

# Errata

This document attempts to correct and clarify material in “A Practical Guide to Lightcurve Photometry and Analysis”. If you think you’ve found an error or something that needs revision, please send an email to the author

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I won’t guarantee that matters of writing style (toe-MAY-toe versus toe-MAH-toe) will be included, but they will be considered.

## Chapter 4

On page 34, formula 4.9 should read

$$\text{SNR}_{\text{mag}} = 1.0857 / \text{SNR}_{\text{flux}} \quad (4.9)$$

## Chapter 5

Equations should be modified *not* to use “\*” for multiplication. Therefore, something like  $T_V \text{CI}$  means “the transform  $T_V$  times the color index, CI”

Equation 5.1 can be stated more clearly by

$$V = v - k'_V X + T_V \text{CI} + \text{ZP}_V \quad (5.1)$$

where	$V$	reduced standard V magnitude
	$v$	instrumental magnitude in V filter
	$k'_V$	first-order extinction in V
	$X$	air mass at the time of the observation
	$T_V$	transformation for V filter
	CI	standard color index of star (B–V, V–R, or V–I)
	$\text{ZP}_V$	nightly zero-point for V filter

Equation 5.2 is incorrect. It should read

$$V - v_o - T_V \text{CI} = \text{ZP}_V \quad (5.2)$$

where	$v_o$	instrumental V magnitude, corrected for first order extinction, i.e., $v_o = k'_V X$
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For consistency, Equation 5.3 can be modified to

$$\Delta M_f = (m_{fo} - m_{fc}) + T_f (CI_o - CI_c) \quad (5.3)$$

where	$\Delta M_f$	differential magnitude, filter f
	$m_{fo}$	instrumental magnitude of target, filter f
	$m_{fc}$	instrumental magnitude of comparison, filter f
	$T_f$	transform, filter f
	$CI_o$	standard color index for target, e.g., (V-R)
	$CI_c$	standard color index for comparison, e.g., (V-R)

For consistency, Equation 5.5 can be modified to

$$M_f - m_f = T_f CI + [ZP_f - k'_f X] \quad (5.5)$$

where	$M_f$	catalog standard magnitude, filter f
	$m_f$	instrumental magnitude, filter f
	$T_f$	transform value, filter f
	CI	color index, i.e., (B-V), (V-R), or (V-I)
	$ZP_f$	zero-point offset, filter f
	$k'_f$	first order extinction, filter f
	X	air mass

For consistency and clarity, modify Equation 5.6 to

$$CI_s = (CI_i - k'_{ci} X) + ZP_{ci} \quad 5.6$$

where	$CI_s$	standard color index
	$CI_i$	instrumental color index
	$k'_{ci}$	first order extinction for given color index
	$ZP_{ci}$	zero-point offset for given color index

For consistency and clarity, modify Equation 5.7 to

$$M_r = M_f - M_i - T_f CI \quad 5.7$$

where	$M_r$	Reduced magnitude of star
	$M_f$	Catalog standard magnitude of star
	$M_i$	measured instrumental magnitude
	$T_f$	transform for filter used
	CI	standard color index of star, e.g., (V-R)

For consistency and clarity, modify Equation 5.9 to

$$CI = T_{CI}((m_1 - k'_1 X) - (m_2 - k'_2 X)) + ZP_{CI} \quad 5.9$$

where	CI	standard color index for (B-V), or (V-R), or (V-I)
	$m_1$	instrumental magnitude of first color of index
	$k'_1$	first-order extinction for first color
	X	averaged air mass of target field
	$m_2$	instrumental magnitude of second color of index
	$k'_2$	first-order extinction for second color
	$T_{CI}$	hidden transform slope
	$ZP_{CI}$	hidden transform intercept

For consistency and clarity, modify Equation 5.10 to

$$M_f = m_f - X(k'_f + k''_f CI) + T_f CI + ZP_f \quad 5.10$$

where	$M_f$	converted standard magnitude, filter f
	$m_f$	raw instrumental magnitude, filter f
	$k'_f$	first-order extinction, filter f (not color index)
	$k''_f$	second-order extinction, filter f (not color index)
	X	air mass
	$T_f$	transform, filter f (not color index)
	CI	standard color index of the object, e.g., V-R
	$ZP_f$	zero-point offset, filter f

For consistency and clarity, modify Equation 5.11 to

$$\Delta m_f = m_{fo} - m_{fc} \quad 5.11$$

where	$\Delta m_f$	differential magnitude, filter f
	$m_{fo}$	instrumental magnitude of the object, filter f
	$m_{fc}$	average instrumental magnitude of comp(s), filter f