Errata for the 4th & 5th Printings of the American (blue and green front cover) version of "Understanding Digital Signal Processing, 3/E",

by Richard Lyons

I beg your pardon for the typographical errors in the book. It will not take long to make these corrections. I promise.

-Rick Lyons-

Page 112: In the second line down from the top of the page, the text:

"... width of the main lobe ... "

should be changed to:

"... first zero-crossing ... "

[Found by Richard Lavery (8/20/14)]; [Author Error]

Page 120: Here's a truly strange error by the typesetting people. Equation (3-51), printed as:

$$\sum_{n=-\infty}^{\infty} x(n)e^{-j\omega n}$$

should be changed to:

$$X(\omega) = \frac{\sin(N\omega/2)}{\sin(\omega/2)}.$$

[Found by Stan Shear (4/3/13)]; [Production Error]

On page 144, in Figure 4-2, the lower right four twiddle factors:

W_8^4, W_8^5, W_8^6, W_8^7

should be

$-W_8^0$, $-W_8^1$, $-W_8^2$, $-W_8^3$

[Found by Saul Iverson, 10/3/17.][Author Error]

Page 187: In the line just above Eq. (5-10), the text:

"... as Eq. (3-59), is ... "

should be changed to:

"... as Eq. (3-**47**), is ... "

[Found by Stan Shear (4/4/13)]; [Author Error]

Page 211: In the third line of the last paragraph the text:

"slope of the $H_\phi(m)$ response ..."

should be:

"negative of the slope of the $H_\phi(m)$ response ..."

[Found by Edward Beadle (7/19/16)]; [Production Error]

Page 227: The third term on the right side of Eq. (5-35)

"... $h(2)e^{-j0\omega}$ ..."

should be:

"... $h(2)e^{-j2\omega}$ ...".

[Found by Mark Tachiki (11/28/13)]; [Author Error]

Page 277: The second minus sign in the denominator of Eq. (6-27) should be a plus sign. That equation should be:

$$H(w) = \frac{\sum_{k=0}^{N} b(k)\cdot\cos(k\omega) \; -j\sum_{k=0}^{N} b(k)\cdot\sin(k\omega)}{1 - \sum_{k=1}^{M} a(k)\cdot\cos(k\omega) \; + \; j\sum_{k=1}^{M} a(k)\cdot\sin(k\omega)}$$

[Found by Bert RAM Aerts (8/20/14)]; [Production Error]

Page 278: In the 3rd line from the top, the expression:

"$-\pi \leq \omega \leq +\omega$"

should be changed to:

"$-\pi \leq \omega \leq +\pi$"

[Found by Mark Tachiki (12/5/13)]; [Author Error]

Page 278: The last term in Eq. (6-28)

"... -0.436·(n-2) ..."

has a missing 'y'. It should be changed to:

"... -0.436·**y**(n-2) ..."

[Found by Yancen Li (7/13/14)]; [Production Error]

Page 297: In the 7th line up from the bottom of the page, the text printed as:

"$(3!)^2 = 24$"

should be changed to:

"$(3!)^2 = 36$"

[Found by Bert RAM Aerts (8/30/14)]; [Production Error]

Page 298: In the center Section 2 portion of Figure 6-27, the printed

b'(0)

should be changed to:

b''(0)

[Found by Yancen Li (8/11/14)]; [Author Error]

Page 304: In Figures 6-32(b) and 6-32(c), the 'p' letters in the frequency axes should be the Greek symbol 'π'.

[Found by Author (7/11/16)]; [Production Error]

Page 317: In the eleventh line below Eq. (6-104)

"... 6-21(b). Knowing that ..."

should be changed to:

"... 6-22(c). Knowing that ..."

[Found by Yancen Li (7/14/14)]; [Author Error]

Page 324: In the third line from the bottom of the page, the text

"...in the form of Eq. (6-43)."

should be changed to:

"...in the form of Eq. (6-60)."

