Computer aided discovery of families of valid inequalities

When designing a branch-and-cut method for a specific problem class it is important to know classes of valid inequalities for the problem. We present a computer program that helps the user discovering new families of valid inequalities. It does so by finding simple valid inequalities that are violated by a fractional solution supplied by the user. It is up to the user to generalize these examples further. We will present examples of new families of inequalities for the capacitated vehicle routing problem and the traveling salesman problem with pickup and deliveries found using the program.

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