Comparing Human Use of Fast & Frugal Tree with Machine-Learning Tree

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Abstract: Previous studies have shown that the predictive accuracy of fast and frugal decision trees (FFTs) is comparable to decision trees generated by machine-learning (Martignon et al., 2008). FFTs are thought to be useful decision tools that are cognitively plausible to internalise, as opposed to complex machine-learning algorithms. Nonetheless, there seems to be a lack of behavioural studies in the literature to support such a claim. In this between-group experiment, we examined the human use of an FFT versus a C4.5 algorithm tree when completing a car evaluation task. Participants had to learn the rules of their given tree before making evaluations based on their memory. Preliminary results show that FFTs may indeed be easier to use, even when the number of cues for both trees are the same. Interestingly, participants who were successful in using the C4.5 tree exhibited tree pruning strategies, resulting in a heuristic similar to an FFT.