Each item in this list of corrections and emendations is in the form

\[ a/b/c: \text{A} \implies \text{B} \ [C] \]

to indicate that, at the location specified, A should be replaced by B, with C an optional comment.

The location specification \( a/b/c \) means page \( a \), paragraph or item \( b \), and line \( c \), with a positive(negative) \( b \) or \( c \) meaning a count from the top(bottom) of the page or the specified paragraph.

For example, both 5/5/1 and 5/-1/-3 refer to the same line, the one on page 5 that begins “This example was rigged...”

Either A or B can be empty, and \([C]\) rarely occurs. An A of the form A1...A2 indicates the entire text starting with A1 and ending with A2, with \(...\), if used in B, standing for the entire text between A1 and A2.

\[ v/\text{Chapter 2/1: Polynomial} \implies \text{Polynomials} \]
\[ 1/-10: \text{integral} \implies \text{integer} \]
\[ 13/2/11: \text{such as} \implies \text{such as the last expression in} \]
\[ 19/1/: \text{better: retain the full number computed but carry along a pointer to the last significant digit} \]
\[ 19/2/5-8: \text{This assumption ... random variables} \implies \text{This means that we adopt a stochastic model of the propagation of round-off errors in which we treat the local errors as random variables.} \]
\[ 23/4/1: \text{has a zero of order} \implies \text{has a zero of (exact) order} \]
\[ 24/-1/: \text{mention rigorous a posteriori error bounds used in existence proofs} \]
\[ 31/1/-2: \text{effective} \implies \text{effective polynomial} \]
\[ 33/-1: \text{auxilliary} \implies \text{auxiliary} \]
\[ 36/4/4: \text{of} \implies \text{of} \]
\[ 38/2/-2: \text{at most} \implies \text{at most} \]
\[ 38/3/1: \text{at least} \implies \text{at least} \]
\[ 41/2/2: (x - x_1) \implies (x - x_0) \]
\[ 41/2/3: + \implies +(x - x_0) \]
\[ 43/\text{Figure 2.1/heading: } x_1 \implies x_i \]
\[ 45/-1: 20 \implies 19 \]
\[ 50/2.4-2/4: p_{i+1,j-1} \implies p_{i+1,j} \]
\[ 54/\text{Figure 2.3 legend/2: dotted} \implies \text{dashed} \]
\[ 63/\text{Example/-1: } \text{[indent flush with rest of Example]} \]
\[ 66/5/6: \text{find then} \implies \text{then find} \]
\[ 66/1/-2: \text{some ... which} \implies \text{any limit point } \xi \text{ of the sequence } \xi^{(1)}, \xi^{(2)}, \ldots, \text{by the continuity of } f^{(n)}(x) \text{ and any such } \xi \text{ must lie in } [\lim x^{(r)}_0, \lim x^{(r)}_n] = [y_0, y_n]. \text{ This} \]
\[ 70/\text{flowchart/second-last box: } ],] \implies ]] \]
\[ 73/3: 15x^5 \implies 15x^4 \]
\[ 79/2/-1: \text{given} \implies \text{assuming} \]
\[ 82/\text{line after label 6: } \text{RETURN} \implies \text{THEN} \mid \text{IFLAG} = 0 \mid \text{RETURN} \mid \text{END IF} \]
\[ 87/\text{Example 3.2b/2: solution ... form} \implies \text{smallest positive zero of} \]
\[ 87/\text{table/}: \text{[replace the content of the table by} \]

\[ 1 \]
105/3/-5: \( a + b - x \) (i.e., a rotation of the \( xy \)-plane of 180 degrees around the point \( ((a + b)/2, 0) \) which leaves the sign of \( f' \) unchanged but changes the sign of \( f'' \)).

110//-6,-5: number of variations \( v \) \( \Rightarrow \) number \( v \) of variations

120/title/: MÜLLER \( \Rightarrow \) MÜLLER [also throughout this section]

122/-2/2: comment cards \( \Rightarrow \) comments

123/fortran program//two lines after label 70: [will this work if the zero is 0?]

