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THE CONTROVERSY BETWEEN GREGORY AND HUYGENS ON THE QUADRATURE OF THE CIRCLE

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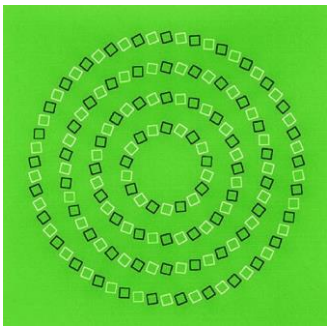

Abstract

With the emergence of the algebraic movement in 16th and 17th century geometry, the ideal that all mathematical problems should and could be solved by the most adequate means was fostered by outstanding mathematicians (Viète, Descartes). Yet it was a matter of dispute whether certain well-known problems, like the quadrature of the circle, could be solved by geometrically acceptable methods. My talk will explore this issue, considering a controversy occurred in 1668 between the Scottish mathematician James Gregory and the Dutch mathematician Christiaan Huygens, about the possibility of solving the quadrature of central conics (which included the circle) by algebraic means. Whereas the former held it was impossible, the latter believed that the circle could be squared algebraically. This controversy is significant, not only because it is one of the first episodes in which the impossibility of solving an open problem is at the centre of a debate, but also because this debate hinged upon methodological or foundational questions: which were the bounds of Cartesian geometry? Are the five algebraic operations sufficient in order to express and solve all problems concerning the objects of Euclid's geometry?