

## **Simple MIPs and Lot-Sizing: Theory and Computation**

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February 18, 2011

We introduce and relate a simple mixed set, the mixing set, a variety of single-item lot-sizing problems and a common generalization, the network dual MIP. We then present new results for two variants: constant capacity lot-sizing with (lost) sales and discrete lot-sizing on parallel machines, and present tight extended formulations. Finally we present computational results for a couple of multi-item lot-sizing problems based on such tightened formulations.