Errata

(1) Page 258, line 6, change 1(e) to 1(f).
(2) Page 259, lines 6-10, should re-written as:

(d) Replacing $\mathbb{R}^n$ by $\mathbb{C}^n$, one defines the standard hermitian product

$$< u|v >= u^1\bar{v}^1 + \cdots + u^n\bar{v}^n$$

for $u=(u^1,\ldots,u^n)$ and $v=(v^1,\ldots,v^n)$ in $\mathbb{C}^n$. The ***unitary group***, denoted by U(n), is the set of $n\times n$ complex matrices that preserve the hermitian product. Elements A of U(n), known as *unitary matrices*, are characterized by the property $\bar{A}^T=A^{-1}$. It

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(3) Page 262, lines 13-14, display for $b'(u)$, should be re-written as:

$$\begin{aligned} b'(u) &= TL_{a(u-s)}(a'(u-s)) \\ &= TL_{a(u-s)}\big(\tilde{A}(a(u-s))\big) \end{aligned}$$

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(4) Page 264, lines 28-29, should be re-written as:

If $\tilde{A}$ and $\tilde{B}$ are two left-invariant vector fields as above, then $[\tilde{A},\tilde{B}]=0$, and the flows of $\tilde{A}$ and $\tilde{B}$ commute (see Example 25a of Chapter 2). A Lie algebra for which the

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(5) Page 279, Exercise 8.3: G is assumed *Hausdorff*, and in part (b), H is a *closed* subgroup of G.
(6) Page 304, line 27, replace "(a) follows from the $\mathbb{R}$-linearity ..." by "(a) follows from 13b and the $\mathbb{R}$-linearity ..."
(7) Page 309, line 4 from the bottom, replace "$T\partial_i=0$ ..." by "$\downarrow(T\partial_i)=0$ ..."
(8) Page 310, line 10, replace "$\gamma(t_0)=a$, and $\gamma'(t_0)=Y_0\in T_aM$." by "$\gamma(t_0)=a$, and $Y_0\in T_aM$."
(9) Page 312, part (a) of the statement of the Lemma should read:
"(a) If ∇ is ρ-compatible, then for any two smooth vector fields ..."
(10) Page 315, line 5, "$\rho(Tv,w)+\rho(v,Tw)$" should read "$\rho(Tv,w)+\rho(v,Tw)=0$"
(11) The first two sentences in the proof of the Theorem are missing; they are:

We note first that if X, Y and Z are in Π, then indeed $R(X,Y)Z$ also belongs to Π. This

is seen by taking a local two-dimensional submanifold N tangent to Π at a, restricting the curvature tensor to N, and invoking the tensor property of R to ascertain that the value of $R(X, Y)Z$ remains the same.

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(12) Page 316, formula (9.34), both occurrences of "$r_{a,X,Y}$" should be changed to "$\rho_{a,X,Y}$"
(13) Page 331, in the formula of Exercise 9.8, "$-\rho(Y, [Z, X])$" should be changed to "$+\rho(Y, [Z, X])$"
(14) Page 333, Exercise 9.13, in Cartan's first structural equation, the expression "$\sum_j \omega^i_j \theta^j$" should be changed to "$\sum_j \omega^i_j \wedge \theta^j$"
(15) Page 333, the opening statement of Exercise 9.15 should read as:

(Continuation of Exercise 9.14) Suppose that dim M=2 and an orthonormal moving frame is being used.
