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► JOHN CORCORAN AND GEORGE BOGER, *Aristotelian logic and Euclidean geometry*.
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By an *Aristotelian logic* we mean any system of direct and indirect deductions, chains of reasoning linking conclusions to premises—*complete syllogisms*, to use Aristotle's phrase—1) intended to *show* that their conclusions follow logically from their respective premises and 2) resembling those in Aristotle's ***Prior Analytics*** [1]. Such systems presuppose existence of cases where it is *not obvious* that the conclusion follows from the premises: there must be something deductions can *show* [2]. By a *Euclidean geometry* we mean an extended discourse beginning with basic premises—axioms, postulates, definitions—1) treating a universe of geometrical figures and 2) resembling Euclid's ***Elements*** [3]. There were Euclidean geometries before Euclid (fl. 300 BCE), even before Aristotle (384–322 BCE) [3, volume I, pp. 116–7, 222].

Euclid shows no awareness of Aristotle. It is obvious today—as it should have been obvious in Euclid's time, if anyone knew both—that Aristotle's logic was insufficient for Euclid's geometry: few if any geometrical theorems can be deduced from Euclid's premises by means of Aristotle's deductions.

Aristotle's writings don't say whether his logic is *sufficient* for Euclidean geometry. But, there is not even one fully-presented example. However, Aristotle's writings do make clear that he endorsed the goal of a sufficient system [1, pp.1–5].

Nevertheless, incredible as this is today, many logicians after Aristotle claimed that Aristotelian logics are sufficient for Euclidean geometries. This paper reviews and analyses such claims by Mill, Boole, De Morgan, Russell, Poincaré, and others. It also examines early contrary claims.

[1] JOHN CORCORAN, *Aristotle's Demonstrative Logic*, ***History and Philosophy of Logic***, vol. 30 (2009), pp. 1–20.

[2] JOHN CORCORAN, *Hidden consequence and hidden independence*, this BULLETIN, vol.16 (2010), p. 443.

[3] EUCLID, ***Elements***, 3 volumes (Thomas Heath, translator), Dover, 1956.