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Explanations on planes, explanations in space: the usage of the armillary sphere in Parameśvara's Goladīpikā

Abstract – The *Goladīpikā* (literally "Illumination of the spheres"), composed in two versions by the south Indian astronomer Parameśvara (c.1360–1460), starts with the description of an armillary sphere, which is an unusual feature compared to other Sanskrit sources that usually refer to the instrument in the middle or near the end of the treatise. However, in the following parts of the *Goladīpikā* the armillary sphere is never explicitly mentioned.

Some topics are likely to have been explained on a plane; in fact, in the case of the movement of the shadow of a gnomon, the parallax and the eclipses there are even instructions to draw diagrams on the ground.

Meanwhile, some topics involve multiple planes. For example, the calculation of declinations, planetary latitudes and heights of the sun involves Rules of Three, which come from similar triangles in different planes. The text not only gives the Rules of Three themselves but also the descriptions of the triangles related to them. Such explanation could be done either by a projection on a plane or with an armillary sphere.

Other topics like the ascensional difference occur on a curved surface. It is debatable whether this was explained by projecting on a flat plane or by an instrument. The aim of this talk is to see whether we can distinguish explanations in a plane or in space, and also to see why these various topics of seemingly different nature have been put together.