ERRATA

1. (Error noticed by Mitch Soivenski): **Page 4; the definition of transitivity:** Replace $(x,y) \in R$. by $(x,z) \in R$.

2. (Error noticed by Derek Krepski) **Page 22, Section 2.1, Exercise 6**: replace *min* by *max*.

3. **Page 80, Section 4.2, Exercise 9 (ii):** Change it to: Find a countable local basis at $[(0,0)]$, or show such a local basis does not exist.

4. **Page 83, Section 4.3, Exercise 5**: replace "the discrete sum $X_1 \oplus X_2$" by "the space *X* with the weak topology over $X_1 \cup X_2$ determined by $\{X_1, X_2\}$".

5. **Page 118, Section 5.3, Exercise 5**: replace this exercise with the following:

6. **[revised].** Consider the set $X = \prod_{i \in \mathbb{R}} \mathbb{R}$ of all functions $\mathbb{R} \to \mathbb{R}$; let *B* the set of all bounded functions in *X*; so $f \in B$ if there are numbers $u, v \in \mathbb{R}$, such that $u \le f(x) \le v$ for every $x \in \mathbb{R}$.

(a) Show that the sets of type $\prod_{i \in \mathbb{R}} (f(i) - \varepsilon(i), f(i) + \varepsilon(i))$, $f, \epsilon \in B$, $\varepsilon(i) > 0$, comprise a basis for a topology $\mathcal{T}$ over *B*. [Here $(f(i) - \varepsilon(i), f(i) + \varepsilon(i))$ denotes an interval; two simple basis sets are shown in Figure 2 (the functions that play the roles of ϵ are both constants in the illustration).]

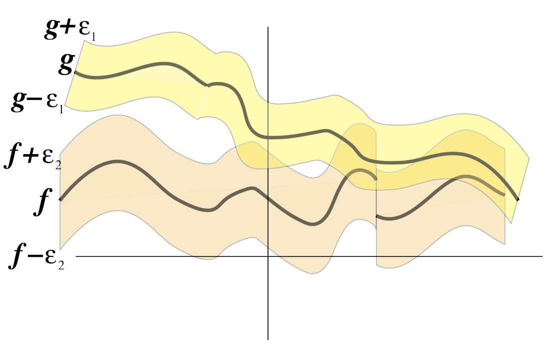

ILLUSTRATION. Two sets from our basis of bounded real valued functions. What is their intersection? Careful!

(b) Show that the topology $\mathcal{T}$ is the subspace topology of the box topology over $X = \prod_{i \in \mathbb{R}} \mathbb{R}$.

(c) Define $\rho : B \times B \to \mathbb{R}$ by $\rho(f,g) = \sup\{|f(t) - g(t)| : t \in \mathbb{R}\}$. Show that ρ is a metric.

(d) Show that the topology $\mathcal{T}$ is finer than the topology of the metric space (B,ρ).

7. **Page 133, Section 6.2, Exercise 10:** The condition that *f* is onto is not needed.

8. **Page 163:** the proof of Theorem 4 has a gap: the open subset *V* of the intersection of the projections of the open sets in the skewer *S* (depicted in Illustration 7.6) does not necessarily satisfy $V \times Y \subset S$. An easy counterexample can be found even when *S* contains only one open set. To repair the proof start from the skewer *S* (Illustration 7.15) and use compactness to find a sub-skewer S' of *S* consisting of finitely many *basic* open sets (of type $U \times W$, $U \underset{open}{\subset} X$, $W \underset{open}{\subset} Y$. For the skewer S' the illustration 7.16 is fine and the rest of the argument is fine too.

9. (Error noticed by Ryan Sherbo) **Page 165, Exercise 7 (b):** the claim is false. Change 7 (b) to: Show that *f* open does not imply that *f* is continuous.

10. **Page 169, Section 7.3:**
Exercise 3(b): Change "closed subsets of *X*" to "closed **nonempty** subsets of ***Y***".
Exercise 5: Change "continuous" to "continuous **and onto**".

11. **Page 173, Section 7.4, Exercise 5**: insert the word **Hausdorff** in front of the word BW-space.

12. **Page 178, Exercise 5:** replace 'isomorphic' by 'homeomorphic'.

13. **Page 183, Exercise 1:** replace the first appearance of X_j by X_i.

14. **Page 187, the definition of *regular space***: I would have rather stipulated that $x \notin F$, even though this follows from the rest of the definition.

15. **Page 190, Section 8.1, Exercise 3.** Change it to the following:

Let *A* and *B* be two disjoint subsets of a space *X*. Show that if there are *U* and *V* that separate *A* and *B* then $\{A,B\}$ is a separation of the subspace $A \cup B$ of *X*. Show that the converse is false in general.

16. **Page 194, Section 8.2, Exercise 9 (b):** Insert at the beginning of 9 (b) the sentence **'Let *D* be a countable dense subset of *X*,'** and replace $f(Y)=U_Y$ by $f(Y)=U_Y \cap D$.

17. (Error noticed by Lewis Robinson) **Page 200, line 6**: change $f_1(x)$ to $f_2(x)$.

18. (Error noticed by Lewis Robinson) **Page 230, line 1**: change $F: C \times I \to I$ to $F: C \times I \to C$.

19. (Error noticed by Lewis Robinson) **Page 251, line 10**: change $\cos 2\pi$ to $\cos 2\pi s$.

20. (Error noticed by Lewis Robinson) **Page 253, line 18**: change $c \le 0$ to $c \ge 0$.

21. (Error noticed by Lewis Robinson) **Page 271, line 3 from the bottom**: change *F* to *G*.

22. (Error noticed by Lewis Robinson) **Page 317, line 7 from the bottom, spelling typo**: change *'immerge'* to *'emerge'*.

23. **Pages 322-325:** To ensure that $\bigcap_{i=0}^{\infty} U_i \neq \varnothing$, so that we can choose the base point *x* in $\bigcap_{i=0}^{\infty} U_i$, modify the old sets U_i to $U_i \cup H$, where H is any half-space bounded to the left by a vertical plane Σ that is to the right of AHS.

24. (Error noticed by Lewis Robinson) **Page 334, line 2 from the top**: change $[c,d),(c,d]$ to $\varphi_k^{-1}([c,d)),\varphi_k^{-1}((c,d])$.

25. **Page 380**: the second appearance of *f* in the second line of the proof should be without a tilde over it. For what it's worth, the tilde was inserted there by the typesetters between the proofreading #m and the proofreading #(m+1). I have not requested that, and there was no editing nearby.

26. (Error noticed by Lewis Robinson) **Page 400, line 2 from the bottom**: the word 'continuous' is redundant. Delete.

27. **Page 410, the second sentence of the part (a) of the proof of Proposition 3:** replace *X* with *x*, and add 'containing *y*' at the end of the sentence.