CIRRELT

Séminaire étudiant du CIRRELT

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A branch-and-cut algorithm for the multi-pickup and delivery problem with time windows

Résumé: In many applications, vehicles must perform several sequential pickups of one or different commodities, and once all pickups are performed, the vehicle must deliver all of them to a given location. This type of problem arises, for example, in companies that allow a client to order food from different restaurants; the company must then perform all pickups at different places, before delivering all meals to the client location. Examples of companies operating under this setting are JUST EAT, Uber eats and Skip The Dishes. These applications impose not only a partial ordering of the visits (all pickups prior to the delivery), but also that all stops associated to a single request must be performed by the same vehicle. It also appears in the collection of cash from parking tolls: an employee leaves the depot with a key that only allows access to the cash of some tolls to be dropped in a given delivery location. In this work we consider a multi-pickup and delivery problem with time windows (MPDPTW), in which a set of requests is satisfied by a fleet of vehicles. We propose three formulations for the problem and design a state-of-the-art branch-and-cut algorithm to solve them. Several families of cuts are also used to tackle this difficult problem.

VENDREDI

29 mars 2019, à 12h30

Salle 1609
Pavillon Palasis-Prince
Université Laval

Pizza et boissons gazeuses fournies

Réservé aux membres du CIRRELT

Inscription obligatoire auprès de Pierre.Marchand@cirrelt.ca avant le 27 mars

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