REFINING THE JUDGES’ ASSESSMENTS OF ITEMS IN PAIRED COMPARISON EXPERIMENTS

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Abstract

In the method of paired comparisons, items are compared on the basis of their qualitative characteristics assessed by judges through their sensory evaluations. Judges are offered items in pairs and are asked to pick the better one. The experiment is repeatedly executed to yield preference data based on binary digits – zeros and ones – allotted to the items by the judges. The preferred item is awarded rank one while the loser is assigned zero. As the binary digits fail to furnish the actual comparative worth of items and indistinguishably assign one to the preferred item and zero to the losing one, a methodology is proposed to measure the actual comparative worth of the competing items on a finer scale by assigning some refined rank on a finer scale to each of the two competing items. The assigned ranks are then converted to a refined paired comparison data-set in the form of a preference matrix to be used for ranking the items. For illustration, a real data-set on ice-cream brands is used to rank the brands using the renowned Bradley-Terry model for paired comparisons.

Keywords: Paired Comparisons, Bradley-Terry Model, Refined data-set, Maximum likelihood (ML) estimates, Iterative procedure, Test of Goodness of Fit.


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