

AN OVERVIEW OF THE SYZYGY AND LUNAR ECLIPSE COMPUTATIONS IN THE UPARĀGAKRIYĀKRAMA OF ACYUTA PIṢĀRAṬI

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The Uparāgakriyākrama (Procedures for eclipse computations, 1592 CE) of Acyuta Piṣāraṭi (1550–1621 CE) is an important and hitherto unstudied astronomical text of the Kerala school, consisting of 127 verses, whose four chapters provide procedures for the computation of the (i) syzygy, (ii) lunar eclipse, (iii) solar eclipse, and (iv) shadow problems. The text suggests changes in some astronomical parameters with respect to Nīlakaṇṭha's (1444–1545 CE) celebrated treatise Tantrasaṅgraha (1500 CE), and utilizes the epochal mean positions of the Sun and the Moon on kali-ahargaṇa 1710000 (November 19, 1580 CE) for computations. The first chapter provides the procedure for determining the moment of syzygy by computing the true longitudes of the Sun and Moon, their mean and true rates of motion, motions of the Moon's apogee and nodes, determination of the ascensional difference at a given latitude, etc. The second chapter outlines procedures for computing the angular diameters of the Moon and the Earth's shadow, the half duration of the lunar eclipse, the instants of first and last contact, the moment of maximum obscuration, etc. The talk will highlight salient aspects of the first two chapters of the Uparāgakriyākrama.