Individuals and Extensional Logic in Schröder's „Vorlesungen über die Algebra der Logik“

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Ernst Schröder's *Vorlesungen über die Algebra der Logik* is usually thought of as the mathematical presentation of a formal calculus, and specifically of a "classical" Boolean logic.[1] It is usually not examined for its philosophical content, as we might a work by Peirce or Frege. Schröder was a practicing mathematician after all, and his influence on philosophical discussion, other than indirectly through later mathematical logic, seems to have been very small. Viewed from a strictly Continental perspective, Schröder the algebraist appears to stand more in the tradition of Grassmann's *Ausdehnungslehre* — especially when we see the development from the *Lehrbuch* and *Operationskreis* — than in the tradition of the philosophers of and reformulators of syllogistic theory, such as De Morgan, Peirce, and even Boole. Within the German mathematical academic hierarchy, the elementary *Operationskreis*, the strictly pedagogical *Lehrbuch*, as well as his position at the newly founded *Polytechnische Hochschule Karlsruhe* at the rim of the German-speaking world, do not seem to give him the weight to issue philosophical pronouncements that a Riemann, Helmholtz, Mach, Boltzmann, Poincaré or

[1]This is not to say it is altogether like Boole's own calculus. It is not equational, instead primarily using his subsumption sign $\Subset$ borrowed from his 1873 *Lehrbuch* (*VAL* I p. 140). It also uses the inclusive interpretation of union/or, +, rather than the peculiar non-exclusive (but not precisely inclusive) notion of Boole's works of both 1847 and 1854: namely, Boole left $A+B$ "undefined" when there were any members common to A and B. This feature, widely regarded as a defect, was corrected by Jevons in 1864 and independently by Peirce in 1867 with the inclusive interpretation, and independently by Schröder in the 1877 *Operationskreis*. In other respects, such as interpreting propositional logic as a class logic for periods of time in the manner of Boole's 1854 *Laws of Thought*, Schröder is truer to Boole than Peirce or Venn.