STATIC INITIAL ERRATA

FOR

Visual Differential Geometry and Forms

The current printing of VDGF corrects the following (static) list of errors, which were present in the initial printing of the book. A separate PDF file on this VDGF.space website contains the DYNAMIC ERRATA that have continued to be discovered *after* PUP froze the current printing.

Some errors were reported by multiple readers, and I am equally grateful to them all, but I have only cited the *first* reader to have reported each error.

Although general questions and comments may be directed to my USF email address (needham@usfca.edu), I would be very grateful if *errors* could exclusively be reported to the special address I created for this purpose, as announced in the Prologue of VDGF, namely, VDGF.correction@gmail.com.

PAGE	LOCATION	CORRECTION	FROM
x	Entry for 19.6.4	Should be 210 (not 209)	T.N.
xxii	First bullet point	Should read, "First, I have made no attempt to write …"	T.N.
23	Line 1 after [2.8]	Bad line break	T.N.
45	Double-frame	Faulty corners	T.N.
74	Double-frame (times two)	Faulty corners	T.N.
75	Two lines above (6.15)	"the the" should be "the"	Filip Stappers
81	Double-frame	Faulty corners	T.N.
83	Ex. 1	Sometimes in the heat of battle writing the book I would suddenly have a good idea for an exercise pop into my head, and I would very hastily jot down the skeleton of the idea, immediately returning to the fray. Later, sometimes *years* later, I would return to flesh out the idea of the exercise. Well, here I jotted down the idea, … never to return! At the very least, the exercise *should* explain that we are restricting attention to ***orthogonal*** coordinates. In the	Jason Merrill

		new printing, I have replaced the exercise with this more concrete (and less ambitious) version: **1 Coordinate-independence of $\mathcal{K}$.** Begin with the flat Euclidean metric, $$d\hat{s}^2 = dx^2 + dy^2.$$ (i) If $x = u^2 \cos v$ and $y = u^2 \sin v$, interpret the (u, v) coordinates geometrically, and deduce that they are *orthogonal*. (ii) Verify this orthogonality by calculating the metric in the (u, v) coordinates, and apply the curvature formula (4.10) to confirm that this new metric formula is *still* flat, as it should be: $\mathcal{K} = 0$. (iii) Changing coordinates again, show that the *orthogonal trajectories* of the hyperbolas $x = u^2 - v^2 = \text{const.}$ are the hyperbolas $y = 2uv = \text{const.}$ Repeat (ii) for these *conformal* coordinates, using (4.10) *or* (4.16) to confirm that $\mathcal{K} = 0$.	
86	First equation	Should be $$d\hat{s}^2 = \frac{(R^2 - y^2)}{R^2}\, dx^2 + \frac{R^2}{R^2 - y^2}\, dy^2.$$	Petra Axolotl
86	Last equation	Should have a minus sign	Petra Axolotl
110	Last line (above footnotes)	"plane" (not "planne")	Filip Stappers
118	Double-frame	Faulty corners	T.N.
120	Below framed result	An entire paragraph is repeated: "To see this, … , as claimed. To see this, … , as claimed." [This repetition was *not* present in my TeX code.]	Petra Axolotl
124	Double-frame	Faulty corners	T.N.

127	[11.7]	Labels misprinted. [All were correct in the PDF I gave PUP.]	T.N.
210	End of paragraph that begins "However,"	Because it's a definition, bold italics for "***3-body problem***". Likewise, "***n-body problem***" at the end of the next paragraph.	T.N.
216	Double-frame	Faulty corners	T.N.
217	Double-frame	Faulty corners	T.N.
234	Line 1 after (22.1)	"of tiny" (not "oftiny")	Filip Stappers

