

Roemaker D L, Thompson C P & Brown S C. Comparison of measures for the estimation of clustering in free recall. *Psychol. Bull.* 76:45-8, 1971.
[Kansas State University, Manhattan, KS]

Five measures of clustering are compared and their relative strengths and weaknesses evaluated. A new measure of clustering (ARC score) is proposed which is free of the limitations of previous measures and which is invariant with respect to irrelevant characteristics of recall. [The *Science Citation Index*® (SCI)® and the *Social Sciences Citation Index*® (SSCI)® indicate that this paper has been cited in over 185 publications since 1971.]

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"In the fall of 1969, I enrolled for my first semester of graduate work at Kansas State University. Having expressed an interest in the area of human memory, I enrolled in a seminar entitled 'Organizational Processes in Memory.' The seminar was taught by Chuck Thompson and Sam Brown. At the time, the organization of recall from memory was a critical topic because it was generally believed that the analysis of recall patterns was an effective way to understand the structure and processes of the human memory system. Two particular organizational phenomena had been isolated and were receiving considerable attention in the literature. The first of these was the phenomenon of clustering. If subjects were given a list of words to remember and these words fell into several conceptual categories, then subjects tended to recall the words in categorical groupings, even though not specifically instructed to do so. The second organizational phenomenon was termed subjective organization. In

this case, when subjects were given a list of unrelated words to remember, they tended to recall the words in a specific order which stabilized over successive recall attempts.

"One of the requirements of the course was the preparation and presentation of a paper dealing with some issue or phenomenon in the area of organizational processes. The issue of the measurement of organization struck me as an area which I might be able to handle. A review of the literature showed that the available measures of organization, particularly clustering, had numerous problems. The primary problem that most of the measures suffered from was the fact that it was difficult to compare the amount of clustering under different experimental conditions. As a result, I attempted to develop a measure which was free of this problem as well as several others. An initial measure was proposed to the class which alleviated the problems associated with previous measures. However, it turned out to have a set of unique problems all its own. After much discussion with Chuck and Sam, a second measure (the ARC measure reported in the article) was developed. The following semester was devoted to preparing an article for publication.

"After the article had been submitted, we received word from the journal that another article on the same topic had been received at the same time. The editor requested that we exchange papers and each critique the other's measure. As a result, the article appeared with a companion article by Frankel and Cole¹ in the same issue of the journal.

"As to why the article has been cited so often, I'm not really sure. I would like to think that it is because the measure we proposed was a relatively sensitive measure of the phenomenon. A recent application of the measure may be found in an article by Masson and McDaniel."²

1. Frankel F & Cole M. Measures of category clustering in free recall. *Psychol. Bull.* 76:39-44, 1971.
[The *Social Sciences Citation Index* (SSCI) indicates that this paper has been cited in over 85 publications since 1971.]
2. Masson M E J & McDaniel M A. The role of organizational processes in long-term retention. *J. Exp. Psychol.—Hum. Learn. Mem.* 7:100-10, 1981.