

AN INTEGRATED FORMULATION FOR SELECTING THE MOST PROBABLE MULTINOMIAL CELL

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Abstract. We refer to the two classical approaches to multinomial selection as the indifference zone approach and the subset selection approach. This paper integrates these two approaches by separating the parameter space into two disjoint subspaces: the preference zone (PZ) and the indifference zone (IZ). In the PZ we insist on selecting the best (most probable) cell for a correct selection (CS_1) but in the IZ we define any selected subset to be correct (CS_2) if it contains the best cell. We then propose a single stage procedure R to achieve the selection goals CS_1 and CS_2 simultaneously with certain probability requirements. It is shown that both the probability of a correct selection under PZ , $P(CS_1|PZ)$, and the probability of a correct selection under IZ , $P(CS_2|IZ)$, satisfy some monotonicity properties and the least favorable configuration in PZ and the worst configuration in IZ can be found by these properties.

Key words and phrases: Indifference zone approach, indifference zone, least favorable configuration, most probable cell, multinomial distribution, subset selection formulation, worst configuration.