

Spatial Data Analysis in Archaeology
Anthropology 589b

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3.20.07

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Spring 2007

Problem Set 6: Middle-Woodland Mantel

The Problem

Braun (1985) and Neiman (1995) came to different conclusions about the trajectory of change in the spatial scale of interaction and social learning among potters living in central Illinois in the Woodland Period. How do their accounts differ and how might using the Mantel statistics help us decide which account is more likely to be right (or if neither is right – always a possibility!)

Use the code in Mantel.sas to analyze change over time in the correlation between assemblage distance and geographical distance. Explain how the assemblage distance measure (or measures) that you use work. Given the variables being measured, what kinds of processes will create big or small inter-assemblage distances? What are the likely connections among the assemblage distance measures, their correlation with geographical distance, and the social dynamics of the past?

Following Braun and Neiman, use the thickness classes into which the sherds fall to control for time. To do this, you will need to do a separate Mantel analysis for each thickness class. Given the way the IML code is set up, the SAS dataset that is read into IML can only contain a single thickness class at a time. To make sure it does use the following SAS data step:

```
data WoodlandIllinoisData1; set WoodlandIllinoisData;  
if tclass = 'mm02_4';
```

The second line is a "subsetting if" statement – it tells SAS to include only those records from the input dataset (WoodlandIllinoisData) in the newly created output dataset (WoodlandIllinoisData1) for which the IF clause is TRUE. As a result the new dataset will only contain records for the 2-4mm thickness class, and no others. For the general scoop on how SAS data steps work, have another look at the Introduction to SAS on the course website.

Neat, albeit in a geeky kind of way, huh?

What to Turn In

A short (< 2 page single spaced) description of the problem, the methods you used to address it, your results, and your conclusions. Come to class prepared to describe your results. Due date: 03.26.07.