49.2: Nutation

As the gyroscope tips over, this "tipping over" motion is turned sideways, resulting in the precession just described. But in general, the tip of the gyroscope axis will tend to "overshoot" the nominal plane of precession, causing the gyroscope to momentarily dip below this plane before moving back upwards. The resulting motion, called nutation, is a kind of 'nodding' of the axis up and down, superimposed on the precessional motion. The actual motion of the gyroscope axis will be a cycloid superimposed on the circular precessional circle.