

Math 408 — LP Modeling

Solution to the Bankruptcy Problem

The Decision Variables

AE= Transfer from Albert to Edward
AC= Transfer from Albert to Charles
BA= Transfer from Bill to Albert
CB= Transfer from Charles to Bill
CD= Transfer from Charles to David
DA= Transfer from David to Albert
EC= Transfer from Edward to Charles
ED= Transfer from Edward to David

The Objective Function

$\max BA$

The Constraints

Albert Transfers: $BA+DA=AC+AE$
Bill Transfers: $BA=CB$
Charles Transfers: $AC+EC=CB+CD$
David Transfers: $CD+ED=DA$
Edward Transfers: $AE=EC+ED$

Bounds

$$\begin{aligned}0 &\leq BA \leq 5 \\0 &\leq AC \leq 3 \\0 &\leq AE \leq 10 \\0 &\leq CB \leq 6 \\0 &\leq CD \leq 4 \\0 &\leq DA \leq 4 \\0 &\leq EC \leq 7 \\0 &\leq ED \leq 3\end{aligned}$$