Rosenswig 2019 Supplemental Text

An additional issue I raise in the context of cross-dating archeological sites is the application of Bayesian statistics to large numbers of unassociated radiometric dates. Love (2018) raised the problem of using old radiometric dates, especially those with very large error ranges and associating them with vaguely defined ceramic complexes and/or imprecisely documented stratigraphy. An equally grave problem is Bayesian manipulation of dates that are not found in stratigraphic association with each other. Stratigraphic association from superimposed cultural layers provide independent parameters for limiting date ranges beyond what is provided by the radiometric results themselves, as well as the error ranges inherent to any assays. However, it adds little precision to use such statistical manipulations between excavation contexts lacking demonstrable stratigraphic association within a site and even less for dates from two or more sites. Unless there is some independent reason to assume two deposits date to the same event (e.g., flood, volcanic eruption), there is no reason to assume a prior relationship between ceramically-defined phases. As radiometric dates are themselves only statistical probabilities, positing that two dates associated with the same ceramically-determined phase are contemporaneous introduces an interpretive assumption in the guise of statistical objectivity. I have no problem with archaeologists making interpretive judgments. I do have a problem with presenting informed professional judgments in the guise of statistical objectivity – as is implicit when Bayes’s name is associated with date ranges.