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A NEW APPROACH TO REDUCE THE BURDEN OF PAIRWISE-COMPARISON ON THE AHP

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Abstract. The pairwise comparisons in AHP (Analytic Hierarchy Process) are made using a scale list that indicates the importance of one entity over another entity with respect to a given criteria. Moreover, the pairwise comparison matrix represents the intensities of the decision maker's preference between individual pairs of alternatives. The matrix is usually determined from the 1-point to 9-point scale. Various methods for paired comparison method have been proposed, making more intuitive and highly accurate decision making possible. However, the number of pairwise comparisons increases as the number of criteria increases. Therefore, the burden of decision makers would become heavier.

In this paper, we propose an algorithm for the allocation problem of the burden and verify the algorithm by using a programming language called Haskell[1], which is specialized in the functional programming. This research contributes not only to allocation algorithm, but also aids researchers and decision makers in applying the AHPs effectively.

Key words and phrases . Analytic Hierarchy Process (AHP), Combinatorial design method , Pairwise comparison .