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Abstract

When facing several alternatives, people are often assumed to choose the alternative which maximizes their utilities. This concept is widely known as random utility maximization (RUM). In transportation research, one of the most famous modeling techniques based on this idea, e.g. for modeling mode choice, is the multinomial logit (MNL) approach.

Recently there is a growing interest in an alternative modeling approach, random regret minimization (RRM). In RRM, an individual, when choosing between alternatives, is assumed to minimize anticipated regret as opposed to maximize his/her utility. There are three variants of RRM, the classical CRRM, the μ RRM, and the P-RRM. There is also another alternative approach called relative advantage maximization (RAM) turning the idea around and focusing on the gains.

We compare MNL with the four mentioned alternatives. The data used are stated choice data sets collected by the IVT, ETH Zurich which comprise of mode choice, location choice, parking choice, carpooling, car sharing, etc experiments. We compare the performance of those five models by their model fit (Final LL, hit rate, and prediction). We also present a comparison of their VTTS, travel time and cost elasticities.

Keywords

Context-dependent models – Random Regret Minimization – RRM variants – Relative Advantage Maximization