## Errata for Learn Physics with Functional Programming

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If a reader of the book knows of additional errors, please send them to me for inclusion in this list.

• p. 161, Exercise 10.9: [discovered by Andrii Zymohliad, 2024 Jun 27] The expression for  $\mathbf{v}_{\text{Ball}}(t)$  given at the beginning of the problem is incorrect. The correct expression is

 $\mathbf{v}_{\text{Ball}}(t) = \mathbf{v}_0 + \mathbf{g}t.$ 

• p. 238, code, top of page: [discovered by Dan Farmer, 2024 Aug 7] The drag coefficient, which is the number immediately after fAir, should be 2 rather than 1. The correct code is as follows.

pedalCoastAir2 :: Time -> Velocity
pedalCoastAir2 = velocityFtv 0.1 20 (0,0)
 [\( t,\_v) -> pedalCoast t
 ,\(\_t, v) -> fAir 2 1.225 0.5 v]

• p. 258, code, bottom of page: [discovered by Giulio Morpurgo, 2025 Jan 8] We are calculating a Position, not a Velocity here, so the return type should be Position rather than Velocity. The correct code is as follows.

```
pingpongPosition :: Time -> Position
pingpongPosition = positionFtxv 0.001 0.0027 (0,0.1,0) dampedHOForces
```

• p. 427, code, top of page: [discovered by Giulio Morpurgo, 2025 Feb 26] The function (@@) was erroneously omitted from the list of imports from the Diagrams.Prelude module. The error is in line 10 of the code on page 427. Code lines 8–11 on page 427 should read as follows.

## import Diagrams.Prelude

```
( Diagram, V2(..), PolyType(..), PolyOrientation(..), PolygonOpts(..)
, (#), (@@), dims, p2, r2, arrowAt, position, fc, black, white
, blend, none, lw, rotate, deg, rad, scale, polygon, sinA )
```

• p. 578, penultimate paragraph:

The effectful functions we've written ... are not really part of the "elegant code" promised in this book's subtitle.

This sentence refers to an earlier version of the subtitle, "Beautiful Ideas Deserve Elegant Code". While I believe very much in the sentiment expressed in that earlier subtitle, we decided to use a longer subtitle that clarified the role of Haskell. The sentence should read

The effectful functions we've written, those like gradientVectorPNG with IO () in their type that *do* something, are certainly useful for producing graphs and animations, but they are not the best examples of the power of a functional language for physics.

• p. 582: The web address for gnuplot is misspelled. The correct address is gnuplot.info, not gnuplut.info. The pdf version of the book links to the correct web page.