156/4.2-8/-1: = (Answers depend crucially on just how rounding is carried out and how substitution is handled, as in SUBST or as in Algorithm 4.2. One can get anything, from the correct solution to a singular system.)

159//4: with \( \Rightarrow \) with symmetric

162/4/2: \( p \) \( \Rightarrow \) \( p \)

164/-1/4: \( A \), storing the factorization \( \Rightarrow \) \( A \), stored on entry

164/-1/4.5: , and storing \( \Rightarrow \) . The program stores the factorization of \( A \) in the same workarray \( W \), and stores

164/-5: \( A \) \( \Rightarrow \) \( A \)

164/-4 to -1: [delete]

169/4.4-9/5: \( \ell_{i1} \) \( \Rightarrow \) \( \ell_{i1}d_{11} \)

169/4.4-9/5: \( \ell_{i,j-1} \) \( \Rightarrow \) \( \ell_{i,j-1}d_{j-1,j-1} \)

169/4.4-9/7: \( \ell_{j1}^2 \) \( \Rightarrow \) \( \ell_{j1}^2d_{11} \)

169/4.4-9/7: \( \ell_{j,j-1}^2 \) \( \Rightarrow \) \( \ell_{j,j-1}^2d_{j-1,j-1} \)

172/2/4: \( p, w \) \( \Rightarrow \) \( p, w \)

173/2/3: , \( \Rightarrow \)

179/Theorem/4: \( u \) \( \Rightarrow \) \( nu \)

180//2: \( u \) \( \Rightarrow \) \( ru \)

181/-2/-4: 50 \( \Rightarrow \) 50a

192/Table/: [the last entry of \( B^mz \) and of \( z^{(m)} \) for all odd \( m \) should be multiplied by \(-1\)]

192/2/7: [move the first \( \lambda_1 \) from the numerator to the front of the fraction]

205/1/-5: 11 \( \Rightarrow \) 8

205/2/2.3: \( p_{i-1} \) \( \Rightarrow \) \( p_i \) [three times]

206/4.8-15/1: matrix \( \Rightarrow \) matrix, i.e., a matrix \( A \) satisfying \( A = A^H \),

212/-1/2: 2 \( \Rightarrow \) 3

214//2: \( s_2 := t_{\text{max}} \) \( \Rightarrow \) \( (s_1, s_2, s_3) := (s_2, s_3, t_{\text{max}}) \)

214/2/6: alright \( \Rightarrow \) alright

215/5.1-1/2: +3 \( \Rightarrow \) \(-3(2x_1 + x_2)\)

216//-14: \( f' \) \( \Rightarrow \) \( f'(x) \)

218//-3: choice \( \Rightarrow \) choices

219/Algorithm/7: \( \ast i \) \( \Rightarrow \) \( \ast i \)
221/3/-6: \( f \implies f' \)

231/3/3: \[ \text{positive ... and } \implies \text{real symmetric and positive definite, i.e.,} \]

231/4/11: \( (\dot{D} - \omega \dot{U}) \implies ((1 - \omega)\dot{D} - \omega \dot{U}) \)

236/2/-3.2: \[ \text{will not ... constructing } \implies \text{would be wasting time and effort if we were to construct} \]

237/Example 6.2/1: \( \pi/4 \implies (\pi/4) \)

237/Example 6.2/-2: \( 203 \implies 4065 \)

238/2/: \[ \text{[replace by the following]} \] If, for some \( q \in \pi_n \), \( \| f - q \|_\infty < \min_i |f(x_i) - p(x_i)| \), \then, for all \( i \), \( \varepsilon(-1)^i(f(x_i) - p(x_i)) > \| f - q \|_\infty \geq |f(x_i) - q(x_i)| = \varepsilon(-1)^i(f(x_i) - q(x_i)) \), \therefore \( \varepsilon(-1)^i(q - p)(x_i) > 0 \) \( \text{for } i = 0, \ldots, n + 1, \text{ an impossibility since } q - p \in \pi_n. \)

