justifies . . . those things which, up till now, have merely been 'Adhockeries for mathematical convenience'."

The two volumes do not have a bibliography because this had been provided in (0). Since Koopman's work (1957) on probability in quantum mechanics is cited in (I, p. 15) and (II, p. 303), I mention that it was not a book, but a chapter in the Proceedings of a Symposium. Also Ramsey's initials were not FDR though he might have made a good philosopher king. On a point of terminology, "Bayesian estimation interval" would be better than "Bayesian confidence interval" (II, p. 244), which sounds too much like a square circle. When "Bayesian" is dropped, the confusion is apt to be further increased.

On p. 225 of (I) de Finetti discusses decimals with missing digits, or with digits having the "wrong" frequencies, and he seeks a bibliographical reference. One such is *Proc. Cambridge Philos. Soc.* **37** (1941), p. 200, where the reviewer conjectured a relationship between entropy and the Hausdorff-Besicovitch dimensionality of such sets, a relationship that was proved by Eggleston in 1949. Hausdorff-Besicovitch dimensionality could be used to enrich de Finetti's theoretical discussion of "levels" of zero probability (I, §3.11).

In summary, these volumes make important writings of this pioneer available to the English-reading world, and will encourage some probabilists, statisticians, and philosophers of science to learn Italian.

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Presentation of groups, by D. L. Johnson, London Mathematical Society Lecture Note Series, no. 22, Cambridge Univ. Press, New York and London, 1976, v + 204 pp., \$11.95.

Given a set X there exists a free group F having X as a basis; the elements of F are all *words* in X, that is, all formal products $x_1^{e_1} \cdot \ldots \cdot x_n^{e_n}$, where $x_i \in X$ and $e_i = \pm 1$. The set X is called a basis of F because it behaves very much as a basis of a vector space does: given any function $\varphi: X \to G$, where G is an arbitrary group, there is a unique homomorphism $\tilde{\varphi}: F \to G$ extending φ. An immediate consequence of the existence of free groups is the theorem that every group G is a quotient group of a free group. If X is the underlying set of G and $\varphi: X \to G$ is the identity, then $\tilde{\varphi}$ is a homomorphism of F onto G, where F is free with basis X; if R is the kernel of $\tilde{\varphi}$, then $F/R \cong G$. One knows that every subgroup of a free group is itself free, so that R is free on some basis Y' comprised of certain words in X, and, obviously, Y' generates R. Since R is a normal subgroup of F, however, one may describe R by a smaller set of words than Y', namely, a set Y that generates R as a normal subgroup of F (in building R from Y, one may not only form words in Y, he may also form words in conjugates fyf^{-1} for $f \in F$). These two sets of words X and Y describe F and R completely, hence describe $G = F/R$. $\langle X | Y \rangle$ is