Helsinki University of Technology, TKK
Mat-5.3701 Analytical Mechanics
Stenberg / Niiranen
Exercise 8, 2006 April 4, Tuesday 14-16 Y313
`http://math.tkk.fi/teaching/analmek`

Final homework exercises: to be returned by April 4.

1. (a) Produce your own version of Fig. 3.22 in the textbook.
   (b) Study numerically the integration of Euler's equations (3.59) in the textbook. Test e.g. the explicit and(or) implicit Euler, trapetzoidal rule and the integrator provided by your software. Check the stability of the numerical solution and whether the solution stays on the curves of Fig. 3.22.
2. Produce your own version of Fig. 3.26 in the textbook.

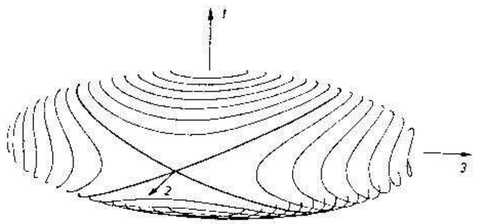

Fig. 3.22. The angular momentum L, as seen from a reference system fixed in the body, moves along the curves of intersection of the spheres (3.74) and of the ellipsoids (3.73)

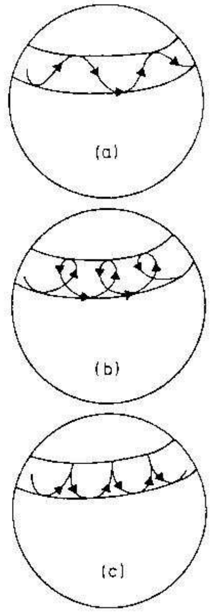

Fig. 3.26. Symmetric children's top in the gravitational field. The figure shows the nutation of the extremity of the symmetry axis f