242/2/4: \[ \implies , x \]

242//3: \[ \prod_{j=0}^{n+1} = \prod_{j=0}^n \]

243/Figure 6.4/: \[ \text{[solid line slightly wrong]} \]

244/(6.19)/: \[ \geq e^{n/2} \implies = \frac{2^{n+1}}{\pi n} (1 + o(1)) \]

244/3/-1: \[ . \implies ; \text{also, see Problem 6.1-15.} \]

245//: \[ = \textbf{6.1-15} (R.-Q. Jia) \text{Prove that} ||\Lambda^n|| \geq 2^n/[4n(n - 1)] \text{by estimating \( \Lambda^n(1 - 1/n) \) from below.} \]

253/Property 3//-1: \[ . \implies \text{and some } \alpha_k \neq 0. \]

266/ORTVAL/: \[ \text{[the matlab version of this \textsc{fortran} \text{function} was unfortunately omitted from the SIAM reprint but is available in the online file of matlab codes (thank you, Árpád Lukács)]} \]

271/-4: \[ \text{continuous } \implies \text{monotone [also at 274/4/-1, 276/3/-1, 277/-6]} \]

272//5: \[ +2 = i \implies -2 = -i \]

272/(6.51)/: \[ -ix_n \implies -ix_n,j \]

274/2/3: \[ 20 \implies 24 \]

275/Example 6.14/2: \[ \text{the relevant quantities are: } \implies c_r = \hat{f}_N(r) = \langle f, \bm{w}(r) \rangle \text{ with } f := (f(x_j)), \bm{w}(r) := (\omega^{mx_j}) = (\omega^{m}) \text{ and} \]

275/Example 6.14/4: \[ \text{These are ... Furthermore } \implies \text{Thus } \omega^2 = \omega^{-1} = \omega. \text{ Further} \]

275/Example 6.14/-4: \[ \text{Now ... have } \implies \text{Therefore,} \]

275/Example 6.14/-2: \[ -\sqrt{3/4}\omega^{-2} = \frac{1}{3}3/4 \implies -\sqrt{3/4}\omega^{-2} = \frac{1}{3}\sqrt{3/4} \]

281//(6.69)/-2: \[ x^{\pi-1} \implies x^{\pi-2} \]

281//(6.69)/-1:

282//FFT/-13: \[ \text{prime(next)} \implies \text{now} \]

285/PCUBIC: \[ \text{[the matlab version of this \textsc{fortran} \text{function} was unfortunately omitted from the SIAM reprint but is available in the online file of matlab codes]} \]

289/2/: \[ \text{[Another possibility is the \textbf{not-a-knot} end condition which consists in insisting that also the third derivative be continuous across the interior knot closest to the end, thus making the two polynomial pieces nearest to that end be from the same polynomial.]} \]

289//5: \[ 79 \implies 81 \]

290/-1/1: \[ \text{[The input description is incorrect. The input values C(2,2,N) are ignored; only C(1,:), C(2,1), and C(2,N+1) matter.]} \]

294//1: \[ \text{Chap. 2 } \implies \text{Chap.2 and Chap.6} \]

299//2: \[ \text{gets } \implies \text{gets from Exercise 2.7-8 that} \]

307//4: \[ x + b \implies x - b \]

311/1/-2: \[ - \implies + \]

