

Errata

Unfortunately, nothing is perfect, ugh! Please tell us if you find any other errors. Thank you.

1. On page 25 we find equation 1.16:

$$\begin{aligned} Dg(0) = & \int_{t_1}^{t_2} (\partial_1 L(t, q(t), Dq(t))\eta(t)) dt \\ & + \partial_2 L(t, q(t), Dq(t))D\eta(t)\eta(t)|_{t_1}^{t_2} \\ & - \int_{t_1}^{t_2} \frac{d}{dt} (\partial_2 L(t, q(t), Dq(t))) \eta(t) dt. \end{aligned}$$

There is a typo here. The equation should read:

$$\begin{aligned} Dg(0) = & \int_{t_1}^{t_2} (\partial_1 L(t, q(t), Dq(t))\eta(t)) dt \\ & + \partial_2 L(t, q(t), Dq(t))\eta(t)|_{t_1}^{t_2} \\ & - \int_{t_1}^{t_2} \frac{d}{dt} (\partial_2 L(t, q(t), Dq(t))) \eta(t) dt. \end{aligned}$$

2. On page 78 Exercise 1.30 there are some sign problems:

- The Lagrangian is $T - V$ so the sign before $V(r)$ should be negative.
- The sign of β must be chosen to make the force attractive.

3. On page 178 Figure 2.14 The labels for the axes use the wrong version of the Greek letter “phi.” In particular, we use φ in the text but the labels are written with ϕ .

4. On page 92 the parametric rotations $R_z(s)$ should all have been written $\tilde{R}_z(s)$. Also on that page signs are incorrect in the right-hand-sides of two equations. The RHS of 1.168 should be $(-y, x, 0)$ and the RHS of 1.169 should be $m(-yv_x + xv_y)$.

The same sign error is continued on page 93. The computer output for the Noether integral should be as follows:

```
(the-Noether-integral
 (up 't
  (up 'x 'y 'z)
  (up 'vx 'vy 'vz)))
(down (+ (* -1 m vy z) (* m vz y))
 (+ (* m vx z) (* -1 m vz x))
 (+ (* -1 m vx y) (* m vy x)))
```

This is pretty weird, because when we run the program now we get the right answer, so I have no idea how this error got into the code output!

5. There are sign errors on page 469 equation 7.29 and on page 471 equation 7.32. In each case the sign of the sin term should be negative (the reverse of what is shown).