John VENN
b. 4 August 1834 - d. 4 April 1923

Summary. Venn is remembered largely for his writings on logic and his compilation of data on alumni of Cambridge University, but he also wrote a widely read text-book on probability theory.

John Venn was born in Hull, England, in 1834, a son of a prominent divine. He spent his entire career not only in one university but even one college, Gonville and Caius, Cambridge. He is most generally remembered as an historian of his college (of which he was President from 1903 until his death 20 years later), and also aas a chronicler of all the graduates of the university in his *Alumni Cantabrigienses* (1922-1954), a multi-volume work which was continued after his death by his son. He was very active in the reform of the Moral Science Tripos in the 1870s, and for many years he taught the elementary logic course.

Partly in this connection, Venn wrote influential textbooks. The first one, entitled *The Logic of Chance* and dealing with probability theory, appeared in three editions between 1866 and 1888. He rehearsed many features and practical applications of the theory, such as insurance, gambling and the appraisal of testimony, although he deliberately eschewed most mathematical details. Following R.L. Ellis (1817-1859), he adopted a frequentist interpretation of probability, regarding as visciously circular the assumption that we know which causes pertain to the effect under study; only long runs could make them manifest in the first place. Thus he rejected the view that statistical regularities could be explained by causal mechanisms.

Venn applied his position to the St. Petersburg paradox, arguing that the player faced with the joy of possibly infinite winnings should appraise his requested investment in terms of an 'average gain' over some *finite* run of offers of reward. He also criticized the estimation of random processes such as the births of boys and girls as a function only of the occurrence of each event; he asserted that the distribution of births in it families was sought, and presented data on British families with 4,5 or 6 children.

Venn saw probability theory as a branch or offshoot of logic; for example in 'modality' where propositions such as 'it is probable that all X is Y' is used in reasoning. He expanded his lecture course on logic in his book *Symbolic Logic* (1888, 1894) (the origin of that phrase, incidentally). He largely followed Boole's ideas on the algebra of logic, with modifications to

the interpretation of some notations. His adherance to Boole made him rather passé in the development of algebraic logic (for example, he did not appreciate the innovation of a logic of relations by De Morgan); but his book remains a rich and valuable source of information. One of its virtues are the many historical references, for which he drew on his own extensive library (now kept in the Cambridge University Library).

Venn als introduced a diagrammatic representation of syllogisms; but the name 'Venn diagram' is a misnomer in that it normally designates the representation introduced a century earlier by Euler, as Venn well knew. His own diagrams used convex figures to represent each predicate in a given case, drawn such that all possible intersections were illustrated; then empty subclasses were shaded in. This kind of representation is more general but more clumsy than Euler's and convex shapes can only work for four predicates. Venn sought means for extending the diagrams for more predicates; a systematic and general method was published in 1989 by his Caius successor A.W.F. Edwards.

In *The Principles of Empirical or Inductive Logic* (1889, 1907), Venn treated logic within the syllogistic tradition. Following a practice of logic books of the 19th century later, he included applications which we might construe as philosophy of science; for example causation, classification, and the uniformity of nature. He comes over as a disaffected Millian, especially with his cautious views of causation.

References

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