

A Factor Analysis of Six Measures Extracted from the Battig and Montague (1969) Category Norms: Evidence for Three Properties of Categories in Semantic Memory¹

DOUGLAS J. HERRMANN², ROGER J. S. CHAFFIN³

University of Delaware

AND ALBERT T. CORBETT⁴

Brown University

Several investigations of the role of categories in semantic memory have studied the variable of category size. It is possible that categories possess other properties which also affect processing. Consequently, a study of the 56 categories in the Battig and Montague (1969) norms was undertaken to determine what other properties categories may possess. Six different measures were computed for each category, three of which were originally reported by Battig and Montague. A factor analysis of the intercorrelations of the six measures indicated that at least three factors underlie the data in the Battig and Montague norms. These three factors were tentatively interpreted as reflecting the properties of category size, category accessibility, and category familiarity.

Taxonomic categories have often been employed to investigate semantic memory. For example, a widely used procedure has been the categorization task which requires a subject to decide whether or not a word is a member of a target category (Landauer & Freedman, 1968; Collins & Quillian, 1970; Meyer, 1970; Meyer & Ellis, 1970; Wilkins, 1971; Landauer & Meyer, 1972; Chaffin, 1972; Rips, Shoben, & Smith, 1973). Categorization experiments have focused on response latency as a function of category size, that is, the number of members in a category. In varying a property of categories such as size,

an investigator should hope to have the experimental categories matched or controlled on all other category variables which may affect the speed of a decision. However, investigators have been unable to control other properties of categories besides size because no other properties have been identified. The purpose of the present research was to identify some of the factors which possibly should be controlled when studying a property of categories in semantic memory.

In order to discover the properties in which categories differ, it was necessary to obtain a pool of data for a large number of categories. Consequently, the Battig and Montague (1969) category norms, which present restricted association data for 56 categories, were selected for study. Descriptive measures of the category data were extracted from the norms and the relationships of the measures were examined by means of correlation and factor analysis.

The data reported in the Battig and Montague norms permit the following measures to be extracted for each category: the total

¹ The authors wish to express their gratitude to John B. Carroll, John P. McLaughlin, David E. Meyer, Thomas K. Landauer, Ludwig Mosberg, and Jay Price for their invaluable help at various stages of the present research.

² Requests for reprints should be sent to Douglas J. Herrmann, Department of Psychology, Stanford University, Stanford, California 94305.

³ Now at the Department of Psychology, University of Illinois.

⁴ Now at the Department of Psychology, University of Oregon.