Assemblage size dependence, “SHE” analysis, and lithic variation in Paleolithic assemblages
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Lithic assemblages recovered from Eastern European Paleolithic record have been published in varying degrees of detail aiming mostly toward assigning them to different “type” sites or techno-complexes, facies of the Middle and Upper Paleolithic. This is an essentialist view that sees assemblages as only the expression of activity and/or cultural activity. An opposing materialist view (Schiffer 1987; Shott 2008) implies that assemblage size and composition are correlated variables, and composition varies as size increases. If sites are mainly the result of activities and/or identity or both than their composition should not be size dependent. A data fit to log-series model is what we should expect for an essentialist definition, although caution is required for assemblages dominated by a small category of tools. A log-normal fit, is to be expected if the assemblages behave according to a Materialist view.

Results
As stated at the beginning of this presentation, if those occupational layers were instances of a certain essentialist “type” the assemblage measures should display constant results among them. However the results show that they do not. Looking at the unaccumulated data first, \( \ln(S) \) (\( r = 0.08 \) and then \( \ln(N) \). This demonstrates a size dependence in the discussed assemblages, despite supposed identity. Fig 2. “SHE” analysis proceeds by accumulating assemblages by depth and plotting \( \ln(S) \), \( \ln(H) \), and \( \ln(E) \) jointly against \( \ln(N) \) (Fig. 2). Separate regressions of these measures, as suggested by Buzas and Hayek (2005), have given very significant results and the slope coefficients for testing the data fit to either log-series or log-normal models (Buzas and Hayek 2005). Moreover the ratio \( \ln(E)/\ln(S) \) is nearly constant which is also an expectation for the log-normal model.

The results presented here fit better the log-normal model for heterogeneous assemblages as the results of complex formation processes, despite assigning them to a certain assemblage type.

Conclusion
Just as in other applications (Shott 2008, 2015) “SHE” analysis shows how important other of size-dependence and other variations are for the understanding of archaeological record.

This is true not only for Paleolithic assemblages, but also for the study of contemporary hunter-gatherers assemblage formation (Shott 2010). “SHE” analysis is another kind of analysis which strongly questions the reality and usefulness of site “types” and/or facies in archaeological contexts.

References List


