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Structuralist Mirages on the Road from Antiquity: Why the Ancient Greek Mathematicians Were Not Mathematical Structuralists

H. G. Zeuthen and B. L. van der Waerden understand ancient Greek mathematics to be purely algebraic, even the vast body of geometrical work within it. Ian Mueller, through an examination of Euclid's Elements, shows that Euclid, at least, did not have anything resembling modern algebra and algebraic structure in view when he set down his principles and demonstrations. I give some examples of how a structuralist interpretation of Euclid could possibly be discerned. I then show that Euclid, though he had a structure to his work, likely did not do his work within a modern mathematical structuralist framework. I continue with an examination of three later ancient mathematicians (Nicomachus, Diophantus, and Pappus), and show that, like Euclid, they did not reveal any structuralist understanding in their works. I conclude that the attribution of mathematical structuralism as an intentional aspect of ancient Greek mathematics is mistaken.