

Data from the immediate recall task of the Consortium to Establish a Registry for Alzheimer's Disease (CERAD) neuropsychological test battery were disaggregated into nine subject groups and analyzed with traditional statistics as well as with a general processing tree (GPT) model of free recall. The groups represented four levels of severity of Alzheimer's and Vascular dementia, as well as a ninth group of healthy elderly controls. It was demonstrated that the patterns of success and failure of recall to individual items across successive trials contained much more information than the marginal trial-to-trial performance scores traditionally used in scoring the test. The GPT model analyzed recall performance in terms of three levels of item storage; unstored, intermediate, and long-term. Associated with the intermediate and long-term storage levels were respective retrieval parameters. Statistical methods enable one to estimate the parameters for each group, and the analyses revealed group differences in long-term storage that were not evident in a traditional statistical analysis of the performance scores.