235	Line 7	"how *curved* K is with respect to"	Filip Stappers
246	Final sentence of 24.1	"(but be warned that what we call ***holonomy***, physicists sometimes call ***anholonomy***)."	T.N.
248	Line 3 of paragraph beginning "But"	"parallel-transport" (not "parallel-trans-port") [Was correct in my TeX code.]	Filip Stappers
252	Double-frame	Faulty corners	T.N.
254	(25.1)	On the far right, wrong font for "R": $\iint_{\Omega} \kappa_1 \kappa_2 \, \mathrm{d}\mathcal{A} = \mathcal{K}_{ext}(\Omega) = \widetilde{\mathcal{A}}(\widetilde{\Omega}) = \widetilde{\mathcal{R}}(\widetilde{\mathrm{L}}).$	T.N.
282	Line 7	"stretched" (not "stetched")	Filip Stappers
286	(29.3)	Missing spaces on either side of **w**. [Was correct in my LaTeX code.]	T.N.
286	Framed result below (29.3)	Missing spaces around **w** and **v**. [Was correct in my LaTeX code.]	T.N.
291	Double-frame	Faulty corners	T.N.
309	[30.1]	"Horizontal" label misprinted. [Was correct in the PDF I gave PUP.]	T.N.
316	[30.3]	Labels misprinted. [All were correct in the PDF I gave PUP.]	T.N.
319	Double-frame	Faulty corners	T.N.
353	[32.6b]	Missing tildes over e_1 and e_2 within the diagram. [Both were present in the PDF I gave PUP.]	Tobin Fricke
356	Line 4 of 32.6.3	(32.11) should be (32.10). [My LaTeX \ref was correct, and yet this error was somehow introduced in the production process.]	Filip Stappers
357	Line 1	(32.7) should be (32.6). [My LaTeX \ref was correct, and yet this error was somehow introduced in the production process.]	Filip Stappers
357	Line 1 of 32.6.4	(32.14) should be (32.13). [My LaTeX \ref was correct, and yet this error was somehow introduced in the production process.]	Filip Stappers

357	Line 3 after (32.14)	(32.9) should be (32.8). [My LaTeX \ref was correct, and yet this error was somehow introduced in the production process.]	Filip Stappers
363	Third displayed equation	Second "**e**" has wrong subscript. Should be: $(\mathbf{e}_{i_1} \otimes \mathbf{e}_{i_2} \otimes \cdots \otimes \mathbf{e}_{i_f}) \otimes (\mathbf{d}x^{j_1} \otimes \mathbf{d}x^{j_2} \otimes \cdots \otimes \mathbf{d}x^{j_v})$.	T.N.
363	Line 2 of 33.5	(33.9) should be (32.9). [My LaTeX \ref was correct, and yet this error was somehow introduced in the production process.]	Filip Stappers
370	Double-frame	Faulty corners	T.N.
395	Line 5	(32.12) should be (32.11). [My LaTeX \ref was correct, and yet this error was somehow introduced in the production process.]	Filip Stappers
396	Third displayed equation	Missing space after "(for some". [Was correct in my LaTeX code.]	T.N.
415	Double-frame	Faulty corners	T.N.
429	Double-frame	Faulty corners	T.N.
444	Double-frame	Faulty corners	T.N.
451	Bottom two equations	On the far right, delete "**d**" before \theta: $\mathbf{d}\boldsymbol{\theta}^1 = \mathbf{d}A \wedge \mathbf{d}u = \partial_v A\, \mathbf{d}v \wedge \mathbf{d}u = -\frac{\partial_v A}{B}\, \mathbf{d}u \wedge \boldsymbol{\theta}^2$ $\mathbf{d}\boldsymbol{\theta}^2 = \mathbf{d}B \wedge \mathbf{d}v = \partial_u B\, \mathbf{d}u \wedge \mathbf{d}v = -\frac{\partial_u B}{A}\, \mathbf{d}v \wedge \boldsymbol{\theta}^1$	T.N.
463	Double-frame	Faulty corners	T.N.
465	Ex. 1, line 1	"(This example is adapted from Schutz (1980).) "	Filip Stappers
466	Ex. 4, line 1	"(From Schutz (1980).)	Filip Stappers
470	Ex. 17 (i)	Missing star operator: and using the fact that $\star^{\pm}\mathbf{F} = \pm i\, {}^{\pm}\mathbf{F}$,	T.N.