[Found by Yancen Li (8/11/14)]; [Author Error]

Page 329: In the fourth line from the top of the page, the text

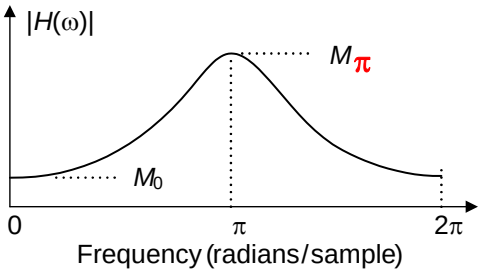
"...design filter in Figure 6-28(a)... "

should be changed to:

"...design filter in Figure 6-36(a)... "

[Found by Yancen Li (8/11/14)]; [Author Error]

Page 345: The right side of Figure P6-26 should look like the following:



[Found by Kip Haggerty (11/22/14)]; [Production Error]

Page 366: The denominators in Eq. (7-10) printed as:

$$h_{SL1}(k) = \frac{-1}{6}, \frac{8}{6}, 0, \frac{-8}{6}, \frac{1}{6} \qquad (7\text{-}10)$$

should be changed to:

$$h_{SL1}(k) = \frac{-1}{12}, \frac{8}{12}, 0, \frac{-8}{12}, \frac{1}{12} \qquad (7\text{-}10)$$

[Found by Author (4/20/14)]; [Author Error]

Page 366: The denominators in Eq. (7-11) printed as:

$$h_{SL2}(k) = \frac{-22}{126}, \frac{67}{126}, \frac{58}{126}, 0, \frac{-58}{126}, \frac{-67}{126}, \frac{22}{126} \qquad (7\text{-}11)$$

should be changed to:

$$h_{SL2}(k) = \frac{-22}{252}, \frac{67}{252}, \frac{58}{252}, 0, \frac{-58}{252}, \frac{-67}{252}, \frac{22}{252} \qquad (7\text{-}11)$$

[Found by Joseph Galante (4/15/14)]; [Author Error]

Page 384: In the sixth line of the paragraph following Eq. (7-31'), the figure callout:

"... in Figure 7-34(b). "

should be changed to:

"... in Figure 7-**16**(b). "

[Found by Jérôme Leclère (10/9/13)]; [Author Error]

Page 467: In Problem 8.9, the minus sign in the denominator should be a plus sign. The following is correct.

$$\tan(\alpha) = \frac{e^{j\alpha} - e^{-j\alpha}}{j(e^{j\alpha} + e^{-j\alpha})}.$$

[Found by Lee Fugal, (1/5/13)]; [Author Error]

Page 515: **In Figure 10-5(c) the frequency axis labels marked**

$(-3f_{s,old})$ and $(3f_{s,old})$

should be:

$(-3f_{s,new})$ and $(3f_{s,new})$.

[Found by Author, (2/25/17)]; [Author Error]

Page 574: In the next to the last line before Figure P10-11, the complex-valued expression:

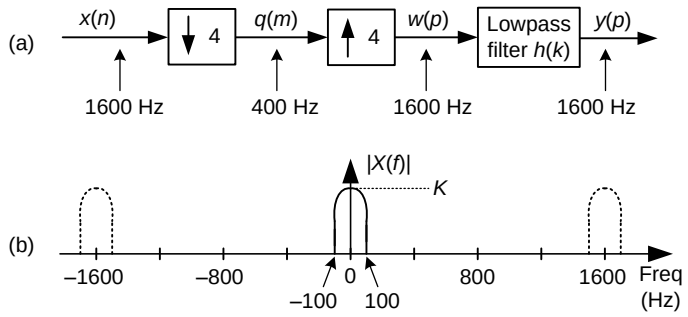
$$e^{-j2n/4}$$

has a missing π symbol. It should be changed to:

$$e^{-j2\pi n/4}$$

[Found by Renato Lopes, (10/29/13)]; [Author Error]

Page 578: For some reason the wrong figure was printed for Figure P10-17. The correct Figure P10-17 is:



[Found by Prof. Renato da Rocha Lopes (9/17/13)]; [Production Error]

Page 604: In the second line of Eq. (11-20'), the 2nd term in parenthesis:

$(-0.9239 + j0.3827)$

should be changed to:

$(-0.9239 - j0.3827)$

[Found by Jérôme Leclère (10/9/13)]; [Author Error]

Page 648: On the 2nd and 3rd lines down from the top, the references to Eqs. (D-11) and (D-12) should be changed to Eqs. (D-28) and (D-29).

