

### From Genes to Memes: Population Genetics in Anthropology

Recently there has been an intense interest in using population genetics theory to tackle questions in evolutionary anthropology and archaeology. Researchers studying cultural evolution, the study of how cultures change and adapt through time, see population genetics as a complementary discipline. Anthropologists are currently adapting measures and theory from population genetics to archaeological data sets and cultural evolutionary problems. It remains to be seen, however, how appropriate these measures are to anthropological data. The current presentation covers how anthropologists have operationalized population genetics issues and some their benefits and drawbacks. To illustrate these points, the presentation focuses on two interrelated issues: transmission mechanisms and effective population size. There are a variety of different transmission mechanisms in cultural evolutionary studies, ranging from unbiased to vertical to conformist transmission. Each of these regulates diversity and group differentiation differently. While transmission in cultural evolution can take a much different form than parent-to-offspring reproduction in biology, anthropologists have made strides into how they affect evolutionarily-relevant processes. Effective population size is a much more complicated and misunderstood issue in cultural evolutionary studies. While it is understood to be very important and a whole suite of “demographic hypotheses” have been proposed with effective population size as the prime mover of cultural change, it remains contentious as to how to measure or define it in cultural evolutionary terms. In conclusion, population genetics remains a fruitful area for cultural evolutionary research and there are many complementary issues. The devil is in the details, however, and anthropologists must be careful in understanding that measures designed for one discipline will never be a one-to-one match for another. For example, taphonomy, site-formation processes, and time-averaging all conspire to make connections between archaeology and population genetics difficult.

#### References

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