

**Errata**

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Errors and other suggestions for *A Programming Approach to Computability*, A. J. Kfoury, Robert N. Moll and Michael A. Arbib, published by Springer-Verlag.

1. Page 128.  $\{A\}\mathcal{S}\{C\}$  in “denominator” of R3.
2. Page 250. Roger’s Isomorphism.
3. Page 239. The definition of  $\mathbf{N}$ .
4. Page 85. First pred operator on the page should be  $X2 := \text{pred}(X1)$ .
5. Page 81. In the two instances of the  $s_n^m : \mathbf{N}^{n+1} \rightarrow \mathbf{N}$  the exponent should be  $m + 1$ .
6. Page 81. A better solution to the “overwrite” problem is the well known programmer’s trick:

```

begin
  Xm+n := Xn ;
  Xm+n-1 := Xn-1 ;
  ...
  Xm+1 := X1 ;
  Xm := Ym ;
  ...
  X1 := Y1 ;
end

```

7. Page 70. The subscript is wrong, it should read  $\pi_2(\pi_1^{k-l}(i))$ .
8. Page 24. The second flow diagram is different in two editions of the book. In one, the leftmost branch returns to just above the first diamond, in the other, it returns to the top.
9. Page 169. Problem 6b, typo *funcitons*.

10. Page 209. This definition of bounded minimization does not jive with exercise 9 of section 2.3.
11. Page 30. An improvement is suggested: make explicit the following relations:

$$\begin{aligned}\min(x, y) &= x \dot{-} (x \dot{-} y) \\ \max(x, y) &= x + (y \dot{-} x)\end{aligned}$$

12. Page 207. First line after the first display. Close  $\text{succ}(U_1^3(x_1, x_2, x_3))$ .
13. Page 213. Missing parens around  $n - 1$  in the definition of  $h$ .
14. Page 210. Program for power has a bug for  $m = 1$ .
15. Page 208. Choosing something other than naturals over which to interpret variables might lead to partial primitive recursive functions(?). Do the naturals have to be explicitly invoked somewhere?
16. Page 211. Definition 11 has too strong a requirement for  $f(n)$ . It must be total else history is not defined. But if it must be primitive recursive, Theorem 12 is pointless.
17. Page 211. Last sentence "it gives us [a] primitive recursive encoding for [a] finite sequence."
18. Page 219. Picture in middle of page, one too many arrow-heads.
19. Page 240.  $\alpha$  should be ' $\alpha$ '.
20. Page 221. Definition 23, require  $n \geq 1$ .
21. Page 106. Second line in the displayed derivation of  $\xi_{n+1}$ ,  $n + 1$  must be  $n - 1$ .
22. Page 201. The start state is incorrect. Add  $(q_s, B, B, R, q_0)$ .
23. Page 222. The `if Z <> 1` is unnecessary.
24. Page 222. What is  $\pi_2(x)$  for  $x$  undefined?

25. Page 232. Example 12 *is* ambiguous. Change S2 in S1 production to S1.
26. Page 226. “where  $x$  and  $y$  are unary encodings of  $y$  and  $y$ ”.
27. Page 205.  $times(x, 0) = x$ .