Errata for *Basic Electronics for Scientists and Engineers*

Last update: March 18, 2024

Page 61, Eq. 2.124: plus and minus signs should alternate as follows:

$$f(t) = \frac{8V_p}{\pi^2}\left[\sin\omega_1 t - \frac{1}{9}\sin 3\omega_1 t + \frac{1}{25}\sin 5\omega_1 t - \frac{1}{49}\sin 7\omega_1 t + \cdots\right]$$

Page 67, Exercise 16: The answer for this exercise (p. 236) is wrong, as is the solution in the instructor's manual. The correct output will look something like the RC=T/2 case in Fig. 2.7. Alternately, the answer is correct if we add the following (admittedly contrived) assumption to the exercise: Assume the filter totally blocks any frequencies above the breakpoint frequency.

Page 129, Eq. 4.50: There is an extra v_1 at the end of the equation. It should read

$$v_1 = v_{\rm in} + \beta v_{\rm out} = v_{\rm in} + \beta i_{\rm out} R_L = v_{\rm in} + \beta R_L\left(\frac{a v_1}{R_L + r_{\rm out}}\right).$$

Page 221, Fig. 8.34: The labels on two of the inputs are reversed. The one labeled S should be R, and the one labeled R should be S.

The expressions for Z_{out} for the common-collector amplifier (page 123, Eq. 4.37) and the common-drain amplifier (page 148, Eq. 5.21) are incorrect. The correct expressions are as follows. The the common-collector amplifier, $Z_{out} = \frac{R_e(r_{be}+R'_B)}{R_e(\beta+1)+r_{be}+R'_B}$, where $R'_B = R_B||R_s$, and R_s is the source resistance (see the setup for the example in Fig. 4.14). It is necessary to include this in the calculation because for this case i_b is a function of R_L and so does not simply cancel as in the derivation of other quantities. For the common-drain amplifier, $Z_{out} = \frac{R_s}{1+g_m R_s}$. Again, the error stems from the fact that v_{gs} is a function of R_L and so does not simply cancel as in the derivation of other quantities.

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