[Found by Prof. Kip Haggerty (1/1/16)]; [Author Error]

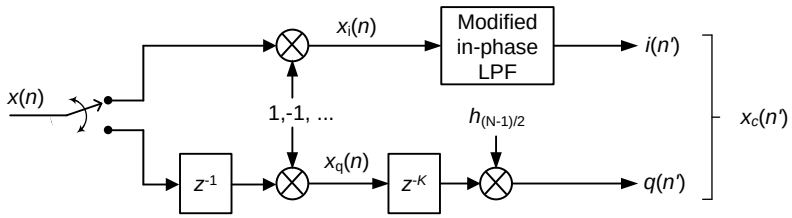
Page 675: In Figures 13-4(b) and 13-4(c), the hyphens, "-", near the top of the vertical axes' $\phi_I(m)$ and $\phi_Q(m)$ labels should be deleted.

[Found by Jérôme Leclère (10/9/13)]; [Production Error]

Page 678: in the fifth line down, delete the text:

"...followed by another K delay..."

In Figure 13-6(c) the final z^{-K} delay block should be deleted making that figure become:



[Found by Brian Frantz, 8/8/17.][Author Error]

Page 741: In the first line of Table 13-4, the two values:

Real multiplies	Real additions
4N	2N

should be changed to:

Real multiplies	Real additions
2N	**2(N-1)**

[Found by Pavel Rajmic (3/5/14)]; [Author Error]

Page 748: In the first line of Table 13-5, the four values:

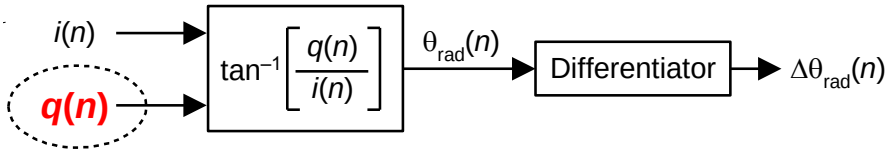
Real multiplies	Real additions	Real multiplies	Real additions
4N	2N	4N	2N

should be changed to:

Real multiplies	Real additions	Real multiplies	Real additions
2N	**2(N-1)**	**2N**	**2(N-1)**

[Found by Author (3/5/14)]; [Author Error]

Page 759: In Figure 13-60, the two inputs to the arctangent operation should be:



[Found by Kendall Castor-Perry (8/10/12)]; [Production Error]

Page 828: The π symbols in the exponents of both sides of Eqs. (13-170) and (13-170') are missing. The equations should be:

$$e^{-j2\pi(m+N/2)/N} = -e^{-j2\pi m/N} \qquad (13\text{-}170)$$

and

$$e^{-j2\pi(m+N/4)/N} = -je^{-j2\pi m/N} \qquad (13\text{-}170')$$

[Found by Jérôme Leclère (10/9/13)]; [Production Error]

Page 830: In the fifth line of the first paragraph the text:

"... $k(0 \text{"} k \text{"} N-1)$ ..."

should be:

"... $k(0 \leq k \leq N-1)$ ..."

[Found by Edward Beadle (7/19/16)]; [Production Error]

Page 854: The cube root bar on the right side of Eq. (A-27) should not extend over the angle argument. The right side of Eq. (A-27) should look as follows:

$$\ldots = \sqrt[3]{125}\, e^{j(75^o+n360^o)/3} \qquad \text{(A-27)}$$

[Found by Turki Almadhi & John W. Obrien (12/14/11)]; [Production Error]

Page 875: Two corrections: On the left side of the second line of Eq. (D-12), the term:

"... $-\cos(\omega t)]$ ..."

should be changed to:

"... $-\cos(2\omega t)]$ ..."

On the right side of the second line of Eq. (D-12), the term:

"... $-\frac{1}{2}(\sin(\omega t))$..."

should be changed to:

"... $-\frac{1}{4}(\sin(2\omega t))$..."

[Found by Julian Vrbancich, 10/23/12; [Author Error]

Dear Reader, if you find any additional errors, no matter how trivial, please notify me at: **R.Lyons@ieee.org**
I'd sure appreciate hearing from you and I promise I'll reply to your E-mail.

Thanks,
[-Rick Lyons-]