}_1\alpha_2\alpha_3) + \sum(\Lambda_1\alpha_2\alpha_3) = \sum(\alpha_1\alpha_2\alpha_3)$, and so on. Finally it is assumed that the preceding $(n+1)$-ads belong to the abstract relational space $S_{n+1}(G, G)$, where G is an arbitrary substitution group on $n+1$ variables (including the identical group). When G is the symmetric group the symbol $\sum(\mathrm{A}_1\alpha_2 \cdots \alpha_{n+1})$ can be replaced by the more economical symbol $\sum(\mathrm{A}_1)$, and so on, and this case reduces essentially to a previous development by the author (abstract 47-9-430). (Received January 30, 1942.)

Statistics and Probability

136. Irving Kaplansky: *Note on a common error concerning kurtosis.*

In many text books there is to be found a statement to the effect that a frequency curve with positive (negative) kurtosis falls above (below) the corresponding normal curve in the neighborhood of the mean. In this note examples are given to show that there is actually no such connection between kurtosis and the height of the curve at its mean. (Received January 19, 1942.)

Topology

137. Paul Civin: *Two-to-one mappings of three-dimensional sets.*

This paper is concerned with the proof of the non-existence of a continuous mapping defined on the closed three-cell in which each inverse image consists of exactly two points. Corresponding theorems for the arc and two-cell were proved by O. G. Harrold (*The non-existence of a certain type of continuous transformation*, Duke Mathematical Journal, vol. 5 (1939), pp. 789–793) and J. H. Roberts (*Two-to-one transformations*, Duke Mathematical Journal, vol. 6 (1940), pp. 256–262), respectively. (Received January 26, 1942.)

138. F. B. Jones: *A certain non-metric Moore space.*

The purpose of this paper is to give an example of a non-metric Moore space which is nevertheless the sum of a monotone increasing collection of completely separable domains each lying together with its boundary in the next. (Received December 31, 1941.)

139. J. L. Kelley: *Symmetric product spaces.* Preliminary report.

Let X be a metric separable arcwise connected space. If every pair (x, y) and (y, x) of $X \times X$ is identified, the resulting space is the symmetric product space X_2. Denote by X^* the subset of all points (x, x) of X_2. Then (a) the fundamental group of X_2 is always abelian; (b) if X is a polyhedron a necessary and sufficient condition that X be contractible is that X^* be a retract of X_2. (Received December 29, 1941.)

140. A. D. Wallace: *Chains and the structure of continua.*

The author gives a decomposition of compact (=bicompact) connected H-spaces into chains and p-chains analogous to that given by Kelley and Moore for separable spaces. It is shown that (i) if p is neither an end point nor a cut point then there is a point conjugate to p, (ii) hence each such point is contained in a unique p-chain, (iii) the meet of p-chains is null or a cut point, (iv) a chain is characterized as a continuum which contains each p-chain meeting it in at least two points, (v) each p-chain is the meet of a collection $|A|$ of continua such that $\overline{S-A}$ contains a finite set of components each containing one point of the p-chain. Examples show that chains and J-sets (Kelley) are distinct; p-chains and simple links and F-sets are equivalent in metric spaces and in general a simple link is a p-chain. (Received December 5, 1941.)