Github Typology Program Read Me

About the Program

This program was developed by Matthew Martino in collaboration with Shannon Martino initially to assist in her dissertation research on clay figurines. Since then it has been used to analyze pottery as well. This method is meant to be a more objective way to create a typology than traditional methods used in archaeological or art historical research. To see the publication of this research see Shannon Martino's Dissertation "The Intersection of Culture and Agency as Seen Through the Shared Figurine Genre of the Prehistoric Southwest Black Sea" on Proquest and the 2018 publication by both Shannon and Matthew Martino: "A Quantitative Method for the Creation of Typologies for Qualitatively Described Objects," in Vanessa Bigot Juloux, Amy Rebecca Gansell, and Alessandro di Ludovico eds. *Cyberresearch on the Ancient Near East and Neighboring Regions: Case Studies Archaeological Data, Objects, Texts, and Digital Archiving*. The steps to use the program are outlined below, along with a few tips.

Steps

1. You need to create two types of files a .doc file and a .txt file
    a. TXT File Format, with name "config.txt"
    First line: number of items (just the number on the first three lines)
    Second line: number of attributes
    Third line: difference parameter
    Rest of lines: Name of Attribute, type of attribute, then weight all separated by commas. Use a number to indicate type: 0 for boolean, 1 for quantitative, 2 for qualitative, e.g. "Vertical Rim, 1, 2", for an attribute called "Vertical Rim", that is quantitative, that has a weight of 2.

    THE NUMBER OF LINES FOR ATTRIBUTES SHOULD BE THE SAME AS THE NUMBER OF ATTRIBUTES YOU LISTED ABOVE

    b. CSV file of your objects, name "items.txt"
    This should be exported from another file where you have your database of objects, but the values that are input for each attribute should be numerical.
    Boolean should be 0 for no, 1 for yes, or .5 for unsure.
    Quantitative should be whatever number they are.
    Qualitative: Each different category should be a different integer.

    Note: Missing values will greatly hinder the creation of types.

2. Place all in same file with .exe or your own version of the compiled code
3. Run

How to Understand Your Results

1. Your results will be saved in a file called output.txt

2. After opening the file you will see output groups numbered from 0 onward. They may be nonconsecutive, as some numbers may be missing because the core formed did not have any members
3. Analyze your results to see if the groups created reflect actual types or if you need to change the difference parameter or attributes. It may be that some types will appear at lower difference parameters than others.
4. To some extent the order of the groups indicates the diversity of the groups, with the least diverse members appearing first, this also holds true for the difference parameter. A larger difference parameter will corral more diverse objects into the same groups.
5. It is suggested that you run the program multiple times with different starting parameters.