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Appendix A

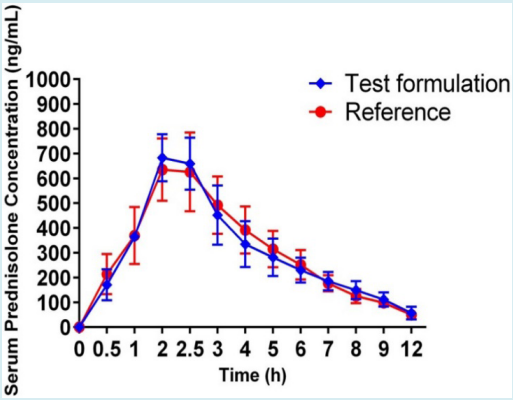


Figure A1: Mean prednisolone concentration vs. time curves.

Open in a separate window

Figure A1 Mean prednisolone concentration vs. time curves over 12 hours in adult healthy Bangladeshi volunteers (n = 14). Bashar, et.al. Dose Response, V. 16(3) 2018.

Appendix B

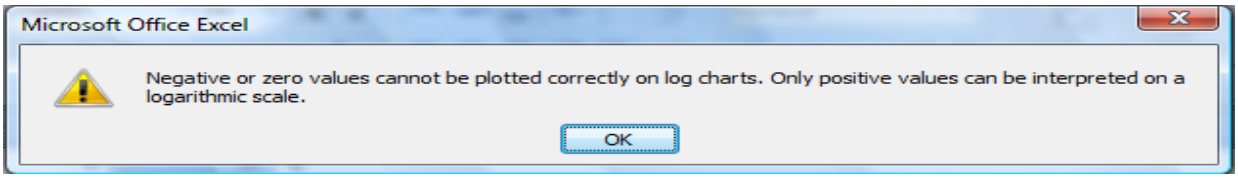
Foundation and Key Features of The Alpha Beta (αβ) MATH

Foundation: Two Axioms in αβ math are: Axiom I on continuity and Axiom II on asymptote.
Axiom I: Continuity exists for all collection of continuous numbers. Continuous numbers are dynamic, non-terminating, monotonically increasing or decreasing and can never be forced to stop (It is dishonest to use the uncertain word "infinity" as a disguise to stop the continuity).
Axiom II: Asymptote is approachable but cannot be touched or crossed by the continuous nonlinear numbers, i.e., asymptote is never a part of the continuous nonlinear numbers.

Classification of Continuous Numbers: Continuous numbers are classified into linear and nonlinear based on asymptote. Liner numbers have no asymptote, such as ...-3, -2, -1, 0, 1, 2, 3, 4... having a linear zero sandwiched between positive and negative numbers; nonlinear numbers are associated with one or two asymptotes, such as ...10^{-3}, 10^{-2}, 10^{-1}, 10^{0}, 10^{1}, 10^{2}, 10^{3}, 10^{4}..., with a nonlinear zero as baseline asymptote. The above nonlinear numbers decrease in steps from right to left toward nonlinear zero but will never reach or touch the nonlinear zero. Asymptote is never part of the nonlinear numbers. Not all the zeroes are the same; there are two types of zero, linear zero and nonlinear zero. [*Note: "numbers" refers to a series or a set of numbers. We use it either as singular or as plural].

Standard Scale for Nonlinear Number: The standard scale for nonlinear numbers is a 10 based logarithmic scale.

The characteristic of the nonlinear number is the existence of a nonlinear zero, which is approachable but cannot be reached or touched. When trying to plot a zero value on a logarithmic graph using a Microsoft Excel, we will get a warning banner telling us we cannot plot a zero in the logarithmic scale (See warning sign below). The nonlinear zero is approachable but cannot be touched or plotted on the graph.



Define the Face Values

Face values of the numbers are different for linear and nonlinear numbers.

For linear numbers, the face values are the same as the true values. For nonlinear numbers, the nonlinear face values are the measurement of nonlinear variables relative to their asymptotes, such as (Yu – Y), (Xu – X), and (qYu – qY); the true values of nonlinear numbers are obtained by nonlinear logarithmic transformation of the nonlinear face values, such as q(Yu – Y), q(Xu – X), and q(qYu – qY).

Expression of Equations

We designate "d" as "change" for equations on all occasions. For linear cases, we read the differential equation dY = KdX as the change of linear Y is proportional to the change of linear X, where K is the proportionality constant. For nonlinear cases, the change of the true values is d(q(Yu – Y)), d(q(Xu – X)), and d(q(qYu – qY)). There are two ways to read these three terms: The first way is to read the "d" first as "the change of nonlinear true values q(Yu – Y)", etc.; the second way is to address the nonlinear logarithmic "q" first and read them as "the nonlinear change of face values (Yu – Y)" etc. For reading differential equations involving the nonlinear numbers, we read d(q(Yu – Y)) = KdX as the change of nonlinear true values q(Yu – Y) is proportional to the linear change of linear numbers X, or the nonlinear change of face values (Yu – Y) is proportional to the linear change of linear numbers X etc. For the nonlinear cases involving a higher order of nonlinearity, we read d(q(qYu – qY)) = KdX as the change of nonlinear true values q(qYu – qY) is proportional to the linear change linear values X; or the nonlinear change of nonlinear face values (qYu – qY) is proportional to the linear change of linear value X.

Expression with Graphs

There are four types of graphs: primitive elementary, primary, leading, and proportionality graphs. Primitive elementary graphs are the plot of vertical elementary y versus various horizontal X either as a column graph or as a line chart. The primary graphs are the plot of cumulative Y or demulative Y versus cumulative X. Leading graphs are the graphs having an asymptotic curve with continuous changing of the slope. Proportionality graphs are the graphs with a straight line expressible as a two-parameter proportionality equation.