1 Introduction

$$\max_{x_{ijk}} \sum_{i,j,k} x_{ijk}$$

$$x_{ijk} \geq 0$$

$$\sum_{j} x_{ijk} \leq D_{ik}, \quad \text{for} \quad i = 1, ..., n_i, \quad k = 1, ..., n_k$$

where D_{ik} is the availability of product k in source i.

$$\sum_{i} x_{ijk} = p_{jm} \sum_{i,k} x_{ijk} \quad \text{for} \quad j = 1, ..., n_j \quad m = 1, ..., n_k - 1$$

where p_{jm} is the percentage of product k imposed on source j. Note that $m = 1, ..., n_k - 1$ and not $m = 1, ..., n_k$ because the for each sink the sum of all percentages should be equal to 1, therefore once we guarantee or restrict $n_k - 1$ compositions at sink j the $n_k - th$ composition is a linear combination of the remaining ones.