Srinivasan and Shocker (1973) proposes a new methodology for analyzing preference judgements of an individual for a given set of stimuli with multidimensional attributes. The individual has a preference judgement in the sense that he has an ideal point, i.e. there is a most preferred location for each attribute, and weights, i.e. the salience of an attribute with respect to other attributes. They assume pre-specified stimuli locations, so they conduct external analysis, where they propose a model to recover the ideal point and weights of attributes in the existence of pairwise comparisons of stimuli. In each pairwise comparison, the individual is assumed to prefer the stimulus that is closer to his ideal point in terms of weighted Euclidean metric. They propose a Linear Programming Model where they minimize “the poorness of fit” over all possible solutions. Their poorness of fit description is the magnitude of violations of pairwise comparisons rather than the number of wrong pairs in the comparison.

Through manipulations of the variables, the problem is converted to a linear programming formulation which can be solved easily with Simplex method. The model is shown to be fully nonmetric and guarantee globally optimal solutions, similar to existing procedures in the literature (Carroll and Chang, 1967). One of the major advantages of the model compared to Carroll-Chang procedure is flexibility: the weights can be nonnegative of left unconstrained, and city block metric can be used. Another strength of the model is that they consider paired comparisons for preference judgement, so some of the data are not lost at the aggregate level. Their model is generalizable: preference data can be ordinal and interval, and it allows orthogonal transformation of the attribute space. They suggest extensions to internal analysis, an alternate criterion of fit (the number of violation) and indifference between some stimuli. The methodology is unbiased and performs well even if 20% of the paired comparisons are incorrect.

The empirical results generated pseudo-randomly indicate that the accuracy of the model increases as the number of stimuli and/or the randomness parameter increases. However, they do require all of the pairwise comparisons, which can be very tedious and tiring for an individual if the number of stimuli and attributes are high, and the individual may be prone to errors in the preferences, i.e. the number of stimuli and randomness parameter may be inversely proportional. Even though the model is robust and yields satisfactory results with 20% error in pairwise comparisons, a real-life study may reveal the tipping point for the number of stimuli. Moreover, the number of attributes may also affect randomness parameter. Also, the accuracy of the estimation set may depend on the construction of the stimuli set. If the stimuli dominate each other, we can overestimate or underestimate some ideal point locations.

There are several issues that can be further investigated in the future studies. For example, what would be the minimum number of pairwise comparisons required in order to get a statistically acceptable estimate? How should we construct our stimuli set so that we can get a good estimate of preference judgement? If the individual has some idea about the salience of the attributes, what would be the best method to construct a consideration set from which we can assess all pairwise comparisons? Some of the methods to inquire might be conjunctive rule, disjunctive rule and elimination by aspect. Additionally, in this research, the preferred stimulus of a pair is the closer one to the ideal point in terms of the weighted Euclidian, this procedure is consistent with alternative-based search. Payne, Bettman and Johnson (1988) show that under certain decision environments (high time pressure), individuals may engage in more attribute based search. As a future study, we can analyze a preference rule with attributed based search. An example would be using the maximizing number of attributes with greater attractiveness to decide pairwise comparisons, i. e. the preferred stimulus of a pair is the one which has the greater number of favorable attributes (stimuli location closer to location in the ideal point).