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from the tail, the eastern side heads southward and the western side northward, until it reaches its maximum at the midpoint, which is [the point] opposite Venus’s apogee and Mercury’s apogee, and then once again begins to decrease. The maximum of this latitude for Venus in both directions is 2;30, and for Mercury it is 2;15 in the apogean half and 2;45 in the perigean half. This latitude is the reciprocal of the second latitude, i.e., when that latitude is at its maximum, this latitude is zero, and when this latitude is zero, this latitude reaches its maximum.

[13] Abū ‘Alī Haytham has posited for each of Venus and Mercury five epicycle orbs, enclosing one another: one for the proper motion; the second for the inclination of the diameter of the apex and perigee; the third for maintaining the position that would otherwise be displaced due to [the second orb]; the fourth for the slant; and the fifth for maintaining the position that would otherwise be displaced due to the [fourth orb’s] motion. This is [our] words concerning the latitudes of the six planets—God is all-knowing of the Truth.

## CHAPTER NINE

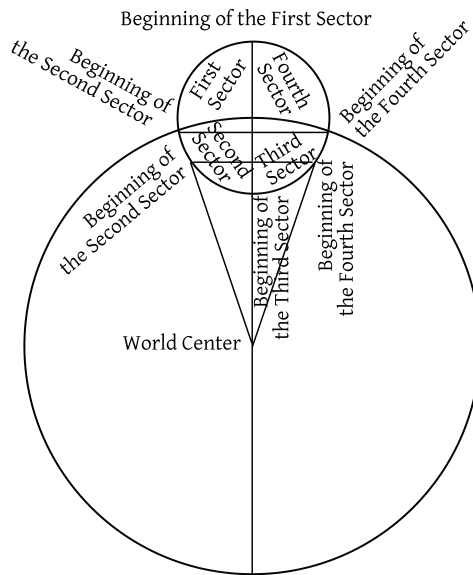
### An Exposition of the Planetary Sectors

[1] Each of the eccentric orbs and orbs of epicycles mentioned previously can be divided into four parts, each part of which is called a sector. Practitioners of this science disagree over where to place the beginning of the second and fourth sectors, but there is no dispute over the beginning points of the first and third sectors, which are the apogee and perigee or the apex and perigee.

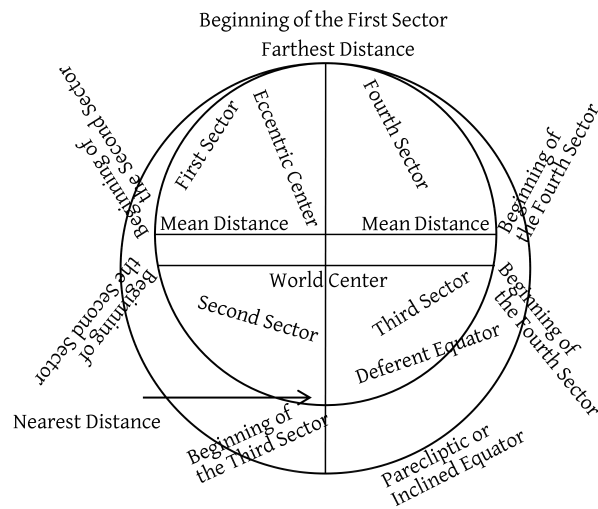
[2] One group says that the initial points of the second and fourth sectors are the two points of mean distance, just as the beginning points of the first and third sectors are the points of the farthest and nearest [distances]. This being so, then a diameter must be assumed in the eccentric orb that passes through the apogee and perigee, and a line

must be assumed that both passes through the midpoint between the two centers and intersects that diameter at right angles, thereby dividing the orb into four parts. In the epicycle orb, a diameter must be assumed that passes through the apex and perigee, and [another] line [must be assumed] that passes through the two points of intersection of the deferent equator with the equator of the epicycle in order for the sectors to be determined according to this group's view.

[3] Another group has said that since the eccentric orb and the epicycle orb have been distinguished by an anomaly called the equation, and the first and third sectors begin where the equation is zero, so the second and fourth sectors [should] begin where the equation reaches its maximum. This being so, then a line that is assumed in the eccentric orb must pass through the center of the inclined [orb] and be at a right angle to the diameter. And in the epicycle, the line [that is assumed] must pass through the two points of tangency on both sides [of the epicycle] made by two lines extending from the center of the World tangent with the epicycle orb, since the maximum of the equation is at these positions. These cases can be seen in the two [following] illustrations that have been drawn. Therefore, when the planets are in the first and second sectors, they are descending, and ascending in the third and fourth sectors. In the fourth and first sectors, they are in the upper half, and in the second and third sectors they are in the lower half—God is all-knowing.



[Figure 1]



[Figure 2]