311/-2/-5: \[ \text{nonnegative } \implies \text{nonnegative} \]
312//6: \( = \Rightarrow = - \)
313//-8,-4: \( 6.6 \Rightarrow 6.3 \)
313//-5: \( 3 \Rightarrow 2 \)
313//-4: \( 2 \Rightarrow 3 \)
317//Example 7.3/: [the matlab program for the calculations in this example was unfortunately omitted from the SIAM reprint but is available in the online file of matlab codes]
318//1: \( 8 \Rightarrow 5 \)
321/(7.50)/: \( f_i = \Rightarrow f_i + \)
325//program//statement 4: [delete it]
326/(7.54b)/: \( 1 \Rightarrow b - a \)
327//7.4-4/3: \( 10 \Rightarrow 4 \)
327//7.4-7/-2: accuracy of \( \Rightarrow \) error in
331//2/10: [if we believe the error estimate, why don’t we add it to \( \mathcal{S} \)?]
341/-2/-4: \( h_k^2 \Rightarrow h^{2k} \)
345/7.7-4/3: \( h^2 \Rightarrow h^3 \) [twice]
352//-1: \( \Rightarrow \)
352//-3,-2: involving a relation between \( \Rightarrow \) that relates
352//-2/-4: \( (2 \Rightarrow 2 \)
352/-5: \( a_n \Rightarrow a_{N-1} \)
356//3: \( 8.23 \Rightarrow \ast \) [also on 356//2//3]
359/(8.25)/: \( \xi_n \Rightarrow \eta_n \) [twice; also in 359//-5, 360/(8.26)/, and 360/(8.27)/, since \( \xi_n \) is used in quite a different role further down the page]
361//Theorem 8.2/-3: , \( \Rightarrow \), then
362//-1/2.3: [This objection is now moot given that it is well-known now how to differentiate exactly functions given by a program.]
364/3/2: \( = \Rightarrow = - \)
365//3/-2: NSTEP \( \Rightarrow \) NSTEPS
366/8.5-1/1: local \( \Rightarrow \) local discretization
367/(8.38)/: \( \mathcal{O}(h^{p+1}) \Rightarrow C_n h^{p+1} + \mathcal{O}(h^{p+2}) \) [also at 367/(8.39a)/]
367/(8.38)/+3: \( C(x_n + mh) \Rightarrow C_n \)
367/(8.38)/+4: point \( \Rightarrow \) number
367/(8.38)/+5: \( x = x_n + mh \Rightarrow m \)
367/(8.39b)/: \( \mathcal{O}(h^{p+1}) \Rightarrow 2C_n h^{p+1} + \mathcal{O}(h^{p+2}) \)
367/(8.39b)/+3: \( C_n (\frac{h}{2})^p \Rightarrow 2C_n (\frac{h}{2})^{p+1} \)
371/2/2: outputted \( \Rightarrow \) output
374/1/6: \( 8.43 \Rightarrow 8.44 \)
379/1/6: \( (8.43) \Rightarrow (8.44) \)
381//6.7: and since ... assumption, \( \Rightarrow \)
381//9: [delete]
382/8.8-1/-1: \( |Ah/2| < 1 \Rightarrow Ah/2 \neq 1 \)
382//-7: \( 10 \Rightarrow 19 \)
389/1/9: \( 6 \Rightarrow 3 \)
\[ \beta^2 \ldots 1 \implies (\beta^2 \ldots 1)/(-3) \]

\[ -\frac{1}{2} f_n + \frac{1}{2} f_{n-1} \implies +f_n \]

\[ h \implies +h \]

\[ -1000y \implies -1000x \]

\[ 4 \implies 3 \]

\[ = \implies = 2 \]

\[ \text{McC racken} \ldots, 1964 \implies \text{Dorn, W. S., and D. McCracken, Numerical Methods with Fortran IV Case Studies, John Wiley, New York, 1972.} \]

\[ \text{Lebesgue} \implies \text{Lebesgue} \]

\[ \text{Matrix: Hermitian, 206} \]

\[ \text{Matrix: Hermitian of a, 142} \]

\[ \text{Polynomial forms: Chebyshev, 258} \]

\[ \text{Polynomial forms: orthogonal, 253ff} \]